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THE IMPACT OF RACE/ETHNICITY ON OCCUPATIONAL STRESS IN EAST TEXAS CERTIFIED NURSING ASSISTANTS

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THE IMPACT OF RACE/ETHNICITY ON OCCUPATIONAL STRESS IN EAST TEXAS CERTIFIED NURSING ASSISTANTS

by

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Dedication

I dedicate this dissertation to my husband and my daughters, who have been my biggest champions. Thomas McDonald, my husband, has been an inspiration and has shown me how to persevere through adversity. We were given a grim prognosis after his traumatic brain injury, but he has shown us all how to live life fully. He deserves an award for his ability to keep everything together and for believing in me while trying to deal with his own issues. My daughters, Ashley Sawaf, Elizabeth Sheffield, and Kristen Shields have never known a time when I was not going to school. I am proud of the women you have become and hope you feel my love.

To my parents, John and Selena Schniederjan, for teaching me how to work toward my goals and not expect instant gratification. They saw the value of education, even though neither of them was a college graduate. Thank you to all of you for believing in me!

I must also mention two of the most influential people in my life. My uncle, Jimmy Russell, encouraged me to apply to the doctoral program when he was literally on his deathbed. Shortly after, quite unexpectedly, I also lost my aunt, Patty Russell, who always supported me even when I did not feel worthy. I know they were still encouraging me after death. Many times, I thought of them when things were hard. Thank you for loving me when it was not easy.

I also want to dedicate this dissertation to nursing assistants everywhere. You are the heart of patient care for those who do not have a voice of their own.

Acknowledgments

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Abstract

THE IMPACT OF RACE/ETHNICITY ON OCCUPATIONAL STRESS IN EAST TEXAS CERTIFIED NURSING ASSISTANTS

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Significance: Certified nursing assistants (CNAs) provide direct care to those who live in long-term care facilities. As the population ages, the need for CNAs has grown. Nurse researchers have studied turnover and occupational stress, but no studies have examined racial/ethnic differences in CNA stress in East Texas.

Design / Purpose Statement: A convergent parallel mixed methods study was planned to address occupational stress experienced by CNAs in East Texas long-term care facilities. The Work Stress Scale and demographic questions were used to compare levels of reported occupational stress between racially diverse CNAs. However, lack of response to interview invitations necessitated a change to a cross-sectional quantitative study.

Theory: The Demand-Control Model of Occupational Stress was the basis for the research.

Methods: A convenience sample of CNAs (n = 140) was recruited from multiple long-term care facilities. Results from the Work Stress Scale were analyzed to determine levels of occupational stress. A hierarchical binary logistic regression model was used to analyze relationships between demographic variables, diversity climate, and occupational stress.

Findings: In bivariate analysis, occupational stress was related to CNA race. However, at the multivariate level, race was no longer significant, but occupational stress was significantly related to participant age, gender, and higher scores on the Diversity Climate Scale.

Conclusion: These findings show the need for continued research to explain CNA occupational stress. A qualitative or mixed methods study could potentially explain the problem further.

Keywords: nursing assistant, occupational stress, long-term care, mixed methods, race/ethnicity

Chapter I.

Introduction and Purpose Statement

Certified Nursing Assistants (CNAs) play a vital role in the American healthcare system by providing direct care to those who live in long-term care facilities. As the United States' aging population increases, the need for CNAs is rising (DePasquale et al., 2018). By the end of 2015, more than 600,000 CNAs provided 80% of the direct adult care for 1.4 million residents in the United States (Boscart et al., 2018). Even though CNAs provide most of the direct care to patients in nursing homes, they are often not recognized for their essential contributions. The key responsibilities of CNAs include but are not limited to resident bathing, feeding, dressing, provision of ambulation assistance, monitoring vital signs, catheter care, and post-mortem care (DePasquale et al., 2018).

A fact sheet released by the White House (2022b) indicated that over 200,000 residents and staff from long-term care facilities died during the first 2 years of the COVID-19 pandemic. This number equates to nearly one-fourth of all COVID-19-related deaths in the U.S. The White House fact sheet also highlighted new initiatives for the Centers for Medicare & Medicaid Services (CMS), which included improving quality and safety for long-term care staff members and residents and a minimum staffing requirement to ensure workers have the “support they need to provide high-quality care” (The White House, 2022b, para. 11). In October 2022, the White House released another fact sheet to announce new steps to improve quality in long-term care facilities (The White House, 2022a). These steps included increasing penalties for nursing homes that fail to improve, establishing minimum staffing requirements, and providing grants for training CNAs and nurses for the long-term care workforce. One of the grants emphasized

training for individuals “from historically marginalized and underrepresented populations” to address equity in underserved communities (The White House, 2022a, para. 7).

Despite the notable roles of CNAs, professionals continue to encounter various challenges, including complex work demands, abuse, low pay, lack of organizational support, and understaffing (Maharaj et al., 2019). The CNAs' work is highly emotionally and physically demanding, and poor working relationships, especially with managers or supervisors, contribute to occupational stress among CNAs in long-term care facilities (Travers et al., 2020). These conditions put CNAs at high risk for developing occupational stress related to the nature of the work environment.

Occupational stress is one of the pressing health challenges facing CNAs working in long-term care facilities (Ejaz et al., 2008). Owing to the stressful and demanding tasks, nursing assistants are more vulnerable to occupational stress in long-term care facilities than any other group of health care professionals. Herrad and Sulla (2018) observed that heightened occupational stress in long-term care facilities has led to high absenteeism rates, turnover, and burnout among CNAs. Chatzigianni et al. (2018) found that dealing with terminally ill patients on the precipice of death and dying and unreasonable patient and family demands were significant stressors among nursing staff. As the most available healthcare personnel, family members tend to apportion blame to the CNAs for everything that may go wrong with patients (Moustaka & Constantinidis, 2020). Furthermore, CNAs working in long-term care facilities are more vulnerable to workload-related occupational stress, problems with peers, and conflicts with physicians than registered nurses (Blanchfield, 2021).

Racial and ethnic differences in occupational stress in CNAs working in long-term care facilities have been reported (Hurtado et al., 2012). After controlling for other demographic

characteristics, Black CNAs in Massachusetts reported occupational stress 2.9 times more often than White CNAs (Hurtado et al., 2012). In a study of associations between educational attainment and occupational stress across racial and ethnic groups, Black race and Hispanic ethnicity had a positive correlation with occupational stress, while other races and ethnicities did not (Assari & Bazargan, 2019). Identifying racial differences in the experience of occupational stress is critical in developing interventions to reduce job stress among CNAs. The purpose of the proposed mixed-method research was to examine factors that influence CNAs' occupational stress. Specifically, the research focused on the differential influence of race/ethnicity on the occupational stress of CNAs working in long-term care facilities. Addressing occupational stress in CNAs, especially racial/ethnic differences in stress aligns with the National Institute of Nursing Research's 2022-2026 strategic plan for optimizing health and advancing equity (National Institute of Nursing Research, n.d.)

Background and Significance

Broadly, stress has been defined as a stimulus or an antecedent occurring in response to an interaction (Jezova & Herman, 2020). The stress concept was first explored in the mid-1950s and cited as a fundamental health problem (Selye, 1956). Selye (1956) explored the concept of stress from a physiological perspective as a link between stress and illness and from a psychological perspective as the link between persons and the environment and found that a person experiences stress whenever exposed to non-specific demands, which he termed the general adaptation syndrome.

The National Institute for Occupational Safety and Health (1999) defines occupational and job stress as the harmful physical and emotional responses that occur when job requirements do not match the capabilities, resources, or needs of the worker. Job stress in health and nursing

practice was first examined by Menzies in the 1960s, noting four primary sources of stress: patient care, taking extended responsibility, decision-making, and change-related stress (Menzies, 1960). Occupational stress is highly related to moral distress (de Veer et al., 2013; Orrung Wallin et al., 2015), which can further decrease job satisfaction (de Veer et al., 2013). Increased psychological demands adversely affect mental and physical health (Liang et al., 2014). CNAs who experienced high levels of stress at work reported low quality of resident care (Orrung Wallin et al., 2015) and a greater risk of assault (Morgan et al., 2002), suggesting that low-quality care and risk of assault by patients increases the risk of stress among nursing assistants in long-term care facilities. Extended exposure to occupational and job stress led to burnout among nurses (Liang et al., 2014). Freudenberger (1974) coined the term 'burnout' to describe the reaction of workers to chronic occupational stress involving multiple direct interactions with individuals. Non-work stress such as community and family-related stress may exacerbate occupational stress, (de Veer et al., 2013).

Occupational stress is a prevalent problem in the healthcare sector, particularly among CNAs (DePasquale et al., 2018; Lucchetti et al., 2014). Occupational stress was defined by the World Health Organization (2022) as an employee's response to work demands and pressures which does not match their knowledge and abilities to cope and accomplish the job. A high stress level adversely affects individual CNAs and patients regarding health and well-being, job satisfaction, healthcare delivery, and patient outcomes (Liang et al., 2014; Orrung Wallin et al., 2015). The adverse effects on health care organizations are related to a high rate of absenteeism and turnover, ultimately affecting the delivery of quality care and patient outcomes (Orrung Wallin et al., 2015; Parmelee et al., 2009). High levels of occupational stress among CNAs have been attributed to the hazardous nature of their job, poor interpersonal relationships, work

burnout, and low pay (Maharaj et al., 2019; Travers et al., 2020). Nursing assistants who experienced high-stress levels at work reported a greater risk of assault (Mor Barak et al., 1998; Morgan et al., 2002; Orrung Wallin et al., 2015).

CNAs from racial (Black) and ethnic (Hispanic) minority groups experienced a high level of occupational stress compared with their White counterparts in long-term care facilities (Hurtado et al., 2012). Although people of color comprise about 25% of the entire American workforce, 35% of CNAs identify as African American, and 10% identify as Hispanic or Latino (Professional Healthcare Institute [PHI], 2017), accounting for the largest proportion of nursing assistants. CNAs from minority groups reported less cultural competency from coworkers and supervisors and experienced more negativity toward their race and culture than White CNAs in the same workplace ($p < 0.01$) (Allensworth-Davies et al., 2007). Low levels of cultural competency led to poor interpersonal relationships with peers, supervisors, and managers and greater stress levels among minority CNAs than White CNAs in long-term care facilities (Allensworth-Davies et al., 2007).

The outcomes of the current study may have practical, academic, and social benefits. In practice, the study outcomes may provide direct benefits to CNAs in preventing and managing occupational stress. Researchers and policymakers can also benefit from this research by creating interventions and public policies to improve working conditions. Over time, nurse managers, nursing home administrators, and nursing home residents may benefit from this research and its application through improved health care delivery. The purpose of this mixed method research was to investigate which factors (race/ethnicity, gender, age, years as CNA, years in current job, and diversity climate) have the most significant influence on occupational stress for nursing assistants in East Texas long-term care facilities and if occupational stress is experienced

differently based on race or ethnicity. The study findings fill empirical gaps on ethnic disparities in occupational stress among CNAs. Societal benefits have the potential to improv health care delivery and reduced stress among CNAs.

Theoretical Model and Philosophical Underpinning

The adapted Demand-Control Model of Occupational Stress (Karasek et al., 1981) was the guiding theoretical framework underpinning the research. Karasek et al. (1981) developed the Demand-Control Model of Occupational Stress to explain occupational stress when studying work-related stress and cardiovascular disease in Swedish men. Figure 1 illustrates the Model of Occupational Stress from the researcher's perspective and was adapted by the researcher. The proponents of this model argued that high levels of job demand create occupational stress among employees but can be managed when employees attain control over their job demands and develop a friendly working relationship with their colleagues and supervisors/managers (Karasek et al., 1981). High job demands and low job decision latitude, or lack of control over job demand, increase job strain (Karasek et al., 1981).

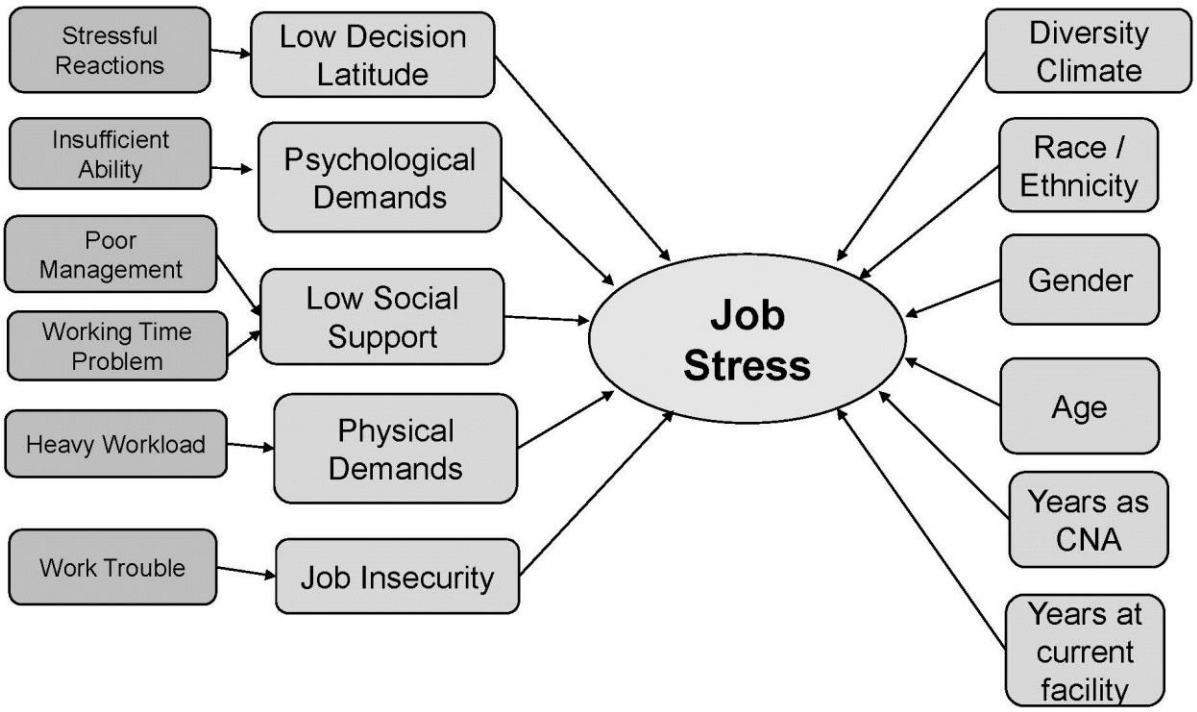
Researchers identified key occupational demands, including psychological stressors, such as time pressure and role conflict, which contribute to job strain (Bell et al., 2017). Control encompasses skill discretion, or the ability of the worker to make decisions when applying the skill, and decision authority, or control the worker has over tasks and performance throughout the day (Bell et al., 2017). Therefore, occupational stress occurs when work demands are high, and one has low control over job demands.

Gaining control and autonomy over job demands involves participating in decision-making in the organization on issues related to the job. Decisions can be made by self or by negotiating with supervisors to gain latitude regarding how to work (Bell et al., 2017).

Participation in decision-making helps employees gain control over their jobs to reduce related distress occasioned by job pressures. While the supervisor can guide an employee to decisions, they should also be free to make decisions regarding their work (Allensworth-Davies et al., 2007).

Figure 1

Model of Occupational Stress



Note. Figure is the author's conceptualization of the theoretical framework. Items to the left, Physical Demands, Psychological Demands, Low Social Support, Low Decision Latitude, and Job Insecurity are components of the original Job Demand-Control Model. Items to the far left, Task characteristics, Stress Reactions, Interactions with Family and Patients, Work Environment and Management, and Skills and Knowledge for the Task are the corresponding components of the Work Stress scale. Items on the right, added by the researcher, include independent demographic variables and diversity climate as measured by the Diversity Climate Scale.

Support from supervisors and colleagues reduces employee stress. Gaining necessary support from the supervisor through friendly and helpful interactions to buffer the adverse effects of stress is necessary to reduce stress (Blosky & Spegman, 2015). A helpful and friendly

interaction improves an employee's coping mechanisms and is needed to overcome the adverse effects of occupational stress. Positive supervisor support influences attitudes toward work, leading to greater job commitment and satisfaction (Gurková & Zeleníková, 2018). Furthermore, supervisor support reduces the chances of quitting the job due to stress, thus reducing turnover rates (Bell et al., 2017).

Similarly, gaining support from colleagues acts as a coping mechanism for stress. Nevertheless, the contribution of co-worker support is deemed more important than support from supervisors because it is immediate and more critical than the support gained from the supervisor (Gurková & Zeleníková, 2018). The nature of the relationship with colleagues is also egalitarian because, unlike the supervisors, they hold no position of power that may compromise the nature of interactions. Colleagues also function as a source of compassion during stressful times, especially during teamwork (Lee et al., 2019). The need for good physical and psychological well-being is an essential coping mechanism against job stressors (Gurková & Zeleníková, 2018).

Employees with high self-efficacy and optimism tend to manage their stress because they strongly believe in their capability to cope with stressors. A high level of self-efficacy and optimism improves self-control and ability to cope with job pressures (Lee et al., 2019). When demands stress the individual and they can take no action due to the absence of control, stress can have negative psychological and physical effects on the individual (Karasek et al., 1981). Conversely, high levels of psychological demand and control, or decision latitude, contribute to positive stress and can lead to increased motivation, job satisfaction, and commitment (Theorell & Karasek, 1996).

In the context of this study, and based on previous research, potential factors related to job stress have been added to the theoretical framework, including diversity climate, race/ethnicity, gender, age, years as a CNA, and years worked at the current facility. The framework was further modified to include items of the Work Stress Scale for measuring the level of occupational stress in CNAs working in long-term care facilities. The items of the Work Stress Scale include (a) task characteristics, (b) work environment and management, (c) interactions with family and patients, (d) skills and knowledge for the task, and (e) stress reactions. The framework modification was meant to align the framework with research variables and make it applicable to the planned study (see Figure 1).

The Demand-Control Model of Occupational Stress has been criticized for several shortcomings. First, the model is limited in applications to employees working in high-stress occupations. Second, the Demand-Control Model of Occupational Stress was criticized for short-term effectiveness (Gurková & Zeleníková, 2018). Studies have shown that the model applies in cross-sectional designs to provide information related to job stress and well-being factors (Bell et al., 2017). However, longitudinal studies have failed to support the model's effectiveness in addressing employee stress and well-being factors in employees (Bell et al., 2017). Similarly, counselors dealing with clients may experience stress due to compassion fatigue. In this regard, the model needs to be adjusted to the specific stressors unrelated to the workload. Nevertheless, the Demand-Control Model of Occupational Stress is relevant in a broad range of jobs where employees struggle with workload, such as in the nursing field. Using the Demand-Control Model of Occupational Stress in the nursing field could assist with developing and implementing a model for reducing stress levels by recognizing sources of stress that might be addressed through appropriate interventions.

Applications in Research and Practice

The Job Demand-Control Model has been used to identify factors leading to occupational stress globally and within diverse disciplines. Researchers evaluated (a) differences in job strain between caregiver categories and level of job strain among rural Canadian nursing home workers (Morgan et al., 2002); (b) relationships between job strain, norepinephrine and epinephrine excretion in the workplace, and ambulatory blood pressure in nurses and nurse aides in Hawaii (Brown et al., 2003); and (c) racial/ethnic differences in job strain in long-term care workers in Massachusetts (Hurtado et al., 2012). Since this model has been used in numerous studies over 30 years and within various disciplines, additive effects of the dimensions of the Job Demand-Control Model on occupational stress have been established (Häusser et al., 2010).

In practice, the Demand-Control Model of Occupational Stress has several benefits in the field of management and psychology. The model provides practical solutions to prevent and reduce job stress and burnout (Blom et al., 2016), offers opportunities to build friendly relationships (Ricciardelli & Carleton, 2022), approaches to formulating joint solutions between managers and subordinates (Bakker & de Vries, 2021), encourages healthy work/life balance (Schechter et al., 1997), and for measuring employee motivation and satisfaction (Lee et al., 2019). The model provides managers with opportunities to identify and develop interventions to address occupational stress (Ricciardelli & Carleton, 2022). Schechter et al. (1997) applied the model to evaluate workers' stress levels in the Canadian occupational setting and determine ways of managing a high level of occupational stress. In this context, there was very high job demand for workers and low resource availability, resulting in job strain and burnout in employees. The Demand-Control Model of Occupational Stress was used to provide practical solutions to prevent and reduce employee burnout (Blom et al., 2016). Managers have used the model to measure the

level of employee motivation and satisfaction (Lee et al., 2019) and adopted by leaders across different fields to encourage and motivate subordinate staff to build a healthy work balance (Lee et al., 2019).

Research Questions

The quantitative questions for this study were:

RQ1: What demographic factors (gender, age, years as a CNA, and years at the current position) have the greatest influence on occupational stress for CNAs in rural East Texas long-term care facilities?

RQ2: Does diversity climate influence occupational stress for CNAs in rural East Texas long-term care facilities?

RQ3: Is work stress experienced differently by Black, Hispanic, and White CNAs?

The planned qualitative question for this study was:

RQ4: How do CNAs working in East Texas long-term care facilities experience occupational stress?

Definition of Terms

Table 1 comprises the variables, concepts, conceptual and operational definitions used in this dissertation. The first section defines the dependent variable, Occupational Stress. The second section defines Diversity Climate, and the third section defines the independent demographic variables.

Table 1

Conceptual and Operational Definitions

Variable	Concept	Conceptual definition	Operational definition
		Occupational Stress	
Control	Stress Reactions	Stressful reactions include feelings of boredom and repetition, lack of autonomy, fear of resident health changes, and thoughts of quitting current job (Hsu et al., 2007).	Stressful reactions subscale of the Work Stress Scale
Demand	Skills and knowledge for the task	The knowledge and skills gap between CNAs' abilities and job requirements (Hsu, 2019).	Insufficient ability subscale of the Work Stress Scale
Demand	Workload Task characteristics	Workload of the CNA relates to insufficient staff, physically demanding tasks, lack of help from coworkers, and insufficient time with family (Hsu et al., 2007)	Heavy workload subscale of the Work Stress Scale
Demand	Work trouble Interactions with family and patients	Work trouble refers to emotional stressors, such as resident behaviors, perceived unfairness in performance evaluations, and unclear duties to nurses (Hsu et al., 2007)	Work trouble subscale of the Work Stress Scale
Demand	Work environment and management	Work environment and management refer to structural quality and management problems (Hofhuis et al., 2015).	Poor management subscale of the Work Stress Scale
Demand	Working time	Working time refers to unreasonable scheduling and overtime (Hsu et al., 2007)	Working time problem subscale of the Work Stress Scale
		Diversity Climate	
Organizational fairness	Fairness	A component of the organizational dimension describes the level of fairness in the treatment of a diverse group of employees (Mor Barak et al., 1998).	Fairness subscale of the Diversity Climate Scale
Organizational inclusion	Inclusion	A component of the organizational dimension defining the level of inclusivity in the organization (Mor Barak et al., 1998).	Inclusion subscale of the Diversity Climate Scale.
Personal diversity value factors	Diversity value	A component of the personal dimension describing how an individual values diversity in the workplace (Mor Barak et al., 1998).	Diversity Value subscale of the Diversity Climate Scale.
Personal comfort factors	Comfort	A component of the personal dimension referring to individual comfort with diversity (Mor Barak et al., 1998).	Comfort subscale of the Diversity Climate Scale.
		Demographic Information	
	Personal factors	Demographic factors describing CNA participants (race/ethnicity, age, gender, years as CNA, years at current facility)	A demographic survey measured these factors based on categorical variables

Summary

The chapter has introduced and provided a brief background of the study phenomenon and factors influencing occupational stress in CNAs working in long-term care facilities. Evidence suggests that occupational stress is a prevalent problem among health care workers, particularly among nursing staff who experience the brunt of this problem (Almazan et al., 2019; Chatzigianni et al., 2018). The Demand-Control Model of Occupational Stress (Karasek et al., 1981) serves as the basis for the research. High job demands and low job decision latitude, or control, equate to increased job strain (Karasek et al., 1981). The qualitative and quantitative research questions were presented to address the problem and meet the study purpose. Based on current evidence, studies on racial/ethnic differences in stress levels among long-term CNAs have not been explored; presenting an empirical gap that was addressed in the research. The purpose of the mixed-method research was to examine demographic factors and diversity climate with the greatest influence on CNAs' occupational stress. Specifically, the research is focused on the differential influence of race/ethnicity on nursing staff working in long-term care facilities. The next chapter will review the empirical and theoretical literature.

Chapter II.

Review of Literature

Introduction

The purpose of the research was to examine the influence of demographic factors and diversity climate on occupational stress among CNAs working in long-term care facilities in East Texas. Specifically, the research determined the differential influence of race/ethnicity on job stress among CNAs. The planned study was motivated by the rising level of occupational stress among nursing assistants working in long-term care facilities and racial/ethnic stress inequity (Hurtado et al., 2012; Pelissier et al., 2015a). Identifying racial/ethnic differences in occupational stress plays a vital role in the development of interventions designed to create greater job satisfaction, reduce turnover, promote better health outcomes for CNAs, and positive patient outcomes in long-term care facilities (Bell et al., 2017). Turnover and occupational stress have been examined, but the studies were performed using large datasets or small samples in geographic areas with racial compositions different from those in East Texas (Chegini et al., 2019; Hurtado et al., 2012). None of these studies have examined racial/ethnic differences in stress in CNAs in East Texas. Occupational stress among CNAs affects patient outcomes (Liang et al., 2014); therefore, examining CNAs' stress can provide solutions and improve patient care. A mixed methods study was planned to investigate the phenomenon of occupational stress among CNAs in long-term care facilities.

The findings of this research may benefit CNAs, policymakers in the health care sector, and society in general. Researchers and policymakers can benefit from this research by creating interventions and public policies to improve working conditions. Over time, nurse managers, nursing home administrators, and nursing home residents could benefit from this research and its

application. Therefore, the purpose of this research was to investigate if diversity climate or certain demographic factors (race/ethnicity, gender, age, years as CNA, or years in current job) influence occupational stress for nursing assistants in East Texas long-term care facilities and if occupational stress is experienced differently based on race or ethnicity.

This chapter focused on reviewing both theoretical and empirical literature related to the phenomenon of occupational stress in nurses working in long-term care facilities. Previous scholarly works include literature on occupational stress, diversity climate, the impact of occupational stress, factors causing occupational stress, the prevalence in healthcare, and racial differences in occupational stress in nursing staff. The review culminates in identifying a gap in empirical research that was filled by the study outcomes.

Review of the Literature

Occupational stress has been explored by multiple scholars from different fields (Kakemam et al., 2019; Stevanin et al., 2018). Job-related stress in nursing has escalated since the mid-1980s due to the increasing use of technology, rising healthcare costs, and work environment turbulence (Maharaj et al., 2019). Workers experience occupational stress whenever their job demands exceed their capacity to cope and accomplish job demands, which, if prolonged, leads to mental health problems and serious physical health problems, including cardiovascular disease (de Veer et al., 2013). Four main sources of stress were noted: patient care, taking extended responsibility, decision-making, and change-related stress (Menzies, 1960). The review of empirical literature was based on the following themes: occupational stress for nurses and nursing assistants, diversity climate and occupational stress, the impact of occupational stress, and gaps in empirical works of literature.

Occupational Stress for Nurses and Nurse Assistants

Nursing staff experience various risk factors for occupational stress within and outside the work environment. Kakemam et al. (2019) explored the risk factors for stress among nursing staff from tertiary level hospitals across 13 providences in Iran. The overall occupational stress among nurses was moderately high, as shown by close to 79% reporting high levels of job stress. The primary sources of job stress were identified as shiftwork, staff shortage, workplace discrimination, low pay, and excessive workloads. Risk factors for higher stress levels included female gender, being married, low levels of educational attainment, increased work hours, and working in emergency departments. A descriptive cross-sectional design based on data from public hospitals in Riyadh correlated work assignments with occupational stress in nursing staff (Almazan et al., 2019). The findings suggested a moderately stressful work environment contributed significantly to nursing staff stress. Long working hours were a key factor contributing to stress in nurses; Maharaj et al. (2019) compared stress levels in nurses based on shift hours worked. RNs working long hours or shifts reported significantly higher stress levels than RNs working shorter shifts.

The psychological working environment was a key factor contributing to a high level of stress among nurses and nursing assistants. Psychological hazards and stress experienced by CNAs were related to "a variety of sources of job stress including the threat of violence, bullying, poor teamwork, feeling looked down on, lack of leadership support, feeling rushed at work, feeling unprepared for the job tasks at hand, few opportunities for advancement, low wages, and mandatory overtime" (Walton & Rogers, 2017, p. 19).

Social-based discrimination contributed to the poor treatment of CNAs within nursing homes from the perspective of social order, culture, and power (Travers et al., 2020). Social-

based discrimination refers to the sustained inequality and prejudices against some employees based on disability, sexual orientation, illness, and cultural background (Travers et al., 2020). MacIntyre et al. (2023) observed that social-based prejudices create fear and anxiety and, if left uncontrolled, led to chronic stress among minorities.

Racial Differences in Occupational Stress

Scholars have explored racial and ethnic differences in occupational stress among nursing personnel across healthcare settings (Hurtado et al., 2012). While not specific to healthcare, Assari and Bazargan (2019) found positive correlations between occupational stress and Black/African American race ($r = .19$; $p < .05$) as well as Hispanic ethnicity ($r = .05$; $p < .05$) in a cross-sectional survey that included 15,726 employed adults in the US. Truit and Snyder (2020) found that 78% of their participants described experiences with racism and discrimination in the workplace. Through the use of semi-structured interviews, this study explored racism related to stress and coping strategies among Black CNAs. Findings suggested that explicit and subtle racism from peers, patients, and supervisors contributes to stress among Black nurses and certified nursing assistants. Coping strategies used by stressed nurses were identified; these include consulting support systems like peers outside work and within their families. Authors recommended policy changes to address workplace racial bias and discrimination to foster diversity in nursing practice and support nurses of color.

In their quantitative research, Hurtado et al. (2012) also explored racial/ethnic differences in stress among long-term care workers. These authors used a cross-sectional survey design with a sample of workers from four nursing homes in Massachusetts in order to assess racial disparities in job stress. The number of hours worked, pay, and occupational stress were examined. The sample consisted of 127 Black and 110 White non-Hispanic workers. Those who

identified as having Hispanic ethnicity were excluded from their study due to low numbers. Of the Black workers, 86.6% were CNAs, and 96.8% were immigrants (Hurtado et al., 2012). Black workers worked an average of 7.1 more hours per week and earned $2.58 less per hour than White workers (Hurtado et al., 2012). Black non-Hispanic long-term care workers reported almost three times higher occupational stress (RR = 2.9, 95% and CI = 1.3 to 6.6), than White workers (Hurtado et al., 2012), potentially creating health disparities among workers. Authors acknowledged that nursing homes have increased immigrant and minority workforce experiencing psychological stressors. The results suggest that immigrant Black nursing home staff at all levels are more likely to experience job strain than their White counterparts..

Diversity Climate and Occupational Stress

Diversity climate is defined as the employee's perception of diversity in the workplace (Mor Barak et al., 1998). Perceived discrimination is a significant predictor of adverse mental health effects, including depressive symptoms (Jang et al., 2010; Kessler et al., 1999). Increased perceived discrimination was also associated with lowered sense of control (Jang et al., 2010; Meyer, 2014). Additionally, Ong and Williams (2019) found that lifetime discrimination in a sample of racially diverse middle-aged adults was positively correlated with inflammation burden and inversely related to sleep quality. Another study (Priest et al., 2020) suggested that including the impact of discrimination for African Americans was necessary to fully explain health outcomes and disparities.

The prevalence of work-related stress and anxiety among diverse groups of nurses revealed differential levels of stress and diverse findings. Stevanin et al. (2018) focused on the prevalence of stress across three nursing generations: baby boomers, Generation X, and Generation Y nurses. These authors found that baby boomers had lower levels of stress and

burnout compared with Generation X and Generation Y nurses. Additionally, baby boomers reported lower levels of work engagement and greater intention to leave than X and Y nurses. In contrast, Generations X and Y nurses were more cohesive and less resilient. Consistent with Stevanin et al. (2018), Linzer (2020) also found that levels of stress were significantly higher in the younger cohorts.

CNAs and Occupational Stress

The prevalence of stress in health care organizations is a worldwide concern (Almazan et al., 2019; Faremi et al., 2019; Maharaj et al., 2019). Higher levels of stress were reported among nursing staff, particularly CNAs, compared with other professions in the health care sector stress (Liang et al., 2014; Orrung Wallin et al., 2014; Pelissier et al., 2015b; Schaefer & Moos, 1996) due to their extended involvement in care provision. Since long-term care facilities provide 24-hour care to the residents, CNAs also provide direct care to patients overnight and on weekends, making this role highly demanding and stressful (Campbell et al., 2021). Blanchfield (2021) found that working long shift hours contributed to the stress among nursing assistants in long-term care facilities due to workload. These findings suggested that CNAs are most susceptible to occupational stress due to the nature of their work (Maharaj et al., 2019). CNAs also experience poor relationships in the work environment, including conflict with managers or physicians and inadequate staffing, contributing to occupational stress among CNAs in long-term care facilities (Maharaj et al., 2019).

Nursing assistants experience greater stress compared with other groups of nurses, and sources of stress were identified. Nursing assistants reported a high rate of stress (38% of 105 participants) which was associated with higher anxiety (β = .412, p = .006) and more years providing care (β = .511, p = .004; Lucchetti et al., 2014). In the long-term care setting, CNAs

reported more occupational stress than licensed practical nurses (p = .004; Orrung Wallin et al., 2015) and experienced more physical attacks from residents than nurses or housekeepers (p < 0.001; Pélissier et al., 2015).

In rural settings, notable differences in levels of stress were noted across various nursing categories, where nursing assistants were more strained compared with registered nurses (Morgan et al., 2005). Poor working relationships, especially with managers or supervisors, and inadequate staffing also contributed to CNA stress (Liang et al., 2014; Orrung Wallin et al., 2015; Schaefer & Moos, 1996) and led to decreased job satisfaction and turnover (Schaefer & Moos, 1996). Job stress can harm CNAs' physical and mental health. Health problems, including increased depression, were higher among CNAs who experienced higher levels of stress (Liang et al., 2014; Muntaner et al., 2015; Orrung Wallin et al., 2015). Stress and anxiety among nurses were detrimental to nurses' health (Maharaj et al., 2019).

Impact of Occupational Stress on Job Satisfaction and Performance, Health Care Delivery and Outcomes

A high level of stress has adverse effects on individual nurses, CNAs, and patients regarding job satisfaction and performance, health care delivery, and outcomes. Stressful work environments are associated with both patient and nurse dissatisfaction (Blosky & Spegman, 2015). To combat this stress, de Veer et al. (2013) suggested that a healthy work environment bolstered staff motivation and performance and concluded that meaningful solutions are needed to mitigate and minimize occupational stress. Lee et al. (2019) focused on the link between occupational stress and job satisfaction among nurses. The quantitative study was conducted using a survey design with 200 nurses drawn from small to medium-sized South Korean hospitals. Findings indicated that job stress adversely influences nurses' work motivation and

results in low job satisfaction. Occupational stress was also highly and inversely associated with morale, which can further decrease job satisfaction (de Veer et al., 2013; Orrung Wallin et al., 2015). Cross-sectional research by de Veer et al. (2013) focused on determinants of moral distress among daily nursing staff. A sample of 365 nurses were recruited from nursing homes and acute care hospitals to complete survey questionnaires. High moral distress and stress were found to be directly correlated with lower job satisfaction. It was concluded that job distress is an issue of concern to nursing managers because it leads to reduced job satisfaction. Organizational issues contributing to moral distress should be targeted to address occupational stress and improve job satisfaction.

A study in Nigeria's teaching hospitals sought to establish the link between occupational stress and job performance (Faremi et al., 2019). A descriptive survey design and purposive sampling method to recruit nurse participants were used. Nurses were highly vulnerable to occupational stress due to intense daily activities. The rate of occupational stress was experienced by 91% of nurses, and common stressors were workload, lack of adequate motivation, role ambiguity or conflict, and poor working conditions. Occupational stress among nurses affected patient care delivery, and the authors concluded that identified stressors adversely affect job performance. Recommendations included additional nursing staff to contain the workload, adopting staff motivation strategies, clearly defining roles to avoid conflicts, and improving work conditions for nurses.

Gaps in the Literature

Only one study was located that explored racial/ethnic differences in job stress among CNAs in long-term care (Hurtado et al., 2012). Hurtado et al. (2012) focused on Black immigrant workers in four nursing homes in Massachusetts. Truitt and Snyder (2020) studied

racialized experiences of Black nurses and CNAs, but did not look at racial or ethnic differences in those experiences. A knowledge gap exists regarding racial/ethnic differences and stress for CNAs working in long-term care facilities. Stress in healthcare personnel has been explored worldwide by healthcare technicians, social workers, radiation therapists, physicians, and nurses (Travers et al., 2020). However, most studies on healthcare staff are focused on nursing personnel, particularly registered nurses and the effects of occupational stress and burnout. Differences in work-related stress based on generational cohort and the length of shift hours worked were reported (Priest et al., 2020), with longer working hours associated with job stress among RNs (Travers et al., 2020). Only one study focused on differences across nursing groups; nursing assistants experienced greater strain than registered nurses (Morgan et al., 2002). Based on current evidence, studies that examine racial/ethnic differences in stress levels of CNAs who work in East Texas long-term care facilities have not been explored, presenting an empirical gap addressed by the research.

Nursing researchers have explored job stress among nursing personnel in various health care settings (Priest et al., 2020; Travers et al., 2020). However, the studies have been performed using large datasets or small samples in geographic areas with racial compositions different from those in East Texas. None examined racial/ethnic differences in CNAs' stress in East Texas. Stress among nurses affects patient outcomes, suggesting that CNA stress might impact long-term care resident outcomes; therefore, there is a need to understand factors contributing to CNAs' stress and their perceptions of stress.

Summary

Occupational stress for CNAs in long-term care is negatively related to job satisfaction (McGilton et al., 2007) and positively associated with turnover (Ejaz et al., 2008). It negatively

affects CNAs' health outcomes (Liang et al., 2014; Muntaner et al., 2015; Orrung Wallin et al., 2015) and resident outcomes (Orrung Wallin et al., 2015). While previous studies indicated teamwork and work control can reduce perceived stress, further research is needed to investigate the impact of stress on CNAs of color. Because of the expected growth of the long-term care industry, increased numbers of minority CNAs, and focus on health outcome disparity, further studies to examine the disparity of working conditions and stress between racial and ethnic groups are suggested. Since racial and ethnic disparities are pervasive problems within our society, simple interventions will not eliminate the issues. Identification of the problems, however, will enable nurses to enact policy changes within the long-term care industry to protect these important and vulnerable members of the health care team. The research answers the quantitative questions: (a) What demographic factors (gender, age, years as a CNA, and years at the current position) have the greatest influence on occupational stress for CNAs in rural East Texas long-term care facilities? (b) Does diversity climate influence occupational stress for CNAs in rural East Texas long-term care facilities? (c) Is occupational stress experienced differently by Black, Hispanic, and White CNAs?

Chapter III:

Methods

Introduction and Purpose

The high level of occupational stress is a major concern to the healthcare sector, with adverse effects on individuals and patients regarding health and well-being, job satisfaction and performance, health care delivery, and patient outcomes. The planned mixed-method study sought to determine the level of occupational stress and factors influencing occupational stress among CNAs working in long-term care facilities. Chapter III discusses and justifies the research methodology used in the planned research, including research questions, design, sampling procedures, data sources and instruments, data collection and analysis, and ethical considerations.

Research Questions

The quantitative research questions were:

RQ1: What demographic factors (gender, age, years as a CNA, and years at the current position) have the greatest influence on occupational stress for CNAs in rural East Texas long-term care facilities?

RQ2: Does diversity climate influence occupational stress for CNAs in rural East Texas long-term care facilities?

RQ3: Is work stress experienced differently by Black, Hispanic, and White CNAs?

The planned qualitative question was:

RQ4: How do CNAs working in East Texas long-term care facilities experience occupational stress?

Research Design

Initially, a convergent mixed method design was planned to address occupational stress experienced by CNAs who work in East Texas long-term care facilities. Results from the Work Stress and Diversity Climate Scales and demographic data were collected from CNAs who work in East Texas long-term care facilities. The plan was to recruit participants for the qualitative strand from those who completed the quantitative strand to explain CNA perspectives on what occupational stress means to them. The qualitative results were to be combined with the quantitative outcomes to understand the causes of occupational stress experienced by East Texas CNAs working in long-term care facilities. The guiding theoretical framework was the adapted Demand-Control Model of Occupational Stress. For this study and based on previous research, potential factors related to job stress were added to the theoretical framework, including race/ethnicity, gender, age, years as a CNA, diversity climate, and years worked at the current facility.

For the purpose of meeting requirements for a doctoral dissertation, qualitative recruitment, sample, data collection and analysis, and related Appendices are included. Because no participants were interviewed, qualitative findings are not reported. The study design was therefore a cross-sectional quantitative design.

Sample and Setting

The target population comprised CNAs working in East Texas long-term care facilities. Long-term care facilities in East Texas are defined as skilled nursing homes within Region Four of the Texas Health and Human Services Commission. According to the U.S. Bureau of Labor Statistics (2022), Texas has a high number of CNA employees, with 100,161 actively certified nursing assistants at end of 2020. Close to three-quarters of the 100,161 or 75,000 CNAs work in

long-term care facilities. Eligibility criteria included (a) CNAs who work in East Texas long-term care facilities, (b) at least 18 years of age, and (c) ability to speak and read English. CNAs working primarily as medication aides were excluded from the study.

Quantitative Sampling

Participants were recruited by posting flyers (see Appendix A) in employee break areas. A convenience sampling approach was adopted. Posts with a QR code linked to the consent and questionnaires were available on social media (Facebook, Twitter, and LinkedIn). Potential volunteer participants were screened for eligibility (see Appendix B) via a Qualtrics questionnaire. Recruitment of participants and data collection took two weeks. A power analysis using G*Power (Cohen, 1992; Faul et al., 2009) was utilized to determine the size of the sample needed for this 2-tailed multiple linear regression. To avoid a Type II error, with a power of 0.80, alpha of 0.05, a medium effect size (.15), and six predictors of job stress (race/ethnicity, gender, age, years as a CNA, years at current facility, and diversity climate), a total sample of 103 participants was required. One hundred forty participants were recruited to allow for incomplete or flawed data.

Qualitative Sampling

Qualitative strand participants were to be recruited from those who completed the questionnaire. A message at the end of the survey invited participants to provide their names and contact information if they were willing to speak to the researcher. The plan was to use purposive sampling to select participants of varied racial and ethnic groups. This strategy was based on specific inclusion criteria. Only participants who reported high occupational stress as indicated by the Work Stress Scale were to be included in the qualitative sample. This sampling approach ensured that each racial group (Black, White, and Hispanic) was represented in the

qualitative strand. Respondents interested in participating in a qualitative interview were to be contacted to answer semi-structured interview questions. However, 43 participants who completed quantitative surveys indicated interest in completing qualitative interviews, but none set up a date for the interview. After repeated attempts to contact the participants via email, none responded. Therefore, only quantitative findings are presented.

Quantitative Data

Quantitative data were obtained via a survey that contained demographic information, the Diversity Climate Scale, and the Work Stress Scale. Author permission was obtained to use the Work Stress Scale and Diversity Climate Scale as shown in Appendices C and D. All surveys were combined into a single Qualtrics survey. The first page of the survey presented the informed consent for the quantitative strand (see Appendix C), and page two screened for eligibility. If a respondent's answers to eligibility questions indicated they were ineligible, the survey did not progress to the quantitative measures. After electronic informed consent was obtained and eligibility established, the participant completed the Work Stress Scale (see Appendix D), Diversity Climate Scale (see Appendix E), and a demographic questionnaire (see Appendix F). The last page of the survey invited the participants to be interviewed about job stress. If willing to be interviewed, the participant provided their email address or telephone number. Qualified participants received a $5 Amazon gift card to increase the response rate.

Plan for Qualitative Data

Qualitative interviews were planned to elicit CNAs' experiences regarding occupational stress while delivering care in long-term care facilities and were to be conducted virtually via Zoom utilizing an interview guide (Appendix G). The interviews would have been audio-recorded and transcribed using Zoom software for subsequent retrieval and analysis. Field notes

would have been taken to capture non-verbal responses from the participants when the interview occurred via Zoom. A $20 Amazon gift card would be mailed within 14 business days of completion to boost the response rate. However, no one consented to an interview.

Protection of Human Subjects

Institutional Review Board approval was obtained before the study began. Individuals were invited to participate via flyers posted in long-term care facilities and on social media. The first page of the survey informed potential participants of the purpose of the study as well as the risks and benefits, and served as the online consent for the quantitative strand.

An informed consent was sent to the participants willing to be interviewed for the qualitative strand (Appendix H), and upon receiving a signed copy, the PI planned to contact the participant to set up a day and time to meet.

Participants were asked to provide their email address or telephone number as an identifier to protect confidentiality. This unique identifier was used on electronic surveys. The survey responses were auto-uploaded and stored in an encrypted personal and password-protected computer and protected (Sandelowski, 2000) accessible only by the primary investigator (PI).

All ethical requirements in research were observed to protect human subjects or participants and their organizations from possible physical and psychological harm occasioned by their participation in the study. These include obtaining participants' consent, anonymity, privacy, and confidentiality of data collected, voluntary participation, and withdrawal.

Instruments

Three instruments were used to collect participant data: a demographic questionnaire, the Work Stress Scale by Hui-Chuan Hsu (2007), and the Diversity Climate Scale by Michàlle Mor

Barak et al. (1998). Demographic information was used to capture independent variables, including race/ethnicity, age, gender, years as CNA, and years at the current facility.

Quantitative Data

Work Stress Scale. The Work Stress Scale by Hsu (2007) was used to measure occupational stress. The scale has been used to evaluate the stress score and stress reactions caused by job stressors (Hsu et al., 2007). The Work Stress Scale instrument has six subscales with a total of 28 items distributed as follows: (a) Insufficient ability (seven items), (b) Stressful reactions (six items), (c) Heavy workload (six items), (d) Work trouble (four items), (e) Poor management (three items), and (f) Working time problem (two items). Insufficient ability is the gap between the CNAs' abilities and job requirements. Stress reactions capture feelings, coping mechanisms, and personal issues among CNAs. Heavy workload refers to insufficient staff, physically and mentally demanding tasks, lack of support from coworkers, and inadequate time with their own family. Work trouble encompasses emotional stressors, such as resident behaviors, perceived unfairness in performance evaluations, and unclear duties. Poor management captures feelings related to support from the facility and unclear duty turnover. The last subscale, the working time problem, refers to unreasonable scheduling and overtime (Hsu et al., 2007). Items are measured on a Likert-type scale of 1 to 5 where 1 = never and 5 = always. Sum scores range from 26 to 140 with higher scores suggesting a higher level of stress (Hsu, 2019). The validity of the Work Stress Scale for care assistants was first established using a pre-tested questionnaire on 50 care assistants in nursing institutions. The results revealed the validity of the 28-item Work Stress Scale. The scale has been shown to be a reliable measure of work stress and has demonstrated good validity and reliability (α = 0.9; Hsu et al., 2007).

Diversity Climate Scale

The Diversity Climate Scale was used to assess ethnic differences in CNAs' perceptions of diversity based on two dimensions: (a) personal views, attitudes, and behaviors toward different people within the organization and (b) organizational dimension to evaluate the perception of policies and procedures that affect minority groups such as discrimination (Mor Barak et al., 1998). The personal dimension has two subscales consisting of three items: personal diversity value and personal comfort factors. The organizational dimension includes the organizational fairness subscale with six items, and organizational inclusion comprising four items. The 16-item Diversity Climate Scale has two demographic questions on the gender and racial/ethnic affiliation of participants. Diversity Climate Scale items are measured on a 6-point Likert-type scale where 1 = strongly agree and 6 = strongly disagree and includes a “can’t answer” option. The sum of scores ranges from 16 to 138 for the total scale, where higher scores suggest a positive perception of diversity in personal and organizational dimensions (Mor Barak, 1999). The validity and reliability of the Diversity Climate Scale were established using exploratory factors analysis, which had an exploratory factor statistic of 0.90 correlations for a good fit (Mor Barak et al., 1998). Cronbach's alpha for reliability for the overall scale was 0.83, suggesting that it is a reliable measure of diversity climate (Mor Barak et al., 1998).

Qualitative Data

Qualitative interview questions were derived from the main research questions on CNAs' experiences of occupational stress in long-term care facilities, the work stress of the modified Demand-Control Model of Occupational Stress components and guided by reviewed literature. The qualitative interview guide is found in Appendix G.

Data Analysis

Statistical analyses for quantitative data were completed using the IBM Statistical Package for the Social Sciences (IBM SPSS 26.0). The analysis began using descriptive statistics, including frequencies (mean, standard deviation, min/max) and evaluation of missing data (Bannon, 2013) followed by univariate analysis. The next step was bivariate analysis. During this step, the ANOVA test evaluated relationships between a categorical independent variable (race/ethnicity) and an interval-dependent variable, the level of stress (Bannon, 2013).

To evaluate the first research question, What factors have the greatest influence on occupational stress for CNAs in rural East Texas long-term care facilities? a multiple linear regression was done on the data obtained using the Work Stress Scale to assess the effects of continuous independent variables on dependent variables and determine if there is a significant relationship at a $p < 0.05$ (Bannon, 2013). The β from the regression gives the magnitude, which identifies the strongest predictors (Bannon, 2013).

To answer the second research question of whether occupational stress is experienced differently by Black, Hispanic, and White CNAs, an ANOVA was conducted on the data obtained using the Diversity Climate Scale. The test determined whether occupational stress differs significantly between non-Hispanic White, Black, and Hispanic CNAs. A confidence interval of 95% was used and was the appropriate test to examine the relationship between this categorical variable and the continuous variable of occupational stress (Bannon, 2013).

Strengths and Limitations

The control and rigor of research outcomes were enhanced using multiple procedures. These include ensuring the credibility and trustworthiness of the research using valid and reliable instruments. The theoretical framework, the adapted Demand-Control Model of Occupational

Stress, provided key concepts relevant to generating credible and valid study outcomes. However, there are a few limitations that may compromise study outcomes. First, the chosen method is a non-experimental design. Second, unknown variables within and outside the work environment may adversely impact occupational stress rather than race/ethnicity.

Summary

Chapter III has presented and justified the research methodology used in conducting the planned research. The chapter presented the research questions, the design, sampling procedures, data sources and instruments, data collection and analysis, and ethical considerations. The target population comprised CNAs who worked in long-term care facilities in East Texas, Region Four of the Texas Health and Human Services Commission. The next chapter presents the analysis and presentation of the results.

Chapter IV:

Results

Introduction

Occupational stress is a significant problem in the healthcare sector, particularly among CNAs (DePasquale et al., 2018; Hurtado et al., 2012). Occupational stress was defined by the World Health Organization (2022) as an employee's response to work demands and pressures which do not match their knowledge and abilities to cope and accomplish the job. A high level of stress has adverse effects on individual CNAs and patients regarding health and well-being, job satisfaction, health care delivery, and patient outcomes (Allensworth Davies et al., 2007; Orrung Wallin et al., 2014). The purpose of this mixed-method research was to examine factors that influence CNAs' occupational stress. Specifically, the research is focused on the differential influence of race/ethnicity on the occupational stress of CNAs working in long-term care facilities. This chapter is organized by the following subheadings: revised data analysis plan, results by research question, and summary.

Revised Data Analysis Plan

The latest version of IBM SPSS (29.0) was used for all statistical analysis. The data analysis plan was conducted in three phases. First, all study variables were presented using descriptive statistics, such as means, standard deviation, and minimum/maximum values for continuous variables (Interval/Ratio level) and frequencies and percentages for categorical variables (Nominal/Ordinal level).

It is important to note that initially, the Work Stress Scale was to be used as a continuous composite score. However, after descriptive analysis of the composited Work Stress Scale summed score, the distribution of scores was revealed to be non-normal and inappropriate to use

as a continuous score. The Work Stress Scale contains 28 items scored along a 1 to 5 point continuum (with higher scores indicating a higher degree of work stress) with a potential summed score from 28 to 140. The composited Work Stress Scale score was bi-modal, where the 2 modes were separated around scores in the mid-80s (see Appendix I to view Figure 2), the summed composite Work Stress Scale score distribution with a normal curve estimation line. Subsequently, the composited Work Stress Scale score was dichotomized at the score of 85 into low and high levels of work stress. Subsequently, the dependent variable for the current study became dichotomous.

The second phase of the data analysis plan was bivariate analysis. Here, bivariate tests were used to examine which explanatory variables were significantly related to the dependent variable Work Stress (Low/High) at a statistically significant level ($p < .05$). Specifically, independent samples *t*-test analysis was used to compare the dichotomous dependent variable scores to continuous explanatory variables. Explanatory variables related to the dependent variable at a statically significant level were included in the third phase of data analysis, multivariate analysis.

The third phase of the data analysis plan was multivariate analysis. In this phase, a hierarchical binary logistic regression model was used to model the dependent variable as a function of all explanatory variables significantly related to the dependent variable in bivariate analysis. The explanatory variables were entered in three blocks. The first block was racial/ethnic identity, the second block was demographic variables, and the third block was Diversity Climate Scale scores. The model was assessed in terms of overall statistical significance, chi-square value, the percentage of cases categorized correctly, the significance of

individual predictors, and the odds ratio effect size values, along with the 95% confidence interval for each odds ratio value.

All necessary test assumptions were examined within the final inferential analysis presented (normality, no undue influence of outliers scores, and multicollinearity) and revealed no violations. In terms of missing data, originally, the dataset contained 162 individuals. There were 22 individuals who logged onto the survey who did not provide any data and were removed from the dataset. Subsequently, there were 140 participants in the current study. Of these individuals, all 140 study participants provided data for all 28 items on the Work Stress Scale.

The Diversity Climate Scale was revised from 16 items to 12 items to increase the Cronbach's alpha to a sufficient level ($\alpha > .70$). Overall, 135 study participants (96.4%) provided data for all 12 items, and five study participants (3.6%) provided data for 11 items. In short, regarding the Diversity Climate Scale, there were five missing values among the 12 items responded to by 140 study participants. Multiple Imputation was used to estimate these missing values, including all the items in the scale within the estimated model. Last, as noted in Table 2, two study participants did not report Hispanic ethnicity, and three did not report employment status. Otherwise, the dataset contained complete data.

A reliability analysis was conducted to determine if the study instruments evidenced a sufficient level of internal consistency reliability ($\alpha < .70$). Initially, the Diversity Climate Scale contained 16 items and evidenced an insufficient level of internal consistency reliability with Cronbach's alpha of .28. After the analysis, the IBM SPSS software indicated that the reverse-coded items were causing the reliability to be unacceptably low. Van Sonderen et al. (2013) found that reverse coded items can result in responses that are contaminated by participant inattention or confusion. Therefore, the four reversed coded items on the scale were removed,

which resulted in revising the scale from 16 items to 12 items. The revised 12-item scale evidenced Cronbach's alpha of 0.83, which reflected a sufficient level of internal consistency and was used in the analysis.

Table 2

Descriptive Analysis of Categorical Study Variables (n = 140)

Variable	*N*	%
Racial Identity		
White/Caucasian	81	57.9
Black/African American	50	35.7
Native American	5	3.6
Asian	4	2.9
Hispanic Ethnicity		
No	127	92.0
Yes	11	8.0
Missing	2	
Gender		
Female	102	72.9
Male	37	26.4
Nonbinary	1	0.7
Highest Education Level		
High School Degree/Equivalent	14	10.0
Bachelor's Degree	113	80.7
Master's Degree	12	8.6
Doctorate	1	0.7
Marital Status		
Single (never married)	32	22.9
Married	104	74.3
In Domestic Partnership	1	0.7
Divorced	3	2.1
Employment Status		
Full-time	134	97.8
Part-time	3	2.2
Missing	3	
Work Stress Scale		
Low	98	70.0
High	42	30.0

In terms of statistical power, the Power and Precision software program indicated that a medium effect size effect (OR = 3.34) would be detected between a dichotomous independent and dependent variable (with a projected event rate of .26 and .54 among the two groups) using a

binary logistic regression model with power set at 0.80 and alpha set at 0.05, using a sample size of 100 study participants. Thus, the current sample of 140 study participants provided sufficient statistical power for the current analysis.

Descriptive Analysis

Table 2 presents a descriptive analysis of categorical study variables. Data indicated that over half the sample was of a White/Caucasian (*n* = 81, 57.9%) racial identity, about one-third was of a Black/African American (*n* = 50, 35.7%) racial identity, 3.6% (*n* = 5) were of a Native American racial identity, and 2.9% (*n* = 4) were of an Asian racial identity. Overall, 8% (*n* = 11) of the sample reported being of a Hispanic ethnicity. Of the 11 study participants who reported being of a Hispanic ethnicity, 10 reported being of a White/Caucasian racial background, while one participant reported being of a Black/African American racial background. Data also indicated that study participants predominantly described themselves as female (*n* = 102, 72.9%), reported the highest education level of a bachelor's degree (*n* = 113, 80.7%), reported a marital status of married (*n* = 104, 74.3%), and had an employment status of employed full-time (*n* = 134, 97.8%). Last, regarding the Work Stress Scale, about two-thirds fell into the low Work Stress category (*n* = 98, 70.0%), while one-third fell into the high Work Stress category (*n* = 42, 30.0%).

Table 3 presents a descriptive analysis of the continuous study variables. Data indicated that the average study participant was 36.01 (*SD* = 6.68, MIN/MAX = 23.00-54.00) years old, worked as a CNA for 7.97 (*SD* = 3.42, MIN/MAX = 1.00-17.00) years, at their current job for 5.54 (*SD* = 2.82, MIN/MAX = 1.00-15.00) years, and evidenced a Diversity Climate Scale score of 51.83 (*SD* = 6.61, MIN/MAX = 35.00-70.00). The all-score distributions were approximately normal, as the skewness and kurtosis were not three times the standard error of each respective

value. The single exception was the skew of the variable years at your current job, which was slightly non-normal.

Table 3

Descriptive Analysis of Continuous Study Variables

Variable	M (*SD*)	Minimum/ Maximum	Skew (*SE*)	Kurtosis (*SE*)
Age	36.01(6.68)	23.00-54.00	-.07(.21)	-.90(.41)
Years as CNA	7.97(3.42)	1.00-17.00	.24(.21)	-.43(.41)
Years at Current Job	5.54(2.82)	1.00-15.00	.92(.21)	.62(.41)
Diversity Climate Scale	51.83(6.61)	35.00-70.00	.60(.21)	.74(.41)

Bivariate Analysis

Table 4 presents a chi-square analysis examining Work Stress by racial/ethnic identity and categorical demographic characteristics. Data indicated that levels of Work Stress were not significantly associated with Hispanic ethnicity (Yes/No), X^2 (1) = .85, p = .36, or study participant highest education level, X^2 (2) = 2.14, p = .34. However, levels of Work Stress were associated with racial identity, X^2 (2) = 12.02, p < .01, with a significantly higher percentage of Black/African American study participants in the high Work Stress category (48.0%) relative to the study participants in the White/Caucasian (19.8%) and Other (22.2%) categories.

Levels of Work Stress were associated with study participant gender, X^2 (1) = 47.40, p < .001, with a significantly higher percentage of Male/Nonbinary (n = 1) study participants in the high Work Stress category (73.7%) relative to female study participants (13.7%). Levels of Work Stress were associated with study participant marital status, X^2 (1) = 15.07, p < .001, with a significantly higher percentage of Single/Other (n = 4) study participants in the high Work Stress category (55.6%) relative to married study participants (21.2%). In summary, Black, single males or nonbinary participants were more likely to experience high Work Stress relative to their peers.

Table 4

Chi-Square Analysis Examining Work Stress (Low/High) by Racial/Ethnic Identity and Categorical Demographic Characteristics (n = 140)

	Low Work Stress (n = 98)	High Work Stress (n = 42)	Total		
Variable	*n* (%)	*n* (%)	*n* (%)	$X^2(df)$	*p*
Racial Identity				12.02(2)	.002
White/Caucasian	65(80.2)	16(19.8)	81(100.0)		
Black/African American	16(52.0)	24(48.0)	50(100.0)		
Other	7(77.8)	2(22.2)	9(100.0)		
Hispanic Ethnicity				.85(1)	.36
No	87(65.5)	40(31.5)	127(100.0)		
Yes	9(811.8)	2(18.2)	11(100.0)		
Gender				47.40(1)	.001
Female	88(86.3)	14(13.7)	102(100.0)		
Male/Nonbinary (*n* = 1)	10(26.3)	2(18.2)	38(100.0)		
Highest Education Level				2.14(2)	.34
High School Degree/Equivalent	12(85.7)	2(14.3)	14(100.0)		
Bachelor's Degree	78(69.0)	35(31.0)	113(100.0)		
Master's Degree/ Doctorate (*n* = 1)	8(61.5)	5(38.5)	13(100.0)		
Marital Status				15.07(1)	.001
Single/Other (n = 4)	16(44.4	20(55.6)	36(100.0)		
Married	82(78.8)	22(21.2)	104(100.0)		

Table 5 presents an independent samples *t*-test analysis examining Work Stress (Low/High) by continuous demographic characteristics and Diversity Climate Scale scores. Bivariate analysis indicated that levels of Work Stress were not significantly related to years at current job, $t(138) = -1.55$, $p = .12$. Analysis indicated that study participants with high Work Stress evidenced a significantly lower mean level of age ($M = 30.76$, $SD = 6.38$) relative to those with low Work Stress, ($M = 38.26$, $SD = 5.45$), $t(138) = -7.08$, $p < .001$. High Work Stress was also significantly related to lower mean values reflecting years as a CNA ($M = 6.02$, $SD = 3.36$) relative to those with low Work Stress, ($M = 8.81$, $SD = 3.11$), $t(138) = -4.76$, $p < .001$. Last, study participants in the high Work Stress category evidenced significantly higher Diversity Climate Scale mean score ($M = 58.88$, $SD = 6.64$) relative to those in the low Work Stress category, ($M = 48.81$, $SD = 3.63$), $t(51.81) = 9.25$, $p < .001$. In summary, younger, inexperienced

CNAs with higher Diversity Climate scores or more positive perceptions of diversity in the workplace were more likely to experience high Work Stress than their peers.

Table 5

Independent Samples T-Test Analysis Examining Work Stress (Low/High) by Continuous Demographic Characteristics and Diversity Climate Scale Scores (n = 140)

		Low Work Stress (n = 98)	High Work Stress (n = 42)		
Variable	*n*	*M(SD)*	*M(SD)*	*t*(*df*)	*p*
Age	140	38.26(5.45)	30.76(6.38)	-7.08(138)	.001
Years as CNA	140	8.81(3.11)	6.02(3.36)	-4.76(138)	.001
Years at Current Job	140	5.78(2.58)	4.98(3.27)	-1.55(138)	.120
Diversity Climate Scale	140	48.81(3.63)	58.88(6.64)	9.25(51.81)	.001

Multivariate Analysis

Table 6 presents a hierarchical binary logistic regression model examining Work Stress (Low/High) by racial identity and demographic characteristics. Analysis indicated that within the final step of the model, Step 3, the overall model was statistically significant, X^2 (7) = 127.63, p < .001, and 95.0% of cases were categorized correctly. Regarding the individual predictors, within the final step of the model, the variable racial/ethnic identity was not significantly related to Work Stress levels, despite earlier significance in Step 1. Specifically in Step 3, regarding the White/Caucasian study participants, study participants that identified as Black/African American, β = .51, *SE* = .84, *Wald* X^2 = .38, *OR* = 1.68 (95% *CI* = .32-8.71), p = .54, and Other, β = -3.80, *SE* = 3.31, *Wald* X^2 = .1.32, *OR* = .02 (95% *CI* = .00-14.57), p = .25, were not significantly more likely to evidence high levels of Work Stress.

Table 6

Hierarchical Binary Logistic Regression Examining Work Stress (Low/High) by Racial Identity, Demographic Characteristics, and Diversity Climate Scale Scores (n=140)

Variable	*β*(*SE*)	*Wald* X^2	*OR*(95% *CI*)	*p*
Step 1				
Racial Identity				
White/Caucasian (Reference Group)				
Black/African American	1.32(.40)	11.06	3.75(1.72-8.17)	.001
Other	.15(.85)	.03		.86
Step 2				
Racial Identity				
White/Caucasian (Reference Group)				
Black/African American	.01(.56)	.00	1.01(.34-3.04)	.99
Other	1.32(1.36)	.93	.27(.02-3.87)	.33
Age	-.25(.08)	10.82	.78(.67-.90)	.001
Gender (Female=0, Male=1)	2.81(.59)	22.70	16.57(5.22-52.57)	.001
Marital Status	22.00(.62)	.13	.80(.24-2.68)	.72
Years as a CNA	.08(.03)	.34	1.08(.84-1.39)	.56
Step 3				
Racial Identity				
White/Caucasian (Reference Group)				
Black/African American	.51(.84)	.38	1.68(.32-8.71)	.54
Other	3.80(3.31)	1.32	.02(.00-14.57)	.25
Age	-.20(.09)	4.90	.82(.69-.98)	.03
Gender (Female=0, Male=1)	3.36(.94)	12.82	28.68(4.57-180.03)	.001
Marital Status	.02(1.04)	.00	1.02(.13-7.3)	.99
Years as a CNA	-.19(.19)	1.06	.83(.57-1.19)	.30
Diversity Climate Scale	.50(.12)	16.81	1.64(1.30-2.08)	.001

Note. For Step 1 Model: X^2 (2) =11.77, p <.01. 70.0% of cases categorized correctly.
For Step 2 Model: X^2 (6) =74.87, p <.001. 86.4% of cases categorized correctly.
For Step 3 Model: X^2 (7) =127.63, p <.001. 95.0% of cases categorized correctly.

Despite the significant results in Table 4, at the multivariate level, Work Stress was not significantly related to marital status, β = .02, *SE* = 1.04, *Wald* X^2 = .00, OR = 1.02 (95% *CI* = .13 - 7.83), p = .99, and years as a CNA, β = -.19, *SE* = .19, *Wald* X^2 = 1.06, OR = .83 (95% *CI* = .57-1.19), p = .30. However, high levels of Work Stress were significantly related to lower levels of study participant age, β = -.20, *SE* = .09, *Wald* X^2 = 4.90, *OR* = .82 (95% *CI* = .69 - .98), p < .05. Furthermore, high Work Stress also related to study participant gender, β = 3.36, *SE* = .94, *Wald* X^2 = 12.82, p < .001, where males/nonbinary (n = 1) were over 28 times more likely (*OR* = 28.68, 95% *CI* = 4.57 - 180.03) to experience high stress in comparison to females. High Work

Stress was also associated with higher scores on the Diversity Climate Scale, $\beta = .50$, $SE = .12$, $Wald\ X^2 = .16.81$, $OR = 1.64$ (95% $CI = 1.30 - 2.08$), $p < .001$ for all participants.

Results by Research Questions

Research Question One

RQ1: What demographic factors (gender, age, years as a CNA, and years at the current position) have the greatest influence on occupational stress for CNAs in rural East Texas long-term care facilities?

Data within Table 6, in Step 3, revealed that at the multivariate level, high Work Stress was significantly associated with lower levels of age, as well as male/binary gender.

Research Question Two

RQ2: Does diversity climate influence work stress for CNAs in rural East Texas long-term care facilities?

Table 6, Step 3 revealed that at the multivariate level, high Work Stress was significantly associated with higher Diversity Climate scores (positive perceptions of diversity on the Diversity Climate Scale, $B = .50$, $SE = .12$, $Wald\ X^2 = .16.81$, $OR = 1.64$ (95% $CI = 1.30 - 2.08$), $p < .001$ for all participants.

Research Question Three

RQ3: Is work stress experienced differently by Black, Hispanic, and White CNAs?

Data within Table 6, in Step 3, revealed that at the multivariate level, Work Stress scores were not significantly associated with racial identity. Additionally, data within Table 5, as shown by bivariate analysis, Work Stress scores were not significantly associated with Hispanic ethnicity (Yes/No).

Summary

This chapter presented findings from a sample of 140 CNAs to address factors influencing occupational stress in CNAs working in long-term care facilities. The purpose of this research was to examine factors that influence CNAs' occupational stress. A convenience sample of 140 CNAs was recruited from multiple long-term care facilities in the East Texas region. Results from the Work Stress Scale were analyzed to determine levels of occupational stress. A multivariate linear regression was used to analyze relationships between demographic variables and occupational stress. Differences in occupational stress between ethnic/racial groups were analyzed using an ANOVA. Findings by research question yielded the following: RQ1: What demographic factors; (gender, age, years as a CNA, and years at the current position) have the greatest influence on work stress for CNAs in rural East Texas long-term care facilities? Data within Table 6, in Step 3, revealed that at the multivariate level, high Work Stress was significantly associated with lower levels of age, as well as Male/Binary (n = 1) gender. RQ2: Does diversity climate influence work stress for CNAs in rural East Texas long-term care facilities? Data within Table 6, in Step 3, revealed that at the multivariate level, high Work Stress was significantly associated with higher Diversity Climate scores. RQ3: Is work stress experienced differently by Black, Hispanic, and White CNAs? Data within Table 6, in Step 3, revealed that at the multivariate level, Work Stress scores were not significantly associated with racial identity. Furthermore, data within Table 4 revealed that at the bivariate level, Work Stress scores were not significantly associated with Hispanic ethnicity (Yes/No). RQ4: How do CNAs working in East Texas long-term care facilities experience occupational stress? No qualitative interviews were completed; therefore, this research question was not addressed.

Chapter V:

Discussion and Summary

Project Summary

CNAs play a crucial role in the American healthcare system by offering direct care to individuals in long-term care facilities (DePasquale et al., 2018). CNAs face numerous challenges despite their significant contributions, including demanding job requirements, instances of mistreatment, meager compensation, inadequate organizational support, and insufficient staffing levels (Maharaj et al., 2019). The work of CNAs is both physically and emotionally taxing, and challenging relationships with supervisors and managers contribute to the stress they experience in their workplace (Travers et al., 2020). These conditions make CNAs highly susceptible to developing occupational stress due to the unique demands of their work environment.

CNAs belonging to ethnic minority backgrounds, specifically immigrant Black and Hispanic individuals, encountered elevated levels of occupational stress compared to their White counterparts working in long-term care facilities (Hurtado, 2012). Despite people of color constituting approximately 25% of the overall American workforce, African Americans make up 35% of CNAs, and Hispanics or Latinos comprise 10% of this group (PHI, 2017), representing the largest segment of nursing assistants. CNAs from minority backgrounds reported experiencing less cultural competence from their coworkers and supervisors and encountered more negative attitudes toward their racial and cultural identity in the same workplace (Allensworth-Davies et al., 2007). Inadequate levels of cultural competence contributed to strained interpersonal relationships with peers, supervisors, and managers, leading to heightened

stress levels among minority CNAs compared to their White counterparts in long-term care facilities (Hurtado et al., 2012).

A cross-sectional descriptive design was appropriate to address occupational stress experienced by CNAs who work in East Texas long-term care facilities. Results from the Work Stress and Diversity Climate Scales and demographic data were collected from CNAs who work in East Texas long-term care facilities.

Major Findings

A diverse group of CNAs participated in this study, including *n* = 81 (57.9%) White/Caucasians, *n* = 50 (35.7%) Black/African Americans, and *n* = 11 (8%) Hispanic. The study sample predominantly described themselves as female (*n* = 102, 72.9%), reported the highest education level of a bachelor's degree (n = 113, 80.7%), a marital status of married (*n* = 104, 74.3%) and had an employment status of employed full-time (*n* = 134, 97.8%). The education level of this sample was different to that found in previous research, which showed that 51% of CNAs had a high school diploma or less (Professional Healthcare Institute, 2017). Last, regarding the Work Stress Scale, about two-thirds fell into the low Work Stress category (*n* = 98, 70.0%), while one-third fell into the high Work Stress category (*n* = 42, 30.0%).

Stress and Racial Identity

In bivariate analysis, Work Stress was significantly associated with racial identity, with Black/African Americans overrepresented in the High Work Stress (*p* = .01). This is consistent with the limited previous research available (Assari & Bazargan, 2019; Hurtado et al., 2012). However, in multivariate analysis, the association between Work Stress and racial identity was no longer significant, but other variables had a higher correlation with high stress.

Stress and Gender

Gender ($p < .001$) was significantly associated with high Work Stress, with males experiencing greater work stress. The nonbinary sample was 28 times more likely to experience high work stress; however, the category was too small to demonstrate significance. Previous research has shown varied results in gender differences of work stress. Diale et al. (2020) did not find differences in work stress between male and female Nigerian nurses, while other studies found higher stress among female workers when compared to males (Padkapayeva et al., 2018; Park et al., 2016). One explanation could be related to findings in a study by Tytherleigh et al. (2007) that found males felt more stress from low pay and low status. Since the role of the CNA is largely underpaid and considered low status, this may explain the findings in the current study. Further research could yield better explanations.

Stress and Age

Younger CNAs reported higher work stress compared to older workers ($p < .001$), which is consistent with the literature. Hsu (2019) found younger workers reported higher work stress that could be due to increased conflicts between work and family. In a study of nurses in two Boston-area teaching hospitals, Linzer (2020) found higher psychological distress in younger nurses when compared to older nurses. The distress was related to higher reports of nervousness, restlessness/fidgetiness, difficulty concentrating, and difficulty starting work when arriving for their shift (Linzer, 2020).

Stress and Marital Status

Levels of work stress were associated with marital status ($p < .001$), with a significantly higher percentage of Single/Other study participants in the High Work Stress category relative to married study participants. Cortes et al. (2022), in a study of Brazilian workers, found lower

stress in married participants. This could be due to increased social support related to the married status. Higher social support is a mitigating factor for occupational stress (Theorell & Karasek, 1996).

Stress and Number of Years as a CNA

High work stress was significantly related to lower years as a CNA as compared to CNAs with greater years of experience ($p < .001$). In summary, younger, inexperienced CNAs reported higher work stress than CNAs who had been in the work field for longer periods. This finding could be due to lower confidence in work ability and less knowledge of the job, which could increase job insecurity for the new CNAs.

Stress and Diversity Climate

In terms of the relationship between work stress and diversity climate, significant associations were reported. High work stress was significantly associated with higher diversity climate scores or better perceptions of workplace diversity ($p < .001$) for all participants. This finding contradicts previous research that shows relationships between lower diversity climate and increased work stress (Mor Barak, 2014). No research was located to substantiate high stress with high diversity climate. One possibility is respondent inattention or confusion. The first survey completed by the participants was the Work Stress Scale, in which higher scores indicated a negative response, high work stress. The Diversity Climate scale followed, but higher scores on questions correlate to a positive situation, high diversity climate. Much like van Sonderen et al.'s (2013) findings with reverse-coded questions, participants could have just continued to choose the same answers throughout the questionnaire.

In summary, younger, inexperienced CNAs, and those who worked in an area with higher Diversity Climate were more likely to experience high Work Stress than their peers, which was

not expected or congruent with past research and the literature review. The study findings are inconsistent with earlier research regarding diversity climate (Mor Barak et al., 1998). Mor Barak et al. (1998) found that women from racial/ethnic minority groups scored lower in Diversity Climate than White workers or male members of minority groups. Based on previous study findings, low Diversity Climate was a significant factor in creating stress in the working environment (Ragins et al., 2012). In this study, however, higher Diversity Climate scores, or more positive diversity perceptions, were related to higher levels of stress.

Initially, in bivariate analysis, high Work Stress scores were associated with Black/African American racial identity. However, when the multivariate analyses were performed, that relationship was no longer present. The regression analysis was initially planned to be done in a linear method; however, since results were clustered around High Stress and Low Stress, the regression was dichotomized at about 80 where the first curve appeared to end and the second began. When performing the binary regression analysis, race was no longer significant. Younger age, male gender, and fewer years as a CNA were more closely related to high Work Stress than racial or ethnic identity. Therefore, when the other variables were taken into consideration, work stress was not experienced differently by Black, Hispanic, and White CNAs.

Theoretical Framework

Findings in the current study partially support the modified Demand-Control model used to guide the research. Surprisingly, more CNAs reported more Low Stress (n = 98) than High Stress (n = 42). This finding was inconsistent with previous research that showed high stress among CNAs (Blanchfield, 2021; DePasquale et al., 2018; Herrad & Sulla, 2018; Maharaj et al., 2019; Travers et al., 2020). Occupational Stress was significantly higher with lower age, fewer years as a CNA, and single marital status. Race was significantly correlated with Occupational

Stress in bivariate analysis, but was not supported as a factor in Occupational Stress after controlling for the other variables. Surprisingly, higher Diversity Climate, or an atmosphere conducive to diversity, was related to higher Occupational Stress or more positive perceptions about diversity. Further studies to measure these elements are needed to evaluate their relationship to Occupational Stress and to refine the model.

The Demand-Control Model of Occupational Stress (Karasek et al., 1981) suggests that occupational stress is likely prevalent due to high work demands and low control over job demand endemic to CNA responsibilities. Advocates of this model contended that elevated job demands lead to occupational stress in employees. Still, this stress can be effectively managed when employees achieve control over their job demands and cultivate positive working relationships with their colleagues and supervisors/managers. On the other hand, increased job strain results from a combination of high job demands and a lack of decision-making freedom in one's job, often referred to as low job decision latitude. CNAs experience occupational demands, such as psychological stressors like time pressure and role conflicts, contributing to work stress. Control encompasses two key aspects: skill discretion, which denotes a worker's ability to make decisions while applying their skills, and decision authority, which relates to the control a worker has over tasks and performance throughout the day. Approaching CNA supervision with knowledge of the Demand-Control Modal of Occupational Stress can improve both the experience of CNAs and patient experience. Knowledge of the model would encourage employers to ensure that CNAs have input into their work and the time to perform needed care and services for long-term care residents. Allowing CNAs to participate in care planning, scheduling, and work processes could help to alleviate some work stress by giving them more control over their work. Training the CNAs for stress management could be helpful, but care

would need to be taken to not overburden the already stressed CNA with additional time away from family and personal responsibilities. Zontek et al. (2009) found that CNAs with more tenure had lower perceptions of training. Employer communication with the CNA as a valued team member while respecting personal time and work pressures would be of high importance.

Strengths & Limitations

Study strengths include filling a gap in current research. This was the first study found to explore racial and ethnic differences in occupational stress for certified nursing assistants who work in East Texas long-term care facilities. The aging of the population, combined with a shortage of CNAs, makes this study extremely important for future resident care. The loss of CNA workforce after the COVID-19 pandemic also amplified the need for retention and satisfaction of these important healthcare team members. Use of the Demand-Control Model of occupational stress, a well-known and trusted model, to guide the study is another strength.

Limitations of the study may compromise the outcomes. Participants were recruited via postings and social media. The self-enrollment of participants could be problematic. While the survey contained questions to ensure qualification of participants, some who enrolled could have done so by answering a question incorrectly in order to receive the $5 Amazon gift card. The study was also a non-experimental design and no participants completed qualitative interviews. All four reverse-coded questions were eliminated from calculation due to problems with internal consistency.

Implications for Practice

Analysis of study findings suggests the need to address high stress levels of younger, male, non-binary, Black/African American CNAs who are at much greater risk for stress-related experiences. The combination of these variables and status as an underrepresented minority

compound work stress and makes already stressful CNA job responsibilities move into the high stress categories. Based on these findings, employers need to conduct management training to raise awareness of the experience of younger, male, non-binary, and Black/African CNAs from experiencing high stress that can lead to burnout and turnover. Moreover, education and core training for nurse managers in assessing the degree to which CNAs are experiencing high stress has the potential to improve patient outcomes by reducing stress levels.

Recommendations

A recommendation is that future researchers conduct additional quantitative studies to parse High Work Stress Scores both by demographic factors and Work Stress sub-scale scores of insufficient ability, stressful reactions, heavy workload, trouble in care work, poor management, and working time problems. By parsing the incremental work stress associated with each sub-score, recommendations for practice improvement can be made at finer levels of distinction. While a sample of 140 was sufficient to develop significant results in this study, parsing participants into smaller subsamples required larger sample sizes.

Additional research is recommended regarding the effect of diversity climate. Additional research examining the relationship between diversity climate and education could be helpful. Exploring relationship of diversity climate with other work-related variables, such as job satisfaction, intention to leave, and burnout is also needed. Each of these variables can be viewed as a consequence of high Work Stress. Understanding such relationships can lead to policies and practices to retain CNAs and reduce their stress levels before turnover occurs. With limited research on how diversity climate affects work stress, future research is needed to investigate how cultural differences and an education program for nurses might be used for maximum yields in terms of health and well-being for CNAs and patients. Future researchers might improve the

granularity of study findings by completing a qualitative study aimed at eliciting CNAs' stress perceptions. Adding an open-ended question at the end of a survey rather than inviting participants to engage in an interview might produce qualitative data that could be merged with quantitative results. Completing interviews in person rather than electronically might have elicited different responses.

Conclusion and Contributions to the Profession of Nursing Practice

CNAs provide direct care to those who live in long-term care facilities. As the population ages, the need for CNAs has grown. Nursing researchers have studied turnover and occupational stress, but no studies have examined racial/ethnic differences in CNA stress in East Texas. This research plays a vital role in developing interventions designed to increase job satisfaction, reduce turnover, better health outcomes for CNAs, and better patient outcomes for long-term care residents. The study findings represent an opportunity for nurse managers to expand their view to include the potential for climate diversity, age, and racial identity to affect CNAs work experience, which impacts CNA turnover and patient experience.

References

Allensworth-Davies, D., Leigh, J., Pukstas, K., Geron, S. M., Hardt, E. J., Brandeis, G., Engle, R. L., & Parker, V. A. (2007). Country of origin and racial-ethnicity: Are there differences in perceived organizational cultural competency and job satisfaction among nursing assistants in long-term care? *Health Care Management Review, 32*(2), 321–329. https://doi.org/10.1097/01.hmr.0000296788.31504.b7

Almazan, J. U., Albougami, A. S., & Alamri, M. S. (2019). Exploring nurses' work-related stress in an acute care hospital in KSA. *Journal of Taibah University Medical Sciences, 14*(4), 376–382. https://doi.org/10.1016/j.jtumed.2019.04.006

Assari, S., & Bazargan, M. (2019). Unequal associations between educational attainment and occupational stress across racial and ethnic groups. *International Journal of Environmental Research and Public Health, 16*(19), 3539–3545. https://doi.org/10.3390/ijerph16193539

Bakker, A. B., & de Vries, J. D. (2021). Job Demands–Resources theory and self-regulation: New explanations and remedies for job burnout. *Anxiety, Stress, & Coping*, *34*(1), 1–21. https://doi.org/10.1080/10615806.2020.1797695

Bannon, W. M. (2013). *The 7 steps of data analysis: A manual for conducting a quantitative research study.* Stats Whisperer Press.

Bell, C., Johnston, D., Allan, J., Pollard, B., & Johnston, M. (2017). What do Demand-Control and Effort-Reward work stress questionnaires really measure? A discriminant content validity study of relevance and representativeness of measures. *British Journal of Health Psychology, 22*(2), 295–329. https://doi.org/10.1111/bjhp.12232

Blanchfield, M. A. (2021). Job stressors and burnout among immigrant nurses caring for the elderly in the United States of America: The role of working environment conditions. *Journal of Human Resource & Leadership, 5*(2). https://stratfordjournals.org/journals/index.php/journal-of-human-resource/article/view/808

Blom, V., Bodin, L., Bergström, G., & Svedberg, P. (2016). Applying the demand-control-support model on burnout in managers and non-managers. *International Journal of Workplace Health Management, 9*(1), 110–122. https://doi.org/10.1108/IJWHM-06-2015-0033

Blosky, M. A., & Spegman, A. (2015). Let's talk about it: Communication and a healthy work environment. *Nursing Management, 46*(6), 32–38. https://doi.org/10.1097/01.NUMA.0000465398.67041.58

Boscart, V. M., Sidani, S., Poss, J., Davey, M., d'Avernas, J., Brown, P., & Costa, A. P. (2018). The associations between staffing hours and quality of care indicators in long-term care. *BMC Health Services Research, 18*(1), 1–7. https://doi.org/10.1186/s12913-018-3552-5

Brown, D. E., James, G. D., Nordloh, L., & Jones, A. A. (2003). Job strain and physiological stress responses in nurses and nurse's aides: Predictors of daily blood pressure variability. *Blood Pressure Monitoring, 8(6),* 237–242. https://doi.org/10.1097/00126097-200312000-00003

Campbell, A., Layne, D., & Scott, E. (2021). Relational quality of registered nurses and nursing assistants: Influence on patient safety culture. *Healthcare (Basel, Switzerland), 9(2),* 189. https://doi.org/10.3390/healthcare9020189

Chatzigianni, D., Tsounis, A., Markopoulos, N., & Sarafis, P. (2018). Occupational stress experienced by nurses working in a Greek regional hospital: A cross-sectional study. *Iranian Journal of Nursing and Midwifery Research, 23*(6), 450. https://doi.org/10.4103/ijnmr.IJNMR_120_17

Chegini, Z., Jafarabadi, M.A., & Kakemam, E. (2019). Occupational stress, quality of working life and turnover intention amongst nurses. *Nursing in Critical Care, 24*(5), 283-289. https://doi.org/10.1111/nicc.12419

Cohen, J. (1992). A power primer. *Psychological Bulletin, 112*(1), 155–159. https://doi.org/10.1037//0033-2909.112.1.155

Cortes, M. L., Louzado, J. A., Oliveira, M. G., Bezerra, V. M., Mistro, S., Medeiros, D. S., Soares, D. A., Silva, K. O., Kochergin, C. N., Carvalho, V. C. H. S., Amorim, W. W., & Mengue, S. S. (2022). Association between perceived stress and health-risk behaviours in workers. *Psychology, Health & Medicine, 27*(4), 746–760. https://doi.org/10.1080/13548506.2020.1859567

DePasquale, N., Mogle, J., Zarit, S. H., Okechukwu, C., Kossek, E. E., & Almeida, D. M. (2018). The family time squeeze: Perceived family time adequacy buffers work strain in certified nursing assistants with multiple caregiving roles. *The Gerontologist, 58*(3), 546–555. https://doi.org/10.1093/geront/gnw191

de Veer, A. J. E., Francke, A. L., Struijs, A., & Willems, D. L. (2013). Determinants of moral distress in daily nursing practice: A cross-sectional correlational questionnaire survey. *International Journal of Nursing Studies, 50*(1), 100–108. http://dx.doi.org/10.1016/j.ijnurstu.2012.08.017

Diale, B. M., Eseadi, C., & Victor-Aigbodion, V. (2020). Gender differences in work stress among Nigerian nurses. *International Medical Journal, 27*(6), 752–754.

Ejaz, F. K., Noelker, L. S., Menn, H. L., & Bagaka, J. G. (2008). Impact of stress and support on direct care workers' job satisfaction. *The Gerontologist, 48*, 60–70. http://doi.org/10.1093/geront/48.Supplement_1.60

Faremi, F. A., Olatubi, M. I., Adeniyi, K. G., & Salau, O. R. (2019). Assessment of occupational-related stress among nurses in two selected hospitals in a city in southwestern Nigeria. *International Journal of Africa Nursing Sciences*, *10*(2), 68–73. https://doi.org/10.1016/j.ijans.2019.01.008

Faul, F., Erdfelder, E., Buchner, A., & Lang, A. G. (2009). Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods, 41*(2), 1149-1160. https://doi.org/10.3758/BRM.41.4.1149

Freudenberger, H. (1974). Staff Burnout. *Journal of Social Issues, 30(1)*, 159–165. http://dx.doi.org/10.1111/j.1540-4560.1974.tb00706.x

Gurková, E., & Zeleníková, R. (2018). Nursing students' perceived stress, coping strategies, health and supervisory approaches in clinical practice: A Slovak and Czech perspective. *Nurse Education Today, 65*(2), 4–10. https://doi.org/10.1016/j.nedt.2018.02.023

Häusser, J. A., Mojzisch, A., Niesel, M., & Schulz-Hardt, S. (2010). Ten years on: A review of recent research on the Job Demand–Control (Support) model and psychological well-being. *Work & Stress, 24(1)*, 1–35. https://doi.org/10.1080/02678371003683747

Herrad, R., & Sulla, F. (2018). Factors associated with and impact of burnout in nursing and residential home care workers for the elderly. *Acta Bio Medica: Atenei Parmensis, 89*(Suppl 7), 60. http://doi.org/10.23750/abm.v89i7-S.7830

Hofhuis, J., van der Zee, K. I., & Otten, S. (2015). Measuring employee perception on the effects of cultural diversity at work: Development of the benefits and threats of diversity scale. *Quality & Quantity*, *49*(1), 177–201. https://doi.org/10.1007/s11135-013-9981-7

Hsu, H. C. (2019). Age differences in work stress, exhaustion, well-being, and related factors from an ecological perspective. *International Journal of Environmental Research and Public Health, 16*(1), 50–70. https://doi.org/10.3390/ijerph16010050

Hsu, H. C., Kung, Y. W., Huang, H. C., Ho, P. Y., Lin, Y. Y., & Chen, W. S. (2007). Work stress among nursing home care attendants in Taiwan: A questionnaire survey. *International Journal of Nursing Studies*, *44*(5), 736–746. https://doi.org/10.1016/j.ijnurstu.2005.12.006

Hurtado, D. A., Sabbath, E. L., Ertel, K. A., Buxton, O. M., Berkman, L. F., & Cabot, T. D. (2012). Racial disparities in job strain among American and immigrant long-term care workers. *International Nursing Review, 59*(2), 237–244. https://doi.org/10.1111/j.1466-7657.2011.00948.x.

Jang, Y., Chiriboga, D. A., Kim, G., & Rhew, S. (2010). Perceived discrimination, sense of control, and depressive symptoms among Korean American older adults. *Asian American Journal of Psychology, 1*(2), 129–135. http://doi.org/10.1037/a0019967

Jezova, D., & Herman, J. P. (2020). Stress and stress-related disease states as topics of multi-approach research. *Stress*, *23*(6), 615–616. https://doi.org/10.1080/10253890.2020.1853400

Kakemam, E., Raeissi, P., Raoofi, S., Soltani, A., Sokhanvar, M., Visentin, D. C., & Cleary, M. (2019). Occupational stress and associated risk factors among nurses: A cross-sectional study. *Contemporary Nurse*, *55*(2-3), 237–249. https://doi.org/10.1080/10376178.2019.1647791

Karasek, R., Baker, D., Marxer, F., Ahlbom, A., & Teorell, T. (1981). Job decision latitude, job demands, and cardiovascular disease: A prospective study of Swedish men. *American Journal of Public Health, 71*(7), 694–705. https://doi.org/10.2105/AJPH.71.7.694

Kessler, R. C., Mickelson, K. D., & Williams, D. R. (1999). The prevalence, distribution, and mental health correlates of perceived discrimination in the United States. *Journal of Health and Social Behavior, 40*(3), 208–230. doi:10.2307/2676349

Lee, J. H., Hwang, J., & Lee, K. S. (2019). Job satisfaction and job-related stress among nurses: The moderating effect of mindfulness. *Work*, *62*(1), 87–95. https://doi.org/10.3233/WOR-182843

Liang, Y. W., Hsieh, Y., & Chen, W. Y. (2014). The impact of job stressors on health-related quality of life of nursing assistants in long-term care settings. *Geriatric Nursing, 35*(2), 114–119. https://doi.org/10.3233/WOR-182843.10.1016/j.gerinurse.2013.11.001

Linzer, P. B. (2020). *Occupational health across generationally-defined age groups in a cohort of hospital nurses*, [Doctoral dissertation, Boston College]. ProQuest Dissertations Publishing. https://www.proquest.com/openview/e3ac90455408c86dc5e83d9fc818fec1/1?pq-origsite = gscholar&cbl = 18750&diss = y

Lucchetti, G., Lucchetti, A. L. G., Oliveira, G. R., Crispim, D., Pires, S. L., Gorzoni, M. L., Panicio, C. R. G., & Koenig, H. G. (2014). Nursing home care: Exploring the role of religiousness in the mental health, quality of life and stress of formal caregivers. *Journal of Psychiatric & Mental Health Nursing, 21*(5), 403-413. https://doi.org/10.1111/jpm.12092

MacIntyre, M.M., Zare, M., & Williams, M.T. (2023). Anxiety-related disorders in the context of racism. *Current Psychiatry Reports, 25*(2), 31–43. https://doi.org/10.1007/s11920-022-01408-2

Maharaj, S., Lees, T., & Lal, S. (2019). Prevalence and risk factors of depression, anxiety, and stress in a cohort of Australian nurses. *International Journal of Environmental Research and Public Health*, *16*(1), 61. https://doi.org/10.3390/ijerph16010061

McGilton, K. S., Hall, L. M., Wodchis, W. P., & Petroz, U. (2007). Supervisory support, job stress, and job satisfaction among long-term care nursing staff. *The Journal of Nursing Administration, 37(7-8),* 366–372. https://doi.org/10.1097/01.nna.0000285115.60689.4b

Menzies, I. E. (1960). A case-study in the functioning of social systems as a defense against anxiety: A report on a study of the nursing service of a general hospital. *Human Relations, 13*(2), 95–121. https://cjc.utpjournals.press/loi/cjc?inline = 1

Meyer, J. D. (2014). Race-based job discrimination, disparities in job control, and their joint effects on health. *American Journal of Industrial Medicine, 57*(5), 587–595. https://doi.org/10.1002/ajim.22255

Mor Barak, M. E. (1999). Beyond affirmative action: Toward a model of diversity and organizational inclusion. *Administration in Social Work*, *23*(3-4), 47–68. https://doi.org/10.1300/J147v23n03_04

Mor Barak, M. E. (2014). *Managing diversity: Toward a globally inclusive workplace* (3rd ed.). Sage.

Mor Barak, M. E., Cherin, D. A., & Berkman, S. (1998). Organizational and personal dimensions in diversity climate: Ethnic and gender differences in employee perceptions. *The Journal of Applied Behavioral Science*, *34*(1), 82–104. https://doi.org/10.1177%2F0021886398341006

Morgan, D. G., Semchuk, K. M., Stewart, N. J., & D'Arcy, C. (2002). Job strain among the staff of rural nursing homes. *The Journal of Nursing Administration, 32*(3), 152–161. https://doi.org/10.1097/00005110-200203000-00008

Moustaka, E., & Constantinidis, T. C. (2020). Sources and effects of work-related stress in nursing. *Health Science Journal*, *4*(4), 210. https://www.itmedicalteam.pl/articles/sources-and-effects-of-workrelated-stress-in-nursing-105650.html

Muntaner, C., Ng, E., Prins, S. J., Bones-Rocha, K., Espelt, A., & Chung, H. (2015). Social class and mental health: Testing exploitation as a relational determinant of depression. *International Journal of Health Sciences*, *45*(2), 265–284. https://doi.org/10.1177/0020731414568508

National Institute of Nursing Research. (n.d.). *The National Institute of Nursing Research 2022–2026 strategic plan*. https://www.ninr.nih.gov/aboutninr/ninr-mission-and-strategic-plan

National Institute for Occupational Safety and Health. (1999). *STRESS…At Work* (Publication No. 99-101). https://www.cdc.gov/niosh/docs/99-101/default.html

Ong, A. D., & Williams, D. R. (2019). Lifetime discrimination, global sleep quality, and inflammation burden in a multiethnic sample of middle-aged adults. *Cultural Diversity and Ethnic Minority Psychology, 25*(1), 82–90. http://doi.org/10.1037/cdp0000233

Orrung Wallin, A., Jakobsson, U., & Edberg, A. K. (2015). Job strain and stress of conscience among nurse assistants working in residential care. *Journal of Nursing Management, 23,* 368–379. https://doi.org/10.1111/jonm.12145

Padkapayeva, K., Gilbert-Ouimet, M., Bielecky, A., Ibrahim, S., Mustard, C., Brisson, C., & Smith, P. (2018). Gender/sex differences in the relationship between psychosocial work exposures and work and life stress. *Annals of Work Exposures & Health, 62*(4), 416–425. https://doi.org/10.1093/annweh/wxy014

Park, S. K., Rhee, M.-K., & Barak, M. M. (2016). Job stress and mental health among nonregular workers in Korea: What dimensions of job stress are associated with mental health? *Archives of Environmental & Occupational Health, 71*(2), 111-118. http://dx.doi.org/10.1080/19338244.2014.997381

Parmelee, P.A., Laszlo, M.C., & Taylor, J.A. (2009). Perceived barriers to effective job performance among nursing assistants in long-term care. *Journal of the American Medical Directors Association, 10*(8), 559-567. http://dx.doi.org/10.1016/j.jamda.2009.05.001

Pélissier, C., Fontana, L., Fort, E., Vohito, M., Sellier, B., Perrier, C., Glerant, V., Couprie, F., Agard, J. P., & Charbotel, B. (2015). Impaired mental well-being and psychosocial risk: A cross-sectional study in female nursing home direct staff. *BMJ Open, 5*(3), e007190. https://doi.org/10.1136/bmjopen-2014-007190

Pélissier, C., Vohito, M., Fort, E., Sellier, B., Agard, J. P., Fontana, L., & Charbotel, B. (2015). Risk factors for work-related stress and subjective hardship in health-care staff in nursing homes for the elderly: A cross-sectional study. *Journal of Occupational Health, 57*(3), 285–296. https://doi.org/10.1539/joh.14-0090-OA

Priest, J. B., McNeil Smith, S., Woods, S. B., & Roberson, P. N. E. (2020). Discrimination, family emotional climate, and African American health: An application of the BBFM. *Journal of Family Psychology, 34*(5), 598–609. http://doi.org/10.1037/fam0000621

Professional Healthcare Institute. (2017, August 31). *U.S. Nursing Assistants Employed in Nursing Homes: Key Facts*. https://phinational.org/resource/u-s-nursing-assistants-employed-in-nursing-homes-key-facts/

Ragins, B. R., Gonzalez, J. A., Ehrhardt, K., & Singh, R. (2012). Crossing the threshold: The spillover of community racial diversity and diversity climate to the workplace. *Personnel Psychology, 65*(4), 755–787. https://doi.org/10.1111/peps.12001

Ricciardelli, R., & Carleton, R. N. (2022). A qualitative application of the Job Demand-Control-Support (JDCS) to contextualize the occupational stress correctional workers experience. *Journal of Crime and Justice*, *45*(2), 135–151. https://doi.org/10.1080/0735648X.2021.1893790

Sandelowski, M. (2000). Whatever happened to qualitative description? *Research in Nursing & Health, 23*(4), 334–340. https://doi.org/10.1002/1098-240

Schaefer, J. A., & Moos, R. H. (1996). Effects of work stressors and work climate on long-term care staff's job morale and functioning. *Research in Nursing & Health, 19*, 63–73. https://doi.org/10.1002/(SICI)1098-240X(199602)19:1 < 63::AID-NUR7 > 3.0.CO;2-J

Schechter, J., Green, L. W., Olsen, L., Kruse, K., & Cargo, M. (1997). Application of Karasek's demand/control model in a Canadian occupational setting including shift workers during a period of reorganization and downsizing. *American Journal of Health Promotion, 11*(6), 394-399. https://doi.org/10.4278/0890-1171-11.6

Selye, H. (1956). *The stress of life*. McGraw-Hill.

Stevanin, S., Palese, A., Bressan, V., Vehviläinen-Julkunen, K., & Kvist, T. (2018). Workplace-related generational characteristics of nurses: A mixed-method systematic review. *Journal of Advanced Nursing, 74*(6), 1245–1263. https://doi.org/10.1111/jan.13538

Theorell, T., & Karasek, R. A. (1996). Current issues relating to psychosocial job strain and cardiovascular disease research. *Journal of Occupational Health Psychology, 1*(1), 9–26. https://doi.org/10.1037//1076-8998.1.1.9

Travers, J. L., Teitelman, A. M., Jenkins, K. A., & Castle, N. G. (2020). Exploring social-based discrimination among nursing home certified nursing assistants. *Nursing Inquiry, 27*(1), 12–15. https://doi.org/10.1111/nin.12315

Truitt, A. R., & Snyder, C. R. (2020). Racialized experiences of Black nursing professionals and certified nursing assistants in long-term care settings. *Journal of Transcultural Nursing, 31*(3), 312–318. https://doi.org/10.1177/1043659619863100

Tytherleigh, M. Y., Jacobs, P. A., Webb, C., Ricketts, C., & Cooper, C. (2007). Gender, health, and stress in English university staff—Exposure or vulnerability? *Applied Psychology: An International Review, 56*(2), 267–287. https://doi.org/10.1111/j.1464-0597.2006.00254.x

U.S. Bureau of Labor Statistics. (2022). *Occupational employment and wage statistic*s. https://www.bls.gov/oes/current/ind_emp_chart/ind_emp_chart.htm

van Sonderen, E., Sanderman, R., & Coyne, J. C. (2013). Ineffectiveness of reverse wording of questionnaire items: Let's learn from cows in the rain. *PloS one, 8*(7), e68967. https://doi.org/10.1371/journal.pone.0068967,

Walton, A. L., & Rogers, B. (2017). Workplace hazards faced by nursing assistants in the United States: A focused literature review. *International Journal of Environmental Research and Public Health, 14*, 544. https://doi.org/101.3390/ijerph14050544

The White House. (2022a, October 21). *Biden-Harris administration announces new steps to improve quality of nursing homes* [Fact sheet]. https://www.whitehouse.gov/briefing-room/statements-releases/2022/10/21/fact-sheet-biden-harris-administration-announces-new-steps-to-improve-quality-of-nursing-homes/

The White House. (2022b, February 28). *Protecting seniors by improving safety and quality of care in the nation's nursing homes* [Fact sheet]. https://www.whitehouse.gov/briefing-room/statements-releases/2022/02/28/fact-sheet-protecting-seniors-and-people-with-disabilities-by-improving-safety-and-quality-of-care-in-the-nations-nursing-homes/

World Health Organization. (2022). *Stress at the workplace.* https://www.who.int/occupational_health/topics/stressatwp/en/

Zontek, T. L., Isernhagen, J. C., & Ogle, B. R. (2009). Psychosocial factors contributing to occupational injuries among direct care workers. *AAOHN Journal, 57*(8), 338–347. https://doi.org/10.1177/216507990905700807

Appendix A: Flyer

Are you a Certified Nursing Assistant (CNA) who works in a long-term care facility in East Texas?

I want to know about your experiences regarding stress at work!

Participants must:

- Be at least 18 years old
- Work in an East Texas long-term care facility (nursing home)
- Be fluent in English
- Not work primarily as a medication aide

Scan the QR code or navigate to this website:
https://uttyler.az1.qualtrics.com/jfe/form/SV_8JoIxaM4R9LKPEG
for more information

Qualified participants will receive a **$5 Amazon gift card**. All individuals who participate in an additional interview will receive a **$20 Amazon gift card**.

**This study has been approved by the Institutional Review Board of The University of Texas at Tyler.

Jackie McDonald, MSN, RN
Doctoral Candidate
The University of Texas at Tyler

Email Address: jmcdonald15@patriots.uttyler.edu
Phone: (903) 985-0224

Appendix B: Eligibility Questions

1. Are you at least 18 years old?
    a. Yes
    b. No (not eligible for survey)
2. Do you work primarily as a medication aide?
    a. Yes (not eligible for survey)
    b. No
3. In which Texas county do you currently work?
    a. Anderson
    b. Bowie
    c. Camp
    d. Cass
    e. Cherokee
    f. Delta
    g. Franklin
    h. Gregg
    i. Harrison
    j. Henderson
    k. Hopkins
    l. Lamar
    m. Marion
    n. Morris
    o. Panola
    p. Rains
    q. Red River
    r. Rusk
    s. Smith
    t. Titus
    u. Upshur
    v. Van Zandt
    w. Wood
    x. Other (not eligible for survey)
4. Are you fluent in English?
    a. Yes
    b. No (not eligible for survey)

Appendix C: Quantitative Informed Consent to Participate in Research

Informed Consent to Participate in Research
Institutional Review Board #
Approval Date:
Quantitative Consent

You are invited to be a part of a research study, titled, "The Impact of Race/Ethnicity on Occupational Stress in East Texas Certified Nursing Assistants." The purpose of this study is to better understand occupational stress as experienced by CNAs who work in East Texas long-term care facilities.

Your participation is completely voluntary, meaning if you start to take part and do not want to complete it, you are free to quit without any problems.

If you agree to be in this study, we will ask you to complete an online survey, which will take 15 minutes or less.

When taking the survey, you may become tired or stressed when answering some of the questions. If this happens, you can take a break and return to the survey. You can also quit without any problems.

The benefits of this study are to increase knowledge of CNAs' experience of occupational stress.

I know my responses to the questions are anonymous. If I need to ask questions about this study, I can contact the principal researcher, Jackie McDonald, MSN, RN, at jmcdonald15@patriots.uttyler.edu or, if I have any questions about my rights as a research participant, I can contact Dr. Pearson, Chair of the UT Tyler Institutional Review Board at research@uttyler.edu, or (903) 877-7632.

The health information that we may use for this research includes:

Telephone number
Email address
Month and Date of birth

The health information listed above may be used by and/or disclosed (released) to:

Researcher and committee chairperson
Institutional Review Board

By signing this document, you authorize the invesigator to use and/or disclose (release) your health information for this research. Those persons who receive your health information may not

be required by Federal privacy laws (such as the Privacy Rule) to protect it and may share your information with others without your permission, if permitted by laws governing them.

Please note that:

You may change your mind and revoke (take back) this Authorization at any time, except to the extent that the investigator has already acted based on this Authorization. To revoke this Authorization, you must write to: Jackie McDonald at jmcdonald15

This Authorization expires at the end of the research study.

I have read and understood what has been explained to me. If I choose to take part in this study, I will click "Yes" in the box below and continue with the survey. If I choose to not take part, I will click "No" in the box.

☐ **Yes**, I choose to participate in this study.

☐ **No**, I choose to not participate in this study.
(You can throw the packet away)

Appendix D: Work Stress Scale and Permission

Work Stress Scale

The following are some common situations that certified nursing assistants (CNAs) may confront in nursing homes. Please answer according to your situation, and answer never, seldom, sometimes, usually, or always (score 1–5). There are no right or wrong answers. Please just comment on your situation.

1. Sometimes you have conflicts with residents or family because of the rules in the nursing home
2. An unreasonable schedule makes you uncomfortable.
3. Unfair evaluations in job performance make you uncomfortable.
4. Strict requirements of the nursing home make you feel uncomfortable.
5. There is little support from the nursing home.
6. The duty turnover is not clear and makes you feel uneasy.
7. There is an insufficient workforce in the nursing home.
8. There is always too much work and it seems never to be finished.
9. You have trouble dealing with resident incontinence.
10. You have trouble dealing with resident behavior.
11. You have trouble with time arrangements with your own family.
12. You have a heavy burden in moving residents.
13. You are bored with repetitive tasks.
14. Your role and responsibilities with the nurses are unclear.
15. The CNA job lacks autonomy.
16. You do not get sufficient help from coworkers.
17. You don’t have enough personal interaction with coworkers.
18. You consider changing jobs to another nursing home.
19. Resident family members are demanding.
20. You are afraid of causing harm when taking care of resident.
21. You are nervous when taking care of severely ill residents.
22. You are unable to handle the resident’s emotional problems.
23. You are afraid of explaining the care plan to residents/families.
24. You feel a lack of essential skills/knowledge.
25. You are unable to provide all needed care and services to the resident, although you would like to.
26. You are afraid of sudden changes in resident health.
27. You have considered leaving the CNA job.
28. You usually need to work overtime

Permission to use Work Stress Scale

From: Hui-Chuan Hsu < gingerhsu@seed.net.tw >
Sent: Monday, May 2, 2022, 7:59 PM
To: Jackie McDonald < jmcdonald15@patriots.uttyler.edu >
Subject: Re: Permission to use the Work Stress Scale for care attendants

Hi Jackie,
The original scale was in Chinese. You may see the English version questions in the Appendix of the paper.

You have my permission to use this scale in your study. Please cite the reference in your work.

Sincerely,
Hui-Chuan Hsu

Prof. Hui-Chuan Hsu, Ph.D.
School of Public Health, Taipei Medical University
Email: gingerhsu@seed.net.tw

Appendix E: Diversity Climate Scale and Permission

Diversity Climate Scale

Rate the following items as strongly disagree, moderately disagree, slightly disagree, slightly agree, moderately agree, or strongly agree (1-6)

1. I feel that I have been treated differently here because of my race, gender, sexual orientation, religion, or age (R).
2. Managers here have a track record of hiring and promoting employees objectively, regardless of their race, gender, sexual orientation, religion, or age.
3. Managers here give feedback and evaluate employees fairly, regardless of employees' race, gender, sexual orientation, religion, age, or social background.
4. Managers here make layoff decisions fairly, regardless of factors such as employees' race, gender, age, or social background.
5. Managers interpret human resource (HR) policies (such as sick leave) fairly for all employees.
6. Managers give assignments based on the skills and abilities of employees.
7. Management here encourages the formation of employee network support groups.
8. There is a mentoring program in use here that identifies and prepares all minority and female employees for promotion.
9. The "old boys' network" is alive and well here (R).
10. The company spends enough money and time on diversity awareness and related training.
11. Knowing more about the cultural norms of diverse groups would help me be more effective in my job.
12. I think that diverse viewpoints add value.
13. I believe diversity is a strategic business issue.
14. I feel at ease with people from backgrounds different from my own.
15. I am afraid to disagree with members of other groups for fear of being called prejudiced (R).
16. Diversity issues keep some work teams here from performing to their maximum effectiveness (R).

Permission to Use DCS

From: Michàlle Mor Barak < morbarak@usc.edu >
Sent: Monday, May 2, 2022, 11:26 PM
To: Jackie McDonald < jmcdonald15@patriots.uttyler.edu >
Subject: RE: Permission to use the Diversity Climate Scale

Hello Jackie,

You have my permission to use the scale for your dissertation, just be sure to provide a correct attribution and a reference. I am also interested in your findings and any publications you would end up with so I can cite them in future editions of my book.

I have attached the full diversity perception scale (and the inclusion scale) from the third edition of my book – this will provide you with the full scale and its scoring.

Best wishes for success with your dissertation,

Michàlle Mor Barak, Ph.D.
Dean Endowed Professor of Social Work & Business
Fellow, American Academy of Social Work and Social Welfare
(Pronouns: She, her, hers)

USC Suzanne Dworak-Peck School of Social Work and
USC Marshall School of Business
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Los Angeles, CA 90089-0411
http://sowkweb.usc.edu/faculty/michalle-mor-barak
Fax: +1 213-740-0789

New! 5th Edition 2022.

The award-winning Managing Diversity: Toward a Globally Inclusive Workplace uses an interdisciplinary approach to provide you with an understanding of diversity from a global perspective. Author Michàlle E. Mor Barak offers practical guidelines to help managers create an inclusive workplace and develop an organizational culture that embraces diversity. The Fifth Edition includes expanded coverage of environmental justice, disability diversity, LGBTQ+ diversity, and inclusive leadership. https://www.amazon.com/Managing-Diversity-Globally-Inclusive-Workplace/dp/1544333072

Appendix F: Demographic Questions

1. What is your age in years?

   _____

2. What is your gender?
   A. Male
   B. Female
   C. Nonbinary
   D. Prefer not to say

3. What is your race/ethnicity?
   A. Hispanic
   B. White, non-Hispanic
   C. Black or African American
   D. Native American
   E. Asian alone
   F. Other race or gender identity, not listed _____

4. What is the highest degree or level of school you have completed?
   A. Less than a high school diploma
   B. High school degree or equivalent
   C. Bachelor's degree
   D. Master's degree
   E. Doctorate
   F. Other

5. What is your current employment status?
   A. Employed full-time
   B. Employed part-time
   C. Employed at more than one job, number of jobs _____

6. How many years have you been a certified nursing assistant?

   _____

7. How many years have you been in your current job?

   _____

8. What is the race/ethnicity of the director of nursing services?
   A. Hispanic
   B. White, non-Hispanic
   C. Black or African American
   D. Native American
   E. Asian alone
   F. Other race or gender identity, not listed _____
   G. Unknown

9. What is the race/ethnicity of the nursing home administrator?
   A. Hispanic
   B. White, non-Hispanic
   C. Black or African American
   D. Native American
   E. Asian alone
   F. Other race or gender identity, not listed _____
   G. Unknown

10. What is your marital status?
   B. Single (never married)
   C. Married
   D. In a domestic partnership
   E. Divorced
   F. Widowed

11. There is an opportunity to take part in an interview, which is an additional part of this study. The interview will be conducted by phone or zoom according to your preference. You are not required to participate in the interview and choosing not to participate does not change the results obtained from the survey you have submitted. To participate in this interview, you will need to provide an email address or phone number along with your unique identifier. This information will be kept in a separate location from your survey and will be destroyed when the interview is complete. Supplying your email address or phone number does not obligate you to participate in the interview. You may opt out of the study at any time. Would you like to be contacted by the research nurse for a phone or Zoom interview? ____ Yes ____ No

12. Please provide either a reliable email address or phone number.

Appendix G: Semi-structured Interview Guide

Interview Outline-Draft

1. Please tell me about working as a CNA.
2. Describe a typical work day.
3. How do you define job stress?
4. Tell me what causes you stress at work.
5. Give examples of stress you have experienced.
6. What about those experiences do you think caused stress?
7. What happens when you feel stress?
8. How do you feel about the physical demands of your job?
9. How do you feel about the psychological or mental demands of your job?
10. Tell me about social support in your job.
11. What decisions do you make in your job?
12. How would you describe your feeling of job security?

Appendix H: Qualitative Informed Consent to Participate in Research

APPROVED
02/22/2023
IRB# 2023-023
BY THE UTHET/UTHSCT/UT TYLER INSTITUTIONAL REVIEW BOARD

Informed Consent to Participate in Research
Institutional Review Board #
Approval Date:
Qualitative Consent

Title of Research Study: The impact of race/ethnicity on occupational stress in East Texas certified nursing assistants
Project Description: I am a doctoral student at The University of Texas at Tyler, and I want to find out how occupational stress affects nursing assistants who work in East Texas long-term care facilities.

If you agree to take part in this study, we would ask you to do the following things:

- Be interviewed one time by the researcher using Zoom video conference.
- Set aside approximately 30-45 minutes for the interview.
- Be in a location without interruptions and where the interview will not be overheard.
- Have access to a phone or computer that has a webcam and microphone. The webcam is optional.
- Agree to either have the interview video or sound recorded via Zoom or a secure recording application.

Potential Risks: We know of no known risks other than those encountered in normal everyday life. You may become a little tired or stressed when answering the questions. If this happens, you are free to take a break and return later to the interview to finish it. You can also stop without any problems.

You will not be identified by name in any of the reports. Privacy will be ensured in Zoom sessions by using a waiting room for the meeting as well as a passcode to join the meeting. With any research study there is always a risk of a breach of confidentiality. This risk will be reduced by the research nurse being the only one that will have access to your name. The information will be stored on an encrypted laptop that has a password and it will be deleted once it is no longer necessary to contact you. The Zoom or audio recording will be removed as soon as the written-out interview is completed.

Potential Benefits: Potential benefits to this study are to increase knowledge of occupational stress as experienced by CNAs.

Understanding of Participants:

1. I have been given a chance to ask any questions about this research study. The researcher has answered my questions. I understand any and all possible risks.
2. If I give my verbal consent, I know it means that:

- I am taking part in this study because I want to. I chose to take part in this study after having been told about the study and how it will affect me.

- I know that I am free to not be in this study. If I choose to not take part in the study, then nothing will happen to me as a result of my choice.

- I know that I have been told that if I choose to be in the study, then I can stop at any time. I know that if I do stop being a part of the study, then nothing will happen to me.

- I know the information that is obtained from me during this study may be shared with other researchers, but if so, my name and any other identifying information will not be with this information. I know the researchers may keep this information for up to one year or until I inform them that I no longer give permission to share it. I know that it is unknown how long other researchers will keep my information.

3. I have been promised that my name or other identifying information will not be in any reports (presentations, publications) about this study unless I give my permission. The UT Tyler Institutional Review Board (the group that makes sure that research is done correctly and that procedures are in place to protect the safety of research participants) may look at the research documents. This is a part of their monitoring procedure and will be kept confidential.

4. If I have any questions concerning my participation in this project, I will contact the principal researcher: Jackie McDonald at jmcdonald15@patriots.uttyler.edu

5. If I have any questions concerning my rights as a research subject, I will contact the Office of Research & Scholarship at (903) 565-5858 or at research@uttyler.edu

6. Research results from this study may be shared with other researchers for future research but any identifying information will be removed by the principal researcher of this study before information is shared.

APPROVED
02/22/2023
IRB# 2023-023
BY THE UTHETAUTHSCTAUT TYLER
INSTITUTIONAL REVIEW BOARD

CONSENT/PERMISSION FOR PARTICIPATION IN THIS RESEARCH STUDY

If you sign this document, you give permission to Jackie McDonald, a PhD candidate at UT Tyler, to use your health information that identifies you for the research study.

The health information that we may use for this research includes:

Telephone number
Email address
Month and Date of birth
Recorded interviews

The health information listed above may be used by and/or disclosed (released) to:

Researcher and committee chairperson
Institutional Review Board
Transcriptionist

By signing this document, you authorize the invesigator to use and/or disclose (release) your health information for this research. Those persons who receive your health information may not be required by Federal privacy laws (such as the Privacy Rule) to protect it and may share your information with others without your permission, if permitted by laws governing them.

Please note that:

You may change your mind and revoke (take back) this Authorization at any time, except to the extent that the investigator has already acted based on this Authorization. To revoke this Authorization, you must write to: Jackie McDonald at jmcdonald15

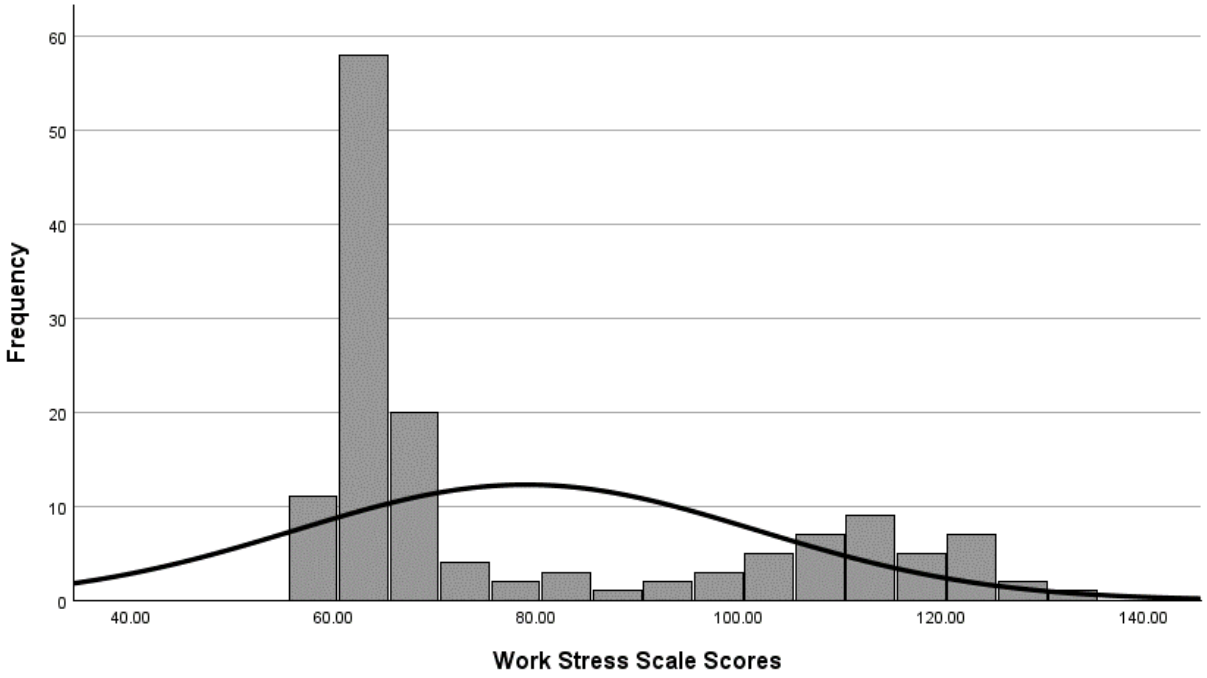
This Authorization expires at the end of the research study.

_____
Signature of participant

_____
Date

_____
Printed name of participant

Appendix I: Composite Work Stress Scale Scores



Appendix J: Biographical Sketch

BIOGRAPHICAL SKETCH

NAME: Jackie Schniederjan McDonald

POSITION TITLE: Health Science Dual Credit Coordinator

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, including postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	Completion Date MM/YYYY	FIELD OF STUDY
University of Texas at Tyler, Tyler, TX	PhD		Nursing
University of Texas at Tyler, Tyler, TX	MSN	12/2005	Nursing Administration
University of Texas at Tyler, Tyler, TX	BSN	05/1999	Nursing
Kilgore College, Longview, TX	VN	02/1994	Vocational Nursing

A. Personal Statement

The researcher is a Health Science Dual Credit Coordinator at a community college and has extensive preparation for research through the University of Texas at Tyler's nursing PhD program, experience working with certified nursing assistants in a variety of roles, and experience in occupational health.

B. Positions, Scientific Appointments, and Honors

2023-Present	Health Science Dual Credit Coordinator, Kilgore College, Kilgore, TX
2019-2023	Program Director, Nursing Assistant, Kilgore College, Kilgore, TX
2018-2019	Lead Instructor, Nursing Assistant Credit Program, Kilgore College, Kilgore, TX
2016-2017	Director of Nursing, Highland Pines Nursing and Rehabilitation Center, Longview, TX
2016	Chief Nursing Officer, Allegiance Specialty Hospital, Kilgore, TX

2014-2016	Director of Nursing, Heritage House of Marshall, Marshall, TX
2014	RN III (Facilities), Nurse Surveyor, Texas Department of Aging and Disability Services, Longview, TX
2013	Nursing Supervisor, Occupational Health, University of Texas Health Science Center, Tyler, TX
202-2013	Medical-Surgical Nursing Educator, Good Shepherd Medical Center, Longview, TX
2011-2012	Health Services Administrator, MTC Medical, Henderson, TX
2010-2011	Regional Nurse Consultant, Senior Living Properties, Grapevine, TX
2009	Administrator, Angels Care Home Health, Marshall, TX
2008-2009	Director of Nursing, Pinecrest Nursing & Rehabilitation, Tyler, TX
2003-2008	Health at Work Manager, Trinity Mother Frances Health System, Tyler, TX
1999-2003	Senior Occupational Health Nurse, University of Texas Health Science Center, Tyler, TX
1997-1999	Nurse Paralegal, Nix, Patterson, & Roach, LLP, Daingerfield, TX
1995-1997	Industrial Nurse, Mansfield Plumbing Products, Kilgore, TX
1995	LVN- surgical floor, Henderson Memorial Hospital, Henderson, TX
1994-1995	Office Nurse, Trinity Clinic, Tyler, TX