Why We Work: Exploring the Relationships Between Work Rewards, Burnout, and Intention to Leave for Professional Nurses

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Marquette University

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WHY WE WORK: EXPLORING THE RELATIONSHIPS BETWEEN WORK REWARDS, BURNOUT, AND INTENTION TO LEAVE FOR PROFESSIONAL NURSES

by

Jacqueline Christianson, MSN, RN, FNP-C

A Dissertation submitted to the Faculty of the Graduate School, Marquette University, in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy

Milwaukee, Wisconsin

August 2023
ABSTRACT
WHY WE WORK: EXPLORING THE RELATIONSHIPS BETWEEN WORK REWARDS, BURNOUT, AND INTENTION TO LEAVE FOR PROFESSIONAL NURSES

Jacqueline Christianson, MSN, FNP-C
Marquette University, 2023

Nurse burnout leads to attrition from hospital nursing positions and the nursing profession prior to typical retirement age. Yet some nurses choose to stay despite burnout. Previous research indicates that nurses stay due to the rewards they receive from work but the relationships between different types of work rewards, work-related burnout, and intention to leave are poorly described. The ability to implement or execute altruistic behaviors may also represent an under-recognized work reward. Thus, the purpose of this study is to investigate the relationships between work rewards, work-related burnout, and intention to leave nursing positions and the nursing profession and to explore the potential role of altruism execution as a work reward.

This correlational cross-sectional study included 843 United States hospital nurses. Greater years in the nursing profession was correlated with lower work-related burnout (β=-0.167, p<0.001). Higher adjusted patient ratio had a significant relationship with poorer perceived working conditions (β=-0.461, p=0.001) and opportunities for collegiality and growth (β=-0.551, p<0.001). Improved managerial relationships (β=-0.197, p<0.001), perceived working conditions (β=-0.238, p<0.001), and global job satisfaction (β=-0.204, p<0.001) were correlated with lower work-related burnout. Greater work-related burnout was correlated with increased intention to leave the current position (β=0.007 p<0.001) and the nursing profession (β=0.136, p<0.001). Higher pay satisfaction was correlated with greater intention to leave the profession (β=-0.333, p=0.037).

A two-factor solution explained 57.7% of variance in altruism execution item responses and were named ‘altruistic engagement with work’ and ‘workplace barriers to altruism.’ Greater years in the profession (β=-0.006, p=0.037) correlated with greater altruistic engagement with work. Higher adjusted patient ratio (β=-0.008, p=0.048) and fewer years in the profession (β=0.010, p<0.001) were correlated with greater workplace barriers to altruism. Greater altruistic engagement with work (β=-8.942, p<0.001) and workplace barriers to altruism (β=-16.386, p<0.001) was correlated with greater work-related burnout.

Execution of altruism may be an underrecognized reward that nurses achieve through work that is pertinent to work-related burnout. Pay satisfaction is one aspect of a holistic decision-making process to leave the profession. Combinations of reward mechanisms may be necessary to effectively improve nurse retention.
ACKNOWLEDGEMENTS

Jacqueline Christianson, MSN, FNP-C

The late Rev. Reginald Niebuhr, an industrial era advocate who wrote about the issues of burnout and work rewards, wrote “Nothing we do, however virtuous, can be accomplished alone; therefore we are saved by love.” This dissertation would have been an impossible task alone; I have been blessed with an unrelenting outpouring of support that made this dissertation possible. I am grateful and honored to be able to share this accomplishment with all those who have supported and encouraged me along the way, and with any nurses who have also experienced the issues described in this dissertation.

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# TABLE OF CONTENTS

ACKNOWLEDGEMENTS........................................................................................................... i

LIST OF TABLES ....................................................................................................................... viii

LIST OF FIGURES ..................................................................................................................... x

I: INTRODUCTION ...................................................................................................................... 1

   Introduction .......................................................................................................................... 1

   Background of the Problem ............................................................................................... 1

   Statement of the Problem .................................................................................................... 11

   Purpose of the Study ............................................................................................................ 12

   Aims and Research Questions ........................................................................................... 12

   Significance of the Study ..................................................................................................... 13

   Definitions of Terms .......................................................................................................... 14

   Assumptions, Limitations, and Delimitations ..................................................................... 17

   Conclusion .......................................................................................................................... 18

II: REVIEW OF LITERATURE ..................................................................................................... 20

   Introduction .......................................................................................................................... 20

   Search Descriptions ............................................................................................................ 20

   Conceptual or Theoretical Framework .............................................................................. 22

   *Job Demands-Resources Model* ...................................................................................... 22
<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maslow’s Hierarchy of Needs</td>
<td>31</td>
</tr>
<tr>
<td>Measurement Theory</td>
<td>37</td>
</tr>
<tr>
<td>Pragmatist Philosophy and Inquiry Through Literature Review</td>
<td>40</td>
</tr>
<tr>
<td>Review of Literature</td>
<td>41</td>
</tr>
<tr>
<td>Work-Related Burnout and Work Environment</td>
<td>41</td>
</tr>
<tr>
<td>Work-Related Burnout and Work Environment – Review of Reviews</td>
<td>48</td>
</tr>
<tr>
<td>Embedded Manuscript #1: Execution of Altruistic Behavior as a Reward</td>
<td>59</td>
</tr>
<tr>
<td>Conclusion</td>
<td>76</td>
</tr>
<tr>
<td>III: METHODOLOGY</td>
<td>77</td>
</tr>
<tr>
<td>Introduction</td>
<td>77</td>
</tr>
<tr>
<td>Research Design</td>
<td>77</td>
</tr>
<tr>
<td>Aims/Research Questions and Hypotheses</td>
<td>77</td>
</tr>
<tr>
<td>Population and Sample</td>
<td>80</td>
</tr>
<tr>
<td>Inclusion and Exclusion Criteria</td>
<td>80</td>
</tr>
<tr>
<td>Setting and Recruitment</td>
<td>80</td>
</tr>
<tr>
<td>Data Integrity</td>
<td>83</td>
</tr>
<tr>
<td>Pilot</td>
<td>83</td>
</tr>
<tr>
<td>Study</td>
<td>84</td>
</tr>
</tbody>
</table>
Instrumentation ........................................................................................................ 84

Demographic Data ................................................................................................... 84

Intrinsic Work Rewards ............................................................................................ 86

Work-Related Burnout ............................................................................................... 89

Intention to Leave the Current Position and Profession ........................................... 93

Execution of Altruism ............................................................................................... 93

Data Collection ......................................................................................................... 96

Data Analyses ............................................................................................................ 97

Research Questions #1-3 .......................................................................................... 98

Research Question #4 ............................................................................................... 100

Conclusion .................................................................................................................. 101

IV: RESULTS .............................................................................................................. 102

Findings ...................................................................................................................... 103

Pilot .............................................................................................................................. 103

Demographics ........................................................................................................... 106

Research Question #1 .............................................................................................. 112

Embedded Manuscript #2: Why We Quit: The Relationships Between Work-
Related Burnout, Work Rewards, and Intention to Leave in Nursing ...................... 120

Research Question #4 .............................................................................................. 132
V: CONCLUSIONS, DISCUSSION & FUTURE RESEARCH

CONSIDERATIONS ........................................................................................................ 149

Introduction .................................................................................................................. 149

Summary of Findings .................................................................................................... 149

Research Question #1 ............................................................................................... 149

Research Questions #2 & 3 ....................................................................................... 150

Research Question #4 ............................................................................................... 150

Discussion .................................................................................................................... 152

Limitations .................................................................................................................... 158

Suggestions for Future Research ................................................................................. 159

Conclusion ..................................................................................................................... 161

BIBLIOGRAPHY ............................................................................................................ 162

APPENDICES .............................................................................................................. 185

Appendix A: Copenhagen Burnout Inventory Work-Related Burnout Scale ........ 185

Appendix B: Satisfaction of Employees in Health Care Survey ..................... 186

Appendix C: Execution of Altruism Questions .................................................... 188

Appendix D: Extrinsic Work Rewards and Intention to Leave Questions ...... 189

Appendix E: Demographic Data ............................................................................... 191

Appendix F: Survey Landing Page .......................................................................... 193
Appendix G: Recruitment Materials ................................................................. 194

Appendix H: Joanna Briggs Institute Critical Appraisal Checklists for Qualitative Research ................................................................. 195
LIST OF TABLES

Table 1. Evidence Table – Copenhagen Burnout Inventory Work-Related Burnout and Work Environment, Work Duties .................................................................................................................................44

Table 2. Evidence Table – Systematic Reviews and Meta-Analyses of Burnout and Work Environment, and Work Duties ..................................................................................................................50

Table 3. Evidence Table – Altruism as a Reward or Motivation for Professional Nurses ........................................................................................................................................................................63

Table 4. Practice Area Patient Ratio Adjustment Table ........................................................................................................................................................................................................................98

Table 5. Pilot Inter-Item Correlation of Altruism Execution Items ........................................................................................................................................................................................................105

Table 6. Pilot Inter-Item Covariance of Altruism Execution Items ........................................................................................................................................................................................................106

Table 7. Demographic Characteristics of Participants ..........................................................................................................................................................................................................................108

Table 8. Rotated Component Matrix of Item Loads for Satisfaction of Employees in Health Care Survey Analysis ................................................................................................................................................................................................111

Table 9. Research Question #1 Regression Equations Between Independent Job Demands and Dependent Intrinsic Work Rewards ................................................................................................................................................................................................115

Table 10. Research Question #1 Regression Equations Between Job Demands and Work-Related Burnout ................................................................................................................................................................................................117

Table 11. Research Question #1 Regression Equations Between Intrinsic Work Rewards and Dependent Work-Related Burnout ................................................................................................................................................................................................118

Table 12. Regression Equations for Intention to Leave, Work-Related Burnout, Access to Extrinsic Work Rewards ................................................................................................................................................................................................128

Table 13. Inter-Item Correlations of All Altruism Execution Items ..................................................................................................................................................................................................................132

Table 14. Rotated Component Matrix of All Altruism Execution Items ...............................................................................................................................................................................................................134

Table 15. Rotated Component Matrix of Nine Altruism Execution Items ........................................................................................................................................................................................................136

Table 16. Pearson’s Correlation Coefficients of Altruistic Execution Factors and Job Demands, Intrinsic Work Rewards, Work-Related Burnout ................................................................................................................................................................................................140

Table 17. Spearman’s Rho of Altruistic Execution Factors and Job Demands, Intrinsic Work Rewards, Work-Related Burnout ................................................................................................................................................................................................142
Table 18. Regression Equations Between Independent Job Demands and Dependent Altruistic Execution Factors..............................................................................................................144

Table 19. Regression Equations Between Mediator Altruistic Execution Factors and Dependent Work-Related Burnout.............................................................................................................146

Table 20. Regression Equations Between Independent Job Demands, Intrinsic Work Rewards, Altruistic Execution, and Dependent Work-Related Burnout.................................148
LIST OF FIGURES

Figure 1. Cycle of Chronic Understaffing, Work-Related Burnout, and Intention to Leave..................................................................................................................................................8

Figure 2. Intention to Leave the Current Position and Profession..........................................................10

Figure 3. The Relationship Between Job Demands, Job Resources, Intrinsic Work Rewards, and Work-Related Burnout.........................................................................................................................28

Figure 4. The Relationship Between Work-Related Burnout, Extrinsic Work Rewards, and Intention to Leave................................................................................................................................................30

Figure 5. Theoretical Substruction Diagram.................................................................................................30

Figure 6. Maslow’s Hierarchy of Needs............................................................................................................32

Figure 7. Modified Job Demands-Resources Model..........................................................................................37

Figure 8. Classical Test Theory..........................................................................................................................38

Figure 9. Literature Search Diagram: Copenhagen Burnout Inventory, Work Environment, Work Duties..........................................................................................................................42

Figure 10. Literature Search Diagram: Systematic Review or Meta-Analysis on Burnout, Work Environment, Work Duties...........................................................................................................49

Figure 11. Literature Search Diagram: Altruism as a Motivator or Reward for Professional Nursing Work.............................................................................................................................62

Figure 12. Modified Job Demands-Resources Model......................................................................................78

Figure 13. Research Question #1 Diagram......................................................................................................78

Figure 14. Research Question #2 and #3 Diagram..........................................................................................79

Figure 15. Participant Geography by State......................................................................................................110

Figure 16. Research Question #1: Hypothesized Variable Relationships.............................................................113

Figure 17. Research Question #1: Post-Analysis Relationships Diagram............................................................119

Figure 18. Research Questions #2 & #3: Hypothesized Relationships Diagram....................................................123

Figure 19. Research Question #3: Post-Analysis Relationships Diagram............................................................129

Figure 20. Scree Plot of All Altruism Execution Items......................................................................................133
Figure 21. Component Plot of All Altruism Execution Items.................................135

Figure 22. Scree Plot of Nine Altruism Execution Items.............................................136

Figure 23. Component Plot of Nine Altruism Execution Items.....................................137

Figure 24. Research Question #4: Hypothesized Variable Relationships.....................139

Figure 25. Research Question #4: Post-Analysis Relationships Diagram.....................147
I: INTRODUCTION

Introduction

Nurses are essential for effective and safe healthcare delivery in the hospital setting, however the United States nursing workforce faces a labor shortage (American Association of Colleges of Nursing, 2020). Care rationing and incomplete patient care due to nursing shortages and failure to retain experienced nurses have remained a long-standing problem for nursing care delivery (Papastavrou, Andreou, & Efstathiou, 2014; Tubbs-Cooley et al., 2019).

Over a million new nurses will need to enter the United States workforce between 2019 and 2029 to meet the health needs of an aging population, replace nurses who plan to retire, and to compensate for premature nurse attrition from the workforce (American Association of Colleges of Nursing, 2020). Burnout-related attrition from the nursing profession is also a significant contributor to this problem, particularly among new nurses needed to replace an aging nursing workforce (Capper et al., 2020). Yet not all nurses with work-related burnout choose to leave their positions or the profession (Blanco-Donoso et al., 2021; Christianson, Johnson, et al., 2022). The purpose of this study is to investigate the relationships between job demands, work rewards, work-related burnout, and intention to leave nursing positions and the nursing profession.

Background of the Problem

Healthcare institutions currently face financial and regulatory pressure to improve four areas, referred to as the Quadruple Aims of Healthcare: improving patient experience, improving population health, minimizing costs of healthcare delivery, and providing healthy workplaces for healthcare workers (Arnetz et al., 2020; Bodenheimer
The Quadruple Aims of Healthcare are intended to represent a balanced approach to promoting positive health outcomes while simultaneously managing issues around sustainability, resource availability, and equitable healthcare access (Valaitis et al., 2020). All four areas of the Quadruple Aims of Healthcare are interrelated. For example, healthcare workers who work in environments with manageable workloads are more likely to provide high-quality patient care, which improves population health outcomes, patient experience, and reduces costs (Aiken et al., 2011; Halm, 2019).

Nursing care is the backbone of hospital-based healthcare. While physician and advanced practice provider visits can take place in a variety of places such as clinics, virtually, in-home, or within the hospital, the primary reason for delivering healthcare in a hospital setting is a patient’s specific need for highly accessible nursing care. Approximately 1.8 million nurses (RNs) work in hospital-based settings, representing 30% of all hospital jobs in the US (Bureau of Labor Statistics, 2019). Hospital settings are the largest employers of RNs; approximately 31% of all RNs work in the hospital setting (Bureau of Labor Statistics, 2022d).

The nursing labor shortage is expected to worsen in the coming decade; the United States nursing workforce is estimated to need to increase by 221,900 (7%) between 2019 and 2029 due to the health needs of an aging population, plus an additional 175,900 projected RN job openings per year due to nurse attrition from the workforce (American Association of Colleges of Nursing, 2020). While retirement from clinical practice represents reason nurses are leaving the workforce, burnout-related attrition from the nursing profession is also a contributor to this problem (Christianson, Johnson, et al., 2022; Lavoie-Tremblay et al., 2022; Moloney et al., 2018).
Missed nursing care is an indirect form of care rationing that commonly occurs due to staffing shortages, such as the chronic understaffing routinely experienced by acute care hospitals (Bragadottir et al., 2017; Papastavrou, Andreou, & Efstathiou, 2014; Tubbs-Cooley et al., 2019). In addition to the impact on patient care delivery and population health, nursing care rationing negatively impacts patient satisfaction with their healthcare and nursing satisfaction with their workplaces (Mandal et al., 2020; Papastavrou, Andreou, Tsangari, et al., 2014).

**Work Dissatisfaction and Intrinsic Work Rewards.** Work dissatisfaction is a broad term describing generalized discontent with one’s work environment. There are numerous causes for work dissatisfaction, including perceived underappreciation in one’s role, managerial conflicts such as perceived lack of support, scheduling conflicts, and dissatisfaction with work rewards like compensation (Halcomb et al., 2018; Khan et al., 2019; W. Liu et al., 2018; Valizadeh et al., 2018). Work dissatisfaction is correlated with both work-related burnout and intention to leave the profession (Bae, 2020).

Nurses have a professional obligation to prioritize the needs of patients within the context of professional work, sometimes referred to as duty of care. However, a nurse’s duty of care is a balance between professional obligations within the context of effort-reward balance for labor and with regards to the resources available in the workplace, and is therefore situational to the work environment (Cox, 2020; Reid, 2005; Sokol, 2006; Terry et al., 2017; Tomlinson, 2008). Much of the duty of care agreement between nurses and healthcare facilities is based in a mutually understood social contract that is not explicitly codified but nonetheless exists (Jamil et al., 2013; Tomlinson, 2008). Nurses typically expect their employers to provide adequate resources to complete the
professional work, compensation that is commensurate with their efforts and professional skills, and in return employers expect work to be completed (Tomlinson, 2008). However, ambiguity around roles or responsibilities, disconnected expectations between nurses, their employers, and patients, or changes to the healthcare environment can alter the duty of care balance and disrupt duty of care expectations. Conflict can occur when there is a disconnect between perceived duty of care obligations and a workplace that makes accomplishing those perceived obligations difficult or impossible (Christianson, Johnson, et al., 2022).

Fulfilling one’s perceived duty can be understood as one type of intrinsic work reward. Intrinsic work rewards are rewards one attains through work that are not dispensed by the employer to the employee, but nonetheless provide workers with motivation to continue working (Frey, 1997). Other examples of intrinsic work rewards include camaraderie with one’s colleagues, personal connections with leadership or managers and perceived professional accomplishments (Alpern et al., 2013; Khanjarian & Sadat-Hoseini, 2021). While intrinsic work rewards can be difficult to quantify, the concept of intrinsic work rewards is embedded in other nursing concepts such as compassion satisfaction, moral distress, work-related burnout, and work-related well-being (Edward, Hercelinskyj, et al., 2017; Liu, Zheng, et al., 2018; Santos et al., 2017; Schaefer et al., 2016).

Altruism is defined as the desire to help others or behave in a way for the benefit of others; it is a common motivation for prospective nurses to enter and remain in the nursing profession (Chenoweth et al., 2014; Huicho et al., 2015). While many people with altruistic intentions do so because they have empathy for the suffering of others,
altruism is distinct from empathy (Fisher & Kalbaugh, 2012). Altruism describes the behavior itself, where empathy describes the feelings that may motivate the behavior. Where empathy is an appreciation or cognitive understanding for the experience of others, altruism is the action or desire to modify one’s own behavior to improve the experience of others (Fisher & Kalbaugh, 2012; Hojat et al., 2018). The distinction between empathy and altruism can be important in healthcare because medical interventions can often be painful or challenging for patients to tolerate. For example, where empathy alone can cause clinicians distress when a patient is subjected to medical interventions that cause suffering, altruism can help clinicians mediate the distress by rationalizing the goal of ultimately improving the patient’s condition (Fisher & Kalbaugh, 2012).

Historically, altruism has been a value that reflects the nursing duty of care (van der Wath & van Wyk, 2020). The work of pioneers of modern Western nursing like Nightingale distinguished nursing as a patient-centered profession, embedding altruism into the ethos of modern nursing (Kenny et al., 2021). Altruistic intention and behaviors are both attributes of the ethos of nursing and are codified in many codes of ethics. Therefore, altruistic behavior is one attribute of a nurse’s duty of care (Christianson, Johnson, et al., 2022). Three of the nine provisions within the Code of Ethics for Nurses with Interpretive Statements (American Nurses Association, 2015), for example, describe patients, their well-being, and delivery of quality healthcare as the primary nursing commitments.

The desire to behave altruistically toward others remains a common reason to enter or remain in the nursing profession. Nursing students frequently report a desire to
find meaning in their work through helping others as a primary motivation for pursuing nursing (Huicho et al., 2015; Lindberg et al., 2020; Macdiarmid et al., 2021; Messineo et al., 2021). Professional nurses describe a personal and ongoing connection to the profession through their desire to behave altruistically toward the vulnerable as well as personal rewards for altruistic behavior in the workplace (Khanjarian & Sadat-Hoseini, 2021; Mojarad et al., 2019). Likewise, an inability to behave altruistically can be a source of discord for nurses when personal desire for and professional compulsion toward altruism is difficult or impossible (Bennett et al., 2020; Epstein et al., 2020). The execution of altruistic behaviors can therefore be conceptualized as an intrinsic work reward for professional nurses.

This dissertation is based on a pragmatist philosophic approach to altruism. With this approach, actions taken to help or otherwise benefit others will be considered altruism regardless of motivations for those actions. The primary goal is to investigate the effects of altruistic behavior and the desire to perform altruism in nursing. Therefore, altruistic behavior in exchange for personal benefits are not discerned from so-called ‘pure altruism’ because the motivation of the altruist is not necessarily relevant to the behavior or desire to perform altruistic behaviors.

**Work-Related Burnout.** Work-related burnout is defined as a syndrome of exhaustion, cynicism regarding the workplace, and diminished accomplishments in the workplace (Kristensen et al., 2005; Maslach & Jackson, 1981). Burnout is a widespread problem in nursing however prevalence in US hospital nurses varies wildly in different studies despite use of similar burnout measurement tools. A 2018 survey found 80% of hospital nurses experienced burnout (Bakhamis et al., 2019). Nurse burnout is strongly
associated with a poor work environment, such as inadequate staffing, poor decision-making authority, high-stress work environments, long shift durations, poor access to reprieves like meal breaks, moral distress, and mandated or coerced overtime (Dall'Ora et al., 2020; Dall'Ora et al., 2015; Eder & Meyer, 2022; Halm, 2019; Rabenu & Aharoni-Goldenberg, 2017; Shah et al., 2021). High nurse burnout and poor work environments are associated with poorer nurse assessments of care quality and negative patient outcomes such as hospital-acquired pressure injuries, surgical site infections, catheter-associated, and increased 30-day patient mortality (Aiken et al., 2011; Halm, 2019).

**Intention to Leave the Current Position and Profession.** Burnout and work-related stress are predictors of nurse intention to leave both their current positions and the profession (Butler & Johnson, 2020; Christianson, Johnson, et al., 2022; Dall'Ora et al., 2020; Heinen et al., 2013; İşsever & Bektas, 2021; Jiang et al., 2017; Schwarzkopf et al., 2017). A 2018 study found that 31.5% of nurses who left their current position that year did so because of burnout, and 43.4% of nurses who considered leaving their current position identified burnout as the reason (Shah et al., 2021). Intention to leave the current position is a distinct concept from intention to leave the profession, however the two concepts share many antecedents. Work-related burnout, high stress, poor job satisfaction, and poor working conditions are associated with both intention to leave both the current position and profession (H. F. Lee et al., 2019; Sasso et al., 2019).

Intention to leave the profession is increasingly common; prevalence of intention to leave the nursing profession is estimated at 5-20% (Christianson, Johnson, et al., 2022; Cortese, 2013; Heinen et al., 2013). Intention to leave the profession is thought to disproportionately affect the newest and the most senior nurses; up to 57% of new nurses
report intention to leave the profession within the first two years of practice, and up to 85% of nurses retire before the age of 65 (Hewko et al., 2019; Sandler, 2018). Nursing is a highly experiential profession; many newly graduated nurses are not ready for independent practice (Edward, Ousey, et al., 2017; Kavanagh & Sharpnack, 2021; Labrague & Santos, 2020). Therefore, retaining experienced nurses to mentor newer nurses is vital to ensure their smooth transition from student to nurse. Prior research has affirmed that adequate mentorship is essential to retention of new nurses, however mentorship requires an adequate supply of experienced staff who can fill that role (Aparício & Nicholson, 2020; Labrague et al., 2019; Labrague & Santos, 2020).

Intention to leave the profession compounds the nursing shortage (Sasso et al., 2019). Intention to leave the profession creates a cycle in which the nursing workforce is prematurely drained, which contributes to chronic staffing shortages, which in turn contribute to work-related burnout, fueling intentions to leave the profession (Phillips, 2020). Preservation of the nursing workforce is critical to maintain a functional healthcare system; it is therefore essential to break the cycle of work-related burnout, intention to leave the profession, and ongoing chronic staffing shortages.

**Figure 1**
Cycle of Chronic Understaffing, Work-Related Burnout, and Intention to Leave
Finally, premature intention to leave the profession has a negative impact on the cost containment arm of the Quadruple Aims of Healthcare because premature turnover increases the costs associated with healthcare staffing (Bodenheimer & Sinsky, 2014). In 2019, the average RN position took almost three months to fill and cost over $82,000 per position (Shaffer & Curtin, 2020). Burnout mitigation programs have potential to mitigate costs associated with nursing turnover (Muir et al., 2022). One study indicated potential annual savings of up to $1.8 million per hospital due to burnout reduction achieved by implementing a volunteer peer support group (Moran et al., 2020). However, evidence suggests burnout is nonetheless worsening among acute care hospital nurses, which may contribute to escalations in healthcare costs (Bakhamis et al., 2019).

**Link Between Intention to Leave the Current Position and Profession.** Nurse turnover can be conceptualized as an chain of decisions made by an individual to cope with poor fulfillment of intrinsic work rewards (Halcomb et al., 2018). Intention to leave the current position can transition to intention to leave the profession as an escalation in action to resolve the failure to achieve intrinsic work rewards. When an individual experiences poor fulfillment of intrinsic work rewards, the individual may decide to leave one position for another position within their profession to address the dissatisfaction (Halcomb et al., 2018; J. H. Lee et al., 2019). If the dissatisfaction is not resolved with changing positions or if the lack of fulfillment is perceived to be similar between available positions, the decision to leave the profession as a whole can follow (Flinkman et al., 2010; Shariffifard et al., 2019; Valizadeh et al., 2018). This relationship is depicted...
in figure 2.

**Figure 2**
Intention to Leave the Current Position and Profession

Notes: A diagram of the relationship between intention to leave the current position and profession.

Sheehan et al. (2019) explained this escalation through the experience of investing oneself into the nursing profession and perceiving a disconnection between personal investment in nursing work and the perceived investment in nursing staff by healthcare institutions. This disconnect can lead to work dissatisfaction and in turn to intention to leave the current position (Khan et al., 2019). However, nurses sometimes note that the decision to leave one healthcare setting for another does not necessarily provide a solution for disconnections between reward motivations and rewards achieved. Thus, intention to leave the current position can be understood as a prodrome to intention to leave the profession if the work dissatisfaction remains unimproved (Sheehan et al., 2019). While not all nurses go through each sequential step described above, the continuum explains the relationship between intention to leave the current position and the profession as an escalation due to failure to solve the problem of work dissatisfaction (Halcomb et al., 2018).

**Extrinsic Work Rewards.** Extrinsic work rewards refer to the recompense a worker obtains for their work. Extrinsic work rewards are distributed from employer to employee
and are typically tangible in nature. Examples of extrinsic work rewards include wages or salary, benefits like health or life insurance, and bonuses (Frey, 1997). Prior research indicates that extrinsic work rewards may moderate the relationship between work-related burnout and intention to leave (Christianson, Johnson, et al., 2022; Greenleaf Brown, 2018).

**Statement of the Problem**

Work-related burnout threatens the goals of the Quadruple Aims of Healthcare since it is linked with nurse intention to leave both their current position and the profession prematurely (Arnetz et al., 2020; Sasso et al., 2019). Intrinsic work rewards, such as altruistic behavior in the workplace, may influence nurse decisions to remain in or leave the profession (Eder & Meyer, 2022; Khanjarri & Sadat-Hoseini, 2021). The goal of this study is to examine the following question: What is the relationship between nurse work-related burnout, intrinsic and extrinsic motivations for work, intention to leave the current position, and intention to leave the profession?

**Limitations of Current State of the Science.** The present study is framed by the Job Demands-Resource (JDR) model (Demerouti et al., 2001), discussed in detail in chapter two. The JDR conceptualizes work-related burnout in nursing, but the role of intrinsic and extrinsic work rewards has not been examined in the context of the JDR. Altruism is well-recognized as a primary motivator for both prospective and current professional nurses, and the desire to perform altruistically can be a source of frustration for nurses if the work environment makes altruism difficult to impossible to achieve (Christianson, Johnson, et al., 2022; Sasso et al., 2019). The role of altruism as a reward mechanism for professional work by acute care hospital nurses is underrecognized and is
not presently quantifiable. An improved understanding of the role of intrinsic and extrinsic work rewards, and a preliminary quantitative measure for executed altruism as a reward mechanism for professional work, may improve our understanding of work-related burnout and decision-making around staying in or leaving the nursing profession for acute care hospital nurses.

**Purpose of the Study**

Nurse work-related burnout is prevalent and is correlated with nurse intention to leave both their positions and the profession (Dall'Ora et al., 2022; Kim & Kim, 2021). Not all nurses who experience work-related burnout choose to leave, however the reasons nurses choose to leave, or stay are poorly defined. The purpose of this study is to investigate the relationships between job demands, work rewards, work-related burnout, and intention to leave nursing positions and the nursing profession.

**Aims and Research Questions**

There are four research questions in the study to describe: the relationship between nurse work-related burnout, intrinsic and extrinsic motivations for work, intention to leave their position, and intention to leave the profession. The questions are:

1. Do intrinsic work rewards mediate the relationship between job demands and work-related burnout?
   a. \( H_0: \) Intrinsic work rewards do mediate the relationship between job demands and work-related burnout.
   b. \( H_0: \) Intrinsic work rewards do not mediate the relationship between job demands and work-related burnout.
2. Do extrinsic work rewards moderate the relationship between work-related burnout and intention to leave the current position?
   a. H$_{A}$: Extrinsic work rewards do moderate the relationship between work-related burnout and intention to leave the current position.
   b. H$_{0}$: Extrinsic work rewards do not moderate the relationship between work-related burnout and intention to leave the current position.

3. Do extrinsic work rewards moderate the relationship between work-related burnout and intention to leave the profession?
   a. H$_{A}$: Extrinsic work rewards do moderate the relationship between work-related burnout and intention to leave the profession.
   b. H$_{0}$: Extrinsic work rewards do not moderate the relationship between work-related burnout and intention to leave the profession.

4. What is the relationship between execution of altruistic behavior and intrinsic work rewards?

**Significance of the Study**

The Quadruple Aims of Healthcare are at the forefront of changes to the healthcare landscape; however, all four objectives of the Quadruple Aims are at risk if safe staffing is not achievable due to nursing labor shortages (Bragadottir et al., 2017; Harvey et al., 2020). Work-related burnout can drive excessive turnover, however not all nurses who are burned out choose to leave the profession; rewards associated with professional work are one reason nurses who experience work-related burnout may choose to nonetheless stay in the profession (Christianson, Johnson, et al., 2022). Extrinsic rewards for work are tangible, such as wages or benefits, however their
relationship as a moderator of the relationship between work-related burnout and intention to leave is poorly defined. The effect of intrinsic work rewards on the relationship between job demands and work-related burnout is similarly poorly defined. Some intrinsic work rewards, such as execution of altruism in the workplace, are not quantifiable in the current state of the science. This study will examine the role of intrinsic work rewards as a potential mediator of the relationship between job demands and work-related burnout, the role of extrinsic work rewards as a potential moderator of the relationship between work-related burnout and intention to leave and improve understanding of the role of altruism as an intrinsic reward for professional nursing. An improved understanding of the role of intrinsic and extrinsic work rewards in relation to work-related burnout and intention to leave may inform future efforts to better retain professional nurses who work in the acute care hospital setting.

**Definitions of Terms**

The following italicized words will be used as technical terms in this dissertation, as defined below:

*Job Demands* are defined as a challenge or issue that needs to be solved within the workplace or has created a barrier to performing work. Examples of job demands can include meeting patient needs, providing staff coverage for certain hours, or the types of job duties one is assigned (e.g. patient care, managerial tasks, etc.). Job demands can be categorized dichotomously as challenges or hinderances (Lepine et al., 2005).

*Job Challenges* are defined as job demands that can be modified or overcome by the prowess or skills of the professional (Meng et al., 2022). The key aspect of this definition is that the professional’s abilities can enable them to meet the need presented.
Examples of job challenges include high workload, managing time-sensitive tasks, and having a high level of responsibility for one’s work (Lepine et al., 2005).

*Job Hinderances* are a subset of job demands that are not modifiable by one’s professional skills (Lepine et al., 2005). Some examples of job hinderances include bullying in the workplace, excessive job formalities that do not impact completion of job tasks, and job role ambiguity (Meng et al., 2022).

*Job Resources* are factors that facilitate the professional in solving or managing workplace problems (Van den Broeck et al., 2010). Examples of job resources can include adequate staffing, availability of materials or tools required to complete the work, or written job descriptions and policies (Bakker & Demerouti, 2007).

*Intrinsic Work Rewards* refer to a benefit that workers obtain for their work that provides them with an internal or psychological improvement (Frey, 1997). Examples of intrinsic work rewards can include camaraderie with one’s colleagues, a sense of pride in one’s workplace accomplishments or productivity, satisfaction over the benefit one is able to give unto others, and a sense of connection with the leadership or mission of their work organization (Alpern et al., 2013; Khanjaran & Sadat-Hoseini, 2021).

*Altruism Execution* or *Execution of Altruism* refers specifically to the effecting of altruism, not to the desire to behave altruistically. This term indicates a concept that is concerned with the exercise of altruism as a practical implementation of behavior, and thus the ability to perform altruistic behaviors (Fisher & Kalbaugh, 2012).

*Extrinsic Work Rewards* refer to tangible benefits that workers obtain from employers in exchange for their labor (Frey, 1997). Extrinsic work rewards are frequently negotiated between worker and employer prior to commencement of the work, such as
salary or wages, benefits like health or life insurance, or compensated time off (L’vin, 1999).

*Work-Related Burnout* is a syndrome of exhaustion, cynicism, and depersonalization with regards to one’s workplace (Kristensen et al., 2005; Maslach & Jackson, 1981).

*Intention to Leave* is defined as a self-reported plan to exit the workforce. In this dissertation, I will focus upon two subtypes of intention to leave. *Intention to Leave the Current Position* refers to a self-reported plan to leave a specific position, but not necessarily to cease work in the profession entirely. Intention to leave the position encompasses the intention to leave one specific position for another position at another organization, intention to leave a position with one title for a different title in the same organization, and intention to leave a position without necessarily planning for a specific different position but with intention to ultimately remain in professional nursing practice (Halcomb et al., 2018; Sharififard et al., 2019). *Intention to Leave the Profession* is defined as a self-reported plan to exit the workforce and to cease work in the profession in question. Intention to leave the profession in the context of nursing includes nurses who choose to leave and seek another career in a different field and nurses who are leaving the profession for retirement from the workforce. Intention to leave the profession inherently implies intention to leave the current position, however intention to leave the position does not necessarily imply intention to leave the profession (Flinkman et al., 2010; Sharififard et al., 2019).
Assumptions, Limitations, and Delimitations

This study is based upon the theoretical framework of the JDR, Maslow’s Hierarchy of Needs, and classical test theory in their respective current theoretical iterations. These frameworks and their relative limitations will be discussed in greater detail in chapter two; however, this study is limited to the validity and applicability of these models as they are currently understood.

Each measurement instrument is limited in scope. The selected measures for intrinsic work rewards may not capture all intrinsic work rewards. Therefore, some intrinsic work rewards may be influential with regards to the relationship between job demands and work-related burnout but not be represented in the findings. Work-related burnout is not the sole cause of intention to leave positions or the nursing profession; a proportion of variance explained by the models generated will be calculated to account for this limitation.

Extrinsic reward measurement will be limited to take-home compensation and healthcare benefits; other extrinsic rewards like other insurance benefits may similarly represent moderators for intention to leave but would not be captured by this study. Measurement of housing costs, student debt burden, and total household income will describe some but not all of the economic situations of the study participants contend with, e.g. participants who do not have housing costs or student debt burden but are burdened by consumer or medical debt may be inaccurately represented by the measures in this study. Finally, the measurement of intention to leave is itself limited because expressed intention to leave does not universally translate into leaving the current position or profession (Van den Bulcke et al., 2020).
In this study, altruism is defined as a mechanism of reward or motivation for professional nursing in the acute care hospital setting. The practical execution of altruism is measured in this study, however personal motivation toward altruistic actions are not. It is possible, however, that motivations for altruistic actions are relevant and thus represents a limitation of this study. It is also possible the altruism execution questions may be reward mechanisms only insofar as they relate to the individual’s motivation toward altruistic behavior.

Sampling methods also present limitations such as sampling bias and challenges associated with measuring survey response rate with our chosen recruitment method. Sampling method limitations will be discussed in greater detail in chapter three.

**Conclusion**

The Quadruple Aims of Healthcare are a framework that guides changes in healthcare systems to promote focus on patient and population outcomes, patient satisfaction, cost/resource management, and promote healthy work environments for healthcare workers. The nursing shortage has potential to jeopardize all four Aims by threatening access to medically necessary and satisfactory patient care, burdening health systems with high costs of training and re-training staff and placing additional strain on the clinicians who remain in healthcare professions. Adequate nursing staff is essential to a functional healthcare system as nurses represent almost a third of all acute care hospital jobs, however the nursing shortage is exacerbated by nurse burnout and consequent intention to leave the profession. Results of this study will advance the state of the science on work-related burnout and intention to leave. The exploratory aim, to better understand the role of altruism as one intrinsic reward for professional nursing work in
the acute care hospital setting, may additionally inform new pathways to encourage nurses to stay in the profession. This study supports the Quadruple Aims of Healthcare by contributing to the literature aimed at staunching the premature outflow of nurses from the profession due to work-related burnout.
II: REVIEW OF LITERATURE

Introduction

This chapter includes the theoretical frameworks, empirical support frameworks, and review of the literature for the study. The theoretical frameworks underpinning this dissertation include the Job Demands-Resources model, Maslow’s Hierarchy of Needs, classical test theory, and a discussion on the literature review methodologies will be presented. Finally, literature reviews will address the following questions to provide an evidence-based support for this dissertation: What workplace attributes influence work-related burnout in hospital nurses? and What is the relationship between altruism and intrinsic reward for professional nurses?

Search Descriptions

Work-Related Burnout and Work Environment – Copenhagen Burnout Inventory

The web-based academic databases CINAHL, PubMed, and Medline were searched using the following keyword strings: (Burnout OR Compassion fatigue OR Moral distress OR Moral injury OR Staff retention) AND (Duty of care OR Ethical behavior OR Standard of care OR Work* expectations OR Patient satisfaction OR Job duties) AND (Nurs*). The search took place on September 4, 2022. Only results in English and from peer-reviewed journals were considered for this review. Inclusion criteria for this review included: an empiric study using the work-related burnout scale of the Copenhagen Burnout Inventory and a quantitative measure of another variable reflecting work environment-related factors or work duties and their impact on work-related burnout. Exclusion criteria included failure to meet inclusion criteria, qualitative research.
Work-Related Burnout and Work Environment – Systematic Reviews and Meta-Analyses

A literature search was undertaken that included all burnout measures. Due to the extensive nature of the available literature on burnout and work environment, this search was limited to include only systematic reviews and meta-analyses about burnout that included a discussion on the role of work environment or work duties with regards to burnout. CINAHL and PubMed were searched using the following keyword string: burnout AND nursing AND (systematic review OR meta-analysis). The search took place on Sept 12, 2022. Only results in English and from peer-reviewed journals were considered for this review. Inclusion criteria for this review included: systematic review or meta-analysis, manuscript focused on burnout, discussed attributes of the work environment, published in 2018 or after. Exclusion criteria included failure to meet inclusion criteria.

Execution of Altruistic Behavior

This systematic review utilized the PRISMA method (Page et al., 2021). The Johns Hopkins evidence-based practice model was utilized to assess level of evidence literature review (Dang et al., 2022). PubMed and CINAHL were searched using the following keyword string: “altruism AND nursing AND (reward OR compensation OR motivation) AND qualitative.” The search took place on May 31st, 2022. Only articles with a full text available in English in peer-reviewed journals were included in this review. Inclusion criteria for this review included empiric studies pertaining to current paid professional nurses pertaining to altruism in the context as a motivator, compensation mechanism, or reward for professional work. No date criterion was implemented for this review, however due to the digital nature of search keyword
indexing there may be fewer results from articles published earlier than the 1990s.

Exclusion criteria for this review included studies on volunteer or student healthcare workers, study that did not discuss altruism within the context of a reward structure for professional work, or not available in English.

**Conceptual or Theoretical Framework**

This study is underpinned by the Job Demands-Resources Model (JDR) (Demerouti et al., 2001), Maslow’s Hierarchy of Needs (Maslow, 1943), classical test theory (DeVellis, 2021), and pragmatist philosophy (Habermas, 1984). The JDR provides a framework through which the cause-and-effect relationships between work-related stressors, resources in the workplace, work-related burnout, rewards for professional work, and intention to leave the profession can be understood. Maslow’s Hierarchy of Needs provides a theoretical basis for the hypothesis that extrinsic work rewards may be prioritized by professional nurses who are engaged in exchanging their labor for rewards. Classical test theory is a measurement theory that will guide the development, analysis, and evaluation of the exploratory altruism measurement instrument. Pragmatist philosophy will provide a philosophic basis for both this study and for the reliability of the literature review.

**Job Demands-Resources Model**

The Job Demands-Resources model (JDR) is a theoretical framework for understanding the balance between positive and negative attributes of a workplace. Unlike effort-reward balance and demand-control models, the JDR conceptualizes workplace demands as a problem presented to workers (Bakker & Demerouti, 2007; Demerouti et al., 2001). Problems are not inherently negative within the JDR; problems
can be both a source of frustration and a source of motivation for workers depending upon the context.

The JDR predicts the genesis of work-related burnout and intention to leave the job and profession as outcomes variables related to the demands of the workplace, resources available within the work environment, and rewards achieved for professional work (Demerouti et al., 2001; Llorens et al., 2006). Imbalance between demands and resources results in burnout by creating worker anxiety, fatigue, and exhaustion. Long-term exposure to a work environment with unrealistic demands with regards to resources available is hypothesized to generate frustration, cynicism, and disengagement from the work (Demerouti et al., 2001). Work-related burnout is one form of health impairment that is described as a derivative of the balance between workplace demands and resources allocated to fulfill those demands (Demerouti & Bakker, 2011; Meng et al., 2022).

Likewise, intention to leave is described as a derivative of the balance between work-related burnout and rewards obtained from professional work. Work-related stresses are a personal cost for work that is shouldered by workers. However, work provides rewards to workers in part to compensate them for shouldering the personal burdens associated with work. Intention to leave both the current position and the profession is hypothesized to occur when there is imbalance between the burdens associated with work and the personal rewards attained for performing the work (Lavoie-Tremblay et al., 2022; Moloney et al., 2018). Intention to leave is fundamentally an effort undertaken by the worker to problem-solve the demand-resource imbalance by changing where they work. As discussed in chapter one, intention to leave the profession is often an escalation in self-removal from persistent and unaddressed demand-resource imbalance may span
multiple positions or be related to perceived similarity between available positions within
the same profession (Sheehan et al., 2019; Valizadeh et al., 2018).

**Job Demands.** Job demands are defined as problems that need to be solved in the
workplace (Demerouti et al., 2001). By their nature, job demands require resources to
address such as worker time, expertise, or tangible goods that are utilized to address the
problem (Crawford et al., 2010; Lepine et al., 2005). In the hospital setting, job demands
can include patient loads, working hours, needs that are unique to the job type (e.g. direct
care, management, etc.) or department (e.g. medical, critical care, etc.), and differences in
role related to job or professional seniority. The effect that job demands have on workers
varies by the broader context in which the demand occurs; job demands can be bifurcated
into one of two categories that are classified relative to the resources available to manage
the demand. These categories are referred to as job challenges and job hinderances.

**Job Challenges.** Job challenges are defined as problems in the workplace that can
be overcome with a worker’s professional skills and the resources available to them that
are motivating to workers (Meng et al., 2022). Examples of job challenges can include
time-sensitive work, job duties that are varied, and work that requires expertise (Meng et
al., 2022; Van den Broeck et al., 2010). Overcoming job challenges can provide a sense
of accomplishment for workers and can improve worker morale and well-being by
providing them with a sense of accomplishment (Lepine et al., 2005). Job challenges can
broadly be understood as job demands that have a neutral-to-positive impact on workers
because, by definition, they are manageable within the context the demands take place in.

**Job Hinderances.** Job hinderances are defined as problems that cannot be
overcome with a worker’s professional skills and the resources available to them (Lepine
et al., 2005). Examples of job hinderances can include job role ambiguity, formalities that do not impact the job itself but are nonetheless required ("busy-work"), and bullying in the workplace (Meng et al., 2022). Job hinderances are potentially harmful to worker accomplishments and can be broadly understood as job demands that have a neutral-to-negative impact on workers because they are not manageable within the context where the demands take place (Lepine et al., 2005).

**Delineating Challenges from Hinderances.** A notable distinction is that job hinderances are definitionally contingent upon perceived resources (Van den Broeck et al., 2010). The same task could be either a job challenge or a job hinderance contingent upon the resources available to manage the demand (Demerouti & Bakker, 2011). For example, nurses are tasked with assessing patients: performing all of one’s assigned nursing assessments may be a job challenge in one facility that assigns four patients to one nurse but a job hinderance in a different facility that assigns eight patients to one nurse, even though the task of assessment is otherwise the same. Job hinderances can also be demotivating to workers when the effort required to manage a job hinderance is perceived to be excessive or wasteful compared to the worker’s goal (Van den Broeck et al., 2010). For example, charting duties are often perceived by nurses to be a burden that take time away from other activities that more concretely achieve their patient care goals (Strudwick et al., 2022). Most nurses agree that documentation is necessary to nursing, however completing documentation alone is not sufficient to consider nursing duties complete and is often perceived as less important than or in conflict with other professional duties (Olivares Bøgeskov & Grimshaw-Aagaard, 2018). The issue at hand is the context in which charting duties are completed: the requirements to achieve
sufficient nursing care, and the finite nature of resource availability. This example illustrates the difference between job challenges and hinderances. The problem itself is not inherently defined as a challenge or a hinderance. Instead, the delineation is based on a function of both the problem itself and the setting where the problem has occurred (Lepine et al., 2005; Van den Broeck et al., 2010).

**Job Resources.** Job resources are defined as physical, psychological, social, or organizational assets that enable workers to manage job demands and meet work-related goals (Van den Broeck et al., 2010). Job resources act as a mediator between job demands and the human response to the work environment (Bakker & Demerouti, 2007). Job resources can be tangible, such as a piece of equipment, and intangible, such as the ability for workers to participate in decision-making in the workplace (Llorens et al., 2006). Returning to the example of nurse documentation, charting may be perceived as less burdensome if adequate resources, such as staff, are available to ensure tasks that are perceived to be more important can be completed on-time (Dehghan-Nayeri et al., 2018).

**Intrinsic Work Rewards.** Intrinsic work rewards refer to the rewards attained from work that are not dispensed by the employer to the employee (Frey, 1997). Definitionally, intrinsic work rewards are rewards that are achieved through oneself and are often intangible to others. Examples of intrinsic work rewards include a worker’s sense of accomplishment or opportunities for advancement in the workplace, a sense of camaraderie with one’s coworkers, relationships with managers, or the perception that one’s work is meaningful or beneficial to others (Christianson, Guttormson, et al., 2022; Eder & Meyer, 2022; Johnson, 2015). In the context of professional nursing, the ability to
execute altruistic behaviors can also be understood as one reward for work (Christianson, Guttormson, et al., 2022).

The ability to attain intrinsic work rewards are related to the balance between job challenges and job hinderances as a hypothesized extension of the Job Demands-Resources model. An excess of hinderances or lack of challenges, for example, may reduce one’s sense of accomplishment in the workplace or diminish the perception that one’s work is beneficial to others (Borritz et al., 2005; Crawford et al., 2010; Meng et al., 2022). Attainment of intrinsic work rewards are hypothesized to be inversely correlated with work-related burnout (Bakker & Demerouti, 2007; Kristensen et al., 2005; Maslach & Jackson, 1981). Intrinsic work rewards, within the proposed modification to the framework of the JDR, can be understood as a mediator variable between job hinderances, job challenges, and work-related burnout. Therefore, intrinsic work rewards are hypothesized to have a mediator-type relationship with overall job demands because job hinderances and job challenges are a method of categorizing job demands (figure 3).
**Figure 3**
The Relationship Between Job Demands, Job Resources, Intrinsic Work Rewards, and Work-Related Burnout

![Diagram showing the relationship between job demands, job resources, intrinsic work rewards, and work-related burnout]

Notes: A depiction of the hypothesized relationships between job demands, job resources, job hinderances, job challenges, and work-related burnout within the Job Demands-Resources model.

**Work-Related Burnout.** The human response to the workplace is contingent upon the balance between job demands and job resources (Van den Broeck et al., 2010). The JDR defines two opposite states of human response to the workplace: work engagement and work-related burnout (Bakker & Demerouti, 2007). Work-related burnout is defined as a syndrome of exhaustion, cynicism, and disengagement with one’s work that impairs one’s personal well-being (Kristensen et al., 2005; Llorens et al., 2006; Maslach & Jackson, 1981). Within the JDR, work-related burnout is a result of poor balance between job demands and resources (Crawford et al., 2010; Van den Broeck et al., 2010). Work engagement, contrarily, is characterized by vigor and enthusiasm toward one’s work (Llorens et al., 2006).

Work-related burnout can be understood as an outcome variable that is a function of job demands, job resources (Van den Broeck et al., 2010). The relationship between job demands and job resources in work-related burnout development is well-established.
by prior literature on work-related burnout as discussed in the literature review section of this chapter (page 38). Thus, I will not directly address job demands and resources and their relationship with work-related burnout in this dissertation.

**Extrinsic Work Rewards.** Extrinsic work rewards are work rewards that are part of the agreement between employer and employee, such as wages, salary, or benefits agreed upon in exchange for work (Frey, 1997; L'vin, 1999). Extrinsic work rewards are defined by how they are distributed: extrinsic work rewards are given by someone else to the worker in exchange for their work. The source of reward is the central difference between intrinsic and extrinsic work rewards (Frey, 1997).

The function of extrinsic work rewards differs somewhat from intrinsic work rewards. Where one cannot exchange their personal sense of satisfaction for a job well done for necessities, extrinsic work rewards can often be exchanged for other goods and services (Frey, 1997). Extrinsic work rewards therefore serve a vital purpose to workers: they enable workers to fulfill their personal human needs like the need for shelter, food, and expected aspects of living in society such as entertainment (L'vin, 1999). Extrinsic work rewards are a requisite part of a working agreement broadly within our economic structure, where intrinsic rewards are not inherently included in a working agreement between employer and worker (Frey, 1997; L'vin, 1999). This concept is contextualized using Maslow’s Hierarchy of Needs and discussed in greater detail later in this chapter.

**Intention to Leave the Current Position and/or Profession.** In the modified version of the JDR utilized in this dissertation, intention to leave the profession is a dependent variable that is contingent upon two independent variable concepts: work-related burnout and extrinsic work rewards. Prior research has described a qualitative
relationship between extrinsic work rewards and intention to leave or stay in the profession (Christianson, Johnson, et al., 2022). Accordingly, I hypothesize that extrinsic work rewards act as a moderator for the relationship between work-related burnout and intention to leave the current position and profession.

**Figure 4**
The Relationship Between Work-Related Burnout, Extrinsic Work Rewards, and Intention to Leave

![Diagram](image)

Notes: The hypothesized relationship between work-related burnout, extrinsic work rewards, and intention to leave the current position and profession within the Job Demands-Resources Model.

**Figure 5**
Theoretical Substruction Diagram

![Diagram](image)

Notes: Theoretical substruction and relationships between construct, concept, variables, empirical indicators, and values within the framework outlined by the job demands-resources model.
Critiques of the Job Demands-Resources Model. One issue with this application of the JDR is evaluating the interaction between job demands and job resources. Individuals can respond to similar demand-resource situations differently, and the JDR does not provide a solution to measure the demand-resource interaction itself (Demerouti & Bakker, 2011). While some iterations of the JDR attempt to incorporate ‘personal resources’ as a means of accounting for individual variance in response to demand-resource situations, these personal resources are often measured as a negative, such as depression as a representation of a lack of personal resources, and are incomplete in nature (Schaufeli & Taris, 2013). The role of personal resources in demand-resource balance are inconsistent in the literature, and the directionality of the relationship between personal resources and job resources is disputed (Demerouti & Bakker, 2011; Schaufeli & Taris, 2013).

Maslow’s Hierarchy of Needs

Maslow’s Hierarchy of Needs is a theoretical framework that informs us about human behaviors and explains how humans can prioritize behaviors (Maslow, 1943; Sumerlin & Bundrick, 1996). Maslow’s Hierarchy is based upon three foundational principles. The deficit principle states that an unsatiated need generates motivation to satiate the need, and that behavior is generated in part by that motivation. According to Maslow, motivations and behaviors are not synonymous because behaviors are driven both by personal motivations and by other forces like biology, society, and cultural context (Maslow, 1943). The prepotency principle states that needs are ranked in a hierarchical order of importance. The progression principle states that prepotent needs must be fulfilled before higher order needs can be addressed. Physiological needs like
sating hunger are of a higher motivational priority than achieving self-actualization because physiological needs are prepotent to other needs within the framework (Bouzenita & Boulanouar, 2016; Maslow, 1948a). According to Maslow, the need to abate hunger takes precedence over the urge to write poetry or the need to seek achievement and social recognition, for example (Maslow, 1943). Maslow identified five categories of needs that are hierarchically ranked and often graphically displayed in a pyramid: physiologic needs, safety needs, love needs, esteem needs, and self-actualization needs (figure 6) (Maslow, 1943). Throughout the Hierarchy of Needs, lower like physiologic needs are of greater imperative for survival than higher needs like esteem (Maslow, 1948a). The hierarchy acts as a model for delineating the priority or potency of a need. If a base need is poorly fulfilled, it is difficult to impossible to address higher needs until the base need is adequately gratified (Maslow, 1948b).

**Figure 6**

Maslow’s Hierarchy of Needs

![Maslow's Hierarchy of Needs](image)

Notes: Visual diagram of Maslow’s hierarchy of needs. Image obtained under a creative commons non-commercial share-alike license (CC BY-NC-SA 4.0) (Open.edu, 2017). According to Maslow, lower needs must be sufficiently abated for an individual to become concerned with higher needs (Maslow, 1948b). However, abating needs is not
necessarily the same thing as definitively fulfilling them. Maslow provides the example of smoking a cigarette to abate hunger; the cigarette did not fix the lack of food, however the cigarette provided relief from hunger. When frustration from the hunger need abates, other needs might be addressed even though the relief from hunger is not definitive (Maslow, 1943). According to Maslow, a certain amount of gratification of lower needs is required to elevate one’s priorities from one tier in the hierarchy to the next. A need does not necessarily need to be fulfilled definitively or indefinitely for an individual to elevate one’s priorities to the next tier on the hierarchy. Within Maslow’s framework, individual variance, culture, and biologic need all factor into how much need gratification is sufficient to elevate to the next consideration in the hierarchy (Maslow, 1948b).

**Basic Needs.** Maslow characterized physiological and safety needs as basic needs, which he often refers to as ‘lower’ needs. Within Maslow’s framework, lower needs are of a higher priority for fulfillment because they are necessary for survival (Maslow, 1948a). Physiological needs are comprised of needs like water and food that are necessary to maintain biologic homeostasis. Physiological needs are the most prepotent and are therefore the most prioritized when they are not sufficiently gratified (Maslow, 1948b). The need for food and water are examples of physiological needs. Safety needs are the second priority tier according to Maslow and are defined by the need to feel secure or unendangered. Specific safety needs are perceived, and thus their fulfillment vary by individual. An infant, for example, might have their safety needs fulfilled by simply being swaddled in a blanket, where an adult might require a dwelling to keep out potential wild animals to have their safety needs met (Maslow, 1943).
Psychological Needs. Psychological needs are comprised of the need for love, belonging, and social esteem. Love and belonging refers to the desire for affection and kinship with others. Maslow (1948a) theorized that people desire a place in their immediate circle of contacts. While Maslow (1943) acknowledges that sexual expression can be one aspect of love, the term love to refer to the giving and receiving of affection to others and the camaraderie derived thereof which may or may not involve sex.

Esteem can refer both to self-esteem and to the esteem of others, and is comprised of respect, recognition, and social prestige. Esteem is conceptually like love; however, esteem refers to the need for a stable place in society at large. The primary difference between esteem and love needs are whom the need is related to; love needs are related to individuals that one may interact with, where esteem needs are related to one’s interaction with society at large (1943).

Self-Fulfillment Needs. The need for self-fulfillment is also referred to as self-actualization, which is defined as a desire to behave in a manner that provides one with an intrinsic sense of satisfaction. Individual manifestations of self-actualization differ by individual; some people may choose to give altruistically to others, where other individuals may create artistic works, and still others might choose to invent or invest themselves athletically. He described self-actualizing individuals as autonomous, curious, open to new experiences, self-motivating, and recognizant of the humanity of others regardless of social standing (Maslow, 1943, 1948a; Sumerlin & Bundrick, 1996). Living at a higher need level (e.g. having your base and perhaps psychological needs met) is notable in part because it is linked to better physical health, psychological health, higher
social standing, longevity, and greater overall well-being (Hagerty, 1999; Maslow, 1948a).

**Critiques of the Hierarchy of Needs.** While Maslow’s Hierarchy addresses the needs related to the self well, it does not address systemic factors that can influence motivations or behavior or needs related to one’s position in relation to others. Maslow’s Hierarchy fails to fully account for relative needs, which limits how accurately the Hierarchy can predict behavior. Some scholars argue that relative needs are not necessarily higher needs and point to the field of economics as an example that often contradicts Maslow’s Hierarchy as it was written (Bouzenita & Boulanouar, 2016; Trigg, 2007). Maslow himself also critiqued his own theory over time; he considered that his framework failed to address why fulfillment of base needs frequently failed to result in higher levels of fulfillment like esteem or self-actualization (Maslow, 1982). Psychological and self-fulfillment need gratification do not necessarily follow a clear escalation along the hierarchy of needs as access to basic needs improve (Bouzenita & Boulanouar, 2016; Etzioni, 2017; Hagerty, 1999).

Another common critique of Maslow’s Hierarchy is that the theory was developed using a Western culture-centric evidence base. While some research in collectivist societies, such as in Japan, do support parts of Maslow’s Hierarchy as a theoretical model, the universality of his claims are most questionable in collectivist societies that place a high cultural value upon social belonging (Bouzenita & Boulanouar, 2016). For a similar reason, some scholars believe love and belonging to be a basic need, rather than a psychological one, and perhaps to even be of greater priority than safety. Maslow may have agreed with this sentiment; he commented in one article that love and belonging
needs could be indistinguishable from safety needs in some individuals, including children (Maslow, 1948b). While there is poor concrete evidence to support this claim, philosophical underpinnings exist for prioritization of both love and safety and it is unclear how, or if, they are hierarchically related (Oved, 2017).

**Application to this Dissertation.** Maslow’s Hierarchy applies to this dissertation because it provides a rationale for why extrinsic reward obtainment may be prioritized over intrinsic rewards. Extrinsic work rewards, specifically the exchange of labor for currency as an extrinsic work reward, represent a pre- eminent method of meeting one’s basic needs. The United States has a currency-based economic system; one’s currency is expended in exchange for goods that fulfill needs such as hunger and shelter. Most individuals also hold some liquid currency in excess of their base needs as a form of security against anticipated future expenditures (L’vin, 1999). Intrinsic work rewards, on the other hand, represent higher needs on the Hierarchy. Relationships with coworkers or managers are forms of belonging, for example, and personal fulfillment through altruism in the workplace or pride in one’s work accomplishments are forms of esteem (Maslow, 1943). Intrinsic work rewards are theoretically linked to work-related burnout as described in the JDR earlier in this chapter, however Maslow’s Hierarchy provides a rationalization for why an individual may choose to stay in a position or profession despite burnout because ongoing meeting one’s basic needs, such as housing costs, are prioritized over the higher tiers of the hierarchy that intrinsic work rewards represent.

**Figure 7**
Modified Job Demands-Resources Model

Notes: Hypothesized role of Maslow’s Hierarchy of Needs as an extension of the Job Demands-Resources model.

**Measurement Theory**

Measurement theory is a type of applied statistics focused on representing individual attributes numerically. This branch of statistics provides theoretical scaffolding to guide tool development and evaluation through information about the accuracy and reliability of the tool (DeVellis, 2021).

**Classical Test Theory.** Classical test theory provides a framework through which individual variance can be measured despite random error inherently present in observed data through the concept of true score. Within this framework, an individual’s true score is defined as a fixed measure of the desired characteristic that is being measured. The observed score is the score noted by using tools to evaluate the desired characteristic and is comprised of the true score and random error. True scores are not known in practical testing applications and cannot be directly measured, so classical testing theory addresses the random error present in observed scores by assuming that random error is normally distributed. This enables researchers to assume that the mean error of scores is zero and therefore provides a theoretical basis for estimating true scores through observed scores.
and error approximation (DeVellis, 2021; Waltz et al., 2010).

**Figure 8**
Classical Test Theory

![Diagram of the theoretical underpinnings of classical test theory.](image)

Notes: Diagram of the theoretical underpinnings of classical test theory.

Random error and the concept of reliability both refer to errors in the ability of the tool to measure accurately (Barraza et al., 2019). Through the assumption of normal error distribution in CTT, a reliability coefficient between zero and one can be calculated to estimate the effect of variance on the observed score for both individual items and the whole scale (DeVellis, 2021; Waltz et al., 2010). A low reliability coefficient implies higher variance due to error, where a high reliability coefficient provides credence to interindividual differences between scores (Webb & Shavelson, 2005). There are numerous methods of computing reliability such as parallel forms and internal consistency. Item statistics such as mean, median, and item discrimination can be calculated for individual items to assess for item level performance (DeVellis, 2021).

Instrument validity, the ability to measure what the tool claims to measure, is a measure associated with systematic error, which includes issues such as selection bias, errors in distinguishing independent from dependent variables, and measurement errors such as memory bias (Barraza et al., 2019). Validity can be divided into three types: construct validity, content validity, and criterion-related validity. Construct validity refers
to the process of verification that the instrument measures the desired concept. Methods of verifying construct validity include comparison to pre-existing agreed-upon benchmarks for associated with the construct, factor analysis, and hypothesis testing (Cronbach & Meehl, 1955; DeVellis, 2021). Content validity is established deductively and refers to the degree to which an instrument measures all aspects of the construct it is designed to measure. Content validity indexes can be used to evaluate content validity (Shi et al., 2012).Criterion-related validity refers to evidence for the hypothesized relationship between the measured attributes and the criterion. Comparison to an established measure, referred to as concurrent validity, is the ideal method to verify criterion-related validity. However, predictive validity can be utilized to evaluate a tool’s criterion-related validity by concurrently measuring a relevant outcome related to the construct in question and statistically evaluating the tool’s predictive ability to the outcome variable (Guion & Cranny, 1982).

There are several limitations to the use of CTT for psychometric instrument validation. Validation of the tool is population-dependent because the theoretical framework assumes generalizability within the given population. It is not necessarily a given that tool validity is equivalent between differing populations. Along similar lines, tool reliability and validity measures are sample-dependent. The possibility for systematic error, such as through sampling bias, is poorly addressed by CTT. Finally, reliability is reliant upon the ability to express variance. Reliability for items with few response options, such as binary items, cannot be accurately estimated using CTT (DeVellis, 2021; Waltz et al., 2010).
Pragmatist Philosophy and Inquiry Through Literature Review

Meno’s paradox is a logical problem resulting from inquiry and is named for a dialogue between Socrates and Meno (Jenks, 1992). Socrates’ claimed the only thing he knew was that he knows nothing; Meno challenged how Socratic inquiry was possible if the inquirer knows nothing: if one knows what they are looking for the inquiry is unnecessary, however if one does not know what they are looking for one cannot know when they have found it. Meno’s paradox demonstrates two key concepts in pragmatist philosophy: people who make inquiries must be only partially ignorant, and that knowledge certainty is impossible (Glymour & Kelly, 1992). Pragmatists in philosophy takes these lessons from Meno’s paradox one step further; objective information is not a universally defined truth, but rather is established by a consensus of observations by others (Rorty, 1991).

Philosopher Jürgen Habermas (1984) developed the Theory of Communication Action. This theory, among other things, addresses philosophical problems with the claim that empirical understandings of social actions could be understood as ‘true.’ According to Habermas, all social scientists interpret information as a virtual participant because interpretation is definitionally a process of assimilating new information with pre-existing understanding (Rehg, 2014). According to the Theory of Communication Action, the act of speaking is the act of raising a validity claim. Habermas established four types of validity claim that are universal in communication: the claims of truth, sincerity, clarity, and legitimacy (Habermas, 1984). Truth is verified through argumentation and presentation of evidence. Sincerity is established through contextualizing and comparing what is being claimed to what others note in the observations. Clarity is established by
comprehensibility by others and use of rhetoric that is understandable to others. Legitimacy is established by collation with the knowledge of others (Bauer et al., 2004). Key in each step of making a validity claim is the corroboration and co-understanding established with others (Goldkuhl, 2000). In this dissertation, the literature review will serve as one method for establishing information corroboration with others as part of the process of making a validity claim.

**Review of Literature**

*Work-Related Burnout and Work Environment*

The purpose of this literature review is to answer the following question: What is the relationship between work environment, work duties, and work-related burnout in hospital nurses? This review is intended to improve understanding of the relationships between work-related burnout as measured by the Copenhagen Burnout Inventory Work-Related Burnout scale, attributes of the work environment, and work duties.

**Search Results.** The search yielded 3396 articles using the above search criteria, which was reduced to 2690 after duplicates were removed. The titles and abstracts were reviewed for relevance and 2672 were removed. 18 were reviewed in full text, of which 13 were excluded for one of the following reasons: did not use the work-related burnout scale of the Copenhagen Burnout Inventory (n=10), article not focused on nurse burnout (n=1), article did not address the work environment or work duties (n=1), not an empiric study (n=1).

**Figure 9**
Literature Search Diagram: Copenhagen Burnout Inventory, Work Environment, Work Duties
The findings from each article have been summarized in table 1 below. The Johns Hopkins Evidence-Based Practice Model was utilized to assess level of evidence (Dang et al., 2022).

**Johns Hopkins Evidence-Based Practice Model.** According to the Johns Hopkins Evidence-Based Practice Model, appraisal of the individual evidence is essential to assessing the overall quality of evidence, consistency of findings across the evidence body, and population applicability. These factors influence the strength of an overall evidence body (Dang et al., 2022).
Within the Johns Hopkins Evidence-Based Practice Model, evidence can be sorted into five levels, with level one representing the highest evidence level possible and level five representing the lowest evidence level. This classification decision is a three-step process of determining the type of evidence (research or non-research), the strength of the evidence, and the quality of the evidence. Level one evidence is composed of randomized control trials, systematic reviews of randomized control trials, and mixed methods designs that include a quantitative study that would otherwise fit the level one evidence criteria. Level two evidence is composed of quasi-experimental studies which may or may not include a control group or randomization, a systematic review of quasi-experimental studies and randomized control trials, and mixed-methods studies that would otherwise meet the criteria for level two evidence. Level three evidence is composed of non-experimental studies, qualitative studies, a meta-synthesis, and a systematic review that includes any combination of randomized control trials, quasi-experimental studies, and non-experimental studies. Level four evidence is composed of the opinions of respected authorities or recognized experts on a subject, including clinical practice guidelines, consensus statements, regulatory standards, and position statements. Level five evidence is composed of non-systematic literature reviews, case studies, quality improvement programs, and an expert’s opinion. A plurality of opinion is what defines level four expert opinions from level five; a single expert opinion is level five evidence, but the expert opinion of a collective of experts is level four evidence (Dang et al., 2022).
<table>
<thead>
<tr>
<th>Author</th>
<th>Year</th>
<th>Purpose, Questions, Hypotheses</th>
<th>Design, Variables</th>
<th>Sample, setting, Country</th>
<th>Findings</th>
<th>Limitations</th>
<th>Johns Hopkins Evidence-Based Practice Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colindres et al.</td>
<td>2018</td>
<td>Investigate the relationship between burnout, effort-reward balance, and adherence to infection controls in measures in low- and middle-income countries</td>
<td>Descriptive non-experimental cross-sectional survey Perceived risk of infection via 5-point Likert questions, effort-reward index, Copenhagen Burnout Inventory work-related burnout scale, modified Johns Hopkins Safety Climate Questionnaire</td>
<td>Hospital nurses from four Ecuador hospitals, n=333</td>
<td>Effort-reward imbalance was a unique predictor of burnout (p&lt;0.01) Perceived risk of infection negatively correlated with work-related burnout (p=0.001) No significant association between work-related burnout and demographic variables (e.g., age, gender, marital status, education)</td>
<td>Nurse categories are not clearly defined Does not name or discuss tool used to measure effort-reward balance</td>
<td>III</td>
</tr>
<tr>
<td>Lin et al.</td>
<td>2021</td>
<td>Determine the relationship between number of hours worked, number of sleeping hours, and work-related burnout in healthcare workers</td>
<td>Descriptive non-experimental cross-sectional survey, personal health data from physical examination Average number of weekly working hours in the past 1 and 6 months, average number of sleeping hours during the last 1 and 6 months, health screening data, Copenhagen Burnout Inventory work-related burnout and personal burnout</td>
<td>Hospital workers at a hospital in Taiwan Physicians: n=369 Nurses: n=973 Technicians: n=391 Administrators: n=348</td>
<td>Nurses had the highest work-related burnout compared to other staff types 12-26% of work-related burnout can be statistically explained by working &gt;40 hours per week after controlling for personal characteristics. Achieving &gt;6 hours of sleep per night could reduce nurse work-related burnout attributable to working hours by 7.1-28.8%</td>
<td>Recommendations for the thresholds at which preventative actions should be taken to reduce odds ratio of work-related burnout are inadequately explained. No discussion on potential for coercion of subjects or ethical consideration for data collection methodology</td>
<td>III</td>
</tr>
<tr>
<td>Minamizono et al.</td>
<td>2019</td>
<td>Investigate if gendered division of labor affects nurse intention to leave the nursing workplace</td>
<td>Descriptive non-experimental cross-sectional survey Job Contents Questionnaire, Copenhagen Burnout Inventory client-related, work-related, personal burnout scales, Cabinet survey, average working hours, number of night shifts, Likert-based intention to leave tool</td>
<td>Female hospital nurses at three hospitals in Tokyo, Japan, n=328</td>
<td>Nurses with higher intention to leave scores had higher levels of job strain (p=0.010), increased work hours (p=0.038), working four or more nights per month (p=0.097), and work-related burnout scores (p&lt;0.001). Work-related burnout scores were higher in younger nurses (p=0.001)</td>
<td>Intention to leave tool was not validated Outside the scope of the study to directly correlate work-related burnout and job strain, working hours, number of night shifts per month worked</td>
<td>III</td>
</tr>
<tr>
<td>Study</td>
<td>Year</td>
<td>Objectives</td>
<td>Methodology</td>
<td>Participants</td>
<td>Findings</td>
<td>Note</td>
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</tr>
<tr>
<td>Shoorideh et al.</td>
<td>2015</td>
<td>Improve understanding of moral distress, job turnover, and burnout in intensive care unit nurses in Iran</td>
<td>Descriptive non-experimental cross-sectional survey</td>
<td>Intensive care unit nurses from 12 hospitals in Iran, n=159</td>
<td>Correlation between work-related burnout and age, years of nursing experience (p&lt;0.05), years of ICU experience, and nurse-to-patient ratios (p&lt;0.01)</td>
<td>Did not clearly define differences between nurse job categories listed.</td>
<td></td>
</tr>
<tr>
<td>Tabakakis et al.</td>
<td>2020</td>
<td>Explore the influence of personal, hospital workplace, and bullying factors around burnout and resilience among New Zealand nurses</td>
<td>Descriptive non-experimental cross-sectional survey</td>
<td>New Zealand nurses, n=480</td>
<td>Age, years in nursing were negatively correlated with work-related burnout (p&lt;0.001). Every one-point increase in the PES-NWI predicted a 12.5-point decrease in work-related burnout. The PES-NWI score accounted for 32.6% of work-related burnout. Work-related burnout was not correlated with gender, ethnicity, relationship status, highest nursing qualification, or employment type.</td>
<td>Low questionnaire response rate (9.6%) Research did not differentiate bullying-specific portions of the PES-NWI versus overall negative acts measured in the scale, but nonetheless discussed it.</td>
<td></td>
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</tbody>
</table>

*Note:* Interventions column was excluded from this table as no included articles were interventional studies.
Work-related burnout was correlated with attributes of the work environment and/or work duties, however correlations between work-related burnout and demographic attributes were inconsistent in the five articles that met inclusion criteria.

**Working Conditions.** All five articles included found attributes that of the work environment were correlated with work-related burnout. Nurse-to-patient ratios were correlated with work-related burnout (Shoorideh et al., 2015). Job strain, defined as job demand divided by job control scales on the Job Content Questionnaire, was associated with work-related burnout and intention to leave (Minamizono et al., 2019). The scales utilized include items like physical and psychological job demands, skill utilization, and decision-making authority (Karasek et al., 1988). Colindres et al. (2018) found that effort-reward imbalance and perceived risk of infection related to work were both correlated with work-related burnout. Every one-point increase in the Practice Environment Scale of Nursing Work Index accounted for 32.6% of work-related burnout (Tabakakis et al., 2020). The scale measures attributes of the work environment such as nurse participation in hospital affairs, staffing adequacy, and perceived ability to provide high-quality care (Lake, 2002).

**Working Hours.** Work-related burnout is correlated with number of working hours and types of shifts. Lin et al. (2021) found that the number of hours worked had a dose-response type relationship with work-related burnout. In their study, the odds of experiencing work-related burnout doubled when weekly working hours exceeded 60, tripled with 74 hours of work per week, and quadrupled when work hours exceeded 84 per week. 12-26% of work-related burnout could be statistically explained by working >40 hours per week in the Lin et al. study (2021). Minamizono et al. (2019) similarly
found that increased working hours were associated with work-related burnout and intention to leave. Minamizono et al. (2019) and Shoorideh et al. (2015) had conflicting results with regards to shift work and work-related burnout. Minamizono et al. (2019) found a correlation between working four or more night shifts and both work-related burnout and intention to leave. Shoorideh et al. (2015), however, found no correlation between shift type and work-related burnout.

Demographics. Demographic factors were inconsistently related to work-related burnout in the included articles. Minamizono et al. (2019), Shoorideh et al. (2015), and Tabakakis et al. (2020) found correlations between age and work-related burnout. Tabakakis et al. (2020) found correlation between years employed in nursing and work-related burnout. Shoorideh et al. (2015) also found correlation between the number of years in nursing, as well as the number of years of intensive care unit nursing experience, and work-related burnout. Contrarily, the Colindres et al. (2018) article no significant correlation between work-related burnout and any demographic variable including age, gender, marital status, years of healthcare experience, or education level. Tabakakis et al. (2020) concurred that work-related burnout was not correlated with gender, ethnicity, relationship status, or highest nursing qualification.

Conclusion. While work-related burnout is a complex issue in the nursing profession, it is consistently linked to attributes of a stressful, suboptimal work environment and inconsistently linked to personal demographic attributes. Despite evidence to show that the work environment consistently contributes to work-related burnout in nursing, there is a dearth of interventional research on the impact of modifications to the work environment on burnout. While intrinsic work rewards such as
perceived ability to provide high-quality care are associated with lower burnout, the exact relationship between intrinsic work rewards and burnout is unknown. No interventional research was found to examine the effects of modifying intrinsic or extrinsic work rewards on burnout. Further research to better elucidate the relationship between reward mechanisms, burnout, and intention to leave is therefore needed to better inform burnout mitigation and nurse retention efforts.

**Work-Related Burnout and Work Environment – Review of Reviews**

The purpose of this literature review is to answer the following question: What attributes of work expectations have a relationship with burnout in hospital nurses? This review is intended to fill the gaps left by the above literature review that included only the Copenhagen Burnout Inventory, as inclusion of only one measurement tool may have been overly restrictive given the limited number of studies identified. Similarly, the goal of this literature review is to further elaborate on the relationships between attributes of the work environment, and work duties.

**Search Results.** The search yielded 399 articles using the above search criteria, which was reduced to 156 after duplicates were removed. The titles and abstracts were reviewed for relevance and 125 were removed. 31 were reviewed in full text, of which 11 were excluded for one of the following reasons: did not describe workplace-related burnout antecedents (n=8), article not published with full text in English (n=2), not a systematic review or meta-analysis (n=1).
Figure 10
Literature Search Diagram: Systematic Review or Meta-Analysis on Burnout, Work Environment, Work Duties

Records identified through database search N=399

Records after removing duplicates N=156

Titles and abstracts reviewed for relevance N=156

Records excluded N=125

Full texts reviewed for inclusion criteria N=31

Full texts excluded for reasons:
- Did not describe workplace-related burnout antecedents N=8
- Article not published with full text in English N=2
- Not a systematic review or meta-analysis N=1

Studies included in evidence synthesis N=20

Notes: Literature search process diagram for systematic reviews and meta-analyses on burnout and the work environment, and work duties.

The findings from each article have been summarized in table 2 below. The Johns Hopkins Evidence-Based Practice Model was utilized to assess level of evidence (Dang et al., 2022).
<p>| Author          | Year | *Purpose, *Questions, *Hypotheses                                                                 | Design, *Variables                                    | Sample, setting, *Country                   | Number of Articles Included, Dates of Studies Included | Findings                                                                 | Critique/Limitations                                                                 | Johns Hopkins Evidence-Based Practice Level |
|-----------------|------|--------------------------------------------------------------------------------------------------|------------------------------------------------------|---------------------------------------------|------------------------------------------------------|---------------------------------------------------------------------------|---------------------------------------------|
| Bae             | 2020 | To examine the relationship between nurse staffing and nurse outcomes in ICU                    | Systematic review PRISMA guidelines                  | ICU nurses No geographic limitations        | 8 articles included 2000-2019                        | Greater patients per nurse associated with greater burnout                | Possibility of reporting bias Meta-analysis was not possible due to article heterogeneity | III                                         |
| Bakhamis et al. | 2019 | To examine the causes and consequences of burnout in hospital nurses                            | Qualitative literature review of both quantitative and qualitative studies No guidelines reported | Hospital nurses No geographic limitations   | 43 articles included 2000-2017                        | Higher patient-to-nurse ratios, high job demands, lack of clinical resources, mandated overtime, excessive workloads associated with greater burnout | Discussion is US-focused despite global evidence base                          | III                                         |
| Dall’Ora et al. | 2022 | To determine what is known (and not known) about factors associated with burnout in nursing and determine the extent to which studies have underpinned theories of burnout | Theoretical review PRISMA guidelines                  | Nurses No geographic limitations            | 91 articles included 1975-2019                       | Higher workloads, greater patient-to-nurse ratios, irregular shift patterns, working greater numbers of shifts, greater psychological demands, conflicting patient care needs, and higher effort-reward imbalance scores were associated with greater burnout. | No formal quality appraisal of studies included                                    | III                                         |
| Dilig-Ruiz et al. | 2018 | To synthesize evidence on critical care nurse job satisfaction and associated factors          | Systematic review PRISMA guidelines                  | ICU nurses No geographic limitations        | 61 articles included 1980-2015                       | Job satisfaction was negatively associated with burnout. Attributes of job satisfaction included fulfillment of the nurse’s needs and expectations, and overall nurse well-being. | Heterogenous sample due to broad time frame                                    | III                                         |</p>
<table>
<thead>
<tr>
<th>Authors</th>
<th>Year</th>
<th>Objective</th>
<th>Methodology</th>
<th>Articles Included</th>
<th>Findings</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dubale et al.</td>
<td>2019</td>
<td>Examine the burden of burnout among healthcare providers in sub-Saharan Africa</td>
<td>Systematic Review PRISMA guidelines</td>
<td>65 total articles</td>
<td>Burnout in nurses associated with high workloads and poor administrative support. Nurses who worked in public hospitals were more likely to experience burnout than private hospitals.</td>
<td>Limited exploration of antecedents or correlates of burnout; paper is primarily descriptive of burnout prevalence</td>
</tr>
<tr>
<td>Halm</td>
<td>2019</td>
<td>Examine nurse staffing and practice environment effects on nursing and organizational outcomes</td>
<td>Systematic review No methodology reported</td>
<td>14 articles included</td>
<td>Better staffing, improved practice environments including attributes such as higher staff education levels, lower patient-to-nurse ratios, Magnet hospital certification, high quality of care, high patient safety ratings, shared decision-making between nurses and administration, low rates of nosocomial infections, and job satisfaction were correlated with lower rates of burnout.</td>
<td>Did not discuss reporting methodology</td>
</tr>
<tr>
<td>Hawkins et al.</td>
<td>2019</td>
<td>Examine negative workplace behavior and its effects on new graduate nurses</td>
<td>Integrative review No methodology reported</td>
<td>16 articles included</td>
<td>Workplace bullying and negative workplace behavior was correlated with burnout. Inclusion of all studies that met criteria regardless of methodological quality</td>
<td></td>
</tr>
<tr>
<td>Jarden et al.</td>
<td>2021</td>
<td>Examine prevalence, predictors, and barriers to new graduate nurses well-being, work well-being, and mental health.</td>
<td>Systematic review Joanna Briggs Institute methodology guidelines PROSPERO reporting</td>
<td>34 articles included</td>
<td>Burnout was associated with poor work-life fit, and high interference between work duties and personal life. Stress levels were predictive of burnout. Burnout was defined as an attribute of poor work well-being, limiting the ability to compare the two concepts</td>
<td></td>
</tr>
<tr>
<td>Lowe et al.</td>
<td>2022</td>
<td>Examine existent literature regarding neonatal nurses' professional quality of life</td>
<td>Systematic review PRISMA guidelines</td>
<td>21 articles included</td>
<td>Burnout was associated with poor work climate such as negative teamwork. Several studies with small sample size, low response rate included</td>
<td></td>
</tr>
<tr>
<td>McDermid et al.</td>
<td>2020</td>
<td>Identify factors that contribute to high emergency department nurse turnover rates</td>
<td>Systematic review PRISMA guidelines</td>
<td>20 articles included</td>
<td>Burnout associated with workload, emergency department overcrowding, chronic understaffing. Inconsistent extrapolation between sources No discussion of internal limitations</td>
<td></td>
</tr>
<tr>
<td>Authors</td>
<td>Year</td>
<td>Topic</td>
<td>Study Type</td>
<td>Inclusion Methodology</td>
<td>No. of Articles</td>
<td>Findings</td>
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<tr>
<td>Phillips et al.</td>
<td>2022</td>
<td>Explore actions that can be taken by management to combat burnout in emergency department nurses</td>
<td>Integrative review</td>
<td>No specified reporting methodology</td>
<td>16 articles included 2015-2020</td>
<td>Work schedule, shift work, exposure to workplace violence, high patient-to-nurse ratios were associated with burnout</td>
</tr>
<tr>
<td>Rodriguez-Garcia et al.</td>
<td>2020</td>
<td>Investigate how Magnet hospital status affects outcomes for nursing professionals, patients, and healthcare organizations</td>
<td>Systematic review</td>
<td>STROBE guidelines</td>
<td>21 articles included 2010-2018</td>
<td>Magnet facilities were associated with lower levels of both nurse burnout and job dissatisfaction</td>
</tr>
<tr>
<td>Shin et al.</td>
<td>2018</td>
<td>Determine the association between patient-to-nurse ratios and nurse outcomes</td>
<td>Systematic review</td>
<td>PRISMA guidelines</td>
<td>13 articles included 2000-2016</td>
<td>Higher patient-to-nurse ratios were associated with higher burnout, job dissatisfaction, and intention to leave the profession.</td>
</tr>
<tr>
<td>Silva et al.</td>
<td>2020</td>
<td>To identify work-related factors that favor the development of hospital nurses</td>
<td>Integrative review</td>
<td>Ganong revision model</td>
<td>11 articles included 2011-2017</td>
<td>High workloads, pressure from management, lack of autonomy, poor recognition, and high levels of patient demands were associated with burnout.</td>
</tr>
<tr>
<td>Stemmer et al.</td>
<td>2022</td>
<td>Examine the relationship between unfinished nursing care and nurse outcomes</td>
<td>Systematic review</td>
<td>NICE guidelines</td>
<td>9 articles included No date limit, search conducted in 3/2020</td>
<td>Positive association between burnout and missed nursing care</td>
</tr>
<tr>
<td>Tsolakidis et al.</td>
<td>2022</td>
<td>Improve understanding of the elements that predispose nurses to burnout and recognize burnout risk factors</td>
<td>Critical review</td>
<td>No specified reporting methodology</td>
<td>81 articles included 2000-2022</td>
<td>The main factors identified that predispose nurse to burnout include staffing ratios, shift work, salary, job insecurity, poor administrative justice, poor general working environment, poorly defined job role, patient overcrowding in the workplace, noise and/or light pollution in the workplace, interactions with others, excessive administrative tasks like computerized charting that interfere with human-to-human interactions.</td>
</tr>
<tr>
<td>Wei et al. 2020</td>
<td>To identify the impact of nurse leadership styles on burnout</td>
<td>Systematic review PRISMA guidelines</td>
<td>Nurse leaders and nurses</td>
<td>No geographic limitations</td>
<td>18 articles included 2010-2019</td>
<td>Healthy work environment including workplace civility, safe staffing levels, and authentic or transformational leadership styles are associated with lower nurse burnout.</td>
</tr>
<tr>
<td>Wynendaele et al. 2019</td>
<td>To evaluate and summarize evidence on the relationship between patient-to-nurse ratios and nurse outcomes</td>
<td>Systematic review No specified reporting methodology</td>
<td>Acute care hospital nurses</td>
<td>No geographic limitations</td>
<td>30 articles included 2002-2018</td>
<td>Challenging work environment including resource inadequacy, higher patient-to-nurse ratios, and overall job stress were correlated with burnout. Nurse concern for missed nursing care and poorer perceived quality of care was associated with burnout. Magnet-credentialed hospitals had lower odds of burnout and intention to leave.</td>
</tr>
<tr>
<td>Ying et al. 2020</td>
<td>Explore organizational context of nursing practice in Chinese hospitals and nurse outcomes</td>
<td>Systematic review PRISMA guidelines</td>
<td>Hospital nurses</td>
<td>Studies taking place in China</td>
<td>23 articles included 2014-2019</td>
<td>Burnout was affiliated with poor nursing work environment, higher patient-to-nurse ratios. Structural empowerment, collegial nurse-physician relations, and transformational leadership styles were associated with lower burnout.</td>
</tr>
<tr>
<td>Zhang et al. 2018</td>
<td>Investigate the overall statistical correlation between emotional exhaustion, structural empowerment, and psychological empowerment of nurses</td>
<td>Meta-analysis PRISMA guidelines</td>
<td>Hospital nurses</td>
<td></td>
<td>24 articles included 1990-2018</td>
<td>Structural and psychological empowerment had a low but significant negative influence on emotional exhaustion</td>
</tr>
</tbody>
</table>

*Note: Interventions column was excluded from this table as no included articles were interventional studies.*
Five themes were identified in the 20 articles selected: workload imbalance, patient well-being, administrative support, peripheral stressors, and working hours.

**Workload Imbalance.** Association between burnout, perceived workload, and available resources was a prevalent theme in the literature. Dubale et al. (2019) discussed the association between high overall workloads and nurse burnout described in their literature review on nurse burnout in Africa. McDermid et al. (2020) and Dall’Ora et al. (2020) similarly found that high workloads were associated with nurse burnout in the articles they reviewed. Inadequate resources to complete high workloads was associated with greater burnout in the articles reviewed by several reviews (Bakhamis et al., 2019; Wynendaele et al., 2019).

Lack of available resources to manage the workload was a prevalent theme in several literature reviews (Bakhamis et al., 2019; Wynendaele et al., 2019). Inadequate nurse staffing, including high patient-to-nurse ratios and perceived staff inadequacy, was associated with burnout in over half of the literature reviews examined. (Bae, 2020; Bakhamis et al., 2019; Dall’Ora et al., 2020; Dubale et al., 2019; Halm, 2019; McDermid et al., 2020; Phillips et al., 2022; Shin et al., 2018; Tsolakidis et al., 2022; Wei et al., 2020; Wynendaele et al., 2019; Ying et al., 2021). Working in an area with unpredictable workflow, such as the emergency department, was one issue associated with resource (McDermid et al., 2020). Chronic understaffing, due in part to high staff turnover, was conceptually linked to under resourced nursing units by several literature reviews (Bakhamis et al., 2019; McDermid et al., 2020). However, the review by Ying et al. (2021) discussed one article that found no relationship between patient-nurse ratio and staff turnover.
Poor control over workload and excessive administrative tasks assigned were reported as a source of workload-related stress and contributed to burnout in several literature reviews (Dall'Ora et al., 2020; Tsolakidis et al., 2022). Nurses in several studies reviewed by Tsolakidis et al. (2022) reported guilt and dissatisfaction over time spent on nurse-computer interaction rather than nurse-patient interaction. Greater control over one’s work duties was associated with lower nurse burnout in the review by Zhang et al (2018).

Silva et al. (2020) described the contribution of overall workload to burnout; their review found that combined high workloads and challenges meeting the nurse’s personal commitment to meet patient needs was associated with exhaustion in their literature review. Dubale et al (2019) discussed the relationship between emotional connections formed with patients, self-reported stress, and self-reported exhaustion in their review. Silva et al. (2020) proposed two mechanisms for the link between emotional commitments to patients, high workloads, and burnout based on their literature review: discord between patient needs and resources available to meet their needs, and neglect of the nurse’s personal needs. Perceived inability to meet patient needs with the available resources is a source of stress, compounded by emotional connections to patients and personal expectations for one’s ability to meet patient needs (Dall'Ora et al., 2020; McDermid et al., 2020; Silva et al., 2020). Neglect of one’s own needs can be a strategy to prioritize the patient’s needs and attempt to meet patient needs, which furthers the exhaustion and can also lead to depersonalization as a coping mechanism (Dubale et al., 2019; Silva et al., 2020).
**Patient Well-Being.** Burnout was associated with poorer patient well-being in several studies. Halm et al. (2019) discussed an association between patient safety measures such as overall patient mortality, fall rates, and healthcare associated infections, and nurse burnout in their literature review. The review by Stemmer et al. (2022) found that nurse burnout was associated with missed nursing care. The Wynendaele et al. (2019) review found a positive relationship between patient-to-nurse ratio and nurses perceived quality of care, safety, and missed nursing care, however it was outside the scope of this article to assess the relationship between the latter three measures and burnout.

**Administrative Support.** The protective effect of administrative support against nurse burnout was a theme in the literature. Structural or organizational empowerment, defined as policies and procedures that empower nurses in their practices and provide them opportunity to participate in facility decision-making, was associated with lower burnout in the Tsolakidis et al. (2022), Ying et al. (2021) and Zhang et al. (2018) literature reviews. Poor organizational support for nursing, on the other hand, was associated with greater nurse burnout (Dubale et al., 2019; Silva et al., 2020). Authentic and transformational leadership styles had a negative correlation with burnout in four literature reviews (Dall'Ora et al., 2020; Halm, 2019; Wei et al., 2020; Ying et al., 2021). Poor nurse recognition for their work was found to be associated with greater burnout in the literature review by Silva et al. (2020). Three literature reviews described a negative correlation between nurse burnout and Magnet hospital designation (Halm, 2019; Rodríguez-García et al., 2020; Wynendaele et al., 2019).

**Peripheral Stressors.** Numerous articles identified peripheral stressors that are not inherent to nursing work but are nonetheless associated with nurse burnout. Workplace
bullying was associated with greater nurse burnout in three literature reviews (Hawkins et al., 2019; Lowe et al., 2022; Wei et al., 2020). Exposure to violence in the workplace was likewise associated with greater nurse burnout in one literature review by Phillips et al. (2022). Two literature reviews highlighted inadequate compensation as a correlate of nurse burnout (Dubale et al., 2019; Tsolakidis et al., 2022). Poor overall job satisfaction and poor work-life balance were associated with burnout six of the literature reviews examined (Bakhamis et al., 2019; Dilig-Ruiz et al., 2018; Jarden et al., 2021; Phillips et al., 2022; Silva et al., 2020; Wynendaele et al., 2019).

**Working Hours.** Working patterns and the number of shifts worked were associated with burnout in five literature reviews (Bakhamis et al., 2019; Dall'Ora et al., 2020; Dubale et al., 2019; Phillips et al., 2022; Tsolakidis et al., 2022). Dall’Ora et al. (2020) and Bakhamis et al. (2019) discussed an association between overtime work and nurse burnout. Dall’Ora et al. (2020) described an association between the number of shifts worked and nurse burnout, however the studies they reviewed on number of hours worked per week and burnout had mixed results. Two of the studies reviewed by Dall’Ora et al. (2020) found that number of hours worked per week was not associated with total burnout. Shift durations of greater than 12 hours were associated with nurse burnout, and shorter shift times were protective against burnout in the literature review by Tsolakidis et al. (2022). Mandated overtime, unpaid overtime, and poor access to respite time like breaks during shifts were associated with greater nurse burnout in the literature reviews by Bakhamis et al. (2019) and Phillips et al. (2022). Nurses who had more than eight days off per month were also found to have lower levels of burnout (Tsolakidis et al., 2022).
Shift work patterns, particularly night shift assignments, were associated with burnout in several literature reviews (Dall'Ora et al., 2020; Dubale et al., 2019; Tsolakidis et al., 2022). Irregular hours, shift start and end times that are inconsistent, were associated greater nurse burnout (Phillips et al., 2022; Tsolakidis et al., 2022).

**Conclusion.** Five themes were identified in this literature review of systematic reviews and meta-analyses on burnout and the work environment: workload imbalance, patient well-being, administrative support, peripheral stressors, and working hours. These themes are consistent with two of the themes found in the prior literature review, working conditions and working hours, and provide further credibility to the findings in the prior review. In addition to previous findings, an association between patient well-being metrics and nurse burnout was established. The potential protective effects of administrative support, recognition, and structural empowerment on burnout were also established by this literature review.
Embedded Manuscript #1: Execution of Altruistic Behavior as a Reward Mechanism for Professional Nurses: A Qualitative Systematic Review

The desire to help others, altruism, is central value to what it means to be a professional nurse (Fitzgerald, 2020; Schmidt & McArthur, 2018). Socially, nurses are consistently rated the most trusted profession in part because altruism is considered an integral part of a nurse’s professional identity (Fitzgerald, 2020; Iacono, 2019). Accordingly, altruism is a common recruitment tool used by nursing professional organizations and educational institutions (Smith et al., 2013). One of the most common rationales students give for entering nursing school is the desire to behave altruistically toward others (Messineo et al., 2021).

Effort-reward balance in the professional setting is the concept that there is an equilibrium between personal effort extended in the workplace and the rewards one obtains from professional work (Siegrist & Li, 2020). An adequate effort-reward balance is an essential component of a healthy work environment, however imbalance between effort and reward is a prevalent problem for professional nurses (Diekmann et al., 2020; Hong & Cho, 2021). Poor effort-reward balance is associated with poor job satisfaction, nurse burnout, and intention to leave the profession, as well as decreased empathy toward patients (Asgarian et al., 2022; Kong et al., 2020). The practical opportunity to act on altruistic desires via the workplace is a poorly understood intrinsic work reward. An improved understanding of such intrinsic work rewards for professional nurses may inform the development of strategies to improve nurse retention.

The purpose of this literature review is to answer the following question: How is altruism a reward mechanism or motivation for engaging in professional nursing? This review will summarize and discuss prevalent concepts and themes in the literature.
regarding altruistic behavior as a reward mechanism or motivating factor in the professional setting for nurses. A secondary purpose of this review is to identify gaps in the literature around this intangible reward for professional work. A rigorous understanding of altruistic behavior as an intangible reward for professional work may inform future interventions aimed at addressing effort-reward imbalance for professional nurses.

Methods

This systematic review utilized the PRISMA 2020 reporting guidelines (Page et al., 2021). PubMed and CINAHL were searched using the following keyword string: “altruism AND nursing AND (reward OR compensation OR motivation) AND qualitative.” The search took place on May 31st, 2022. Only articles with a full text available in English in peer-reviewed journals were included in this review. Inclusion criteria for this review included empiric studies pertaining to current paid professional nurses pertaining to altruism in the context as a motivator, compensation mechanism, or reward for professional work. No date criterion was implemented for this review. However due to the digital nature of search keyword indexing there may be fewer results from articles published earlier than the 1990s. Exclusion criteria for this review included studies on volunteer or student healthcare workers, study that did not discuss altruism within the context of a reward structure for professional work, or not available in English.

The Johns Hopkins Evidence-Based Practice Model was utilized to assess level of evidence (Dang et al., 2022). The Joanna Briggs Institute (2017) Critical Appraisal Checklist for Qualitative Research was used to assess for risk of bias and methodological quality by one researcher (JC). Thematic synthesis, a three-step process in which text is
analyzed and interpreted to generate new constructs or explanations, was utilized to synthesize data (Thomas & Harden, 2008). Findings were extracted, coded, and then abstracted into broader themes to describe the categories of findings. This method was chosen a priori due to the expected heterogeneity in group cultures within studies identified and the qualitative nature of the systematic review. This review was not registered, and a protocol was not published for the review. No funding or financial support supported this review.

**Results**

The search yielded 107 results; 91 unique results remained after duplicates were removed. The titles and abstracts were reviewed for relevancy by one researcher (JC) by hand and 74 were excluded. Of the 17 full texts reviewed, five were removed because they were not focused on altruism as a reward or motivator for professional nurses (Figure 11). Thus, 12 studies were included in this synthesis. Data was charted in an evidence table (see Table 3).
Figure 11
Literature Search Diagram: Altruism as a Motivator or Reward for Professional Nursing Work

Note: Literature search process diagram for altruism as a reward mechanism or motivating factor for professional nurses.
<table>
<thead>
<tr>
<th>Author</th>
<th>Year</th>
<th>*Purpose, *Questions, *Hypotheses</th>
<th>Design, *Variables</th>
<th>Sample, setting, *Country</th>
<th>Findings</th>
<th>Limitations</th>
<th>Johns Hopkins Evidence-Based Practice Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atkinson</td>
<td>2015</td>
<td>Examine the perceptions of Muslim nurses of how religion informs their nursing practice</td>
<td>Qualitative, ethnography, semi-structured interviews</td>
<td>Nurses working in Kuwait of Muslim faith, N=18</td>
<td>Altruism and service, charity to others was a source both of spiritual obligation and spiritual satisfaction.</td>
<td>Study is limited to application of Muslim faith, does not differentiate in sample between denomination.</td>
<td>III</td>
</tr>
<tr>
<td>Carter et al</td>
<td>2014</td>
<td>Examine the perspectives of British nurses on altruism, the nursing profession and/or vocation</td>
<td>Qualitative, unspecified methodology, semi-structured interviews</td>
<td>Community primary care nurses in Britain, N=12</td>
<td>Compassion and caring were seen as relevant to the participants’ nursing careers: however, they perceived a conflict between their own needs to work and the concept of altruism. Participants nonetheless placed value upon the ability to care for others.</td>
<td>Poorly defined boundaries between vocation and profession, claims spiritual aspects of nursing are cultural rather than religious in nature without adequate evidence to conclusively state this</td>
<td>III</td>
</tr>
<tr>
<td>Chenoweth et al</td>
<td>2014</td>
<td>To identify key factors and issues affecting retention of nurses who care for elderly and patients with dementia in Australia</td>
<td>Mixed-method, survey pilot followed by mail survey of nurses, focus group of nurses selected from survey respondents</td>
<td>Nurses working with the elderly and dementia patients in acute, subacute, community, and residential healthcare settings, survey N=3983, focus group N=58</td>
<td>Altruism, ability to make a difference for the betterment of others, and other intrinsic rewards related to caregiving were found to be primary motivators for nurses who care for elderly and dementia patients. Increasing workload and challenges meeting care needs and increasing demands on staff were barriers to retention of nurses. Job satisfaction was more important than salary.</td>
<td>Role of salary was not quantified or discussed in detail with regards to nurse retention.</td>
<td>III</td>
</tr>
<tr>
<td>Eder et al</td>
<td>2022</td>
<td>Examine the causes of nurse burnout and nurse perspectives on what would help</td>
<td>Qualitative, thematic analysis, group interviews and semi-structured interviews</td>
<td>German long-term care nurses: Group interviews conducted at nursing home workshops N=110, follow-up individual interviews with nurse executives working in the</td>
<td>Structural challenges that make it challenging to impossible to accomplish altruistic behavior such as patient care; feelings of personal guilt or responsibility for structural problems such as understaffing were highlighted as pertinent to burnout in group interviews. One-on-one interviews with</td>
<td>Rewards obtained for altruistic behavior was not described in depth despite its description as a seemingly powerful motivator for nurse employee behavior.</td>
<td>III</td>
</tr>
<tr>
<td>Author(s)</td>
<td>Year</td>
<td>Title</td>
<td>Methodology</td>
<td>Sample</td>
<td>Findings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Kundiu and Harding</td>
<td>2009</td>
<td>Investigate factors that influenced men to become nurses</td>
<td>Qualitative, thematic analysis, semi-structured interviews</td>
<td>Male nurses in New Zealand, purposive and snowball sampling utilized, N=18</td>
<td>Personal connection with the concepts of altruism, personal fulfillment through caregiving, and self-sacrifice were factors in men’s decision making around choosing the nursing profession</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kanjarian et al</td>
<td>2021</td>
<td>Explain the lived experiences of nurses providing altruistic care to COVID-19 patients</td>
<td>Qualitative, phenomenology, open interviews</td>
<td>Hospital nurses managing COVID-19 patients in Tehran, Iran, N=12</td>
<td>Conflict between personal priorities like personal needs, family’s health conflicted with altruistic ideals when managing COVID-19 patients under high-stress and high-risk circumstances. Self-sacrifice was a prevalent theme to continue to behave altruistically within the context of the professional nursing work performed during COVID-19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Magnussen et al</td>
<td>1998</td>
<td>Determine if people have considered the status of nursing when choosing to enter the profession</td>
<td>Qualitative, content analysis, semi-structured interviews</td>
<td>Unspecified geographic location or setting, N=15</td>
<td>Desire to help others and to imbue meaning to participants’ own lives underpinned reasons for choosing nursing</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

nurse executives found that relationships in which others relied upon them were job motivations. Desire to help others, both residents and coworkers, was highlighted as a motivation for taking on difficult or stressful work in the context of the long-term care nursing. Desire to help others was believed to be a barrier to self-care for employees by the nurse executives. Self-endangering behavior, defined as a cycle of high-stress work, low self-care, resulting in health problems and absenteeism, was identified as a problem by nurse executives. 

Desire to help others was believed to be a barrier to self-care for employees by the nurse executives. Self-endangering behavior, defined as a cycle of high-stress work, low self-care, resulting in health problems and absenteeism, was identified as a problem by nurse executives.

Personal connection with the concepts of altruism, personal fulfillment through caregiving, and self-sacrifice were factors in men’s decision making around choosing the nursing profession.
<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Year</th>
<th>Title</th>
<th>Methodology</th>
<th>Sample Description</th>
<th>Findings</th>
<th>Limitations/Implications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mahmoodishan et al</td>
<td>2010</td>
<td>Explore nurse perceptions of spirituality and spiritual care.</td>
<td>Qualitative, content analysis, semi-structured interviews</td>
<td>Purposefully selected sample of Iranian nurses from the Muslim faith, N=20</td>
<td>Altruism was tied to perceived/spiritual rewards including personal satisfaction and perceived divine approval or favor. Working with the ill and behaving altruistically was a form of worship and produced positive feelings for nurses. Study limited to application of Muslim faith, does not differentiate between denomination.</td>
<td></td>
</tr>
<tr>
<td>Perry</td>
<td>2008</td>
<td>Evaluate the experience of career satisfaction in nurses who are highly satisfied with their work</td>
<td>Qualitative, narrative analysis, poetic interpretation, semi-structured interviews</td>
<td>Random sample of nurses who self-reported high levels of career satisfaction, geographic location not specified, participation in clinical practice not specified, N=8</td>
<td>Ability to behave altruistically is thematically linked to career satisfaction. Recognition for &quot;going the extra mile&quot; such as patient gratitude or affirmation by the workplace are linked to career satisfaction. Research question is poorly defined and not directly articulated, highly selective sample of only satisfied nurses.</td>
<td></td>
</tr>
<tr>
<td>Vinje et al</td>
<td>2007</td>
<td>Describe the process through which job engagement can lead to burnout</td>
<td>Qualitative, content analysis, semi-structured interviews</td>
<td>Non-randomly sample by nurse leaders from nursing homes in Norway, N=15</td>
<td>Sense of duty and motivation toward altruism associated with high job engagement. Burnout was associated with perceived failures to live up to performance demands or standards, which was paradoxically also associated with job engagement. Balance between meaningfulness and manageability is essential to managing fatigue and burnout. Highly selective sample – highly engaged nurses were selectively sampled, providing only one viewpoint.</td>
<td></td>
</tr>
<tr>
<td>Vinje et al</td>
<td>2008</td>
<td>Describe nurse experiences of job engagement</td>
<td>Qualitative, content analysis, semi-structured interviews</td>
<td>Non-randomly nominated sample by nurse leaders from nursing homes in Norway, N=15</td>
<td>Altruism and meaning derived from work were highly motivating with regards to job engagement. Meaning found in work cited as a reason for absence of burnout by several participants. Highly selective sample – highly engaged nurses were selectively sampled, providing only one viewpoint.</td>
<td></td>
</tr>
<tr>
<td>Zhu et al.</td>
<td>2020</td>
<td>Explore Chinese nurses’ experiences with empathy motivation</td>
<td>Qualitative, content analysis method, semi-structured interviews</td>
<td>Hospital nurses working clinically in four hospitals in China, N=21</td>
<td>Three categories of empathy motivations: Autonomous motivation, controlled motivation, and lack of empathy motivation. Failed to consider the full risks and benefits of each category more deeply despite description of these themes in the exemplary quotes;</td>
<td></td>
</tr>
</tbody>
</table>

III = Methodological Issues
instead focused upon the benefits of autonomous motivation and the problems with controlled or lack of empathy motivation.

Note: The interventions column was excluded from this table as no interventional studies were included.
**Characteristics of Included Articles**

Eleven studies were qualitative (Atkinson, 2015; Carter, 2014; Eder & Meyer, 2022; Harding, 2009; Khanjarian & Sadat-Hoseini, 2021; Magnussen, 1998; Mahmoodishan et al., 2010; Perry, 2008; Vinje & Mittelmark, 2007, 2008; Zhu et al., 2020), one was mixed-method (Chenoweth et al., 2014). Of the qualitative methods, one used ethnography (Atkinson, 2015), two used thematic analysis (Eder & Meyer, 2022; Harding, 2009), one used phenomenology (Khanjarian & Sadat-Hoseini, 2021), five used content analysis (Magnussen, 1998; Mahmoodishan et al., 2010; Vinje & Mittelmark, 2007, 2008; Zhu et al., 2020), one used narrative analysis (Perry, 2008), and one did not specify methods (Carter, 2014). All twelve studies employed individual interviews, two included group interviews (Chenoweth et al., 2014; Eder & Meyer, 2022), and one study included a survey (Chenoweth et al., 2014). All studies were rated as having high methodological quality. All twelve articles were appraised as appropriate for inclusion on the Joanna Briggs Institute Critical Appraisal Checklist for Qualitative Research (Appendix H).

The included studies were geographically diverse and included Australia (n=1), Britain (n=1), China (n=1), Iran (n=2), Kuwait (n=1), Germany (n=1), New Zealand (n=1), Norway (n=2), and two unspecified geographic locations. The two articles by Vinje & Mittelmark (2007, 2008) appear to be different analyses of the same data set; based on the authors’ best inferences of the published data, approximately 321 unique participants were included in this systematic review.

**Key Findings**
**Work Engagement.** Work engagement because of the desire to behave altruistically was a prevalent theme in the literature. Job satisfaction and desire to stay in the profession was associated with the perceived ability to behave altruistically in the workplace in the articles by Chenoweth et al. (2014), Eder & Meyer (2022), Harding (2009), Magnussen (1998), Perry (2008), both articles by Vinje & Mittelmark (2007, 2008), and Zhu et al. (2020). Nurses in each of the listed studies described personal fulfillment from their nursing careers related to their ability to be of service to others.

Chenoweth et al. (2013), Perry (2008), Vinje & Mittelmark (2007, 2008), and Zhu et al. (2020) reported that nurses associated their ability to behave altruistically in the workplace with job satisfaction and personal value found in the work. Personal rewards from altruistic behavior were not limited to patients; nurses in the Chenoweth et al. (2013) and Eder & Meyer (2022) articles reported they also had altruistic fulfillment and work engagement associated with supporting their colleagues.

Nurses in the Zhu et al. (2020) article reported personal benefits and engagement from altruistic behaviors toward others. Nurses in the Zhu et al. (2020) and the Perry (2008) articles reported that a primary reason for their job satisfaction was the strong personal reward they felt related to successfully helping patients. Nurses in Perry (2008) reported high satisfaction from instances of “going the extra mile” by doing more than their perceived duty of care required to behave altruistically to patients. In addition to personal reward-seeking, nurses in the Zhu et al. (2020) article reported they were motivated to altruism both by desire to avoid conflict with patients and by the desire to obtain non-personal rewards like improved patient compliance.
Barriers to Altruism. Another prevalent theme was the impact of barriers to altruistic behavior. Latent dissatisfaction with the workplace and perceived inability to provide care to a high standard was perceived to be a precursor burnout in Vinje and Mittelmark (2008). Nurses in the Khanjarian & Sadat-Hoseini et al. (2022) article discussed workplace uncertainty as a barrier to altruistic behavior during the COVID-19 pandemic. They described feeling helpless and questioned the purpose of their work because they felt they were unable to support their patients to typical care standards. Nurses in the study by Chenoweth et al. (2014) reported patient advocacy barriers as a barrier to altruistic rewards from work.

Structural issues within the workplace were perceived to be a barrier to altruistic work by nurses in the Chenoweth et al. (2014), Eder & Meyer (2022), and Khanjarian & Sadat-Hoseini et al. (2022) articles. Chronic understaffing, long shifts, perceived compromises to care provision like replacing RNs with less qualified staff, and formalities that were required but did not affect tasks necessary to accomplish patient care were examples of barriers to altruism. One participant from the Chenoweth et al. (2014) article summarized the issue of increasing workloads and bureaucratic work as “squeezing the juice out of staff,” dissipating the notion they are valued by administration as vital to patient care.

Self-Sacrifice. Chenoweth et al. (2014), Eder & Meyer (2022), Khanjarian & Sadat-Hoseini et al. (2022), and Vinje and Mittelmark (2007) described compromise between the desire to behave altruistically in the workplace and the realities of a chronically under-resourced workplace, resulting in self-sacrifice. One prevalent theme in the Zhu et al. (2020) article was perceived coercion or pressure to behave altruistically. In
this study nurses reported they felt socially pressured to altruistic behavior due to professional expectations of nurses. One participant summarized this pressure to behave altruistically and empathetically toward patients as, “a responsibility that nurses should perform” (Zhu et al., 2020, p. 782).

Vinje & Mittelmark (2007) described moral distress as a sense of frustration about the conflict between perceived standards of patient care and the ability to live up to those standards. The sense of a duty toward altruism was described by nursing in the Vinje & Mittelmark (2007) study, as well as concern that “the things that I do not handle, no one handles” (p. 109). Nurses described a need to “let go” of some of the demands of the workplace and several participants described their need to adjust their perceptions about their obligations to avoid overwork. Nurses in the Eder & Meyer (2022) article, however, described a similar conflict as a cause for self-sacrifice or self-endangering behavior to fulfill their duty of care. Self-sacrifice was unwanted and described in a negative context by participants in the Eder & Meyer (2022) article. However, nurses in the Khanjarian & Sadat-Hoseini (2022) article described self-sacrifice in a more positive light. Participants instead described their experience self-sacrificing to fulfill their professional commitments during the COVID-19 pandemic as like a soldier defending a nation against enemy attack. Numerous nurses in the Khanjarian & Sadat-Hoseini (2022) article likened their work during with COVID patients as analogous to the experience of living through the Sacred Defense period in Iran, a period of military activity and association with a strongly shared national identity.

**Spirituality.** There were mixed findings regarding spiritual calling as a motivation for altruism. Kuwaiti nurses in the Atkinson (2015) article and Iranian nurses in the
Mahmoodishan et al. (2010) and Khanjarian & Sada-Hoseini (2021) articles discussed spiritual rewards from nursing as an act of altruism. Nurses in the Atkinson (2015) study described altruism as a spiritual obligation, where nurses in the Mahmoodishan et al. (2010) article described altruism as a form of worship. Nurses in the Khanjarian & Sadat-Hoseini et al. (2022) article expressed spiritual satisfaction from working with COVID-19 patients during the hardships of the COVID-19 pandemic. All the participants in the Atkinson (2015) and Mahmoodishan et al. (2010) articles were practicing participants in a Muslim faith tradition. The Khanjarian & Sadat-Hoseini et al. (2022) article did not report religion demographics, but reported they selected participants from diverse backgrounds.

The Carter (2014) article addressed Judeo-Christian spiritual elements as part of the dominant religious affiliation in the region, however nurses in their study rejected the notion of a spiritual experience or obligation associated with nursing. British nurses in the Carter (2014) study rejected the notion of a Nightingale-esque spiritual calling toward nursing. The authors considered that nurse motivations for altruism may be more cultural than spiritual. Nurses from the Atkinson (2015) described tenets of the Muslim faith as “a way of life” and discussed cultural implications that coalesce with their faith traditions. While the discrepancy in perceived spiritual rewards for altruism may be explained by culture instead of spiritual orientation as described by Carter (2014), there is insufficient evidence to affirm this claim.

**Discussion**

This is the first systematic review to date to examine the role of altruism as a potential reward or motivator for nurses. While altruism is a laudable professional
characteristic, comparably less scholarly consideration has been given to discrepancies between the desire to perform altruistic behavior and a nurse’s practical ability to execute such behavior. Several studies included in this literature review noted that structural issues within the workplace were perceived to erect barriers between nurses’ desires to provide high-quality patient care and their practical ability to provide such care (Chenoweth et al., 2014; Khanjarian & Sadat-Hoseini, 2021; Vinje & Mittelmark, 2008). Some nurses described burnout or questioned the purpose of their work given the perceived inconsistencies between their desired care standards and actual care provided (Chenoweth et al., 2014). Such descriptions mirror the definition of moral distress, a syndrome which occurs when nurses feel powerless to take actions they perceive to be morally correct (Epstein et al., 2020).

Self-sacrifice was described by participants in several articles as one method to meet patient needs despite conflicting personal needs, though nurse perspectives on the self-sacrifice varied in the articles reviewed. Nurses in one article highlighted the camaraderie that some nurses felt with one another because of their perceived self-sacrifice (Khanjarian & Sadat-Hoseini, 2021). Other nurses, however, described self-sacrifice as coercive and unwanted (Eder & Meyer, 2022). Scholarly perspectives on self-sacrifice and altruism vary. Some scholars regard self-sacrifice in the professional context to be an attribute of moral intelligence for nurses (Fitzgerald, 2020), where others argue that self-sacrifice and heroism is harmful to the profession because it places an undue burden personal upon caregivers engaged in professional work (Cox, 2020).

Several nurses in the Vinje and Mittelmark (2007) article indicated that they have chosen to adjust their standards to avoid the moral distress associated with inability to
fulfill perceived nursing duties. It is unclear if such coping mechanisms are associated with less moral distress, patient burnout, or if it has an impact on the provision of patient care. Further research is needed to better elucidate the relationships between nurse burnout, the desire and practical ability to behave altruistically toward patients, and patient care quality outcomes.

Perceived coercion to engage in self-sacrifice may be a method of managing moral distress related to inability to meet patient care needs (Eder & Meyer, 2022; Zhu et al., 2020). Pressure to engage in self-sacrifice is problematic given that many nursing workplaces are pervasively under-resourced and inadequately staffed (Bakhamis et al., 2019; Dall'Ora et al., 2020). Many patient care obligations could be managed without self-sacrifice or alterations in expectations for care quality if there were adequate nursing resources or if nursing workloads were more manageable (Tubbs-Cooley et al., 2019). The precise relationship between differentials in nursing care expectations and care delivered, moral distress, self-sacrifice, and nurse burnout is heretofore unclear as is the relationship between these factors and work rewards; further research is needed to better elucidate these relationships.

This literature review did find that many nurses are motivated toward altruism as a form of spiritual practice (Atkinson, 2015; Khanjarian & Sadat-Hoseini, 2021; Mahmoodishan et al., 2010). However, it is unclear if spiritual motivations toward altruism in the professionals setting effect how nurses perceive the discrepancy between desired practice and the reality of their workplace. It is also unclear if altruism from spiritually motivated nurses is perceived to be desirable or if it can also be coercive in
nature. Further research is needed to better understand the relationships between altruism execution as a spiritual practice, effort-reward balance, intention to leave, and burnout.

**Strengths and Limitations**

No limitations were made based on country of origin, time of study publication, or sample size. However, only a thematic analysis was performed due to relative dearth of identified relevant articles. There may have been keywords that were relevant yet not identified that would have widened the sample of included manuscripts. The concept of altruism implementation within the professional space as a reward mechanism for nurses is infrequently discussed and may consequently be underrecognized as a concept. As with any systematic review, our findings may be subject to publication bias. Though our sample was geographically diverse, our findings may have limited generalizability to other contexts as the definition and/or cultural importance of altruism may differ between cultures.

**Conclusion**

Altruism is frequently cited as a professional characteristic for nurses, however the implications for working in an environment that makes it difficult to fulfill altruistic desires are underrecognized. Four themes were prevalent among articles included in this review: work engagement, barriers to altruism, self-sacrifice, and spirituality. The experience of barriers to altruism frustrated nurses and made some feel their duties were not met, resulting in moral distress and self-sacrifice as an attempt fulfill their perceived duty. Nurse perspectives on self-sacrifice varied; some viewed self-sacrifice as a negative consequence of imbalance between professional duty of care and resource availability, where others saw self-sacrifice as a way to form camaraderie with other nurses or felt it
was indicative of a need to modify perceived expectations to better fit the reality of the workplace. Other nurses perceived self-sacrifice as an exercise of their professional commitments and described the experience in a quasi- or overtly spiritual manner, as a religious practice or as a practice of self-ratifying their commitment to the nursing profession. Further research is needed to better understand the role altruistic behavior execution in the professional setting in effort-reward balance and the role of intrinsic rewards like altruism as it relates to moral distress, nurse burnout, and intention to leave.
Conclusion

Work-related burnout is correlated with stressors in the work environment such as workload imbalance and poor administrative support. Despite extensive evidence supporting the correlation between environmental factors in the workplace and work-related burnout, there is relatively little research on the effects of work environment interventions on work-related burnout. Some intrinsic work rewards, like recognition for one’s work, are linked to lower burnout. Altruism provides some nurses with motivation to continue to work in nursing, however the link between execution of altruism in the workplace and work-related burnout is unknown. There is similarly insufficient research to establish a relationship between extrinsic work rewards, work-related burnout, and intention to leave. The findings of this literature review underlined previous scholarship on the work environment, work-related burnout, and altruism as a reward mechanism for nurses. This study will build upon previous work by providing a venue to investigate the relationships between work rewards, work-related burnout, and intention to leave nursing positions and the nursing profession.
III: METHODOLOGY

Introduction

The purpose of this study is to investigate the relationships between job demands, work rewards, work-related burnout, and intention to leave nursing positions and the nursing profession. A cross-sectional survey was used to theory test the modified Job Demands-Resources model described in chapter two as a framework to explain the relationships. The details of the research design, sample, and methodology are outlined in this chapter.

Research Design

This study was a non-experimental correlational cross-sectional survey of licensed United States registered nurses (RNs) and licensed practical nurses (LPNs) who work in acute care hospital settings.

Prior to commencement of the study, a pilot of 25 acute care hospital nurses were recruited via convenience sampling to review formatting and clarity, with particular attention to the questions developed to explore execution of altruism. This pilot and sample and methods will also be detailed later in this chapter.

Aims/Research Questions and Hypotheses

The aim of this study is to explore the relationships between job demands, nurse work-related burnout, intrinsic and extrinsic motivations for work, intention to leave their position, and intention to leave the profession using the modified Job Demands-Resources model (figure 12) by addressing the following research questions:

1) Do intrinsic work rewards mediate the relationship between job demands and work-related burnout (figure 13)?
a. $H_\alpha$: Intrinsic work rewards do mediate the relationship between job demands and work-related burnout.

b. $H_\beta$: Intrinsic work rewards do not mediate the relationship between job demands and work-related burnout.

**Figure 12**
Modified Job Demands-Resources Model

**Figure 13**
Research Question #1 Diagram

Note: Hypothesized relationships between job demands, intrinsic work rewards, and work-related burnout, as outlined by research question #1.
2. Do extrinsic work rewards moderate the relationship between work-related burnout and intention to leave the current position (figure 14)?

   a. $H_a$: Extrinsic work rewards do moderate the relationship between work-related burnout and intention to leave the current position.
   
   b. $H_0$: Extrinsic work rewards do not moderate the relationship between work-related burnout and intention to leave the current position.

3. Do extrinsic work rewards moderate the relationship between work-related burnout and intention to leave the profession (figure 14)?

   a. $H_a$: Extrinsic work rewards do moderate the relationship between work-related burnout and intention to leave the profession.
   
   b. $H_0$: Extrinsic work rewards do not moderate the relationship between work-related burnout and intention to leave the profession.

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**Figure 14**

Research Question #2 and #3 Diagram

Note: Hypothesized relationships between work-related burnout, extrinsic work rewards, and intention to leave as outlined by research questions #2 and #3.
4. What is the relationship between execution of altruistic behavior and intrinsic work rewards?

Population and Sample

Inclusion and Exclusion Criteria

This sample was comprised of United States registered nurses (RNs) or licensed practical nurses (LPNs) who were employed in nursing and work in an acute care hospital setting at the time of the study. Nurse practitioners who otherwise meet inclusion criteria are also included in this study, as nurse practitioners must possess an RN license to practice in the United States (American Association of Nurse Practitioners, 2020). Individuals who are not RNs or LPNs, individuals who were not employed in nursing at the time of the study, and participants who did not work in an acute care hospital setting at the time of the study were excluded from this sample. Participants were asked to affirm that they are licensed as an RN or LPN in the United States and that they work in the acute care hospital setting at the beginning of the study. The study questionnaires were administered in English with no additional language translation options; therefore, non-English speaking participants were excluded. The survey was administered exclusively online, so participants who did have internet access or an internet-capable device were excluded from this study.

Setting and Recruitment

Qualtrics was utilized for participants to self-administer the survey digitally; participants spent an estimated 30 minutes completing the survey. Qualtrics (2022) is a digital survey platform that allows surveys to be developed, distributed, and results collected. Surveys developed in Qualtrics are highly customizable and include options
like skip and display logic, which enables users who provide certain answers to be asked some questions but not others and allows many different types of questions to be asked such as multiple choice, select all that apply, matrices of Likert-style questions, number sliders, and free text entry. Data collected through Qualtrics is encrypted and password-protected, and all Qualtrics data uses transport layer security to protect data in transit from their servers. Qualtrics is Security and Organization Controls 2 certified (Qualtrics, 2022).

Recruitment took place via social media advertising (e.g., Facebook, Reddit) and email solicitations. Email addresses for actively licensed RNs and LPNs were collected from the respective state licensing bodies in Florida, Oregon, Rhode Island, and Wisconsin. These four states were selected because they had publicly accessible email lists and were geographically diverse. Rhode Island and Oregon provided population diversity because hospital nursing in both states is heavily unionized. Florida was selected because there is a higher-than-average proportion of nurses who have a Florida license but reside out of state, and travel nursing is prevalent in Florida. A Listserv service was used to send mass emails; all actively licensed RNs on the available email list in Oregon (17,650), Rhode Island (12,702), and all actively licensed RNs and LPNs in Wisconsin (33,856) were emailed. Due to the very large number of RN email addresses contained within the Florida list (>300,000), a random sample of 22% of email addresses (77,684 total) were selected by computerized random number generator. The Florida and Rhode Island licensee boards listed employer names and addresses as well as email addresses; due to the relatively low prevalence of LPN practice in hospital setting, the LPN email list was screened for the word “hospital” in the employer name and address
fields. 146 Florida and 25 Rhode Island LPNs were identified as self-reporting hospital work and were therefore selected for email solicitation.

Advertisement on Facebook and Reddit took place via unpaid advertisement. Social media advertisement is considered to be a feasible and cost-effective means of targeted recruitment (Green et al., 2021). Targeted advertisement is a method of social media marketing in which selected groups of individuals can be served advertisement (Forgasz et al., 2017). Embedded algorithms on Facebook assigns user attributes like location and interests by tracking their geographic location and interactions on the website. Those assigned attributes can be utilized to target advertisement at selected groups of people, resulting in a target population that is selectively exposed to the advertisement (Kuhne & Zindel, 2020). Advertisement campaigns can consist of very brief textual information and a survey link. The templates utilized for all advertisement recruitment are in Appendix G.

The survey landing page provided a description of the study purpose, inclusion criteria, procedures, risks and benefits, voluntary nature of participation, and researcher contact information. The landing page was written in plain language and included a mandatory question affirming the participant’s agreement to participate in the survey. Informed consent and assent are processes, rather than a one-time decision to participate (Grant, 2021). In alignment with this understanding of assent as a continuous process, the only mandatory question on the survey was the initial assent affirmation question. Participants could skip questions or voluntarily stop the survey at any time. The survey landing page included a statement on the participant’s right to voluntarily stop at any
time. This is in alignment with the Marquette University institutional review board (IRB) policy on informed consent and assent (Marquette University, 2022).

**Data Integrity**

Exclusively digital anonymous surveys, as employed by this study, present a potential risk for impaired data integrity. Fraudulent surveys completed by automated bots or persons repeatedly taking the survey were a potential concern given the gift card lottery employed by this study. One study which employed a $15 gift card as a reward for all survey participants estimated that 5% were fraudulent (Pozzar et al., 2020). Multiple methods of fraud detection and prevention are recommended to preserve survey result integrity (Lawlor et al., 2021; Zhang et al., 2022). The overall risk of fraudulent surveys via automated systems or bots is low but nonetheless represents a limitation of this study. Survey settings in Qualtrics were set to employ cookies, digital data packages that can be used for internet tracking purposes, to prevent multiple submissions by the same device as another form of survey fraud mitigation (Lawlor et al., 2021; Qualtrics, 2022).

**Pilot**

The aim of the pilot was to assess the formatting, wording, acceptability, and clarity of the survey and items. The pilot was also performed to provide a preliminary evaluation of the internal consistency and to evaluate for heterogeneity of the altruism measurement questions developed. Thus, a convenience sample of 25 was recruited to pilot the survey and provide feedback. This pilot sample size determination was informed by pilot sample size recommendations published by Hertzog (2008) to enable a precursory evaluation of item-item performance and Cronbach’s alpha. The pilot participants were included in the total sample.
Study

An a priori statistical power analysis was performed for the binary regression models and correlation coefficients planned to address the research questions. To achieve a statistical power of at least 80% and a significance level of 0.05 for all quantitative measures, I aimed to recruit a sample of at least 819 nurses for this study. The power analysis was performed using PASS (NCSS LLC, 2021) The regression power analysis yielded the largest sample of 665 completed surveys and was thus selected as the target number. A logistic regression of the binary dependent variables Y (Intention to Leave Current Position, Profession) on a continuous, normally distributed independent variable X (work-related burnout) moderated by a normally distributed independent variable N (extrinsic work rewards) will require a sample of 665 observations to achieve 80% power at a 0.05 significance level to detect a change from the value of 0.05 as the mean of X to 0.08 when X is increased to one standard deviation above the mean, corresponding to an odds ratio of 1.652. Dropout rate is the percentage of subjects (or items) that are expected to be lost at random during the study and for whom no or very limited response data will be collected (i.e., will be treated as "missing"). Instrument data was considered missing if <80% of instrument items were answered unless otherwise specified by the tool instructions. The dropout-inflated total enrollment sample size was therefore 819 based on an estimated 20% dropout rate (Julious, 2010).

Instrumentation

Demographic Data

Demographic data was collected to describe the sample, consisting of participant age, gender, race, ethnicity, number of years in nursing, number of nursing jobs currently
held, highest completed nursing education level, type of practice and area of practice in the primary nursing job, average number of hours worked as a nurse per week, and current union representation in nursing work (Appendix E). Type of practice refers to the nurse’s role in their primary nursing job, for example direct patient care, leadership/management, informatics, or education. Area of practice refers to area of clinical practice, for example general medicine, labor and delivery, or critical care. Race and ethnicity descriptor terms were selected according to the standards outlined by the U.S. Department of Health and Human Services Office of Minority Health (2021).

Statistical sampling, the process of examining a smaller group of individuals from a target population, is utilized to examine and estimate attributes of the target population. The sample is not fully reflective of the target population, it simply provides an estimation for the population in question (Swinscow, 1997). Demographic data enables researchers to better understand whom the sample is comprised of and if they are representative of the target population, can be which in turn inform how generalizable the study is to a general population ("Encyclopedia of Research Design," 2010). The demographics described above provide information about how the sample represents the target population of United States acute care hospital RNs and LPNs. Demographic data collected in this survey can be compared to other sources of demographic data for the target population, such as other studies examining a similar population and Bureau of Labor Statistics (2023) data.

Demographic data was also utilized to assess job demands. Practice type (e.g., direct care, management, education, etc.), practice area (e.g., medical/surgical, critical care, emergency department, etc.), average number of patients, number of hours worked,
years in current position, and years in the profession are representative of some job demands. Different job descriptions by practice type experience different job demands. Practice area and average number of patients were used to calculate an adjusted patient ratio variable to account for different ratios in different care areas, described below in the data analysis section. Number of hours worked is an established source of job demand highlighted in the literature review in chapter two. Job demands may also differ by number of years in a given position or years of experience in the nursing profession.

**Intrinsic Work Rewards**

**Satisfaction of Employees in Health Care Survey.** The Satisfaction of Employees in Health Care Survey (SEHC) is a 20-question instrument designed to measure the workplace needs of healthcare workers (Appendix B). The tool was developed as part of the Ethiopian Hospital Management Initiative in response to an identified need to retain healthcare workers in Ethiopia due to critically limited number of healthcare workers (Alpern et al., 2013; Fetene et al., 2016). The intention of the tool was to strengthen healthcare workforce retention by providing information about job satisfaction metrics that are linked to the intention to leave healthcare positions and professions. The tool was developed in English, translated into Amharic, Oromifa, and Tigrinya, and initially validated for use in Ethiopian healthcare workers in all four languages (Alpern et al., 2013). The SEHC has since been validated for use in United States acute care hospital nurses in English only (Alpern et al., 2013; Chang et al., 2017).

During the initial tool development study, the SEHC utilized a varimax orthogonal rotated factor analysis with three factors supported by the data. The factors were labeled as relationship with management/supervisors (factor one), job contentment
(factor two), and relationships with coworkers (factor three) based on the prior literature review (Alpern et al., 2013). These factors are measured by the first 18 questions on the SEHC. These questions are measured on a 4-point Likert-style scale from Strongly Disagree to Strongly Agree, with no neutral option. The questions consist of a series of statements about the workplace with which participants rate their agreement.

The first factor, relationship with management/supervisors, is measured by 11 questions consisting of statements such as “I have learned many new job skills in this position,” “The management makes changes based on my suggestions/feedback,” and “My work assignments are always clearly explained to me.” The second factor, job contentment, is measured by eight questions consisting of statements such as “I am appropriately recognized when I perform well at my regular work duties” and “The amount of work I am expected to finish each week is reasonable.” The third factor, relationships with coworkers, consisting of two questions “My coworkers and I work well together” and “I feel I can easily communicate with members from all levels of this organization.” Three questions are scored in more than one category. Additionally, there are two global questions at the end of the survey: a question about recommending this workplace to other workers, and a general rating of whether the facility is a good place to work. These questions were not part of the scale but were utilized to provide a source for convergence reliability for the three factors measured by the first 18 questions in the scale (Alpern et al., 2013; Chang et al., 2017). These questions were used in this study as an intrinsic work reward measuring global job satisfaction. All questions are scaled from 0-100; questions 1-19 are each scored as 0, 33, 67, and 100 for strongly disagree, disagree,
agree, and strongly agree respectively. The numeric answer to question 20 is multiplied by 10.

Internal consistency for the three factors were evaluated by Cronbach’s alpha with coefficients of 0.89, 0.70, and 0.70 respectively (Alpern et al., 2013). All three factors were significantly correlated with the overall satisfaction questions (#19-20), $p < 0.001$ for all three. For question 19, the correlation coefficient was 0.42, 0.40, and 0.15 for the three factors respectively, indicating a medium effect size for factors one and two, and a small effect size for factor three. For question 20, the correlation coefficient was 0.43, 0.41, and 0.14, also indicating a medium effect size for factors one and two, and a small effect size for factor three (Alpern et al., 2013). The validation study for US healthcare workers by Chang et al. (2017) evaluated the SEHC using four models: the varimax orthogonal model utilized by Alpern et al. (2013), a three-factor model, a one-factor model, and a one-factor model with nine correlated error terms and found that a one-factor model had the best fit. However, Chang et al. (2017) noted that the US healthcare worker sample included a sizable proportion of non-hospital healthcare workers like community healthcare workers, and non-clinical roles like analysts and researchers as compared to the Ethiopian model, which may have influenced the models utilized. Therefore, I will consider both the three-factor model and the one-factor model in the analysis section of this study.

The SEHC was chosen intentionally over of other tools like the Practice Environment Scale of the Nursing Work Index or the Job Satisfaction Survey because it was designed to identify causes for intention to leave current positions and healthcare professions (Alpern et al., 2013; Fetene et al., 2016). The design rationale for the SEHC
is in close alignment with the design of this study: to evaluate intention to leave current positions and profession. The three factors described by Alpern et al. (2013) are also in alignment with the intrinsic work rewards that will be evaluated in this study. Positive relationships with management and colleagues are representative examples of intrinsic work motivations. Job satisfaction, as defined by the SEHC, is also representative of an intrinsic work motivation because the questions pertain to a worker’s practical ability to complete work, develop relationships with coworkers and managers, and to attain recognition for performing their job duties well (Alpern et al., 2013; Frey, 1997).

**Work-Related Burnout**

The Copenhagen Burnout Inventory Work-Related Burnout Scale. Nurse work-related burnout was measured by the Copenhagen Burnout Inventory Work-Related Burnout scale (Kristensen et al., 2005) (Appendix A). Work-related burnout is defined by Kristensen et al. as a syndrome of state of fatigue and exhaustion resulting from long-term exposure to situations that are emotionally demanding in the workplace. The scale measures burnout that is specifically related to the work environment, as attributed by the participant, with Likert-style questions, such as: “Are you exhausted in the morning at the thought of another day at work?” As such, the scale assumes the participant is engaged in employed work and is reliant upon the participant’s self-attribution of their exhaustion to their work environment. The Copenhagen Burnout Inventory Work-Related Burnout scale is not intended to attribute causation of burnout to the workplace, and instead is a measure of the connection the individual notes between their workplace and their fatigue (Borritz et al., 2006; Kristensen et al., 2005). The scale is comprised of seven questions,
each scored from 0 (low burnout) to 100 (high burnout). One question is reverse-coded. The total score is the mean of the scores on all seven items (Kristensen et al., 2005).

The Copenhagen Burnout Inventory was validated in the Project on Burnout, Motivation, and Job Satisfaction (PUMA) study that took place in Denmark and commenced in 1997 (Borritz et al., 2006). The tool validation study evaluated job titles, lifestyle, work absences, family-work interface, physical health, and psychosocial factors around work and family (Kristensen et al., 2005). It includes three subscales: personal burnout, work-related burnout, and client-related burnout. Personal burnout is a generalized measure of overall burnout. Work-related burnout is a subscale that measures burnout that pertains to one’s work. Client-related burnout is a subscale that measures burnout that pertains to the clients one works with at work. Each subscale is a separate tool that may be used individually; one need not measure personal and client-related burnout to measure work-related burnout, for example. This tool is in the public domain and is free to use (Kristensen et al., 2005).

The Copenhagen Burnout Inventory Work-Related Burnout Scale has strong internal reliability with a Cronbach’s alpha of 0.87 (Kristensen et al., 2005). The scale was positively skewed during the validation study, with an average score of 33 for all groups and 35 for general nurses and 28 for head nurses, corresponding with low burnout levels. The PUMA study found that greater work-related burnout scores were correlated with lower vitality, mental health, and general health at baseline and a three-year follow-up in the PUMA study (Borritz et al., 2010; Kristensen et al., 2005). Work-related burnout was highly correlated with job satisfaction ($r=-0.51$), (Borritz et al., 2006). The PUMA study also found marked differences in work-related burnout between the baseline
and three-year follow-up despite longitudinal stability in personal burnout scores on the Copenhagen Burnout Inventory. The researchers considered that large organizational changes took place between the commencement and completion of the study, which may account for the work-related burnout changes and provides some credence to use of the work-related burnout scale as a measure of burnout specific to the workplace (Borritz et al., 2005).

The Copenhagen Burnout Inventory Work-Related Burnout Scale was deliberately selected from a multitude of several other tools for its specificity in measuring burnout that is work-related. While personal and client-related burnouts, and burnout syndrome as a generality, may influence intention to leave, the framework utilized in this dissertation primarily pertains to the effects of the workplace upon workers. As such, it was determined to be most appropriate to use a tool with specificity to the workplace instead of other more generalized tools like the Maslach Burnout Inventory or Oldenburg Burnout Inventory.

**Extrinsic Work Rewards**

Extrinsic work rewards were measured using the following instruments, summarized in Appendix D.

**Self-Reported Fiscal Compensation.** Self-reported fiscal compensation was measured by six questions. The first two questions were a self-report of participants’ average take-home pay from their primary professional nursing job and how often they are paid at that job (e.g.: weekly, every two weeks, monthly, etc.). This line of questioning is intended to capture a compensation measure that includes typical overtime pay or bonuses but excludes items that are typically deducted such as taxes and pre-tax
insurance premiums. The third question was a self-report of the participant’s annual household income. A fourth question addressed the average number of hours worked per week at the participant’s primary nursing job. A fifth question addressed participant satisfaction with their compensation. Finally, a free text question will be provided for participants to additionally discuss their financial compensation.

**Healthcare Benefits.** Two questions addressed healthcare benefits provided by the participant’s nursing job: one binary question on healthcare benefit enrollment, and a Likert-style question rating their satisfaction with their healthcare benefits from their nursing work.

**Self-Reported Costs.** Self-reported housing costs were measured by the following question: “How much does your family pay per month for housing?” This study drew a sample from the United States, which is geographically and economically diverse. Housing price to income ratio is an economic measure that provides information on cost of living and is commonly used to measure local cost-of-living and housing affordability (Rahim, 2015). While housing price to income ratio is an incomplete measure of local cost-of-living for each participant, this metric will allow us to control for variances in cost of living that may otherwise be difficult to control for when measuring income. Not all households are single-income; almost half of United States households are multi-income (Bureau of Labor Statistics, 2022a; Fisher & Johnson, 2019). Housing costs can be compared both to income from the primary nursing job and the total household income to provide a cursory examination of financial dependence on nursing income from the participant’s primary nursing job (Fisher & Johnson, 2019; Rahim, 2015). Self-reported student debt burden will also be assessed with a single
question, as prior research has shown a potential link between intention to stay/leave and student debts associated with nursing education (Christianson, Johnson, et al., 2022).

**Intention to Leave the Current Position and Profession**

Intention to leave the current position and the profession are outcome measures, and were be assessed by asking two separate binary (yes/no) questions: “Do you intend to leave your current position in the next six months?” and “Do you intend to leave the nursing profession in the next year?” Both questions are accompanied by a free text option for participants to qualitatively explain their answers if desired (Appendix D).

While scales exist to measure intention to leave, such as the Work Climate Questionnaire (Gagnon et al., 2009), these scales do not measure the participant’s self-stated intention to leave. Rather, many intention to leave scales measure intention to leave indirectly through items such as perceived work growth, work expectations, appreciation at work, and general job satisfaction (Ayalew & Workineh, 2020; Sharififard et al., 2019). Similar metrics are already being measured as independent variables in this study and are therefore inappropriate for measurement as the dependent variable. Furthermore, prior studies have similarly opted to measure intention to leave as a binary, with the limitation that expressed intention to leave does not universally translate into leaving the current position or profession (Christianson, Johnson, et al., 2022; Van den Bulcke et al., 2020).

**Execution of Altruism**

Execution of altruism was measured by a series of questions designed to address the practical ability to perform altruistic behaviors in the professional setting. These questions were informed by the literature review on altruism as a reward mechanism for professional nursing. The findings from that literature review are summarized into four
concepts: work engagement, barriers to altruism, self-sacrifice, and spirituality, and are described in chapter two. In accordance with those findings, questions were developed to address each of these concepts as they pertain to performance of altruism in the workplace.

Concepts from an instrument aimed at measuring altruistic intentions in non-professional caregivers were identified: the Family Caregivers’ Motives-for-Helping scale. This tool is primarily designed to measure motivations for altruism; however, it includes contents that are also pertinent to altruism execution. Examples of this crossover include attributes the Motives-for-Helping scale called “reward-seeking helping motive” and “altruism helping motive” which were defined as altruism motivated by reward-seeking and the desire to help others, respectively. The Family Caregivers’ Motives-for-Helping Scale measured these items with questions such as “I feel best when I help,” “I would rather help even if someone more qualified could,” and “My major concern is that the person gets the help he/she needs” (Smith et al., 2001). This tool is insufficient to modify and attempt validation in a professional setting for several reasons, chief among them the measurement of motives as opposed to practice. Additionally, many of the questions presented in the Family Caregivers’ Motives-for-Helping scale would likely be subject to a high degree of social desirability bias if applied directly to professional nurses. While our questions will contain items that were derived in part from this pre-existing tool, it is insufficient to singularly measure the construct of interest within the context of interest.

Inspiration for these altruism execution questions was also drawn from the Professional Quality of Life Scale (ProQOL), which measures compassion satisfaction
and compassion fatigue (Stamm, 2010). Compassion satisfaction is defined as pleasure derived from being able to help others through work, and is framed as a foil to compassion fatigue, a syndrome of exhaustion and secondary traumatic stress. The ProQOL includes items that pertain to personal happiness and caring nature, secondary traumatic stress, altruistic behaviors in the workplace such as “I feel invigorated after working with those I help,” and overall satisfaction with one’s work. While compassion satisfaction is not an equivalent concept to execution of altruism, the concept of altruism execution is one attribute of compassion satisfaction (Stamm, 2010; Watts & Robertson, 2015). Thus, this tool is too broad to measure the construct of interest, however its commonalities were considered while developing questions to measure execution of altruism.

All the questions were statements that participants were asked to score on a four-point Likert-style consisting of the options strongly disagree (one point), disagree (two points), agree (three points), and strongly agree (four points), with inverse point assignments to reverse-coded items denoted. A higher score indicates greater execution of altruism in the workplace. Statements to address work engagement will include the following questions: “Every day I go to work, I feel excited that I will be able to positively impact my patients,” “I feel satisfied with how much I can help my patients in my current role,” and “My ability to help others motivates me to continue going to work.” Statements to address barriers to altruism will include: “I often feel I must choose between connecting with my patients and accomplishing assigned work tasks” (reverse-coded), “I feel I have time to help coworkers when they need assistance,” and “I feel the system I work in makes it harder for me to do altruistic things for my patients” (reverse-
Statements to address self-sacrifice will include: “I am almost always able to leave work on time,” “I have felt conflicted or guilty about taking a meal break because I am worried my patients will need care while I am away” (reverse-coded), “I feel guilty or obligated to come in on my days off when I receive notification that my workplace is short-staffed” (reverse-coded). Spirituality will be addressed by one question: “I am spiritually fulfilled by my ability to help others in my work.” These questions are outlined in a matrix in Appendix C. Two free text questions will also be asked to qualitatively measure altruism execution in the professional setting: “How does your institution support you to successfully help patients?” and “In your workplace, what barriers exist that impede you from helping your patients?” These questions provided a qualitative backdrop to provide additional context to the Likert-style questions.

Items one, two, and three were intended to examine the concept of work engagement through altruism. Items four, five, and six were intended to examine workplace barriers to altruism. Items seven, eight, and nine were intended to examine self-sacrifice in an effort to achieve altruism. Item ten was intended to examine spirituality through workplace altruistic behavior. The items are listed in Appendix C.

**Data Collection**

Data collection for the pilot commenced on January 16th, 2023 after IRB approval was obtained on January 10th, 2023. Initial collection proceeded until a cohort of 25 pilot participants were recruited via social media. Feedback was provided by participants in the pilot and modifications were made to the study based on pilot feedback, described in chapter four. Following pilot completion, the social media recruitment was scaled up and
the email recruitment campaign commenced as described above. Survey collection ended on March 31st, 2023. Data collected consisted of the following tools and questions.

Data Analyses

IBM SPSS for Windows version 28.0.0 (*IBM SPSS Statistics for Windows, 2021*) was used for data analyses. Missing data for the Copenhagen Burnout Inventory Work-Related Burnout scale and the Satisfaction of Employees in Health Care survey instruments was scored as prorated average if 80% or greater items are completed for the respective scale (Mazza et al., 2015).

Prior to analysis, several new variables were calculated using combinations of collected variables. Annual take-home nursing pay was calculated by multiplying nursing take-home pay by paycheck frequency (e.g., $1.5 thousand take home pay, paid every other week or 26 paychecks per year = $39 thousand) and annual housing costs were calculated by multiplying reported monthly housing cost by 12. Another new variable was created to examine the annual take-home nursing pay to annual housing costs ratio, created by dividing annual take-home nursing pay by annual housing costs. A new variable was created to adjust patient ratios by practice area. Adjusted patient ratios were calculated by subtracting the self-reported number of patients under the nurse’s care from the standardized patient ratios outlined by the California RN staffing ratio law ("AB-394 Health facilities: Nursing staff," 1999), outlined in table 4 below. California AB-394 denotes labor and delivery as a one to two RN to patient ratio, antepartum and postpartum couples as a one to four ratio, and postpartum women only as a one to six ratio (Kasprak, 2004). I did not distinguish between labor and delivery areas in this study and have therefore chosen the mean obstetric ratio of one RN to four patients between the three
obstetric areas outlined in California law. AB-394 does not outline specific ratios for oncology or observation areas, therefore the medical/surgical ratio of 1:5 was adapted for these areas. Emergency department ratios are also adjusted for critical care and trauma; however, I chose to use the general emergency department ratio for consistency and because it allowed for the largest number of patients per nurse. Participants who reported work in non-direct care areas including leadership, education, informatics, case management, or did not specify were labeled as missing data for this adjusted patient ratio calculation.

Table 4

<table>
<thead>
<tr>
<th>Practice Area</th>
<th>California AB-394 Patient Ratio (RN:patient)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical/surgical</td>
<td>1:5</td>
</tr>
<tr>
<td>Intermediate care/ICU stepdown</td>
<td>1:3</td>
</tr>
<tr>
<td>ICU/Critical care</td>
<td>1:2</td>
</tr>
<tr>
<td>Emergency department</td>
<td>1:4</td>
</tr>
<tr>
<td>Pediatrics</td>
<td>1:4</td>
</tr>
<tr>
<td>Obstetrics, Labor and delivery, antepartum, postpartum</td>
<td>1:4</td>
</tr>
<tr>
<td>Operating room, perioperative, post-anesthesia</td>
<td>1:1</td>
</tr>
<tr>
<td>Observation</td>
<td>1:5</td>
</tr>
<tr>
<td>Psychiatric</td>
<td>1:6</td>
</tr>
<tr>
<td>Oncology</td>
<td>1:5</td>
</tr>
</tbody>
</table>

Notes: Patient ratios denoted are those utilized for calculating the adjusted patient ratio in this study. Some areas, such as emergency department or obstetrics, have varying staffing ratio mandates which are not reflected in this table.

Research Questions #1-3

A series of logistic regressions were performed to assess the relationships between respective outcome (dependent) and independent variables. Logistic regression is an analysis technique used to model dependent variables as a function of independent
variables (DeMaris, 1995; Field, 2013). Linear regression can be utilized to examine for both mediator and moderator-type relationships as hypothesized in research questions one, two and three respectively.

The process of examining a mediator-type and moderator-type relationships through linear regression was described by Tavakoli et al. (2009) in which sequential regressions can triangulate the presence of a mediator variable. To examine mediator-type relationships, a regression is performed to examine the relationship between each (1) the independent variable(s) and dependent variable, (2) the independent variable(s) and the mediator variable(s), and (3) the mediator variable(s) and the dependent variable. If there is a statistically significant independent relationship between the independent variable and dependent variable, independent variable and mediator variable, and the mediator variable and dependent variable, a mediator-type relationship exists. All three significant relationships must be present for a mediator-type relationship to exist. To examine moderator-type relationships, a regression is performed to examine the relationship between independent variables, moderator variables, and the dependent variable. If there are statistically significant independent and moderator variables, to examine for moderator effect the Z scores for significant variables will be calculated and saved as a variable. New variable(s) will be calculated as the product of the independent variable Z score and each respective prospective moderator variable that has a significant relationship with the dependent variable. A follow-up regression will evaluate the relationships between the Z scores for both the independent variable, prospective moderator variable, and the variable of the product of both. If a moderator relationship exists, the variable representing product will be statistically significant in the regression
as well as the individual Z score variables for the independent variable and moderator variable.

**Research Question #4**

The internal consistency of the altruism execution questions were assessed by calculating Cronbach’s alpha and examining the inter-item correlations (Taylor, 2021b). Cronbach’s alpha is a flawed measure of holistic reliability (McNeish, 2018); however, Cronbach’s alpha provides a practical method for examining preliminary reliability of the exploratory altruism execution items given that it is outside the scope of the tools and methods utilized in this study to assess test-retest reliability or coefficient omega (Taylor, 2021a). Exploratory factor analysis was performed to assess the exploratory altruism questions described earlier in this chapter. Factor analysis assesses shared variance between items (Costello & Osborne, 2005). The purpose of this exploratory factor analysis will be to assess for uni- or multi-dimensionality in factor(s) present in this data set (e.g., does our data set support a single common factor for all execution of altruism questions or are there additional latent variables?) (Hooper, 2012). Factor loads of each item were calculated to assess the weight of each item (Costello & Osborne, 2005; Hooper, 2012). These calculations provided additional information on the validity of the items (e.g., if the items represent the factor(s) outlined by the literature review that informed their development).

Following factor analysis and examination of the resulting factors and contextualization of the factors, Pearson’s r correlation and Spearman’s rho correlation tests were performed to evaluate the relationship between the factors determined by factor analysis, intrinsic work reward variables, and work-related burnout. Pearson’s r
correlation is a parametric test and is appropriate only for evaluating for a linear relationship between variables, where Spearman’s rho correlation is a nonparametric test that is also appropriate to evaluate for monotonic relationships between variables (Akoglu, 2018; Field, 2013). Use of Spearman’s rho correlation, even when the assumptions to also perform Pearson’s r correlation are also met, can provide additional information by assessing for monotonicity that may not be apparent with a Pearson’s r correlation alone (Akoglu, 2018). Spearman’s rho can also be used if the assumption of normality is violated within our data set, where Pearson’s r cannot (Akoglu, 2018; Field, 2013). This analysis is appropriate to assess the relationship between factors extracted from the respective 10 altruism execution items retained for analysis, intrinsic work rewards, and work-related burnout.

Finally, a series of linear regression was performed to examine the potential relationships between factors extracted from the respective 10 altruism execution items as a mediator for the relationship between job demands and work-related burnout. This process is similar to that utilized in research question one, however the SEHC items will be replaced with altruism execution factors.

Conclusion

This chapter described the design, sampling, and methods. The rationale for each instrument and measurement method and strategies to optimize the vigor of this study were described. The chapter concludes with the proposed data analysis techniques.
IV: RESULTS

The purpose of this cross-sectional correlational study is to investigate the relationships between work rewards, work-related burnout, and intention to leave nursing positions and the nursing profession. There are four research questions to describe: the relationship between nurse job demands, work-related burnout, intrinsic and extrinsic motivations for work, intention to leave their position, and intention to leave the profession. The questions and their accompanying hypotheses are:

1. Do intrinsic work rewards mediate the relationship between job demands and work-related burnout?
   a. $H_a$: Intrinsic work rewards do mediate the relationship between job demands and work-related burnout.
   b. $H_0$: Intrinsic work rewards do not mediate the relationship between job demands and work-related burnout.

2. Do extrinsic work rewards moderate the relationship between work-related burnout and intention to leave the current position?
   a. $H_a$: Extrinsic work rewards do moderate the relationship between work-related burnout and intention to leave the current position.
   b. $H_0$: Extrinsic work rewards do not moderate the relationship between work-related burnout and intention to leave the current position.

3. Do extrinsic work rewards moderate the relationship between work-related burnout and intention to leave the profession?
   a. $H_a$: Extrinsic work rewards do moderate the relationship between work-related burnout and intention to leave the profession.
b. $H_0$: Extrinsic work rewards do not moderate the relationship between work-related burnout and intention to leave the profession.

4. What is the relationship between execution of altruistic behavior and intrinsic work rewards?

**Findings**

**Pilot**

Marquette University Institutional Review Board approval was obtained for the study on January 10, 2023. The pilot took place between January 16, 2023, and February 13, 2023. Participants recruited for the pilot study were personal contacts of the dissertator and contacts of those contacts who met study eligibility criteria. Personal contacts of the dissertator were selected for their ability to provide candid feedback about the study’s functionality, understandability, and feasibility. Contacts-of-contacts were selected to provide feedback with a greater degree of social removal from the dissertator. Feedback provided about the survey from all pilot participants was verbal and via email.

Ten participants in the pilot study took the survey on a mobile phone, and 15 took the survey on a personal computer. All 25 participants reported that the survey was both feasible and acceptable with regards to both survey length and item content. No pilot participants had questions about how to interpret survey items. The first mobile participant did report an issue around formatting for the slide-bar questions (e.g., salary amounts, age), which was fixed upon dissertator notification of the issue and no subsequent issues were reported.

Numerous participants brought up two additional questions that were not asked in the survey, but they believed may be pertinent to the overall gestalt of the study: travel
nursing (binary) and nursing job type (e.g., LPN, RN, or NP). Addition of both questions was considered in context of the research questions.

Travel nurses have a different extrinsic reward structure than nurses do; they typically enjoy higher pay rates and greater work flexibility than permanent staff nurses but are not necessarily guaranteed benefits like healthcare coverage or consistent work availability (Brooks, 2023). Permanent staff nurses may also bear a greater burden of non-clinical work, such as unit meetings, or different standards for work quality like charting expectations. Consequently, travel nurses experience both extrinsic and intrinsic work rewards differently from permanent staff nurses. Therefore, I decided to include an additional binary question about travel work in the survey.

Nursing job type may also influence work rewards. In 2021, United States LPNs, RNs, and NPs earned a median salary of $48,070, $77,600, and $120,680 respectively (Bureau of Labor Statistics, 2022b, 2022c, 2022d). Differences in intrinsic work rewards between nursing job types have not been well-elucidated in the literature but may differ given the differences in job descriptions. Therefore, I decided to include an additional question on nursing job type.

The second purpose of the pilot was to gather preliminary data on the internal reliability of the altruism execution questions developed for this study. A Cronbach’s alpha was therefore performed on the 25 pilot participant responses to all 10 altruism execution questions. The Cronbach’s alpha was 0.666 for all 10 items together but increased to 0.805 if one item was excluded from the analysis: “I feel guilty or obligated to come in on my days off when I receive notification that my workplace is short-staffed.” Upon evaluation of the inter-item correlation matrix, it was noted that this item
had a negative correlation with all the remaining nine items in the scale (table 5).

Table 5

<table>
<thead>
<tr>
<th>Item</th>
<th>Item 1</th>
<th>Item 2</th>
<th>Item 3</th>
<th>Item 4</th>
<th>Item 5</th>
<th>Item 6</th>
<th>Item 7</th>
<th>Item 8</th>
<th>Item 9</th>
<th>Item 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item 1</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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</tr>
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<td></td>
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<td></td>
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<td>Item 4</td>
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<td></td>
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<tr>
<td>Item 5</td>
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<td></td>
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<tr>
<td>Item 6</td>
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<td>0.56</td>
<td>-0.01</td>
<td>0.58</td>
<td>0.65</td>
<td>-</td>
<td></td>
<td></td>
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<tr>
<td>Item 7</td>
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<td>0.31</td>
<td>0.05</td>
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<td>0.38</td>
<td>0.25</td>
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<td>0.37</td>
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<td>0.10</td>
<td>0.32</td>
<td>-</td>
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<td></td>
</tr>
<tr>
<td>Item 9</td>
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<td>-0.50</td>
<td>-0.35</td>
<td>-0.39</td>
<td>-0.19</td>
<td>-0.30</td>
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<td>-0.18</td>
<td>-</td>
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<tr>
<td>Item 10</td>
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<td>0.43</td>
<td>0.12</td>
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<td>0.39</td>
<td>0.46</td>
<td>0.10</td>
<td>-0.67</td>
<td>-</td>
</tr>
</tbody>
</table>

Note: Inter-item correlation matrix of altruism execution items, pilot data only. Item number is sequential with the items indicated in Appendix C.

While this finding is not consistent with what was expected based upon the altruism execution literature review, it is consistent with the theoretical framework underpinning this study. Item 9 was negatively coded, so nurses who reported they strongly agree that they feel guilt or obligation to come in on unscheduled days to fill staffing gaps were believed to have lower altruism execution. However, the pilot data shows the opposite, that nurses who report greater overall altruism execution scores are more likely to feel guilty or obligated to fill in on short-staffed shifts, may be the case. This finding is consistent with the Job Demands-Resources framing of work rewards as a motivation to choose to work; nurses who report greater reward through altruistic execution may be more likely to feel guilty about short-staffing and therefore choose to come in to fill staffing gaps because they receive a greater reward than nurses who have lower overall altruistic execution scores. When altruism execution item 9 was recoded to
be normally coded, rather than reverse coded, the Cronbach’s alpha for the 10 items together increased to 0.831, indicating the 10 items have high internal consistency. Most items had an inter-item covariance of <0.5, indicating medium to low covariance between items (table 6).

Table 6
Pilot Inter-Item Covariance of Altruism Execution Items

<table>
<thead>
<tr>
<th>Item 1</th>
<th>Item 2</th>
<th>Item 3</th>
<th>Item 4</th>
<th>Item 5</th>
<th>Item 6</th>
<th>Item 7</th>
<th>Item 8</th>
<th>Item 9</th>
<th>Item 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.77</td>
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<td>0.36</td>
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<td>0.26</td>
<td>0.10</td>
<td>0.27</td>
<td>0.33</td>
<td>0.14</td>
</tr>
<tr>
<td>0.61</td>
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<td>0.18</td>
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</tr>
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<td>0.58</td>
<td>0.10</td>
<td>-0.24</td>
<td>0.00</td>
<td>0.03</td>
<td>0.00</td>
<td>0.23</td>
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<td>0.27</td>
<td>0.31</td>
<td>0.17</td>
</tr>
<tr>
<td>0.06</td>
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<td>0.24</td>
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<td>-0.02</td>
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<td>0.18</td>
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<td>0.10</td>
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<td>0.03</td>
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<td>0.23</td>
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<td>0.27</td>
<td>0.18</td>
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<td>0.08</td>
<td>0.53</td>
<td>0.79</td>
</tr>
</tbody>
</table>

Notes: Inter-item covariance matrix of altruism execution questions with item 9 normally coded, pilot data only. Item number is sequential with the items indicated in Appendix C.

Demographics

In total, 925 participants participated in the survey between January 16th, 2023, and March 31st, 2023. Participants who participated in the pilot described earlier were included in the full analysis. The first two sequential instruments on the survey, the Copenhagen Burnout Inventory (CBI) Work-Related Burnout scale and the Satisfaction of Employees in Health Care (SEHC) survey, were completed by all participants who finished at two or greater instruments. The SEHC is one of the intrinsic work reward measures and the CBI is the burnout measure utilized in this survey, both of which are necessary to answer the first research question: “What is the relationship between
intrinsic work rewards related and work-related burnout?” Thus, the 82 participants who completed one or fewer instruments were excluded from this analysis but the 843 participants who completed at least two instruments were included.

Most participants identified as female (n=608, 85.3%), Caucasian/White (n=599, 84.5%), held a bachelor’s degree as an RN (n=376, 54.3%), practiced as RNs (n=640, 90.4%), worked in direct patient care (n=575, 80.9%), were not represented by a union (n=571, 80%), and did not work as travel nurses (n=598, 86.3%). The largest reported practice areas were medical/surgical (n=142, 19.9%) and ICU (n=133, 18.6%). Categorical demographic characteristics are described in detail in table 7 below.

Participants reported a mean age of 45.09 (SD 12.304), mean number of years in nursing of 17.45 (SD 12.813), mean number of years in the current nursing position as 7.2 (SD 8.105). The mean number of nursing jobs held by participants was 1.35 (SD 1.093). Participants cared for a mean of 7.68 patients (SD 8.124). When adjusted for practice type (e.g. medical/surgical, critical care, etc.) by subtracting the maximum number of patients allowed by practice area by the California mandated hospital staffing ratio law described in chapter three from the number of patients reported, the adjusted mean number of patients was 2.83 (SD 6.232) (e.g. nurses cared for a mean of 2.83 ± 6.232 more patients than allowed for by the California mandated staffing ratio law). Participants who did not answer the practice area demographic question were considered missing data for the adjusted number of patients calculation. Missing data was left as missing for analysis purposes.
Table 7
Demographic Characteristics of Participants

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>n (%)</th>
<th># Missing Entries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
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<td></td>
</tr>
<tr>
<td>Female</td>
<td>608 (85.3)</td>
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</tr>
<tr>
<td>Male</td>
<td>98 (13.7)</td>
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</tr>
<tr>
<td>Non-Binary</td>
<td>5 (0.7)</td>
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</tr>
<tr>
<td>Other</td>
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</tr>
<tr>
<td>Race/Ethnicity</td>
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</tr>
<tr>
<td>African American/Black</td>
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<tr>
<td>Asian</td>
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<td>Caucasian/White</td>
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<tr>
<td>Hispanic</td>
<td>41 (5.8)</td>
<td></td>
</tr>
<tr>
<td>Native American/Alaskan Native</td>
<td>4 (0.6)</td>
<td></td>
</tr>
<tr>
<td>Native Hawaiian/Other Pacific Islander</td>
<td>1 (0.1)</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>10 (1.4)</td>
<td></td>
</tr>
<tr>
<td>Highest Nursing Degree</td>
<td>150</td>
<td></td>
</tr>
<tr>
<td>LPN (degree or certificate)</td>
<td>7 (1)</td>
<td></td>
</tr>
<tr>
<td>Nursing diploma (RN)</td>
<td>13 (1.9)</td>
<td></td>
</tr>
<tr>
<td>Associate degree (RN)</td>
<td>144 (20.8)</td>
<td></td>
</tr>
<tr>
<td>Bachelor’s degree (RN)</td>
<td>376 (54.3)</td>
<td></td>
</tr>
<tr>
<td>Master’s degree (RN or NP)</td>
<td>117 (16.9)</td>
<td></td>
</tr>
<tr>
<td>Doctorate or PhD (RN or NP)</td>
<td>36 (5.2)</td>
<td></td>
</tr>
<tr>
<td>Practice Type</td>
<td>132</td>
<td></td>
</tr>
<tr>
<td>Direct patient care</td>
<td>575 (80.9)</td>
<td></td>
</tr>
<tr>
<td>Management/leadership</td>
<td>72 (10.1)</td>
<td></td>
</tr>
<tr>
<td>Informatics</td>
<td>4 (0.6)</td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>10 (1.4)</td>
<td></td>
</tr>
<tr>
<td>Case management</td>
<td>38 (5.3)</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>12 (1.7)</td>
<td></td>
</tr>
<tr>
<td>Practice Area</td>
<td>129</td>
<td></td>
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<tr>
<td>Medical/surgical</td>
<td>142 (19.9)</td>
<td></td>
</tr>
<tr>
<td>Intermediate care/Stepdown</td>
<td>48 (6.7)</td>
<td></td>
</tr>
<tr>
<td>Intensive care unit/critical care</td>
<td>133 (18.6)</td>
<td></td>
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<tr>
<td>Emergency department</td>
<td>77 (10.8)</td>
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<tr>
<td>Pediatrics</td>
<td>31 (4.3)</td>
<td></td>
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<tr>
<td>Obstetrics/lab and</td>
<td>45 (6.3)</td>
<td></td>
</tr>
<tr>
<td>delivery/postpartum/antepartum</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perioperative/intraoperative/post-anesthesia care</td>
<td>74 (10.4)</td>
<td></td>
</tr>
<tr>
<td>Observation</td>
<td>3 (0.4)</td>
<td></td>
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<tr>
<td>Mental health/psychiatric</td>
<td>25 (3.5)</td>
<td></td>
</tr>
<tr>
<td>Oncology</td>
<td>12 (1.7)</td>
<td></td>
</tr>
<tr>
<td>Leadership/management</td>
<td>21 (2.9)</td>
<td></td>
</tr>
<tr>
<td>Characteristic</td>
<td>n (%)</td>
<td># Missing Entries</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>--------</td>
<td>-------------------</td>
</tr>
<tr>
<td>Education</td>
<td>4 (0.6)</td>
<td></td>
</tr>
<tr>
<td>Informatics</td>
<td>4 (0.6)</td>
<td></td>
</tr>
<tr>
<td>Case management</td>
<td>33 (4.6)</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>62 (8.7)</td>
<td></td>
</tr>
<tr>
<td><strong>Nursing Role</strong></td>
<td>135</td>
<td></td>
</tr>
<tr>
<td>LPN</td>
<td>7 (1)</td>
<td></td>
</tr>
<tr>
<td>RN</td>
<td>640 (90.4)</td>
<td></td>
</tr>
<tr>
<td>Advanced Practice Nurse</td>
<td>61 (8.6)</td>
<td></td>
</tr>
<tr>
<td><strong>Travel Nursing</strong></td>
<td>150</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>95 (13.7)</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>598 (86.3)</td>
<td></td>
</tr>
<tr>
<td><strong>Union Representation</strong></td>
<td>129</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>143 (20)</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>571 (80)</td>
<td></td>
</tr>
</tbody>
</table>

Note: Missing entries refers to the number of participants who did not answer a given question of the 843 participants included in this analysis. “Other” in the practice type category referred primarily to nurses in dual roles, such as half clinical, half informatics.

The number of years in nursing and number of years in the current position were not normally distributed. While the mean number of years in nursing was 17.45 (SD 12.813), the median number of years as a nurse was 14. The number of years as a nurse did not violate normality for the purposes of regression analysis, however; the skewness for number of years as a nurse was 0.597, and the kurtosis was -0.731. The mean number of years in the current position was 7.2 (SD 8.105), with a median of 4. The number of years in the current position did violate normality (skewness 2.133, kurtosis 5.680). We opted to nonetheless use number of years in the current position in the analysis.

Qualtrics collects approximated location data via global positioning systems (GPS; if the survey is completed on a mobile device) or via IP address (if the device is not GPS-ready). Location data was manually abstracted to report the state the participant took the survey in and the GPS and/or IP data was subsequently deleted to protect
participant privacy. Qualtrics (2023) does not collect location data unless the participant completes the survey through to the survey completion page. Therefore, location data is missing in for 132 participants who were included in the data set but did not end on the survey completion page. States with the heaviest participant concentrations included Florida (n=178, 25%), Wisconsin (n=135, 19%), Oregon (n=51, 7.2%), and Rhode Island (n=49, 6.9%). This distribution is expected given the email recruitment method employed relied upon harvested email addresses from the Florida, Wisconsin, Oregon, and Rhode Island Boards of Nursing as described in Chapter 3. A visual representation of the state-by-state breakdown of participant locations is pictured in figure 15.

**Figure 15**
Participant Geography by State

The exploratory factor analysis was performed with varimax orthogonal rotation for the 18 non-global items on the Satisfaction of Employees in Health Care survey. The Kaiser-Meyer-Olkin measure of sampling adequacy was 0.945, indicating ‘marvelous’
sample size (Kaiser & Rice, 1974). Bartlett’s test of sphericity had a significance of <0.001, indicating the data in this data set diverges significantly from the identity matrix and is therefore suitable for use in factor analysis. A three-factor solution was reached with Eigenvalues of 7.612 and 1.337, and 1.079 for the three respective factors explaining 42.288%, 7.425%, and 5.995% of item variance, respectively (55.709% cumulative variance explained).

Factor one included items one, two, five, six, seven, nine, fourteen, and eighteen. Factor two included items three, eight, twelve, thirteen, fifteen, and sixteen. Factor three included items four, ten, eleven, and seventeen. A breakdown of the factor loading scores is noted in table 8. Items loaded on factor one were noted to include items pertaining to relationships with managers, such as amount of managerial support and guidance and opportunities for recognition or promotion. Items loaded on factor two were noted to include items pertaining to working conditions, such as work assignments and facilities available to perform expected work duties. Items loaded on factor three were noted to include items pertaining to overall job contentment, such as opportunities to learn new job skills and camaraderie with colleagues.

Table 8
Rotated Component Matrix of Item Loads for Satisfaction of Employees in Health Care Survey Analysis

<table>
<thead>
<tr>
<th>Item</th>
<th>Factor One</th>
<th>Factor Two</th>
<th>Factor Three</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.720*</td>
<td>0.336</td>
<td>0.053</td>
</tr>
<tr>
<td>2</td>
<td>0.686*</td>
<td>0.251</td>
<td>0.233</td>
</tr>
<tr>
<td>3</td>
<td>0.313</td>
<td>0.517*</td>
<td>0.389</td>
</tr>
<tr>
<td>4</td>
<td>0.152</td>
<td>0.189</td>
<td>0.705*</td>
</tr>
<tr>
<td>5</td>
<td>0.761*</td>
<td>0.191</td>
<td>0.215</td>
</tr>
<tr>
<td>6</td>
<td>0.794*</td>
<td>0.257</td>
<td>0.085</td>
</tr>
<tr>
<td>7</td>
<td>0.746*</td>
<td>0.149</td>
<td>0.163</td>
</tr>
<tr>
<td>8</td>
<td>0.509</td>
<td>0.541*</td>
<td>0.068</td>
</tr>
<tr>
<td>9</td>
<td>0.697*</td>
<td>0.122</td>
<td>0.198</td>
</tr>
<tr>
<td>Item</td>
<td>Factor One</td>
<td>Factor Two</td>
<td>Factor Three</td>
</tr>
<tr>
<td>------</td>
<td>------------</td>
<td>------------</td>
<td>--------------</td>
</tr>
<tr>
<td>10</td>
<td>0.497</td>
<td>0.248</td>
<td>0.500*</td>
</tr>
<tr>
<td>11</td>
<td>0.236</td>
<td>0.491*</td>
<td>0.419</td>
</tr>
<tr>
<td>12</td>
<td>0.254</td>
<td>0.703*</td>
<td>0.005</td>
</tr>
<tr>
<td>13</td>
<td>0.180</td>
<td>0.644*</td>
<td>0.244</td>
</tr>
<tr>
<td>14</td>
<td>0.538*</td>
<td>0.420</td>
<td>0.108</td>
</tr>
<tr>
<td>15</td>
<td>0.249</td>
<td>0.740*</td>
<td>0.065</td>
</tr>
<tr>
<td>16</td>
<td>0.143</td>
<td>0.645*</td>
<td>0.191</td>
</tr>
<tr>
<td>17</td>
<td>0.126</td>
<td>0.056</td>
<td>0.706*</td>
</tr>
<tr>
<td>18</td>
<td>0.592*</td>
<td>0.313</td>
<td>0.199</td>
</tr>
</tbody>
</table>

Note: Items included in factors one, two, or three are denoted with an * in the respective factor column.

The three-factor solution found during this analysis is conceptually comparable to items proposed by Alpern et al. (2013), and my analysis also found several items that with very similar loading on more than one factor. Given the somewhat differing nature of the item loading I have opted to utilize the factor-item distribution supported by my analysis rather than the factor loading proposed by Alpern et al. (2013) or Chang et al. (2017). These respective three factors will herein be referred to as “Managerial Relationships,” “Perceived Working Conditions,” and “Opportunities for Collegiality and Growth.”

*Research Question #1*

The first research question, “Do intrinsic work rewards mediate the relationship between job demands and work-related burnout?” was addressed through a series of linear regressions to establish the relationships between proposed job demands, intrinsic work rewards, and work-related burnout. The following respective variable scores were utilized to represent job demands: (1) total nursing hours worked weekly, (2) adjusted patient ratio, (3) years in current position, (4) years in nursing. Intrinsic work rewards were represented by respective scores on the subscales of the Satisfaction of Employees...
in Health Care survey: (1) managerial relationships, (2) perceived working conditions, (3) opportunities for collegiality and growth. The confirmatory (4) global job satisfaction measure from the Satisfaction of Employees of in Health Care survey was also included in analysis. Work-related burnout was represented by the respective Copenhagen Burnout Inventory Work-Related Burnout score. A visualization of the proposed relationship is pictured in figure 16.

![Figure 16](image)

**Research Question #1: Hypothesized Variable Relationships**

- **Mediator:** Intrinsic Work Reward Items
  - 1) Managerial relationships
  - 2) Perceived working conditions
  - 3) Opportunities for collegiality and growth
  - 4) Global job satisfaction

- **Job Demand Items:**
  - 1) Total Nursing Hours Worked Weekly
  - 2) Adjusted Patient Ratio
  - 3) Years in Position
  - 4) Years in Profession

- **Work-Related Burnout Item:**
  - 1) Copenhagen Burnout Inventory Work-Related Burnout Score

Note: Hypothesized relationships between job demands, work-related burnout, and the mediator intrinsic work rewards.

Four linear regressions were performed to evaluate relationships between job demands independent variables and each of the four respective intrinsic work reward dependent variables. Findings including confidence intervals are detailed in table 9. The regression for dependent variable (1) managerial relationships and independent variables (1) total nursing hours worked weekly, (2) adjusted patient ratio, (3) years in position,
and (4) years in the nursing profession was not statistically significant (F=1.812, p=0.125).

The regression for dependent variable (2) perceived working conditions and independent variables (1) total nursing hours worked weekly, (2) adjusted patient ratio, (3) years in position, and (4) years in the nursing profession was statistically significant (F=3.889, p=0.004). The adjusted $R^2$ and $R^2$ were 0.021 and 0.028 respectively, indicating the model explained 2.1-2.8% of variance in perceived working conditions. Only one independent variable, (2) adjusted patient ratio, had a significant relationship with perceived working conditions.

The regression for dependent variable (3) opportunities for collegiality and growth and independent variables (1) total nursing hours worked weekly, (2) adjusted patient ratio, (3) years in position, and (4) years in the nursing profession was statistically significant (F=6.801, p<0.001). The adjusted $R^2$ and $R^2$ were 0.041 and 0.048 respectively, indicating the model explained 4.1-4.8% of variance in opportunities for collegiality and growth. Adjusted patient ratio had a significant relationship with opportunities for collegiality and growth.

The regression for dependent variable (4) global job satisfaction and independent variables (1) total nursing hours worked weekly, (2) adjusted patient ratio, (3) years in position, and (4) years in the nursing profession was not statistically significant (F=1.207, p=0.307).
Table 9
Research Question #1 Regression Equations Between Independent Job Demands and Dependent Intrinsic Work Rewards

<table>
<thead>
<tr>
<th>Dependent Managerial Relationships - Independent Variables</th>
<th>$\beta$</th>
<th>P</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>45.265</td>
<td>&lt;0.001*</td>
<td>38.383</td>
</tr>
<tr>
<td>Total nursing hours worked weekly</td>
<td>-0.099</td>
<td>0.237</td>
<td>-0.264</td>
</tr>
<tr>
<td>Adjusted patient ratio</td>
<td>-0.256</td>
<td>0.098</td>
<td>-0.559</td>
</tr>
<tr>
<td>Years in position</td>
<td>-0.100</td>
<td>0.488</td>
<td>-0.384</td>
</tr>
<tr>
<td>Years in the nursing profession</td>
<td>-0.165</td>
<td>0.072</td>
<td>-0.015</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dependent Perceived Working Conditions - Independent Variables</th>
<th>$\beta$</th>
<th>P</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>55.195</td>
<td>&lt;0.001*</td>
<td>48.908</td>
</tr>
<tr>
<td>Total nursing hours worked weekly</td>
<td>-0.109</td>
<td>0.155</td>
<td>-0.259</td>
</tr>
<tr>
<td>Adjusted patient ratio</td>
<td>-0.452</td>
<td>0.001*</td>
<td>-0.729</td>
</tr>
<tr>
<td>Years in position</td>
<td>0.024</td>
<td>0.854</td>
<td>-0.235</td>
</tr>
<tr>
<td>Years in the nursing profession</td>
<td>0.069</td>
<td>0.414</td>
<td>-0.096</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dependent Opportunities for Collegiality and Growth - Independent Variables*</th>
<th>$\beta$</th>
<th>P</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
A regression was performed to evaluate the relationships between the dependent variable work-related burnout and the independent variables (1) total nursing hours worked weekly, (2) adjusted patient ratio, (3) years in position, and (4) years in the nursing profession. The overall regression model was statistically significant (F=5.737, p<0.001). The adjusted $R^2$ and $R^2$ were 0.033 and 0.041 respectively, indicating the model explained 3.3-4.1% of variance in work-related burnout. Within the model, only number of years in the nursing profession was statistically significant (coefficient -0.267,
A regression was performed to evaluate the relationships between work-related burnout as the dependent variable and four intrinsic work rewards as independent variables: (1) managerial relationships, (2) perceived working conditions, (3) opportunities for collegiality and growth, (4) global job satisfaction. The regression model was statistically significant (F=112.577, p<0.001). The adjusted R² and R² were 0.352 and 0.356 respectively, indicating the model explained 35.2-35.6% of variance in work-related burnout. Within the model, managerial relationships, perceived working conditions, and global job satisfaction were statistically significant (table 11).
Table 11
Research Question #1 Regression Equations Between Intrinsic Work Rewards and Dependent Work-Related Burnout

<table>
<thead>
<tr>
<th>Dependent Work-Related Burnout - Independent Variables</th>
<th>β</th>
<th>P</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>90.304</td>
<td>&lt;0.001*</td>
<td>[86.197, 94.411]</td>
</tr>
<tr>
<td>Managerial Relationships</td>
<td>-0.197</td>
<td>&lt;0.001*</td>
<td>[-0.275, -0.119]</td>
</tr>
<tr>
<td>Perceived Working Conditions</td>
<td>-0.238</td>
<td>&lt;0.001*</td>
<td>[-0.318, -0.157]</td>
</tr>
<tr>
<td>Opportunities for Collegiality and Growth</td>
<td>0.081</td>
<td>0.056</td>
<td>[-0.002, 0.165]</td>
</tr>
<tr>
<td>Global job satisfaction</td>
<td>-0.204</td>
<td>&lt;0.001*</td>
<td>[-0.268, -0.140]</td>
</tr>
</tbody>
</table>

Note: An * denotes a statistically significant finding.

In conclusion, the only job demand item with a significant relationship with work-related burnout was the number of years in the nursing profession. Adjusted patient ratio had a significant relationship with job the intrinsic work reward job contentment, and job contentment had a significant relationship with work-related burnout. Global job satisfaction also had a significant relationship with work-related burnout but no relationship with job demands. No intrinsic work rewards had a true mediator-type relationship with job demands. These relationships have been diagrammed in figure 17.
Figure 17
Research Question #1: Post-Analysis Relationships Diagram

Note: Post-analysis relationships diagram between job demands, intrinsic work rewards, and work-related burnout. The relationships described, including p and beta values noted, between independent variables and dependent variable, independent variables and mediator variables, and mediator variables and the dependent variable are each separate linear regressions.
Embedded Manuscript #2: Why We Quit: The Relationships Between Work-Related Burnout, Work Rewards, and Intention to Leave in Nursing

Abstract

Nurse burnout and pay satisfaction is correlated with intention to leave the profession. Pay satisfaction does not moderate the relationship between burnout and intention to leave the profession. Optimal nurse retention strategies should include multiple strategies to improve retention.

Background

Nurses deliver essential and timely care to patients, however effective care delivery is jeopardized by a severe global nursing labor shortage (American Association of Colleges of Nursing, 2020). In the United States alone, over one million new nurses will need to enter the nursing workforce by 2029 to meet the health needs of an aging population, replace nurses who plan to retire, and to compensate for premature nurse attrition from the workforce (American Association of Colleges of Nursing, 2020). Understaffing is associated with adverse patient outcomes (Kiekkas et al., 2019). In particular, the failure to retain nurses with experience can result in care rationing, incomplete patient care, increased adverse patient outcomes, and can be costly for healthcare institutions (Griffiths et al., 2021; Papastavrou, Andreou, & Efstathiou, 2014; Tubbs-Cooley et al., 2019). The nursing shortage is a multifaceted issue; increasing healthcare needs of an aging population, escalating patient complexity, an aging nursing workforce, and attrition from the profession prior to retirement all contribute to the nursing shortage (American Association of Colleges of Nursing, 2020).

Work-related burnout, a syndrome of exhaustion, cynicism, and disconnection from the workplace, is associated with attrition from both nursing positions and the
profession prior to retirement (Sasso et al., 2019). A 2018 study found that 31.5% of nurses who left their current position did so due to work-related burnout, and 43.4% of nurses who considered leaving the profession identified burnout as the primary rationale (Shah et al., 2021). Burnout-related attrition from the nursing profession is particularly problematic both because it is potentially preventable and because it is believed to disproportionately affect nurses newly entering the workforce (Capper et al., 2020; Ulupinar & Aydogan, 2021). New graduate nurses’ intention to leave the nursing profession ranges from 27.6-42.5% in the first year of practice (Nursing Solutions Inc., 2020; Ulupinar & Aydogan, 2021). Inability to retain new nurses contributes to chronic staffing shortage and fuels a cycle in which nurses become burned out, choose to leave, the workforce becomes depleted, which places heightened stress upon nurses who remain, fueling further burnout (Capper et al., 2020). Attrition from the nursing profession prior to retirement is particularly important given the aging nursing workforce; training, mentorship, and retention of new nurses is necessary to replace nurses as they reach retirement age. While retaining nurses who have experience now is a priority, failure to retain newer nurses robs the future workforce of experienced nurses.

Intention to leave both nursing positions and the profession have been found to have a relationship with benefits obtained from one’s job, overall job satisfaction, number of hours and associated shift start/end times, and work-related burnout (Benson, 2012; Censullo, 2008; Christianson, Johnson, et al., 2022; Lavoie-Tremblay et al., 2022; Moloney et al., 2018). However, despite the well-established links between working conditions, burnout, and intention to leave, the nursing shortage has been observed to adapt in tandem with broader economic and social conditions (West et al., 2007). For
example, the nursing shortage was observed to abate during the economic recession of 2008-2010 (Benson, 2012). Some nurses also self-report intention to stay due to their student debt burdens associated with nursing education (Christianson, Johnson, et al., 2022; Phuekphan, 2021).

Access to alternative opportunities to nursing may influence nurse retention. However, it is unclear how nurses contextualize their own economic opportunities and needs in relation to their intention to stay in or leave their current positions and the profession. Therefore, the purpose of this study is to examine the relationships between work-related burnout, intention to leave both the current position and the profession, and access to individual and household work rewards that may contribute to work retention such as compensation, benefits, and student debt burdens.

**Framework**

This study was framed by a modified version of the Job Demands-Resources model (Demerouti et al., 2001). Maslow’s hierarchy of needs (Maslow, 1943), a framework in which human needs can be organized by priority, was utilized to explain the hypothesis that nurses will prioritize base needs fulfilled through extrinsic rewards such as pay over higher needs like personal fulfillment through work. Work-related burnout can be understood as an outcome of the inability to meet higher needs such as psychological needs or esteem on Maslow’s hierarchy. Intention to leave the nursing position or profession is therefore a means of seeking out unmet needs, however one’s basic needs still must be met regardless of desire to meet higher needs. Therefore, access to extrinsic work rewards (e.g. work rewards dispensed by an employer) were hypothesized to be a mediator for the relationship between work-related burnout and
intention to leave (figure 18).

**Figure 18**
Research Questions #2 & #3: Hypothesized Relationships Diagram

Note: Hypothesized relationships between work-related burnout, intention to leave, and economic factors as a moderator.

**Methods**

**Sample**

A cross-sectional correlational descriptive mixed method study was conducted on United States nurses working in hospital settings between January and March 2023. Inclusion criteria included current work as a nurse (licensed practical/vocational nurse, registered nurse, or advanced practice nurse) in a hospital setting, English-speaking, and willingness to participate in a 20–30-minute digital survey. The study was advertised via nursing social media groups and mass email communication to actively licensed nurses in the states of Florida, Oregon, Rhode Island, and Wisconsin. These states were selected
with the intention of obtaining a sample with geographic and economic diversity. Surveys were delivered via online survey platform Qualtrics (Qualtrics, 2022). Consent was obtained on the first survey page prior to commencing the survey. The study protocol was reviewed and approved by the Marquette University institutional review board (protocol HR-4321).

**Instruments**

The Copenhagen Burnout Inventory Work-Related Burnout (CBI-WRB) scale was used to measure burnout. The CBI-WRB is a seven-item instrument used to measure work-related burnout. Scores range from 0-100 scale, with 100 representing very high burnout. The CBI-WRB scale has been validated in United States hospital nurses and had a Cronbach’s alpha of 0.87 (Kristensen et al., 2005). The instrument does not denote specific ranges for low/medium/high burnout; a pre-Covid pandemic sample found a mean work-related burnout score of 45.4 (±13, n=973) and a different sample during the peak of United States Covid-19 hospitalizations in late 2021 found a mean work-related burnout score of 63.6 (±17.1, n=1299) (Christianson, Johnson, et al., 2022; Lin et al., 2021).

Measures to evaluate access to extrinsic work rewards included self-reported outstanding student debt burden, healthcare benefit satisfaction (four-point Likert-style scale – very dissatisfied, dissatisfied, satisfied, very satisfied), annual nursing salary, annual household housing costs, annual household income, and nursing pay satisfaction (four point Likert-style scale – very dissatisfied, dissatisfied, satisfied, very satisfied). Annual nursing salary, annual household income, and annual household housing costs were used to create two variables, nursing salary to rent ratio and household income to
rent ratio, representing the respective ratios of income-to-housing cost as one method of controlling for local cost of living (Rahim, 2015).

Intention to leave was measured as two binary questions: “Do you intend to leave your current position in the next six months?” and “Do you intend to change professions in the next 12 months?” Demographic data including gender, age, race/ethnicity, highest nursing education, and information about job roles was collected.

Analysis

Data was analyzed using IBM SPSS Statistics for Windows (2021). Descriptive statistics were used to describe participant characteristics. A linear regression model was utilized to examine the relationships between economic factors outlined above and dependent variables intention to leave the current position and the profession. A method for analyzing for moderator relationships using linear regression described by Tavakoli et al. (2009) was utilized to determine presence of a moderator-type relationship between significant economic factors, work-related burnout, and each respective intention to leave variable. A regression was performed to examine the relationship between independent variables, moderator variables, and the dependent variable. If there are statistically significant independent and moderator variables, the Z scores for significant variables will be calculated and saved as variables, and additional calculated variable(s) will be added will be calculated as the product of the independent variable Z score and each respective significant hypothesized moderator variable that was found to have a significant relationship with the dependent variable. A follow-up regression evaluated the relationships between the Z scores for the independent variable and prospective moderator variable(s), and the calculated variable of the product of both. If a moderator
relationship exists, the variable representing product will be statistically significant in the regression along with the individual Z score variables.

Results

A total of 925 participants participated in the survey. Eighty-two participants who completed one or fewer instruments were excluded from this analysis, thus 843 participants were included in analysis. Most participants identified as female (n=608, 85.3%), Caucasian/White (n=599, 84.5%), held a bachelor’s degree (n=376, 54.3%), practiced as RNs (n=640, 90.4%), and worked in direct patient care (n=575, 80.9%). Participants reported a mean age of 45.09 (SD 12.304), mean number of years in nursing of 17.45 (SD 12.813), mean number of years in the current nursing position as 7.2 (SD 8.105). Categorical demographic characteristics are described in detail in table 7.

The number of years in nursing and number of years in the current position were not normally distributed. While the mean number of years in nursing was 17.45 (SD 12.813), the median number of years as a nurse was 14. The number of years as a nurse did not violate normality for the purposes of regression analysis, however; the skewness for number of years as a nurse was 0.597, and the kurtosis was -0.731. The mean number of years in the current position was 7.2 (SD 8.105), with a median of 4 years. The number of years in the current position did violate normality (skewness 2.133, kurtosis 5.680). We opted to nonetheless use number of years in the current position in the analysis.

Intention to Leave the Position

A linear regression was performed to evaluate relationships between dependent variable intention to leave the current position and independent variables work-related burnout, outstanding student debt burden, healthcare benefit satisfaction, annual nursing
salary, annual household income, nursing salary to rent ratio, household income to rent ratio, and nursing pay satisfaction. The overall model was statistically significant (F=6.019, p<0.001). The adjusted R² and R² were 0.113 and 0.135 respectively, indicating that 11.3-13.5% of variance in intention to leave the current position was explained by the model. Variable findings with confidence intervals are detailed in table 12. Only work-related burnout was a statistically significant correlate within the regression, therefore further examination for moderator-type relationships with the hypothesized moderator variables was not performed.

**Intention to Leave the Profession**

A linear regression was performed to evaluate relationships between dependent variable intention to leave the profession and independent variables work-related burnout, outstanding student debt burden, healthcare benefit satisfaction, annual nursing salary, annual household income, nursing salary to rent ratio, household income to rent ratio, and nursing pay satisfaction. The overall model was statistically significant (F=6.818, p<0.001). The adjusted R² and R² were 0.129 and 0.151 respectively, indicating that 12.9-15.1% of variance in intention to leave the profession was explained by the model. Findings with confidence intervals are detailed in table 12.

Work-related burnout and the hypothesized moderator variable nursing pay satisfaction were both statistically significant correlates within the intention to leave the profession regression, therefore further analysis was performed to determine if the relationship is a moderator-type relationship or if the nursing pay satisfaction relationship is independent of the relationship between work-related burnout and intention to leave the profession. The overall model was statistically significant (F=37.369, p<0.001). The
adjusted \( R^2 \) and \( R^2 \) were 0.132 and 0.136 respectively, indicating that 13.2-13.6% of variance in intention to leave the profession was explained by the model. Findings with confidence intervals are detailed in table 12.

### Table 12

*Regression Equations for Intention to Leave, Work-Related Burnout, Access to Extrinsic Work Rewards*

<table>
<thead>
<tr>
<th>Dependent Intention to Leave the Position</th>
<th>Independent Variables</th>
<th>( \beta )</th>
<th>( P )</th>
<th>Lower</th>
<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>95% Confidence Interval</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>0.099</td>
<td>0.500</td>
<td>-0.189</td>
<td>0.387</td>
<td></td>
</tr>
<tr>
<td>Copenhagen Burnout</td>
<td>0.007</td>
<td>&lt;0.001*</td>
<td>0.004</td>
<td>0.010</td>
<td></td>
</tr>
<tr>
<td>Inventory Work-Related Burnout Score</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student Debt Burden</td>
<td>0.001</td>
<td>0.331</td>
<td>-0.001</td>
<td>0.002</td>
<td></td>
</tr>
<tr>
<td>Healthcare Benefit Satisfaction</td>
<td>0.026</td>
<td>0.421</td>
<td>-0.037</td>
<td>0.089</td>
<td></td>
</tr>
<tr>
<td>Annual Nursing Salary</td>
<td>0.001</td>
<td>0.246</td>
<td>-0.001</td>
<td>0.003</td>
<td></td>
</tr>
<tr>
<td>Annual Household Income</td>
<td>-0.001</td>
<td>0.066</td>
<td>-0.003</td>
<td>&lt;0.001</td>
<td></td>
</tr>
<tr>
<td>Nursing Salary to Rent Ratio</td>
<td>-0.018</td>
<td>0.397</td>
<td>-0.059</td>
<td>0.023</td>
<td></td>
</tr>
<tr>
<td>Household Income to Rent Ratio</td>
<td>0.012</td>
<td>0.377</td>
<td>-0.014</td>
<td>0.038</td>
<td></td>
</tr>
<tr>
<td>Nursing Pay Satisfaction</td>
<td>-0.064</td>
<td>0.070</td>
<td>-0.133</td>
<td>0.005</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dependent Intention to Leave the Profession</th>
<th>Independent Variables</th>
<th>( \beta )</th>
<th>( P )</th>
<th>Lower</th>
<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>95% Confidence Interval</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>-0.100</td>
<td>0.397</td>
<td>-0.331</td>
<td>0.132</td>
<td></td>
</tr>
<tr>
<td>Copenhagen Burnout</td>
<td>0.006</td>
<td>&lt;0.001*</td>
<td>0.004</td>
<td>0.009</td>
<td></td>
</tr>
<tr>
<td>Inventory Work-Related Burnout Score</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student Debt Burden</td>
<td>0.001</td>
<td>0.283</td>
<td>&lt;0.001</td>
<td>0.002</td>
<td></td>
</tr>
<tr>
<td>Healthcare Benefit Satisfaction</td>
<td>0.028</td>
<td>0.270</td>
<td>-0.022</td>
<td>0.079</td>
<td></td>
</tr>
<tr>
<td>Annual Nursing Salary</td>
<td>-0.001</td>
<td>0.180</td>
<td>-0.003</td>
<td>0.001</td>
<td></td>
</tr>
<tr>
<td>Annual Household Income</td>
<td>&lt;0.001</td>
<td>0.763</td>
<td>-0.001</td>
<td>0.001</td>
<td></td>
</tr>
<tr>
<td>Nursing Salary to Rent Ratio</td>
<td>0.023</td>
<td>0.173</td>
<td>-0.010</td>
<td>0.056</td>
<td></td>
</tr>
<tr>
<td>Household Income to Rent Ratio</td>
<td>-0.011</td>
<td>0.308</td>
<td>-0.032</td>
<td>0.010</td>
<td></td>
</tr>
</tbody>
</table>
There was not a significant relationship between the product of work-related burnout and nursing pay satisfaction with dependent variable intention to leave the profession. Therefore, within this sample nursing pay satisfaction is a significant correlate of intention to leave the profession but is not a moderator of the relationship between work-related burnout and intention to leave the profession (figure 19).

**Figure 19**
Research Question #3: Post-Analysis Relationships Diagram

Note: Relationships between independent variables work-related burnout, nursing pay satisfaction, and dependent variable intention to leave the profession.
Discussion

Nursing pay satisfaction was correlated with intention to leave the profession, however no measured individual or household extrinsic work reward measures were significantly correlated with intention to leave the current position. Nurses with pay dissatisfaction may simply choose to leave the profession due to relative consistency in regional compensation for hospital nurses (Allegretto & Graham-Squire, 2023; Link & Landon, 1975).

The absence of a moderator-type relationship for nursing pay satisfaction may indicate that nurses do not simply consider a cost-benefit analysis in which they weigh their extrinsic work reward satisfaction against their burnout to determine intention to leave the profession. Rather, the findings from this study suggest that work-related burnout and pay satisfaction are two components considered in context with other attributes of the profession, available economic opportunities, and personal considerations such as proximity to retirement or work-life balance needs (Blanco-Donoso et al., 2021; Christianson, Johnson, et al., 2022; Hewko et al., 2019).

Prior research has noted that while extrinsic work rewards may help with nurse recruitment, such rewards have historically failed to solve issues around nurse retention (Aiken, 1989; Butler & Johnson, 2020). Optimal nurse retention strategies are likely to require a multifaceted, holistic approach that includes consideration of balance between efforts and resources required to meet job demands, options to promote work-life balance, access to both tangible and intangible rewards for work, employer organizational support and stability, and consideration of the alternative economic opportunities available to nurses (Al Yahyaei et al., 2022; Ma et al., 2009; Phuekphan P, 2021).
Conclusion

The decision to stay in or leave a job is complex and can have social, emotional, economic, and professional ramifications. While work-related burnout and pay satisfaction are significant but alone account for less than 15% of intention to leave the profession. Optimal retention strategies are likely to require a multifaceted approach to address work-related burnout, pay satisfaction, and attention to other issues such as employer organizational stability, work-life conflict management, and global job satisfaction.
Research Question #4

The fourth research question, “What is the relationship between execution of altruistic behavior and intrinsic work rewards?” was addressed through analysis of the series of 10 items to measure altruism execution, outlined in Appendix C. The items were evaluated for their internal consistency, inter-item correlations, and an exploratory factor analysis was performed to evaluate the shared variance between items, examine for dimensionality in factor(s) present in the items, and to assess factor loads associated with each item.

The inter-item correlations are depicted below in table 13. As noted in the pilot portion of the analysis, item nine demonstrates mixed correlations with other items with four negatively correlated items and five positively correlated items; all correlation coefficients show inconsistent correlation with item nine. The Cronbach’s alpha for all ten items together was 0.754 and was 0.777 with item nine removed.

<table>
<thead>
<tr>
<th>Item</th>
<th>Item 1</th>
<th>Item 2</th>
<th>Item 3</th>
<th>Item 4</th>
<th>Item 5</th>
<th>Item 6</th>
<th>Item 7</th>
<th>Item 8</th>
<th>Item 9</th>
<th>Item 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item 1</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item 2</td>
<td>0.64</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item 3</td>
<td>0.58</td>
<td>0.56</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item 4</td>
<td>0.12</td>
<td>0.27</td>
<td>0.03</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item 5</td>
<td>0.23</td>
<td>0.39</td>
<td>0.20</td>
<td>0.37</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item 6</td>
<td>0.21</td>
<td>0.34</td>
<td>0.14</td>
<td>0.50</td>
<td>0.39</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item 7</td>
<td>0.08</td>
<td>0.20</td>
<td>0.03</td>
<td>0.36</td>
<td>0.37</td>
<td>0.28</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item 8</td>
<td>0.12</td>
<td>0.19</td>
<td>0.01</td>
<td>0.33</td>
<td>0.22</td>
<td>0.33</td>
<td>0.34</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item 9</td>
<td>-0.09</td>
<td>-0.02</td>
<td>-0.11</td>
<td>0.15</td>
<td>0.10</td>
<td>0.15</td>
<td>0.23</td>
<td>0.36</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Item 10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-</td>
</tr>
</tbody>
</table>
The exploratory factor analysis was performed with varimax orthogonal rotation with all ten items included. The Kaiser-Meyer-Olkin measure of sampling adequacy was 0.816, indicating ‘meritorious’ sample size (e.g. acceptable) (Kaiser & Rice, 1974). Bartlett’s test of sphericity had a significance of <0.001, indicating the data in this data set diverges significantly from the identity matrix and is therefore suitable for use in factor analysis. A two-factor solution was reached with Eigenvalues of 3.367 and 2.019 for the two respective factors explaining 33.675% and 20.186% of item variance, respectively (53.861% cumulative variance explained). The scree plot is pictured in figure 20.

**Figure 20**
Scree Plot of All Altruism Execution Items

![Scree Plot](image)

Note: Eigenvalues from factor analysis of all altruism execution items.
The rotated component matrix included items one, two, three, and ten in factor one. Factor two included items four, five, six, seven, eight, and nine. Table 14 depicts the rotated component matrix. The rotated component plot is pictured in figure 21 below. Though item nine has an acceptable factor load for factor two, I had concerns for the item underperforming compared to the other items, in the inter-item correlation, and with regards to internal consistency. So, the exploratory factor analysis was repeated with item nine removed to compare findings.

<table>
<thead>
<tr>
<th>Table 14</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rotated Component Matrix of All Altruism Execution Items</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Factor</th>
<th>Item 1</th>
<th>Item 2</th>
<th>Item 3</th>
<th>Item 4</th>
<th>Item 5</th>
<th>Item 6</th>
<th>Item 7</th>
<th>Item 8</th>
<th>Item 9</th>
<th>Item 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor 1</td>
<td>0.83*</td>
<td>0.80*</td>
<td>0.82*</td>
<td>0.12</td>
<td>0.33</td>
<td>0.27</td>
<td>0.04</td>
<td>0.03</td>
<td>-0.25</td>
<td>0.76*</td>
</tr>
<tr>
<td>Factor 2</td>
<td>0.06</td>
<td>0.27</td>
<td>-0.07</td>
<td>0.71*</td>
<td>0.57*</td>
<td>0.66*</td>
<td>0.68*</td>
<td>0.68*</td>
<td>0.52*</td>
<td>0.11</td>
</tr>
</tbody>
</table>

Note: Items included in factor one and two are denoted with an * in the respective factor row.
The exploratory factor analysis with varimax orthogonal rotation was repeated with item nine excluded. The Kaiser-Meyer-Olkin measure of sampling adequacy was 0.821, indicating ‘meritorious’ sample size (e.g., acceptable) (Kaiser & Rice, 1974). Bartlett’s test of sphericity had a significance of <0.001, indicating the data in this data set diverges significantly from the identity matrix and is therefore suitable for use in factor analysis. A two-factor solution was reached with Eigenvalues of 3.373 and 1.822, accounting for 30.320% and 27.400% of variance respectively (57.720% cumulative variance explained). The new scree plot is pictured in figure 22.
Figure 22
Scree Plot of Nine Altruism Execution Items

Note: Eigenvalues from factor analysis of nine altruism execution items (item nine excluded).

The rotated component matrix included item one, two, three, and ten in factor one. Factor two included items four, five, six, seven, and eight. Table 15 depicts the rotated component matrix. The rotated component plot is pictured in figure 23 below.

Table 15
Rotated Component Matrix of Nine Altruism Execution Items

<table>
<thead>
<tr>
<th>Factor</th>
<th>Item 1</th>
<th>Item 2</th>
<th>Item 3</th>
<th>Item 4</th>
<th>Item 5</th>
<th>Item 6</th>
<th>Item 7</th>
<th>Item 8</th>
<th>Item 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor 1</td>
<td>0.83*</td>
<td>0.79*</td>
<td>0.84*</td>
<td>0.06</td>
<td>0.27</td>
<td>0.21</td>
<td>0.01</td>
<td>0.02</td>
<td>0.76*</td>
</tr>
<tr>
<td>Factor 2</td>
<td>0.09</td>
<td>0.31</td>
<td>-0.04</td>
<td>0.77*</td>
<td>0.62*</td>
<td>0.70*</td>
<td>0.69*</td>
<td>0.64*</td>
<td>0.14</td>
</tr>
</tbody>
</table>

Note: Items included in factors one and two are denoted with an * in the respective factor row.

Figure 23
Component Plot of Nine Altruism Execution Items
The overall item performance is improved with the exclusion of item nine. Item nine was reviewed for theoretical consistency; it was an item developed with regards to the concept of self-sacrifice discussed in the literature review. The other item designed to examine the concept of self-sacrifice, item eight, is distinct from item nine. Item eight measures perceived pressure to skip breaks during one’s scheduled work duties whereas item nine measures perceived pressure to self-sacrifice one’s personal time outside of one’s scheduled work duties. Given the analysis findings and conceptual considerations with regards to the theoretical framework utilized in this study, item nine was dropped from further analysis.

The altruism execution questions (Appendix C), were examined for conceptual consistency with the factor loading achieved on the factor analysis. Items one, two, and three were intended to examine the concept of work engagement through altruism. Item
ten was intended to examine spirituality through workplace altruistic behavior. Items four, five, and six were intended to examine workplace barriers to altruism. Items seven, eight, and nine were intended to examine the concept of self-sacrifice in an effort to achieve altruism. The factor analysis loadings were consistent with the design of the questions, such that factor one aligns with the combined concepts of work engagement through altruism and spirituality through workplace altruistic behavior. The second factor aligns with the concepts of workplace barriers to altruism and self-sacrifice. Therefore, factor one will herein be referred to as ‘altruistic engagement with work’ and will be the calculated mean score of altruism execution items one, two, three, and ten; factor two will be referred to as ‘workplace barriers to altruism’ and will be the calculated mean score of altruism execution items four, five, six, seven, and eight. A higher score for altruistic engagement with work indicates greater engagement, where a higher score for workplace barriers to altruism indicates fewer reported barriers to altruism.

Execution of altruism is hypothesized to be an intrinsic work reward within the theoretical framework of this study. To better understand the relationship of altruism execution in the context of an intrinsic work reward, it is necessary to evaluate the relationships of altruistic engagement with work and workplace barriers to altruism with other intrinsic work rewards, job demands, and work-related burnout. Pearson’s correlation coefficients and Spearman’s rho were therefore calculated and contextualized to examine where both altruistic execution factors may fit as intrinsic work rewards within the context of the theoretical framework in research question one, diagrammed in figure 24. Finally, a series of linear regressions were performed to evaluate for a mediator relationship between job demand items, work-related burnout, and the altruistic execution
factors. While the intrinsic work rewards identified in research question one did not have a mediator relationship between job demands and work-related burnout, they are supported by the literature to nonetheless be conceptually connected to the concept of altruistic execution. Therefore, they were included in the correlation coefficient but excluded from the linear regression.

**Figure 24**
Research Question #4: Hypothesized Variable Relationships

Note: Hypothesized relationships between job demands, work-related burnout, and altruism execution factors conceptualized as intrinsic work rewards.

Altruistic engagement with work was positively correlated with the following variables: years in current position, years in nursing, managerial relationships, perceived working conditions, opportunities for collegiality and growth, and global job satisfaction. Altruistic engagement with work was negatively correlated with the Copenhagen Burnout Inventory Work-Related Burnout score. Workplace barriers to altruism were positively
correlated with the following variables: total nursing hours worked weekly, years in nursing, managerial relationships, perceived working conditions, opportunities for collegiality and growth, and global job satisfaction. Workplace barriers to altruism was negatively correlated with the Copenhagen Burnout Inventory Work-Related Burnout score and adjusted patient ratio. Detailed findings are presented in table 16 (Pearson’s coefficients) and table 17 (Spearman’s coefficients).

**Table 16**

*Pearson’s Correlation Coefficients of Altruistic Execution Factors and Job Demands, Intrinsic Work Rewards, Work-Related Burnout*

<table>
<thead>
<tr>
<th>Item – Correlated with Altruistic Engagement with Work</th>
<th>Correlation Coefficient</th>
<th>95% Confidence Interval</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Lower</td>
<td>Upper</td>
</tr>
<tr>
<td>Total nursing hours worked weekly</td>
<td>0.051</td>
<td>-0.022</td>
<td>0.123</td>
</tr>
<tr>
<td>Adjusted patient ratio</td>
<td>-0.009</td>
<td>-0.091</td>
<td>0.074</td>
</tr>
<tr>
<td>Years in current position</td>
<td>0.117</td>
<td>0.043</td>
<td>0.189</td>
</tr>
<tr>
<td>Years in nursing</td>
<td>0.145</td>
<td>0.072</td>
<td>0.217</td>
</tr>
<tr>
<td>Managerial relationships</td>
<td>0.452</td>
<td>0.393</td>
<td>0.508</td>
</tr>
<tr>
<td>Perceived working conditions</td>
<td>0.431</td>
<td>0.371</td>
<td>0.488</td>
</tr>
<tr>
<td>Opportunities for collegiality and growth</td>
<td>0.417</td>
<td>0.356</td>
<td>0.474</td>
</tr>
<tr>
<td>Global job satisfaction</td>
<td>0.466</td>
<td>0.408</td>
<td>0.521</td>
</tr>
<tr>
<td>Work-related burnout</td>
<td>Correlation Coefficient</td>
<td>95% Confidence Interval</td>
<td>P value</td>
</tr>
<tr>
<td>---------------------------</td>
<td>-------------------------</td>
<td>-------------------------</td>
<td>---------</td>
</tr>
<tr>
<td></td>
<td>-0.459</td>
<td>-0.514</td>
<td>-0.401</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item – Workplace Barriers to Altruism</th>
<th>Correlation Coefficient</th>
<th>95% Confidence Interval</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lower</td>
<td>Upper</td>
<td></td>
</tr>
<tr>
<td>Total nursing hours worked weekly</td>
<td>-0.090</td>
<td>-0.162</td>
<td>-0.017</td>
</tr>
<tr>
<td>Adjusted patient ratio</td>
<td>-0.071</td>
<td>-0.153</td>
<td>0.011</td>
</tr>
<tr>
<td>Years in current position</td>
<td>0.064</td>
<td>-0.010</td>
<td>0.137</td>
</tr>
<tr>
<td>Years in nursing</td>
<td>0.207</td>
<td>0.135</td>
<td>0.276</td>
</tr>
<tr>
<td>Managerial relationships</td>
<td>0.426</td>
<td>0.365</td>
<td>0.483</td>
</tr>
<tr>
<td>Perceived working conditions</td>
<td>0.507</td>
<td>0.451</td>
<td>0.558</td>
</tr>
<tr>
<td>Opportunities for collegiality and growth</td>
<td>0.253</td>
<td>0.184</td>
<td>0.319</td>
</tr>
<tr>
<td>Global job satisfaction</td>
<td>0.444</td>
<td>0.384</td>
<td>0.500</td>
</tr>
<tr>
<td>Work-related burnout</td>
<td>-0.5785</td>
<td>-0.630</td>
<td>-0.535</td>
</tr>
</tbody>
</table>

Note: * denotes a statistically significant result.
Table 17
Spearman’s Rho of Altruistic Execution Factors and Job Demands, Intrinsic Work Rewards, Work-Related Burnout

<table>
<thead>
<tr>
<th>Item – Correlated with Altruistic Engagement with Work</th>
<th>Correlation Coefficient</th>
<th>95% Confidence Interval</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total nursing hours worked weekly</td>
<td>0.049</td>
<td>-0.026</td>
<td>0.124</td>
</tr>
<tr>
<td>Adjusted patient ratio</td>
<td>-0.047</td>
<td>-0.131</td>
<td>0.038</td>
</tr>
<tr>
<td>Years in current position</td>
<td>0.116</td>
<td>0.040</td>
<td>0.190</td>
</tr>
<tr>
<td>Years in nursing</td>
<td>0.141</td>
<td>0.065</td>
<td>0.214</td>
</tr>
<tr>
<td>Managerial relationships</td>
<td>0.421</td>
<td>0.358</td>
<td>0.480</td>
</tr>
<tr>
<td>Perceived working conditions</td>
<td>0.408</td>
<td>0.344</td>
<td>0.467</td>
</tr>
<tr>
<td>Opportunities for collegiality and growth</td>
<td>0.375</td>
<td>0.309</td>
<td>0.436</td>
</tr>
<tr>
<td>Global job satisfaction</td>
<td>0.458</td>
<td>0.397</td>
<td>0.515</td>
</tr>
<tr>
<td>Work-related burnout</td>
<td>-0.434</td>
<td>-0.492</td>
<td>-0.372</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item – Workplace Barriers to Altruism</th>
<th>Correlation Coefficient</th>
<th>95% Confidence Interval</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total nursing hours worked weekly</td>
<td>-0.067</td>
<td>-0.141</td>
<td>-0.008</td>
</tr>
<tr>
<td>Adjusted patient ratio</td>
<td>-0.187</td>
<td>-0.268</td>
<td>-0.104</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------------------------</td>
<td>--------</td>
<td>--------</td>
<td>--------</td>
</tr>
<tr>
<td>Years in current position</td>
<td>0.071</td>
<td>-0.005</td>
<td>0.146</td>
</tr>
<tr>
<td>Years in nursing</td>
<td>0.200</td>
<td>0.127</td>
<td>0.272</td>
</tr>
<tr>
<td>Managerial relationships</td>
<td>0.412</td>
<td>0.349</td>
<td>0.472</td>
</tr>
<tr>
<td>Perceived working conditions</td>
<td>0.499</td>
<td>0.441</td>
<td>0.552</td>
</tr>
<tr>
<td>Opportunities for collegiality and growth</td>
<td>0.236</td>
<td>0.165</td>
<td>0.304</td>
</tr>
<tr>
<td>Global job satisfaction</td>
<td>0.439</td>
<td>0.376</td>
<td>0.497</td>
</tr>
<tr>
<td>Work-related burnout</td>
<td>-0.543</td>
<td>-0.593</td>
<td>-0.489</td>
</tr>
</tbody>
</table>

Note: * denotes a statistically significant result.

To further understand the relationships between execution of altruistic behavior and intrinsic work rewards, a series of linear regressions were performed to examine if either altruistic engagement with work or workplace barriers to altruism have a mediator-type relationship with job demands or work-related burnout, similarly to those performed for research question one. The regression examining the relationships between independent job demands (1) total nursing hours worked weekly, (2) adjusted patient ratio, (3) years in current position, (4) years in nursing, and dependent work-related burnout is already reported in research question one above. To briefly recap the findings of that regression: the overall regression was statistically significant, explained 3.3-4.1% of variance in work-related burnout, and years in nursing was the only significant independent variable correlate within the regression.
The regression examining the relationships between independent job demands (1) total nursing hours worked weekly, (2) adjusted patient ratio, (3) years in current position, (4) years in nursing, and dependent variable altruistic engagement with work was statistically significant ($F=2.605, p=0.035$). The adjusted $R^2$ and $R^2$ were 0.012 and 0.019 respectively, indicating that 1.2-1.9% of the variance in altruistic engagement with work was explained by the model. Within the model, years in nursing was the only significantly correlated independent variable (see table 18).

The regression examining the relationships between independent job demands (1) total nursing hours worked weekly, (2) adjusted patient ratio, (3) years in current position, (4) years in nursing, and dependent variable workplace barriers to altruism was statistically significant ($F=5.606, p<0.001$). The adjusted $R^2$ and $R^2$ were 0.033 and 0.040 respectively, indicating that 3.3-4% of the variance in workplace barriers to altruism was explained by the model. Within the model, years in nursing and adjusted patient ratio were significantly correlated independent variables (see table 18).

Table 18
Regression Equations Between Independent Job Demands and Dependent Altruistic Execution Factors

<table>
<thead>
<tr>
<th>Altruistic Engagement with Work - Independent Variables*</th>
<th>$\beta$</th>
<th>P</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>2.498</td>
<td>&lt;0.001*</td>
<td>2.284</td>
</tr>
<tr>
<td>Total nursing hours worked weekly</td>
<td>0.001</td>
<td>0.580</td>
<td>-0.004</td>
</tr>
<tr>
<td>Adjusted patient ratio</td>
<td>-0.004</td>
<td>0.409</td>
<td>-0.013</td>
</tr>
</tbody>
</table>
The regression examining the relationships between independent altruistic execution factors (1) altruistic engagement with work, (2) workplace barriers to altruism, and dependent variable work-related burnout was statistically significant (F=280.003, p<0.001). The adjusted R² and R² were 0.427 and 0.429 respectively, indicating that 42.7-42.9% of the variance in work-related burnout was explained by the model. Within the model, both altruistic engagement with work and workplace barriers to altruism were significantly correlated independent variables (see table 19).
Table 19
Regression Equations Between Mediator Altruistic Execution Factors and Dependent
Work-Related Burnout

<table>
<thead>
<tr>
<th>Work-Related Burnout - Independent Variables*</th>
<th>β</th>
<th>P</th>
<th>95% Confidence Interval</th>
<th>Lower</th>
<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>123.013</td>
<td>&lt;0.001*</td>
<td>117.882</td>
<td>128.114</td>
<td></td>
</tr>
<tr>
<td>Altruistic Engagement with Work</td>
<td>-8.942</td>
<td>&lt;0.001*</td>
<td>-10.590</td>
<td>-7.295</td>
<td></td>
</tr>
<tr>
<td>Workplace Barriers to Altruism</td>
<td>-16.386</td>
<td>&lt;0.001*</td>
<td>-18.293</td>
<td>-14.480</td>
<td></td>
</tr>
</tbody>
</table>

Note: An * denotes a statistically significant finding.

In conclusion, the only variables that had a statistically significant mediator-type relationship were the relationships between years in profession, workplace barriers to altruism, and their respective relationships with work-related burnout. Adjusted patient ratio had a significant relationship with workplace barriers to altruism, and workplace barriers to altruism had a significant relationship with work-related burnout, however adjusted patient ratio did not itself have a significant relationship with work-related burnout. These relationships have been diagrammed in figure 25.
Figure 25
Research Question #4: Post-Analysis Relationships Diagram

Note: Post-Analysis Relationships Diagram Between Job Demands, Altruism Execution Factors, and Work-Related Burnout. The relationships described, including p and beta values noted, between independent variables and dependent variable, independent variables and mediator variables, and mediator variables and the dependent variable are each separate linear regressions.

Finally, I evaluated the possibility of covariance between the two altruism execution factors and significant independent variables identified in research question one. A regression was performed performing a regression examining dependent variable work-related burnout and independent variables altruistic engagement with work, workplace barriers to altruism, managerial support, perceived working conditions, global job satisfaction, and years in nursing. The regression was statistically significant (F=112.458, p<0.001). The adjusted R² and R² were 0.492 and 0.496 respectively, indicating that 49.2-49.6% of the variance in work-related burnout was explained by the model. All independent variables except perceived working conditions were statistically significant (table 20).
Table 20
Regression Equations Between Independent Job Demands, Intrinsic Work Rewards, Altruistic Execution, and Dependent Work-Related Burnout

<table>
<thead>
<tr>
<th>Work-Related Burnout - Independent Variables*</th>
<th>$\beta$</th>
<th>P</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>119.428</td>
<td>&lt;0.001*</td>
<td>114.333 - 124.523</td>
</tr>
<tr>
<td>Managerial support</td>
<td>-0.117</td>
<td>0.002*</td>
<td>-0.191 - 0.043</td>
</tr>
<tr>
<td>Working conditions</td>
<td>-0.064</td>
<td>0.109</td>
<td>-0.142 - 0.014</td>
</tr>
<tr>
<td>Global job satisfaction</td>
<td>-0.125</td>
<td>&lt;0.001*</td>
<td>-0.188 - 0.063</td>
</tr>
<tr>
<td>Altruistic engagement with work</td>
<td>-4.855</td>
<td>&lt;0.001*</td>
<td>-6.670 - 3.039</td>
</tr>
<tr>
<td>Workplace opportunities for altruism</td>
<td>-11.996</td>
<td>&lt;0.001*</td>
<td>-14.137 - 9.855</td>
</tr>
<tr>
<td>Years in nursing</td>
<td>-0.101</td>
<td>0.020*</td>
<td>-0.186 - 0.016</td>
</tr>
</tbody>
</table>

Note: * denotes a statistically significant finding.
V: CONCLUSIONS, DISCUSSION & FUTURE RESEARCH CONSIDERATIONS

Introduction

This chapter will deliver a summary and discussion of the findings of this study. This study has four research questions and three hypotheses. Results for each research question and respective hypotheses will be summarized, discussed, contextualized with the literature review, and conclusions will be drawn. Limitations and suggestions for future research will be discussed, and the chapter will end with concluding statements.

Summary of Findings

Research Question #1

The first research question, “Do intrinsic work rewards mediate the relationship between job demands and work-related burnout?” was addressed through a series of linear regressions to examine relationships between job demands and work-related burnout, with intrinsic work rewards as a mediator. Total nursing hours worked and years in the current position did not have a significant relationship with work-related burnout or any intrinsic work rewards. Adjusted patient ratio had a significant negative relationship with perceived working conditions ($\beta=-0.461$, $p=0.001$) and opportunities for collegiality and growth ($\beta=-0.551$, $p<0.001$). Years in the profession had a significant negative relationship with work-related burnout ($\beta=-0.167$, $p<0.001$) but no intrinsic work rewards. Managerial relationships ($\beta=-0.197$, $p<0.001$), perceived working conditions ($\beta=-0.238$, $p<0.001$), and global job satisfaction ($\beta=-0.204$, $p<0.001$) had significant negative relationships with work-related burnout; opportunities for collegiality and growth was not correlated with work-related burnout.
In summary, higher patient ratios were correlated with poorer perceived working conditions and lower opportunity for collegiality and growth. Better managerial relationships, perceived working conditions, and global job satisfaction were correlated with lower work-related burnout. Greater years in the profession was correlated with lower work-related burnout scores, however no mediator-type relationships were noted with intrinsic work reward variables.

**Research Questions #2 & 3**

The second research question, “Do extrinsic work rewards moderate the relationship between work-related burnout and intention to leave the current position?” and third research question, “Do extrinsic work rewards moderate the relationship between work-related burnout and intention to leave the nursing profession?” were answered by a series of linear regressions. Work-related burnout was positively correlated with intention to leave both the current position ($\beta=0.007, p<0.001$) and the nursing profession ($\beta=0.006, p<0.001$). No extrinsic work rewards were significantly correlated with intention to leave the current position. Pay satisfaction was significantly correlated with intention to leave the profession ($\beta=-0.056, p=0.049$), but was not a moderator for the relationship between work-related burnout and intention to leave the profession. Pay satisfaction and work-related burnout together accounted for 13.2-13.6% of variance in intention to leave the profession.

**Research Question #4**

The fourth research question, “What is the relationship between execution of altruistic behavior and intrinsic work rewards?” was answered through examination of a series of 10 items developed for this study to measure execution of altruism in the
workplace. Nine items were retained. Two factors explained 57.72% of variance: altruistic engagement with work and workplace barriers to altruism.

Pearson’s correlation coefficients and Spearman’s rho were calculated to examine for hypothesized fit within the concept of intrinsic work rewards. Altruistic engagement with work was positively correlated with years in current position, years in nursing, managerial relationships, perceived working conditions, opportunities for collegiality and growth, and global job satisfaction. Altruistic engagement with work was negatively correlated with the Copenhagen Burnout Inventory Work-Related Burnout score. Workplace barriers to altruism were positively correlated with the following variables: total nursing hours worked weekly, years in nursing, managerial relationships, perceived working conditions, opportunities for collegiality and growth, and global job satisfaction. Workplace barriers to altruism was negatively correlated with the Copenhagen Burnout Inventory Work-Related Burnout score and adjusted patient ratio. These findings were sufficiently consistent with the hypothesized relationships, so I proceeded with regression to examine for a mediator-type relationship between each factor, job demand items, and work-related burnout.

A mediator relationship was found between both altruism execution factors and the relationship between years in profession and work-related burnout. Years in the profession was positively correlated with both altruistic execution factors. Both altruistic execution factors were in turn negatively correlated with work-related burnout. Adjusted patient ratio was negatively correlated with workplace barriers to altruism, indicating that higher patient ratios was associated with greater workplace barriers to altruism. The two altruistic execution factors explained 42.7-42.9% of variance in work-related burnout.
The two altruism execution factors were then included in a regression with other intrinsic work rewards and years in nursing (identified as significant correlates of dependent work-related burnout in research question one). Dependent work-related burnout was significantly correlated with: managerial support ($\beta=-0.117$, $p=0.002$), global job satisfaction ($\beta=-0.125$, $p<0.001$), altruistic engagement with work ($\beta=-4.855$, $p<0.001$), workplace barriers to altruism ($\beta=-11.996$, $p<0.001$), and years in nursing ($\beta=-0.101$, $p=0.020$), but was not correlated with perceived working conditions.

Discussion

Job demands were seldom related to work-related burnout in this sample; only the number of years in the nursing profession was correlated with intention to leave. This finding is in contrast with the literature review. Higher patient-to-nurse ratio was found to be correlated with work-related burnout in over half of the systematic reviews included in the chapter two literature review (Bakhamis et al., 2019; Dall'Ora et al., 2022; Wei et al., 2020; Wynendaele et al., 2019; Ying et al., 2021). However, adjusted patient ratio did have an indirect relationship with work-related burnout through one intrinsic work reward item and one altruistic execution factor: perceived working conditions and workplace barriers to altruism. One reason for the discrepancy between my findings and prior findings may be related to methodology. The diversity in sample of hospital nurses included in this study meant it was necessary to control for practice area. However, patient classifications can vary widely by hospital and region; job description or area of practice alone is not necessarily an accurate description of job demands. An ICU patient at a community hospital can have very different demands from an ICU patient in a higher-volume flagship hospital, and there can be regional variance in patient
characteristics (Sasangohar et al., 2020). There is also variance in access to ancillary staff, family member assistance with direct care tasks, and other such factors that are not accounted for in my methodology but nonetheless impact nursing job demands (Phillips, 2020). The fact that I did not find a correlation between adjusted patient ratio and work-related burnout should therefore not be interpreted as a refutation of prior findings in studies where there was greater homogeneity in participant work settings. It is also possible that the California staffing ratio mandates are not universally applicable to other geographic areas.

The number of hours worked was not correlated with work-related burnout in this study, which contrasts with prior findings. Lin et al. (2021) described a dose-response type relationship between hours worked and work-related burnout, with a mean of 43.7 (SD 8) weekly nursing hours worked. The mean number of hours worked in this sample was 40.77 (SD 12.250), which is lower but with greater variance than that described by Lin et al. (2021). One explanation for the discrepancy may be number of shifts or shift type worked; Lin et al. (2021) noted that average sleeping hours during workdays mediated the relationship. Neither I nor Lin et al. (2021) described shift duration of participants or presence of mandated overtime. However, there may be a greater proportion of 12-hour shifts or mandated overtime in the Lin et al. (2021) data set compared to mine. Dall'Ora et al. (2022) found no relationship between number of hours worked per week and burnout, however 12-hour shifts and mandated overtime were associated with greater burnout according to Tsolakidis et al. (2022) and Bakhamis et al. (2019).
Execution of altruistic behaviors was significantly correlated with and explained 42.7-42.9% of variance in work-related burnout. When the altruism execution factors were combined in a regression evaluating dependent work-related burnout and independent significant intrinsic work rewards (managerial relationships, perceived working conditions, and global job satisfaction) and significant job demand (years in nursing), all variables remained significant except perceived working conditions. It is therefore likely that the altruism execution factors are highly collinear and with perceived working conditions. Perceived working conditions may preclude nurses from achieving altruism execution in their workplaces, resulting in the potential double-counting of perceived working conditions when analyzed together with altruism execution. It is also likely that the altruism execution factors are highly collinear with managerial relationships and global job satisfaction; the intrinsic work rewards evaluated in research question #1 explained 35.2-25.6% of variance in work-related burnout alone. However, the same variables’ respective contributions to explaining variance together with the altruism execution factors was much lower, and greater variance was explained by the altruism execution factors. This likely indicates the altruistic engagement with work and workplace barriers to altruism are distinct constructs yet overlap with other intrinsic work rewards. This is consistent with the findings from the literature review in chapter two; many of the reported causes of barriers to altruism were nearly indistinguishable from correlates of burnout, such as chronic understaffing, workload imbalance, inability to meet patient needs, and excessive time spent on administrative tasks instead of patient care (Bae, 2020; Bakhamis et al., 2019; Silva et al., 2020; Tsolakidis et al., 2022). Barriers to altruism and inability to provide care were believed to be a precursor to
burnout by Vinje and Mittelmark (2008). Similarly, structural barriers to altruism execution were described as chronic understaffing, perceived compromise to care provision, guilt over nursing time spent on administrative tasks, and increasing workloads described in the altruism execution literature (Chenoweth et al., 2014; Eder & Meyer, 2022; Khanjarian & Sadat-Hoseini, 2021).

Almost 50% of variance in work-related burnout was explained by five variables: years in nursing, managerial relationships, global job satisfaction, altruistic engagement with work, and workplace barriers to altruism. While is outside of the scope of this study to examine what managerial relationships consist of specifically, prior literature has indicated that greater organizational support, nursing empowerment, and managerial recognition of nursing work is negatively correlated with burnout (Dubale et al., 2019; Halm, 2019; Silva et al., 2020; Wei et al., 2020). While there was a significant relationship between number of years in nursing and work-related burnout, my sample was skewed toward less experienced nurses. The median years in nursing in my sample was fourteen years, however many nurses in my sample reported 20 or greater years of experience (n=63, 9%) with one nurse reporting 55 years in the profession. While the skewness and kurtosis of the number of years in nursing was evaluated to examine the appropriateness of using means in analysis, the distribution of years in nursing may have impacted results.

Prior research has had mixed findings with regards to correlation between years of nursing experience and work-related burnout (Colindres et al., 2018; Shoorideh et al., 2015). One explanation for this may be survivorship bias; a nurse with more experience has demonstrated tolerance to the nursing work environment, where a nurse with less
experience may or may not be similarly tolerant. Another explanation may be perceived anchoring in the profession; a nurse with fewer years until planned retirement may note diminishing returns for the personal costs associated with retraining in a new profession compared to a newer nurse (Christianson, Johnson, et al., 2022).

Pay satisfaction was not significantly correlated with the intention to leave the current position but was negatively correlated with intention to leave the profession. This sample reported a high incidence of intention to leave the current position (n=360, 48.6%) but lower incidence of intention to leave the profession (n=159, 21.6%). There are many reasons for intention to leave the current position that are unrelated to working conditions or impending retirement, such as desire to relocate or temporary leave from the workforce to manage personal/family needs (Blanco-Donoso et al., 2021; Weng et al., 2018). The relative consistency in regional compensation for nurses due to economic monopsony (few buyers for hospital nursing labor) may also account for this; nurses who are highly dissatisfied with pay may simply choose to leave the profession rather than seek another position (Allegretto & Graham-Squire, 2023; Link & Landon, 1975).

Pay satisfaction did not moderate the relationship between work-related burnout and intention to leave the profession, and both together only accounted for 13.2-13.6% of variance in intention to leave the profession in the regression model. The lack of a moderator relationship likely indicates that nurses do not experience burnout followed by consequent evaluation their pay satisfaction. Rather, both burnout and pay satisfaction are individual contributors that factor into decision-making around intention to stay or leave. Both pay satisfaction and work-related burnout should be considered separate entities when planning nurse retention strategies; improving pay satisfaction alone is unlikely to
offset burnout-related intention to leave alone. The decision to stay in or leave a job or profession is complex and can have social, emotional, economic, and professional ramifications. This study did not measure many previously reported causes of intention to leave both the current position and profession such as organizational stability, retirement, and work-life conflicts, which may account for the relatively low percentage of variance explained in intention to leave the current position and profession (Al Yahyaei et al., 2022; Ma et al., 2009; Phuekphan, 2021).

The goals of the Quadruple Aims of Healthcare (improving patient experience, improving population health, minimizing costs of healthcare delivery, and providing healthy workplaces for healthcare workers) are not achievable if the outflow of nurses from the workforce is not staunched (Arnetz et al., 2020; Bodenheimer & Sinsky, 2014). Preventing hospital nursing workforce losses due to work-related burnout and pay dissatisfaction is a worthwhile goal. There are approximately 1.7 million nurses who work in hospitals in the United States (Bureau of Labor Statistics, 2022d). If 21.6% of nurses who intend to leave the profession within the next 12 months, and 13.6% of those are due to work-related burnout and pay dissatisfaction, improving pay satisfaction and reducing work-related burnout could prevent over 50,000 fewer nurses from leaving the profession. This has potential to be particularly impactful because newer nurses often have greater intention to leave the profession (Minamizono et al., 2019; Shoorideh et al., 2015; Tabakakis et al., 2020). Only 155,000 new nurses enter the United States workforce per year, which is inadequate to meet projected demands for nursing labor (Salsberg, 2018). Improved retention of newer nurses is desirable because today’s new nurses are tomorrow’s experienced nurses. Failure to retain nurses in nursing both robs the future of
experienced nurses and jeopardizes the future of the Quadruple Aims of Healthcare by exacerbating the nursing labor shortages.

**Limitations**

Sample represents one limitation of this study; the sample was limited to United States hospital nurses and relatively few licensed practical/vocational nurses and advanced practice nurses were part of the sample. There may be disparities in job demands, work rewards, work-related burnout, and intention to leave the current position/profession in other nursing groups that were under-recognized because of sampling. An effort was made to obtain a geographically diverse sample, however there may be geographic differences in reward structures because economic monopsony over United States hospital nursing labor is regional. Healthcare conglomerates are regional sources of economic monopsony that primarily influence regional, but not necessarily national, compensation mechanisms (Allegretto & Graham-Squire, 2023). Use of income-to-rent ratio is an imperfect control for local cost of living; consequently, income-to-cost of living may be an extrinsic reward mechanism that remains unrecognized in this study. While the sample demographics appear to mirror national demographics (American Association of Colleges of Nursing, 2023), the sample was predominantly White and female with less than 10 years of nursing experience, excluded non-English speaking participants, and results were collected exclusively digitally.

Intention to leave and actual attrition from the current position and/or the profession are not necessarily the same measure (Van den Bulcke et al., 2020). For example, the rate of intention to leave the profession in this sample was 0.3% lower than the rate of intention to leave the profession reported in a study in 2021 during the height
of Covid-19 hospitalizations in the United States (21.9% in 2021, 21.6% in this study) (Christianson, Johnson, et al., 2022). While this high rate of intention to leave the profession may appear to be cause for alarm, it is unclear how many nurses who reported their intention to leave the profession in 2021 successfully left. As discussed in chapter one, the theoretical frameworks utilized to underpin this study, measurement errors, and failure to recognize additional intrinsic or extrinsic work rewards may represent additional limitations of this study. Extraneous factors that may impact nursing job demands, such as availability of ancillary staff, likely represent a major limitation of job demands measures evaluated in this study.

Altruism execution may represent an underrecognized source of disconnection between the workplace expectations for a new nurse and the reality of the workplace. However, it is outside the scope of this study to evaluate the relationship between nurses’ expectations for altruistic execution in the workplace and their practical ability to do so. The altruism execution scale was an exploratory aim within the context of this study. Interpretation of results of this scale as described in this dissertation should be interpreted as exploratory rather than confirmatory in nature.

Self-selection bias may be a limitation of this study design. Nurses recruited for this study voluntarily participated in the survey without compensation and may have self-selected to do so because they felt strongly about the research subject.

**Suggestions for Future Research**

The nursing shortage has increasingly become a time-sensitive issue; high rates of intention to leave both the current position and profession threaten achievement of the Quadruple Aims. Future research aimed at implementation of retention strategies is
needed to address the immediate issue of workforce attrition. While I did not find a direct link between adjusted patient ratio and work-related burnout in this study, there was an indirect link through perceived working conditions. Implementation of and evaluation of the impact of additional ancillary and supportive staff such as technicians/nursing assistants, secretaries, and environmental services staff on nurse burnout may be a cost-effective alternative to decreased patient-to-nurse ratios to reduce job demands for nurses. Trialing novel uses of technology, such as telemedicine or new and more efficient methods of documentation, may reduce job demands. The full scope of the impact of altruistic behavior execution on work-related burnout is unknown and improving nurse opportunity for altruistic behavior should be a priority. However, minimizing the burden of non-nursing tasks on nurses is likely to improve opportunity for execution of altruistic behavior and thereby reduce work-related burnout. Methods to improve pay satisfaction such as serial raises in pay over time may also warrant further research.

Research to minimize intention to leave the profession prior to retirement should also be implementation-focused, as numerous causes for premature intention to leave have been identified. Improving managerial relationships through a shift toward transformational and authentic leadership models, implementation of shared governance models of leadership, and promoting nursing control over the nursing milieu have been correlated with reduced burnout and intention to leave (Eder & Meyer, 2022; Ferreira et al., 2022; Halm, 2019), however relatively little implementation-oriented research exists. A closer examination of the implementation of such changes may reveal additional opportunities and additional practical considerations for improving nurse retention. Future policies aimed at improving nurse retention in the profession may benefit from
including the concept of altruism execution. Practices and policies that address possible discrepancies between professional socialization and the realities of professional practice may be helpful to reduce preventable attrition from the profession.

**Conclusion**

The purpose of this study was to investigate the relationships between job demands, work rewards, work-related burnout, and intention to leave nursing positions and the nursing profession. Intrinsic work rewards were hypothesized to mediate the relationship between job demands and work-related burnout. The only job demand item with a direct relationship with work-related burnout was the number of years in nursing. However, the developed altruism execution items were found to be mediators for the relationship between years in nursing and work-related burnout. Adjusted patient ratio had an indirect effect on work-related burnout through perceived working conditions. Extrinsic work rewards such as nursing pay were hypothesized to moderate the relationship between work-related burnout and intention to leave; pay satisfaction was correlated with intention to leave the profession but did not moderate the relationship. The results of this study revealed that execution of altruistic behavior may be an under-recognized but prominent correlate of work-related burnout for nurses and may represent an element of underrecognized disconnection between nurse expectations and the reality of the workplace. Improving opportunities for and reducing barriers to altruistic execution may be a worthy means of improving work-related burnout and thereby reducing premature attrition from the nursing profession.
AB-394 Health facilities: Nursing staff, Assembly bill no. 394 (1999).


Griffiths, P., Saville, C., Ball, J. E., Jones, J., Monks, T., & Safer Nursing Care Tool study, t. (2021, May). Beyond ratios - flexible and resilient nurse staffing options to deliver cost-effective hospital care and address staff shortages: A simulation
https://doi.org/10.1016/j.ijnurstu.2021.103901

https://doi.org/10.1037/0021-9010.67.2.239


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NCSS LLC. (2021). *PASS.* In (Version 21.0.5)


Social Media: Cross-Sectional Questionnaire. *J Med Internet Res*, 22(10), e23021. https://doi.org/10.2196/23021


[Record #2528 is using a reference type undefined in this output style.]


**APPENDICES**

**Appendix A: Copenhagen Burnout Inventory Work-Related Burnout Scale**

<table>
<thead>
<tr>
<th>Item</th>
<th>To a very high degree</th>
<th>To a high degree</th>
<th>Somewhat</th>
<th>To a low degree</th>
<th>To a very low degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is your work emotionally exhausting?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you feel burnt out because of your work?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does your work frustrate you?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you feel worn out at the end of the working day?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are you exhausted in the morning at the thought of another day at work?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you feel that every working hour is tiring for you?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you have enough energy for family and friends during leisure time?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Scoring: Questions 1-6: To a very high degree/Always: 100. To a high degree/Often: 75. Somewhat/Sometimes: 50. To a low degree/Seldom: 25. To a very low degree/Never/Almost Never: 0. Question 7: Always: 0. Often: 25. Sometimes: 50. Seldom: 75. Never/Almost Never: 100. Total score on the scale is average of the scores on the items.
### Appendix B: Satisfaction of Employees in Health Care Survey

<table>
<thead>
<tr>
<th>Question</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The management of this organization is supportive of me.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2. I receive the right amount of support and guidance from my direct supervisor.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3. I am provided with all trainings necessary for me to perform my job.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4. I have learned many new job skills in this position.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5. I feel encouraged by my supervisor to offer suggestions and improvements.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>6. The management makes changes based on my suggestions and feedback.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>7. I am appropriately recognized when I perform well at my regular work duties.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>8. The organization rules make it easy for me to do a good job.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>9. I am satisfied with my chances for promotion.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>10. I have adequate opportunities to develop my professional skills.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>11. I have an accurate written job description.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>12. The amount of work I am expected to finish each week is reasonable.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>13. My work assignments are always clearly explained to me.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>14. My work is evaluated based on a fair system of performance standards.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>15. My department provides all the equipment, supplies, and resources necessary for me to perform my duties.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>16. The buildings, grounds, and layout of this facility are adequate for me to perform my duties.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>17. My coworkers and I work well together.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
18. I feel I can easily communicate with members from all levels of this organization.

19. I would recommend this health facility to other workers as a good place to work.

20. How would you rate this health facility as a place to work on a scale of 1 (the worst) to 10 (the best)?

<table>
<thead>
<tr>
<th>Question</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor 1 (Relationship with Management/Supervisors): Q1-8, 10, 13-14</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Factor 2 (Job Contentment): Q7-12, 15-16</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Factor 3 (Relationships with Coworkers): Q17-18</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Global items: Q19-20</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: (Alpern et al., 2013; Chang et al., 2017)
### Appendix C: Execution of Altruism Questions

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Every day I go to work, I feel excited that I will be able to positively impact my patients.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>I feel satisfied with how much I can help my patients in my current role.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>My ability to help others motivates me to continue going to work.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>I often feel I must choose between connecting with my patients and accomplishing assigned work tasks.</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>I feel I have time to help coworkers when they need assistance.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>I feel the system I work in makes it harder for me to do altruistic things for my patients.</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>I am almost always able to leave work on time.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>I have felt conflicted or guilty about taking a meal break because I am worried my patients will need care while I am away.</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>I feel guilty or obligated to come in on my days off when I receive notification that my workplace is short-staffed.</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>I am spiritually fulfilled by my ability to help others through my work.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

Instructions: Please rate each statement as it applies to your primary nursing job. Greater score indicates greater ability to execute altruistic behavior in the workplace.

Two additional free text questions will qualitatively address altruism execution in the workplace:
- How does your institution support you to successfully help patients?
- In your workplace, what barriers exist that impede you from helping your patients?
Appendix D: Extrinsic Work Rewards and Intention to Leave Questions

How does your institution support you to successfully help patients? (free text answer)

In your workplace, what barriers exist that impede you from helping your patients? (free text answer)

Do you intend to leave your current position in the next 6 months? Yes
No

Why do you want to leave or stay in your current position? (free text answer)

Do you intend to change professions in the next 12 months? Yes
No

Why do you want to leave or stay in nursing? (free text answer)

If you could go back in time, would you choose to be a nurse again? Why or why not? (free text answer)

If you could go back in time, would you choose to be a nurse again? Why or why not?
Definitely yes
Somewhat yes
Somewhat not
Definitely not

Do you think turnover in your primary nursing job now has changed compared to what it was like prior to the COVID-19 pandemic? Yes
No
Not sure

How much is your average take-home pay on an average paycheck from your primary nursing job, in thousands? (slider bar – select pay amount 0-10)

How often are you paid by your primary nursing position? Weekly
Every other week
Monthly
Quarterly
Other (free text – specify)

How many hours per week do you work as a nurse in your primary job?
(slider bar – select amount 0-100)

How many hours per week do you work as a nurse in total?
(slider bar – select amount 0-100)

Please rate how satisfied you are with your pay from your work as a nurse.
Very satisfied
Satisfied
Dissatisfied
Very dissatisfied

Do you enroll in healthcare benefits through your nursing job(s)?
Yes
No

If yes to healthcare benefits:
Please rate how satisfied you are with your healthcare benefits you receive through your nursing job(s).
Very satisfied
Satisfied
Dissatisfied
Very dissatisfied

Is there anything you would like to share about your compensation from your nursing job(s)?
(free text answer)

How much do you owe in student loan debt, in thousands?
(slider bar – select amount 0-200)

How much does your household pay per month for housing, in thousands?
(slider bar – select amount 0-15)

What is your annual household income, in thousands?
(slider bar – select amount 0-300)
Appendix E: Demographic Data

What is your age?  
(slider bar – select amount 18-99)

What is your age?  
Female  
Male  
Non-binary  
Other (free text – specify)

What is your race/ethnicity? (select all that apply)  
African American/Black  
Asian  
Caucasian/White  
Hispanic  
Native American/Alaskan Native  
Native Hawaiian/Other Pacific Islander  
Other (free text – specify)

How many years have you worked as a nurse?  
(slider bar – select amount 0-60)

How many years have you worked in your current position?  
(slider bar – select amount 0-60)

How many patients are typically under your care?  
(slider bar – select amount 0-30)

How many jobs in nursing do you currently hold?  
(slider bar – select amount 0-10)

What is your highest completed education level in nursing?  
Licensed practical/vocational nurse (degree or certificate)  
Nursing diploma (RN)  
Associate degree (RN)  
Bachelor’s degree (RN)  
Master’s degree (RN or NP)  
Doctorate or PhD (RN or NP)

What is your nursing role at your job?  
Licensed practical/vocational nurse (LPN)  
Registered nurse (RN)  
Advanced practice nurse (NP, CNM, CRNA, etc.)

Do you currently work as a travel nurse?
Yes
No

What is your practice type in your primary nursing job?
Direct patient care
Management or leadership
Informatics
Education
Case management
Other (free text – specify)

What is your practice area in your primary nursing job?
Medical/surgical
Intermediate care or ICU stepdown
ICU or critical care
Emergency department
Pediatrics
Labor and delivery, obstetrics, postpartum, antepartum
Perioperative or intraoperative
Observation
Leadership/management
Education
Informatics
Case management
Other (free text – specify)

Are you represented by a union or collective bargaining agreement in your primary nursing job?
Yes
No
Appendix F: Survey Landing Page

MARQUETTE UNIVERSITY RESEARCH INFORMATION SHEET

*Why We Work: Exploring the Relationships Between Work Rewards, Work-Related Burnout, and Intention to Leave for Professional nurses*

Principal Investigators: Jacqueline Christianson, Dr. Norah Johnson, Dr. Jill Guttormson, Dr. Abir Bekhet, Dr. Maharaj Singh

Marquette University – College of Nursing

You have been asked to participate in a research study. You must be age 18 or older to participate. The purpose of this study is to investigate the relationships between work rewards, work-related burnout, and intention to leave nursing positions and the nursing profession. The study involves an anonymous online survey and will take about 30 minutes to complete. You will be asked to answer questions about work-related burnout, rewards for your professional nursing work, information about your personal finances such as student loan burden and household income, intention to leave. Your name and other identifying information, including IP address, will not be collected. Your responses will be anonymous, and any quotes used in research dissemination will not be connected to your survey responses or any personally identifiable information. De-identified data collected by this study will be kept indefinitely by the research team and may be used for future research without additional informed consent. To best protect your confidentiality, this survey should not be completed on a shared computer or computer provided by your employer.

The risks associated with this project are minimal and there are no direct benefits to you. Collection of data and survey responses using the internet involves the same risks that a person would encounter in everyday use of the internet, such as hacking or information unintentionally being seen by others. Your participation is completely voluntary and you may withdraw from the study at any time. You can skip any questions you do not wish to answer. Your decision to participate will not impact your relationship with Marquette University.

If you have any questions about this study, you can contact Jacqueline Christianson at 608-512-6410 or jacqueline.christianson@marquette.edu. If you have questions or concerns about your rights as a research participant, you can contact Marquette University’s Office of Research Compliance at (414) 288-7570.

Thank you for your participation.
Appendix G: Recruitment Materials

Social Media Post
Subject: Research study on nurse burnout, rewards for professional work, and intention to leave
Hello! I am a PhD candidate at Marquette University who is researching the relationships between nurse burnout, rewards for professional nursing work, and intention to leave current positions and the nursing profession. My team and I are recruiting practicing United States registered nurses and licensed practical nurses who work in an acute care hospital setting to participate in an approximately 30-minute online survey.

A link to the survey is here: [link]

This study has been reviewed for ethics and was approved by the Institutional Review Board at Marquette University in Milwaukee, WI.
For questions about this study, please reach out to me via direct message.
Thank you for your time and consideration,
Jacqueline Christianson, MSN, RN, FNP-C, PhD candidate

Email to Participants
Hello,
I am a PhD candidate at Marquette University. My team is researching nurse burnout, intention to leave, and reward mechanisms for work such as pay, benefits, and psychological rewards for work.

I am seeking participants who:
- Have an active US nursing license
- Currently work in a US hospital
The study consists of a single anonymous online survey that takes approximately 20-30 minutes to complete. Your answers will be used to better understand how rewards, both tangible and intangible, are related to both burnout and nurse intention to leave. We hope information from this study will better inform how to retain nurses in the profession.

A link to the survey is here: [study link]

Participation is voluntary and you may stop participating in the study at any time. Collection of data and survey responses involve the same risks that a person would encounter in everyday use of the internet. The study has been reviewed for ethics and was approved by the IRB at Marquette University.

For questions about this study, please email Jacqueline.christianson@marquette.edu.

Thank you for your time and participation,
Jacqueline Christianson, RN, FNP-C, PhD Candidate
## Appendix H: Joanna Briggs Institute Critical Appraisal Checklists for Qualitative Research

<table>
<thead>
<tr>
<th>Reviewer</th>
<th>Date</th>
<th>Author</th>
<th>Year</th>
<th>Record Number</th>
<th>Yes</th>
<th>No</th>
<th>Unclear</th>
<th>Not Applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Is there congruity between the stated philosophical perspective and the research methodology?</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td></td>
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</tr>
<tr>
<td>2. Is there congruity between the research methodology and the research question or objectives?</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>3. Is there congruity between the research methodology and the methods used to collect data?</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td></td>
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</tr>
<tr>
<td>4. Is there congruity between the research methodology and the representation and analysis of data?</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>5. Is there congruity between the research methodology and the interpretation of results?</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
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<tr>
<td>6. Is there a statement locating the researcher culturally or theoretically?</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>7. Is the influence of the researcher on the research, and vice-versa, addressed?</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Are participants, and their voices, adequately represented?</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Is the research ethical according to current criteria or, for recent studies, and is there evidence of ethical approval by an appropriate body?</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Do the conclusions drawn in the research report flow from the analysis, or interpretation, of the data?</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Overall appraisal: Include □ Exclude □ Seek further info □

Comments (Including reason for exclusion):