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Relationship Between CEO Gender, Hospital Size, and Urban, Rural Location

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This is to certify that the doctoral study by

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

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MBA/HCM, University of Phoenix, 2005

BSN, Houston Baptist University, 1987

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Healthcare Administration

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Abstract

Leadership diversity concerning gender is important in the health care sector because diversity encourages problem solving from different perspectives. The purpose of this quantitative correlational study was to examine whether there was a relationship between CEO gender and the size of nonprofit hospitals and rural/urban location of hospitals in Texas. The independent variables were hospital bed size, which was categorized according to various groupings, and rural/urban areas in Texas. The dependent variable was gender (male and female). The theoretical framework that grounded this study was the perspective of organizational culture and the leader's role based on the competing values framework. Data were collected from 460 entries from Datacaptive, which contained nonprofit hospitals in 2019 from urban and rural sites throughout 254 counties in Texas. Linear regression, Mann-Whitney U, and Kruskal-Wallis statistical methodologies were used to analyze whether there was a relationship between hospitals' size, location, and CEO gender. there was no statistically significant association between the size and location of hospitals and the gender of the CEO, there was a considerable disparity between the number of male and female CEOs. Further research is recommended to determine the association between hiring practices throughout the United States related to gender, leadership position, and hospital size to provide information concerning diversity. Current study results may encourage examination of hospital board hiring practices and create awareness for positive social change, which includes leadership diversity in health care organizations.

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Dedication

I want to dedicate this research to the health care professionals who have felt they may have been passed over to lead health care organizations due to their bio-characteristics and academic background. Such people add variability, are competent, are experts in their field, and exhibit intrinsic leadership styles that may improve the overall performance of the health care organization and the community at large.

Acknowledgments

I would like to first give all praise to my heavenly Father for his mercy and grace to allow me to share this work with others; for my husband, Herb, whose patience and encouragement reflect God's love; for my daughters, Andrea and Bianca, who have cheered me on to complete this goal; and for my family, colleagues, and friends for their never-ending support. A special thank you to Dr. Mary Wylie, whose notable example of mentorship challenged me to continue the DHA journey. With gratitude, a special acknowledgment goes to the committee members, Dr. Fawzi Awad and Dr. Suzanne Richins, for their professional guidance. Most importantly, a heartfelt appreciation for Dr. Miriam Ross, whose incredible leadership, patience, and gentle coaching spirit permitted me to stay focused to accomplish a lifelong goal.

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Section 1: Foundation of the Study and Literature Review

Hospitals are complex organizations with multiple organizational layers related to various medical services. Characteristics that differentiate hospitals include size, types of services, and locations (Render, 2017). Additionally, hospital system affiliations and academic teaching status have a strong influence on the social dimensions and organizational culture of hospitals. Hospital administrators also have an effect on hospital culture because they promote efficient processing of resources and staff while promoting quality care and a vision for the organization's future. Multifaceted demands that include state and federal requirements necessitate the need for knowledgeable CEOs and administrators (Borkowski, 2017; Furrow et al., 2018).

CEOs are responsible for providing strategic direction, identifying resources needed, achieving financial success, and leading the organization to fulfill the mission and vision while creating long-term strategic goals and commitments (Borkowski, 2017; Curry et al., 2018). Board selection of CEOs has traditionally stemmed from a pool of candidates consisting of health care or a business-trained pipeline of new leaders (American College of Healthcare Executives [ACHE], 2020). Some hospitals have an organized relationship with academia to transition future CEOs into a fellowship or residency program (ACHE, 2020). Diversity is essential throughout organizations, including senior management, because diversity provides cohesion and community representation (ACHE, 2020). Diversity is vital for the role of the CEO, which has traditionally been predominately male in hospitals (Alghamdi et al., 2017). The current

study focused on bed size for nonprofit hospitals and rural/urban hospital locations to determine whether there was a relationship to CEO gender diversity.

Problem Statement

Population demographics in the United States have changed dramatically over the past decades. In July 2019, the U.S. population was estimated at over 328 million people, and gender was calculated at 50.8% female and 49.2% male (Centers for Disease Control and Prevention [CDC], 2020). To meet the demands of health care consumers, health care leaders of tax-exempt hospitals corroborate with community stakeholders to create a community health needs assessment plan, as required in the Patient Protection and Affordable Care Act of 2010 (CDC, 2020; Furrow et al., 2018). Hospital leaders then use the assessment plan as part of their strategic plan to address the diverse community health concerns, including the need for staff diversity, which includes CEOs (CDC, 2020; Mills et al., 2019).

Recognition of the need for diversity and inclusion is acknowledged in many industries, including health care (Dye, 2018; Jayanthi, 2016). One of the main challenges found with the selection of health care leaders is to rely on their skills to achieve strategic objectives, including diversity and inclusion training competencies (Dye, 2018). Improving CEO gender diversity and inclusion may necessitate a reexamination of hospital boards' hiring processes to select chief executive officers (Augustin & Stumpf, 2018; Borkowski, 2017). Hospital leaders may display implicit bias to ensure leadership teams consist of like-kind members, even as they give verbal support to a diverse culture (Borkowski, 2017; Grubbs, 2020; Henkel, 2016). The research problems addressed in the

current study concerned whether there was a relationship between the CEO gender and the size of nonprofit hospitals and rural/urban locations of hospitals (see Grubbs, 2020; Henkel, 2016). Although there have been studies about associations between CEOs' professional backgrounds and quality measures, there was a research gap concerning the associated of CEO gender with the size of the hospital and rural/urban locations (see Mkwandawire, 2017).

Purpose

The purpose of this quantitative study was to examine whether there was a relationship between CEO gender and the size of nonprofit hospitals and their rural/urban locations. The independent variables assessed were hospital bed size, which was categorized as small, medium, and large hospitals, and their rural/urban locations. The dependent variable was gender. This study may influence the board of directors to reevaluate internal succession planning for those who aspire to become a CEO from within the health system but struggle to move up to a chief executive position due to gender.

This study focused on data concerning over 600 nonprofit hospitals in the U.S. state of Texas. For comparison, there are over 3,000 nonprofit hospitals nationwide, 1,300 for-profit hospitals, and over 10,000 state and local government hospitals. Key distinctions in the operation and management of nonprofit and for-profit hospital organizations are related to the Internal Revenue Service (Kahn, 2019). A nonprofit is considered a charity by the Internal Revenue Service, and nonprofit hospitals must comply with governing guidelines providing certain benefits to the community. Nonprofit

hospitals do not pay income, state, and local property taxes and may be affiliated with a particular religious denomination (Furrow et al., 2018). In contrast, for-profit hospitals are owned by investors or shareholders of a publicly traded company. Nonprofit hospitals provide more uncompensated care than for-profit hospitals, while both exist in diverse communities (Kahn, 2019).

The results of the current study may be significant for several reasons. The results may add to the understanding of possible contributing factors associated with a hospital's bed size and location and the executive leadership selection according to gender. Understanding this information may promote insights for hospital boards to assess historical and current hiring and selection strategies. This study may motivate hospital leaders to complete an internal review of current practices of CEO selection within their organizations.

Research Questions and Hypotheses

RQ1: Is there a statistically significant relationship between the bed size of nonprofit hospitals and the gender of the CEO?

$H_0$1: There is no statistically significant relationship between the bed size of nonprofit hospitals and the gender of the CEO.

H_a1: There is a statistically significant relationship between the bed size of nonprofit hospitals and the gender of the CEO.

RQ2: Is there a statistically significant relationship between urban/rural nonprofit hospitals and the gender of the CEO?

$H_0$2: There is no statistically significant relationship between urban/rural hospitals and gender of the CEO.

H_a2: There is a statistically significant relationship between urban/rural hospitals and the gender of the CEO.

Theoretical Foundation

The theoretical framework that grounded this study was the perspective of organizational culture and the leader's role based on the competing values framework (see Lee et al., 2021). Cameron and Quinn (2011), the creators of the competing value framework, posited that there are two competing types of prioritizing values that leaders face within the organizations. The degree to which the leader engages the organization can result in two dimensions (Lee et al., 2021). The two dimensions consist of internal and external activities (first dimension) and the degree to which the organization (or leader) is flexible or maintains stability (second dimension). The results establish clan (collaborative), hierarchical (controlling), adhocracy (creative), and market (competitive) organizational cultures (Lee et al., 2021; O'Neill et al., 2021).

The logical connection between the framework and the purpose of the current study included connecting the size of the hospital and the CEO leader. The competing organizational culture framework was associated with different management styles (Azad et al., 2017). In the clan culture, the CEO guides the organization to pay close attention to interpersonal relations using targeted training to enhance performance and creating mentorship programs for new training initiatives (Joseph & Kibera, 2019). The hierarchy culture represents the CEO ensuring accountability on strict guidelines (Calciolari et al.,

2018; Lee et al., 2021). Adhocracy culture is rooted in innovation and malleability, which encourages staff to be creative. This creativity contributes to high profit margins (Joseph & Kibera, 2019). In a market culture, the leader inspires the rest of the team to develop and maintain positive external customer relationships. When the leader communicates a clear organizational vision of innovation, this encourages a creative workplace leading to diversity (Goryachev, 2018).

As shown in Figure 1, leaders move to the left indicating a more inward focus and move to the right indicating an outward focus on the external environment. The vertical management defines management structure and decision making. The lower end reflects management control, whereas the upper indicates empowered employees to make choices.

Figure 1

Competing Values Framework

Note. Adapted from Cameron and Quinn (2011); Competing Values Framework (n.d.).

The organization's values play a critical role in health care performance (Akindele et al., 2016; Onday, 2016). Today's hospital leaders must meet Center for Medicare and Medicaid Services's (CMS) legislative mandates, which require an influential trailblazer to set the institution's cultural tone. Values, attitudes, and norms are established and developed into initiative taking and well-coordinated personnel to influence the system to improve organizational performance (Furrow et al., 2018; Lee et al., 2021).

Nature of the Study

To address the research questions, I used a quantitative, correlative, descriptive design to assess the relationship between the independent and dependent variables. The two independent continuous (interval/ratio) variables were bed size and urban/rural

locations. The dependent categorical variable of CEO gender was used to run a statistical regression analysis. Regression analysis is used to examine the relationships between a set of variables to ascertain the best fit (Laerd Statistics, 2018). This methodology enhanced the reliability and validity of the current results. Secondary data set from an industrial business marketing data source, Datacaptive were used to answer the research questions. A public list of Texas hospitals was found in Texas Hospitals Directory hosted by the Texas Hospital Association (2021) for consumer information.

Literature Review Search Strategy

To better understand the association between the organizational size of nonprofit hospitals and the gender of the CEO, I used several databases to retrieve the most current literature on hospital structure, bed size, and factors that affect the demographics of the chief executive gender. Selected articles relating to the type and size of hospitals and articles relating to CEO gender were identified. The keywords searched were *gender*, *hospital CEO*, *leadership and gender*, *CEO characteristics*, *hospital leaders*, *manager traits*, *leadership traits*, *leadership heterogeneity*, *hospital leadership*, *gender performance*, *diversity and hospital leaders*, and *gender performance* through the Cumulative Index to Nursing and Allied Health Literature (CINAHL), Medline National Library of Medicine, PubMed, Thoreau, and EBSCO multisite host database search and Google Scholar. The publication dates for scholarly articles ranged from 2016 to 2021.

Literature Review Related to Key Variables and Concepts

The purpose of the literature review was to enumerate, specify, analyze, synthesize, and provide an objective comprehensive summary of previous research

studies about hospital size (the independent variable) and gender of CEO (the dependent variable). The literature review was divided into five subsections: (a) hospitals, (b) bed size, (c) organizational structure and gender, (d) demographic of chief executive officers, and (e) leadership and gender.

Hospitals

For centuries, leaders have formed places to care for the sick. From ancient Greece to the evolution of hospitals in the Western world, care locations have transformed from charitable guesthouses to scientific centers (Sri & Sing, 2016). Disease progression, economic shifting, geographic locations, religion, ethnicity, growth, and perceived needs of the population are foundational tenets by which health service organizations are formed (CDC 2021). The American Hospital Association conducts annual surveys of over 6,200 hospitals within the United States and produces a comprehensive data set that includes system characteristics and behaviors to understand today's hospital characteristics. Noted key hospital characteristics include ownership status, type of hospital, bed size, and community outreach participation (Cronin & Garlington, 2021). There are over 5,000 community hospitals throughout the United States, of which 2,900 are nongovernment not-for-profit community hospitals. There are 1,200 for-profit, investor-owned facilities and approximately 900 state and local government community hospitals (American Hospital Association, 2021).

Nonprofit Hospitals

Critical distinctions between for-profit and nonprofit hospitals include how taxes are completed (Kahn, 2019). Nonprofit hospitals are viewed as a charity by the Internal

Revenue Service and must comply with governing guidelines providing certain benefits to the community. Nonprofit hospitals do not pay federal, state, or local property taxes and may be affiliated with a particular religious denomination (Furrow et al., 2018). For-profit hospitals are owned by investors or shareholders of a publicly traded company. Nonprofit hospitals provide more uncompensated care than for-profit organizations, while both serve lower income populations (Kahn, 2019).

Since the 1960s, U.S. nonprofit hospitals have received significant tax-exempt status benefits provided charity care for uncompensated care is offered within the facility's financial bandwidth to do so (Furrow et al., 2018). With the passing of The Patient Protection and Affordable Care Act of 2010, qualifications for continuing tax-exempt status require completing a community benefit report triennially. This report includes a community needs assessment (Franz et al., 2021; Furrow et al., 2018; Rozier, 2020; Santilli et al., 2016). The community benefit report consists of a 3-year plan to grow a healthier community (CDC, 2020; Rozier, 2020; Santilli et al., 2016).

Hospitals are an essential foundation of every health system, and consumers rely on them for their care. As hospital executives keep abreast of the community needs, the board leaders selecting the organizational leaders evaluate processes to ensure the right CEO fits the organization and the community. In Texas, the CEOs selected for nonprofit hospitals must be aware of the challenges incurred by the political and legislative provisions of expanding access to consumers, which impacts volume and services (Blavin, 2016; Furrow et al., 2018). With Medicaid vouchers governed by each state, Texas chose not to participate, leaving more Texans without access to care, making

Texas the highest uninsured state (Buettgens et al., 2018; Furrow et al., 2018; Holahan et al., 2021). The high uninsured rate places unnecessary financial burdens on the already highly uninsured Texas hospital industry, a challenge for the oncoming CEO (Buettgens et al., 2018).

Community Hospitals

The American Hospital Association (2021) and the Texas Organization of Rural and Community Hospitals (2017) defined community hospitals as nonfederal, short-term facilities that include specialty hospitals. These hospitals may focus on niche services such as women's, otorhinolaryngology, orthopedic, and postacute care and may consist of academic medical centers or teaching facilities. Winpenny et al. (2016) found that community hospitals in selected high-income countries provide a wide range of services and provisions to reflect the community's local needs. Community hospitals are staffed with general care practitioners, nurses, allied health personnel, and assistants. Pitchforth et al. (2017) studied community hospitals in the European National Health System and showed how health care has evolved from a rural setup to integrated health care delivery.

Rural Hospitals

With over 60 million people living in nonurban areas in the United States, Koser et al. (2020) found that rural areas have less access to primary and secondary care services. Rural populations comprising 15%–20% of the populace are nonmetropolitan counties based on the Office of Management and Budget's primary classification system using geographical areas. This measurement unit uses the Census Bureau's core metropolitan area and urban clusters of at least 10,000 people (U.S. Department of Health

and Human Services, 2020). Congress created rural hospitals, also known as critical access hospitals, under the Balanced Budget Act of 1997 to meet the needs of underserved communities. Critical access hospitals are an integral part of the rural health care system within communities and provide primary and long-term care (CMS, n.d.; Gaston & Walker, 2018).

Gaston and Walker (2018) noted that critical access hospitals operate and function like other smaller hospitals; however, they are reimbursed differently than Medicare acute care facilities on a cost-containment basis versus diagnosis-related groupings (American Hospital Association, 2021; CMS, 2022). In a study by Vaughn and Edwards (2020), more minor, rural, remote hospitals were geographically measured differently and were contingent on the context structure. Smaller facilities were deemed to be in rural and remote locations with higher levels of comorbidity, higher vulnerable populations, and higher critical work shortages.

Services offered by rural critical access hospitals include outpatient, home health, rehabilitation, hospice, long-term care, intensive care, surgery, and women's services, with lab and radiology services outsourced (Rural Health Information Hub, 2020). In a study conducted by X. Liu et al. (2020), rural hospital leadership's primary challenges involved prolonging the lives of terminally ill patients. In a study by the American Hospital Association (2021), although urban and rural hospitals were subject to the same regulatory obligations, rural hospitals suffered higher costs than their urban counterparts because of decreased hospital volumes and increased opioid epidemic challenges.

Bed Size

Differences between urban and rural hospitals include location, physical plant size, and bed occupancy availability. The average urban hospital is almost 5 times the size of the average rural hospital in terms of the number of beds (Rural Health Research Centers, 2020). Urban hospitals average 234 beds, while rural hospitals range from 30 to 80 beds (Rural Health Research Centers, 2020). According to a study by Farley et al. (2020), smaller rural hospitals represent fewer beds, have lower staffing, have delayed handoff between caregivers, have limited services, and have decreased community services leading to higher mortality in the specific diagnosis of cardiac care and hip fracture. Urban facilities provide experienced physicians and nurses, standardized protocols, and better access to education and follow-up care, thereby improving care and reducing mortality (Farley et al., 2020).

Texas Hospitals

In Texas, the state's hospitals are as diverse as the state's geography. The Texas Organization Rural and Community Hospitals asserted that 162 (62%) of Texas hospitals are rural (Texas Hospital Association, 2021). Due to Texas Medicare payment cuts in the last decade, more than 8% of Texas rural hospitals have closed (Texas Organization of Rural and Community Hospitals, 2017). Rural hospitals experience vacillation with inpatient volumes from two to 15 patients and provide less profitable services to the older, poor, and higher uninsured (about 17% uninsured) than their urban counterparts (Farley et al., 2020; Murphy et al., 2017). According to Dyrda (2017), over 4,700 acute care hospitals, critical access hospitals, and children's hospitals are listed in CMS's

Medicare hospital compare report. Texas has the highest number of hospitals, with California averaging 341 and Florida at 186 (Dyrda, 2017).

As of 2020, the Texas Hospital Association showed ownership of Texas hospitals included government-owned, nonprofit, and investor-owned facilities equating to over 600 hospitals and 84,000 licensed beds. Houston had the highest number of hospitals (83) followed by Dallas County (43) and Tarrant County, located in Fort Worth Bexar County (San Antonio), with an equal amount of HSO's at 40 (Texas Hospital Association, 2021). Texas academic teaching facilities have 15% of the nation's 1,000 teaching facilities and are affiliated with local community hospitals, optimizing specialized care for the communities (Texas Hospital Association, 2021; American Hospital Association, 2021).

Selection of CEOs

Hospital boards and community leaders work together to make the position leadership roles attractive with financial incentives for hard-to-fill positions, such as those found in rural areas, to promote more stability and reduce CEO turnover. In a study by Hearld et al. (2019), nearly 25% of hospitals over 9 years demonstrated CEO turnover every 3 to 4 years, resulting in a higher turnover in rural versus urban geographical locations. Without a system enterprise affiliation, rural hospitals burdened with financial challenges may not afford and retain top CEO talent. Factors to consider in retaining CEOs for hard-to-fill areas include developing local talent through homegrown training; tuition reimbursement for physician leader CEOs; and outreach to ensure a good fit for the CEO, the organization, and the community (Hearld et al., 2019).

Organizational Structure and Gender

For purposes of the current study, gender identity was described as binary (male or female) based on the behavioral, social, cultural, and psychological traits historically attributed to biological sex (see Buolamwini & Gebru, 2018). Organizational performance is contingent on the type of leader guiding the organization to meet its key performance indicators and mission, vision, and strategy (Borkowski, 2017; Galstian et al., 2018). Today's health care CEOs confront challenges while leading their organizations through increased customer expectations, lower budgets, professional staff shortages, and economic and ethical issues.

In a decade-long longitudinal study of chief executive transition's top-performing skills, Carucci (2016) identified several attributes and strengths impacting performance among CEOs and their direct reports. Top-performing executives showed a deep-rooted knowledge of their entire organization for value creation. These executives produced high-quality hospital results, focused on improved operations in a competitive manner, exhibited appropriate decision making, used confidence and reliable priority setting, exhibited intuition, had industry knowledge, and formed trusting relationships with humility and grace. In a cross-sectional study, Galstian et al. (2018) suggested leader characteristics that support a positive patient hospital experience include greater risk-taking, readiness for change, and role modeling. Added strengths include evidence-based strategies on external environments, tactfulness, problem solving, transparency, and compassion, which may also help to support a positive consumer experience (Galstian et al., 2018)

In a 1992 study funded by Kodak grant, 400 CEOs from different geographical areas gathered to create a shared vision for the future of health care (Kodak, 1992, as cited in Janssen, 2004). This assembly was essential to determine the vision of health care for primary health care access to all. This strategic vision set the stage for rural and urban hospital CEOs to see health care reform as a crucial component of their companies' success. Health care reform impacts consumers differently, and CEOs must become knowledgeable about each type of hospital's challenges (Benzies et al., 2019).

Demographics of CEOs

According to the ACHE (2020), although significant dollars are invested in recruiting and retaining top talented individuals, the demographic composition of hospital CEOs has remained essentially unchanged for over a decade. Specifically, the proportion of women CEOs and compensation for nonprofit hospitals has remained static over the past 2 decades compared with men with similar health care management experience. Song et al. (2018) studied gender differences in hospital CEO compensation using extensive national sample data to assess gender differences of pay in nonprofit health care organizations. The results showed a variation of over $130,000 associated with men making more than women in CEO positions. Female CEOs who worked for nonprofit hospitals earned 23% less than their male counterparts who worked in nonprofit HSOs.

CEO gender is a national concern in the United States and internationally and in other sectors outside of health care. Using extensive survey data of India's 9,000 firms via World Bank's Enterprise Surveys, Ali and Shabir (2017) found that female managers managed 8%; 15% showed female owners, with 36% of the 15% owning 50% of

company shares. However, the markets of France, Sweden, and Germany offer institutions' top executive positions, and board seat representation is climbing related to gender quotas. Similarly, South Africa, Singapore, and Thailand appear to have higher gender diversity in executive positions. Moving hospital businesses forward depends on economic growth and other elements such as infrastructure, regulation, tangible and nontangible groundworks, and human factors. Ali and Shabir (2018) and Galstian et al. (2018) noted that human skill, training, education, and decision making have a high correlation with gender in hospital CEOs' characteristics.

In tandem with global and national trends, the American College of Healthcare Executives (2020) asserted gender disparities within healthcare and academic CEO positions have been slow and proportionally inequitable with the community demographic shift. Likewise, in a survey conducted by the American Hospital Association in 2014, the female gender comprised 26% of hospital CEOs, whereas others suggest that 18% of hospital CEOs are female (HealthManagement.org, 2021). Additionally, the United States Bureau of Labor Statistics (2017) showed gender inequality in CEO HSO positions in proportion to female CEO positions in other industries; however, it is disproportionately low in the predominant female sector.

Leadership and Gender

Many studies on leadership and gender have been conducted in the last two decades. Some studies show that men and women exhibit different leadership styles, while others have found no differences. For example, Boamah et al. (2018) studied differences in leadership styles where women employed more participatory and inclusive

leadership styles compatible with transformational leadership. Men were likely to adopt a more directive, controlling leadership style while participating in transactional leadership behaviors such as contingent compensations. Leadership styles, managerial skills, and communication styles were found to be different between genders. In a study conducted by Tench et al. (2017), differences in managerial skills, communication styles, and leadership styles showed that women preferred non-personal communication methods. In contrast, men chose more personal forms of communication.

Although leadership styles are used to select leaders, additional factors such as organizational infrastructures may influence men and women being hired and promoted differently. For example, within hospitals, barriers such as work arrangements, parental policies, access to informal networks essential to pipeline promotions, lack of sponsors, stereotypes, and communication differences reveal that there continues to be a problem to solve in terms of recruiting, progression, and day to day experiences that might lead to more flexible and inclusive workplace culture. In contrast, the digital industry found more female-founded and funded startups to be leading their organizations (Lovett, 2018). While these hurdles differ substantially from one business to the next, they can be a considerable impediment to women's rise to top management within the hospital industry.

Like their hospital CEO partners, Academic Presidents face market concerns with decreased female leaders. Larcker and Tayan (2020) and Burden et al. (2015) found shortages of female leadership in major academic institutions, large nonprofit hospitals, including the medical profession. Burden et al. (2015) found gender disparities in hospital

CEO leadership positions seeping into the physician staffing, impacting academic hospitalist's productivity and the size of hospitals. Silber et al. (2018) argued although statistics show that the number of women in leadership positions is rising, women continue to be underrepresented in the upper echelons of healthcare leadership at larger hospitals compared to smaller ones.

There are gender disparities in leadership jobs that women can hold in major hospitals versus smaller hospitals. Glass and Cook (2017) studied three competing theoretical perspectives related to gender in hospitals using CEO characteristics, board composition, and firm outcomes. They found firms with female CEOs were gender-diverse boards and were associated with more robust business practices and business outcomes. Grubbs (2020) studied gender diversity in top management teams and its relationship with compensation, top management team size, diversity, and firm innovation and productivity. Inequality persisted when adjusted for gender disparities in educational attainment, age, experience, and wage. Despite extensive knowledge of these issues in the health care sector, there continues to be a severe shortage of current action and policy suggestions. Hearld et al. (2019) studied rising CEO turnover impacting rural and urban hospitals, highlighting a call to action to overhaul CEO recruitment and retention strategies.

Gender Selection of CEO

According to Fortune 500 CEO statistics, 33 women (representing 6.6 percent of the group) were appointed to CEO posts in 2019 (Larcker et al., 2020). This number significantly increased from 4.8 percent in 2018, representing 24 female CEOs of Fortune

500 firms, demonstrating a move to close the gap. Despite a significant increase in female appointments, fewer fortune companies have a higher appointment rate than other companies (Absoch et al., 2018; Larcker et al., 2020). In healthcare, Silver et al. (2019) noted women make up only 4% of CEOs and 19 % lead larger hospitals; interestingly, only one healthcare business in the Fortune 500 has a female CEO. This absence of female leadership representation reflects the wider corporate business scene, where women make up less than 24% of C-suite executives. Interestingly, a few females lead healthcare systems, although 76 percent of the healthcare industry jobs are held by women (U.S. Census Bureau, 2019).

Faccio et al. (2016) studied CEOs' gender differences and their relationship to corporate risk-taking with females. The study demonstrated females to be less tolerant than their male counterparts and exhibit more risk aversion behaviors leading to capital allocation variances causing macroeconomic implications. Women CEOs did not take projects with net present value (NPV), leaving money on the table and overinvestment, which occurred when either avoiding or not divesting damaging NPV projects (Faccio et al., 2016). However, in a study conducted by Ferris et al. (2017), additional moderating factors such as governance, ownership structures, and banking relationships impacted the CEO's risk aversion behaviors related to social capital. Shorebah et al. (2017) asserted that females tend to make less risky business choices than their male counterparts, are less confident, and have differences in incentive structures, unemployment, and social norms. Positive relationships were found between the attribute of female directors and their work firm's performance in positive teamwork, improved efficiency and friendly

cultures, tenants of transformational leadership. Communication styles, including linguistics, may support gender selection for CEO roles.

The language executives use to express communication strategies is a catalyst for improving communication. Language helps set the tone for the organizational culture and is interwoven into the daily operational fabric to promote clarity of strategic company goals (Borkowski, 2017). Clarity of language is foundational and must be aligned with the company's mission and vision statement and core values with the overarching goal to promote safety within the organization. The Agency for Health and Research and Quality (2017) entails communication must be articulated bi-directionally within the organization's communication plan to all stakeholders and reiterated at a cadenced rhythm to produce high quality, highly reliable, safe environment which forms foundational partnerships between all stakeholders. Although, gender linguistics refers to words and syntax, it is used differently by men and women. In a study by Stryker (2018), language used by executive leaders may promote member integration in organizational cultures and CEO gender preference selection. While historical traditional social views have shown women's slow progression bouncing back post-childbirth from reaching the CEO position within various industries, Keloharju et al. (2020) find CEO health and, specifically, mental health, as an important factor that makes CEOs different and affects their ascent to the top CEO position.

Literature Review Conclusion

The research findings regarding the association between the gender of the highest officer of the health service organization, the president, also known as the Chief

Executive Officer, and the size of nonprofit hospitals in rural and urban topography are slim. Literature showed that women are chosen for smaller hospitals while the male gender was determined for larger nonprofit institutions (American Association of University Women, 2020; Hearld et al., 2019; Mose, 2021). Although some literature showed women in CEO positions is rising, females were still underrepresented. Hearld et al. (2019) showed a turnover is rising differently in urban versus rural hospitals. Larcker et al. (2020) and Silver et al. (2019) showed fewer women in CEO positions and leading larger hospitals. Literature indicated CEO's gender differences within the CEO positions of hospitals may be related to high-risk decisions required (Faccio et al., 2016). While some studies showed why male genders selected for the executive positions may be due to their confidence and less risky aversion behavior than their counterpart's confidence, Shoreibah et al. (2017) showed females with higher attributes in teamwork exhibited better communication styles and leadership behaviors (Faccio et al., 2016; Shoreibah et al., 2017). There were limited articles on the relationships between the size of hospital type and CEO gender.

Definitions of Key Terms

Centers for Medicare and Medicaid (CMS): A U.S. federal agency within the Department of Health and Human Services that aids in the oversight of the U.S. health care system to enable access to quality health services at a minimized cost (CMS, n.d.).

CEO: The CEO is typically responsible for the business's overall success and for developing and executing long-term strategies to increase shareholder value (Corporate Finance Institute, 2021).

Gender: A categorical variable, was used to assess its potential relationship to the size of the health service organization in the current study (see Frankfort-Nachmias & Leon-Guerrero, 2018). Although definitions of gender are varied and contingent on schools of study (Griffin et al., 2020; Hallinger et al., 2016), gender can be used to describe the characteristics of men and women that are socially constructed, while sex refers to those characteristics that are biologically created (WHO-Regional Office for Europe, n.d.).

Hospital: An institution primarily engaged in providing care to inpatients or outpatients, including (a) diagnostic services and treatment and care of the injured, disabled, and sick persons, or (b) rehabilitation services for injured, disabled, or sick persons (CMS, n.d.).

Nonprofit: This category indicates a voluntary, educational, or religious affiliation within federal, state, local governmental classifications (CDC, 2020).

Rural hospital: A hospital that provides inpatient care and emergency outpatient care, long-term care, and health care coordination in a geographically located county that is not classified into a core-based statistical area as designated in the inpatient prospective payment system (CDC, 2014).

Urban hospitals: Hospitals based in the Metropolitan Statistical Area that provide services in areas with dense populations ranging from 100 to 500 beds. Nearly two thirds of all hospitals located in urban areas are considered nonprofit, meaning they are not beholden to shareholders to earn profits. They receive tax benefits unavailable to for-profit hospitals (American Hospital Directory, 2021).

Assumptions

Assumptions are statements that often provide the structural foundation of theories even though they cannot be proven to be true (Merriam & Tisdell, 2016). There were several assumptions associated with the current study. First, because the data were acquired through a secondary source, there was an assumption that the information was reliable and accurate. Second, there was an assumption that the data used in this study included a current list of nonprofit urban and rural Texas hospitals, and the list of the CEOs' gender was the most current and accurate information. The third assumption was the chosen quantitative research methods would provide a precise analysis of the variables.

Scope and Limitations

The scope and limitations of this study consisted of a review of data from only Texas hospitals and did not include data from other states. The study consisted of only nonprofit hospitals that used data from Texas hospitals and no other hospitals or other conditions. This study included only binary gender (male or female) of the CEO leading the Texas nonprofit hospitals. The study did not include other CEO characteristics and did not include transgender CEOs of hospitals.

Significance

The results of this study may add to the larger body of knowledge of hospital composition and CEO gender information within nonprofit health service organizations. The female gender may be underrepresented in the CEO positions within the hospital industry, specifically in nonprofit community health service organizations with larger bed

capacity and locations. The phenomenon of CEO gender differences between community (academic) hospitals, specialty hospitals, and large academic hospitals may indicate a more significant systematic issue requiring an intensive, thorough review of the HSOs' pipeline process and succession planning (Soklaridis et al., 2017). Women may be paid less than their male counterparts, which could cause women to predominate in smaller bed size hospitals rather than larger ones (Silver et al., 2018). There is a possibility that men and women are hired and promoted differently due to factors such as organizational infrastructural designs. Therefore, the current study may be essential to assess results to promote social change (see Walker-Green, 2019).

Summary and Conclusion

Population demographics are changing exponentially in the United States, creating significant challenges for the highest administrator, the CEO, of the health service organization tasked to care for the increasing uninsured and chronically ill assigned populations. I examined the possible relationship between hospital bed size and location and its influences on culture, policies, and workflow contributing to hiring the president and CEO of hospitals regarding gender. Although there is a movement to expand diversity within boards and top executive positions in hospital service organizations, this research was needed to assess the possibility of gender differences at the highest executive seat (see Gomez & Bernet, 2019; Soklaridis et al., 2017). Although this study was focused on the largest southern state of the United States, the results could represent a national systemic concern. This study may support positive social change by

promoting leadership awareness of the equity variability in hospital executive leadership circles.

Section 2: Research Design and Data Collection

A comprehensive evaluation of current literature related to hospitals and CEO gender statistics in nonprofit hospitals was recognized. Although researchers had explored the CEO's role and responsibility, challenges, leadership styles, and selection process, studies had not addressed gender issues related to CEOs. The purpose of this quantitative study was to examine whether there was a relationship between CEO gender and the size of nonprofit hospitals and rural/urban locations of Texas hospitals. Section 2 includes the research design, rationale, and methodology used to evaluate and analyze the data. I applied statistical analysis from one data source, an industrial business marketing data source, Datacaptive. The data were categorized according to multiple groupings to ensure the study's internal and external validity.

The design choice was quantitative, correlative, descriptive to assess the relationship between the independent and dependent variables. The independent, continuous (interval/ratio) variables of hospital bed size and urban/rural locations and the conditional, categorical variable of CEO gender were used to run a statistical regression analysis. Regression analysis addresses the relationships between variables to determine correlation and effect concerning statistical significance (Babbie, 2017; Laerd Statistics, 2018).

Methodology

I examined the target population in Texas nonprofit rural hospitals. Texas is a unique state with over 268,000 square miles of land with diverse topography and climate (Texas Almanac, 2017). Texas includes four distinctive regions: North Central Plains

covering most of Texas, Great plains, Range mountains in the extreme West, and Gulf coastal plains in the South near the Gulf of Mexico. Since 2020, the total population of Texas has included over 29 million people, growing over 4 million in the past decade, with over 3,075,260 people living in rural Texas (USDA Economic Research Service, 2022). Rural Texas covers 15% of Texas's overall population with shifting demographics (Cowan, 2016).

Population and Sampling

Inclusions

The total data population sample for this study was approximately 600 CEOs from the Datacaptive data set, and this was used after exclusions. The secondary data set consisted of a unit of analysis of over 600 de-identified CEO statistics. The independent variables were hospital bed sizes in nonprofit hospitals located in urban and rural Texas, categorized according to various dimensions. For hospital size, the sample population included the following: Group A hospital bed size was 50 to 99, Group B was 100 to 250; Group C was 251 to 500, and Group D was 501 and higher. CEO gender was operationalized as male (1) and female (0).

Exclusions

Exclusion criteria included CEOs from for-profit entities and city and state hospitals (Frankfort-Nachmias & Leon-Guerrero, 2018). Descriptive statistics of date of birth, address, zip codes, social security information, name, or other personal information were excluded. More details about exclusions are provided in Section 3.

Instrumentation and Operationalization

The analysis for this study included descriptive statistics, a linear regression analysis, and a Pearson correlation. Linear regression analysis addresses the relationships between variables to ascertain correlation and whether there is a statistically significant difference between the variables. Regression modeling, a predictive analytic, allows forecasting one variable to another (Wagner, 2017). Linear regression was conducted with interval and labeled scale variables. Descriptive statistics of hospital size and CEO gender included the output of each mean, standard deviation, and sample size. Pearson correlation, sig (one-tailed), with sample size output, was displayed. Albright and Winston (2017) indicated correlations are calculated between numerical or categorical values to assess to what degree each variable was related to the other variables. Pearson correlation addresses a relationship between two variables and gives rates between -1 and 1, where 1 is a positive, -1 is negative, and 0 is no correlational relationship (J. Liu et al., 2016). The dependent variable of CEO gender was categorized by binary values that preserved the order of categories and represented groups (Frankfort-Nachmias & Leon-Guerrero, 2018). To determine whether the sample size was sufficient, the G*power was used. Using the free G power analysis tool, G*Power 3.1.9.7, I determined the alpha error of probability of 0.05 was considered statistically significant (see Faul et al., 2007).

Power Analysis

Using G*Power 3.1.9.7, I calculated the necessary sample size required to answer the research questions with the independent and dependent variables. The a priori power analysis calculation was used to determine adequate sample size. The priori power of *F*

tests (linear multiple regression, fixed model, R2 deviation from zero) revealed an α error probability = 0.05 with 99% actual power (see Figure 2), indicating there was sufficient sample size for this study.

Figure 2

F Tests Linear Multiple Regression: Fixed Model, R2 Deviation From Zero Analysis: A Priori: Compute Required Sample Size

F tests – Linear multiple regression: Fixed model, R^2 deviation from zero

Analysis:	A priori: Compute required sample size	
Input:	Effect size f^2	= 0.15
	α err prob	= 0.05
	Power (1−β err prob)	= 0.9999999
	Number of predictors	= 2
Output:	Noncentrality parameter λ	= 57.3000000
	Critical F	= 3.0195367
	Numerator df	= 2

Research Questions and Hypotheses

RQ1: Is there a statistically significant relationship between the bed size of nonprofit hospitals and the gender of the CEO?

$H_0$1: There is no statistically significant relationship between the bed size of nonprofit hospitals and the gender of the CEO.

H_a1: There is a statistically significant relationship between the bed size of nonprofit hospitals and the gender of the CEO.

RQ2: Is there a statistically significant relationship between urban/rural nonprofit hospitals and the gender of the CEO?

$H_0$2: There is no statistically significant relationship between urban/rural hospitals and gender of the CEO.

H_a2: There is a statistically significant relationship between urban/rural hospitals and the gender of the CEO.

Detailed Analysis Plan

I used a quantitative correlational design. The independent and dependent variables were hospital bed size and urban/rural nonprofit hospitals, and the dependent variable was CEO gender. Multiple studies suggested female CEOs are underrepresented in hospitals, and I examined whether there was an association related to hospital bed size and rural/urban hospitals (see Burden et al., 2015; Larcker & Tayan, 2020; Silber, 2018). Findings were interpreted using the odds ratio and the p value of < 0.5 to ensure a statistically sound and appropriate study.

Statistics Package for Social Sciences (SPSS) and a Microsoft Excel spreadsheet were used for the data analysis. The data were entered into SPSS Version 25 (see Wagner, 2017) software package. Bed size data were categorized by large, medium, and small. The data were categorized to conduct the analysis, and rural and urban hospitals were given a description of R for Rural and U for Urban. CEO gender characteristics were categorized by a 1 for men and a 0 for women.

Table 1

Description and Operationalization of the Variables

Variable type	Variable name	Research question
Independent	Bed size	RQ1
Independent	Urban/rural nonprofit Hospitals	RQ2
Dependent	Gender	RQ1 and RQ2

Threats to Validity

External Validity

The Datacaptive data set obtained for this study may not be generalizable to the total U.S. population because the list contained no for-profit hospitals. Ellison (2021) found that 25% of community U.S. hospitals were for-profit, 57% were nonprofit, and 19% were owned by the state, county, or city. Texas is the second-largest U.S. state, with 52% for-profit community hospitals (Ellison, 2021).

Internal Validity

Errors in the secondary data may stem from human input error; however, the internal validity of the data concerned a population that can be sorted with objective information. There may have been discrepancies between hospital size, rural/urban locations, and gender categorized as male and female. There was no manipulation of the data concerning these categories, and therefore the internal validity was appropriate.

Ethical Procedures

Appropriate requests to use the secondary data set were granted by the Datacaptive company. The data set was downloaded and password protected with de-identified information. Once the data were obtained, they were uploaded from Microsoft Excel to SPSS Version 25. The Walden University Institutional Review Board (03-31-22-0724725) committee performed an ethics review and evaluated and approved the secondary data source.

Summary

Section 2 details the procedural steps used for this quantitative correlational study. A quantitative analysis was used to assess the possible correlations. SPSS was used to input the data, which was obtained from Datacaptive. A description of the statistical analysis for the variables concerning the relationship between CEO gender and the size of nonprofit hospitals and rural/urban locations of Texas hospitals was performed, and the types of analysis were provided. The internal validity of this study was vital because the variables were objective and could not be manipulated. This study may provide health care administrators with information that improves diversity in leadership. Section 3 provides the statistical findings of the data analysis.

Section 3: Presentation of the Results and Findings

The main objective of this quantitative correlational study was to examine whether there was a relationship between CEO gender and the size of nonprofit hospitals and rural/urban locations in Texas. Secondary data for the variables were obtained from Datacaptive, an industry and business marketing data source (see Datacaptive, 2020). The dependent dichotomous variable for this study was CEO binary gender (male and female). The two independent ordinal variables were the size of the hospitals categorized into five different sizes, and nonprofit hospitals categorized as urban and rural locations in Texas.

The competing values framework was the theoretical framework that grounded this study. This framework focuses on the perspective of the leader's role, management styles, and organizational culture (Azad et al., 2017; Lee et al., 2021). Hospital CEOs who influence the culture may display implicit bias to ensure leadership consists of like-minded members. Today's population demographics have changed; however, studies have shown that hospital board leaders predominantly select men to run hospitals (Alghamdi et al., 2017). The current study may provide increased awareness of gender disparity found among hospital CEOs, which may elicit the board of directors' reevaluation for internal succession planning, review of the hospital board's CEO hiring process, and a better understanding of possible factors associated with the hospital's bed size, location, and CEO gender. The following research questions and hypotheses were the focus of this study:

RQ1: Is there a statistically significant relationship between the bed size of nonprofit hospitals and the gender of the CEO?

$H_0$1: There is no statistically significant relationship between the bed size of nonprofit hospitals and the gender of the CEO.

H_a1: There is a statistically significant relationship between the bed size of nonprofit hospitals and the gender of the CEO.

RQ2: Is there a statistically significant relationship between urban/rural nonprofit hospitals and the gender of the CEO?

$H_0$2: There is no statistically significant relationship between urban/rural hospitals and gender of the CEO.

H_a2: There is a statistically significant relationship between urban/rural hospitals and the gender of the CEO.

Section 3 includes the statistical analysis of the Datacaptive data set using binary logistic regression, Mann U, and Kruskal-Wallis methods. Binary regression analysis and correlation techniques are used to assess relationships between an outcome variable or dependent variable and one or more predictor independent variables (Frankfort-Nachmias & Leon-Guerrero, 2018). Due to the variability in the data being nonparametric, the Mann U and the Kruskal-Wallis analysis were added to the analysis. The Mann-U test compares whether the distribution of the dependent variable is the same for two independent variable groups. The Kruskal-Wallis analysis is used for nonparametric data and to compare two or more groups of independent variableson a dependent variable measured at an ordinal level (Frank-Nachmias & Leon-Guerrero, 2018). Section 3

contains data collection of the total number of bed sizes of nonprofit hospitals in Texas, anomalies observed in the data set, gender characteristics, associated descriptive statistics, and the geographic landscape of the hospital locations. This chapter also addresses the analysis of the sample aggregate, followed by a summary of the results and interpretations.

Data Collection of Secondary Data

The data collected for this study from Datacaptive contained over 600 entries of nonprofit hospitals in 2019 from urban and rural geographical sites located throughout 254 counties of Texas. The data consisted of names and sizes of hospitals, location of the hospitals, employee size, and gender of CEOs.

Data Filter Exclusions

After a thorough review of the data, discrepancies were found, including missing values and inclusion of other nonprofit health care facilities such as dentist offices, home health clinics, and medical practice groups. A total of 120 data elements were excluded, leaving a new sample size of 460.

Descriptive Characteristics of Sample and Population

The independent variables included nonprofit hospitals measuring from small to large sizes, and the location of the hospitals whether urban or rural. Hospitals ranged from three beds to over 900 beds and were divided into five separate groups. Categories were created and given a value of 1 (1–49 beds), 2 (50–99), 3 (100–250), 4 (251–500), or 5 (500 and >). The geographic site of urban hospital settings was given a numerical value

of 1, and rural hospitals were given a numerical value of 2. Gender of the CEO values was male = 1 and female = 2.

The dependent variable gender showed a mean of 1.12 and a standard deviation of .32 for $N = 460$. For the independent variable location, a nominal variable, the mean was 1.3 and the standard deviation was .459. Gender showed more men at 88.5% (n = 407) than women 11.5% (n = 53). In bed size groups, 1 to 49 beds accounted for 39.6% (n = 182), 40 to 99 beds were 16.7% (n = 77), 100 to 250 beds were 20.2% (n = 93), 251 to 500 beds were 15.2% (n = 70), and 500 and greater beds were 8.3% (n = 38). Hospitals found within urban locations accounted for 70% (n = 322), while rural hospitals represented 30% (n = 138). Demographics and descriptive statistics are provided in Table 2.

Table 2

Demographics and Descriptive Statistics of Final Sample

Categorical variable			Gender			
	N	Valid %	Male	Valid %	Female	Valid %
Total sample	460					
Bed size	460		407	88.5	53	11.5
Bed size groups						
up to 49	182	39.6	163	89.6	19	10.4
50-99	77	16.7	67	87	10	13
100-250	93	20.2	83	89.2	10	10.8
251-500	70	15.2	60	85.7	10	14.3
500 and greater	38	8.3	34	89.5	4	10.5
Location						
Urban	322	70	280	87	42	13
Rural	138	30	127	92	11	8

Interval variables	Mean	Std Deviation
Gender	1.12	0.32
Location	1.3	0.459
Bed size groups	2.36	1.351

Figure 3 depicts the independent variable related to bed size, an ordinal variable, with a mean of 2.36, a standard deviation of 1.351, and $N = 460$.

Figure 3

Bed Size Groups

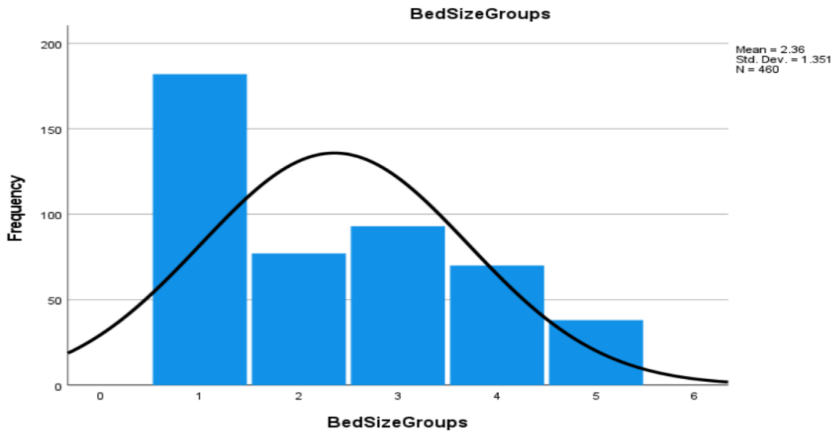
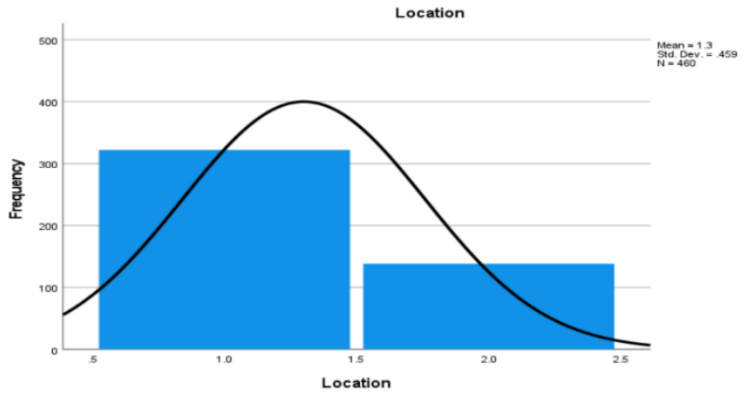


Figure 4 is a histogram of urban and rural locations with a mean of 1.3, a standard deviation of .459, and $N = 460$.

Figure 4

Location: Urban and Rural



Descriptions of the variables are provided in Table 3. The table displays information about the relationships between the dependent variable of gender, the independent variable of bed size for hospitals in Texas, and the independent variable of

urban and rural hospitals located in Texas. These results revealed a way to explore gender diversity for hospital CEOs for nonprofit hospitals in Texas.

Table 3

Description of the Variables

Variable	Level of measurement	Variable type	Description
Gender	Nominal	Dependent	The gender of the CEO of Nonprofit hospitals in Texas
Bed size	Ordinal	Independent	Bed size of the Hospitals in Texas
Urban and rural hospitals	Ordinal	Independent	Location of hospitals in Texas

Study Results

did not work with parametric distributions, the assumption of a nonparametric test was met using the Mann-Whitney U to examine the association between bed size and CEO gender. The assumption of a nonparametric test was met using Kruskal-Wallis to determine the association between urban and rural locations to CEO gender. According to Schober and Vetter (2020), the Mann-Whitney U analysis compares two groups of cases on one variable, and the Kruskal-Wallis test can be used when parametric tests do not meet the assumptions.

Results of Statistical Analysis for Research Question 1

Research Question 1 was the following: Is there a statistically significant relationship between the size of nonprofit hospitals and the gender of the CEO? To examine the association between nonprofit hospital bed size and CEO gender, I used SPSS with a 99% CI. The sample size of the independent variable (bed size) was 460. Table 4 depicts the descriptive statistics of men and women, with men at 407 (88.5%) and women at 53 (11.5%).

Table 4

Overall Bed Size and Gender Mean and Sum of Ranks

Variable	Gender	*N*	Mean rank	Sum of ranks
Bed size	Male	407	229.87	93558.5
	Female	53	235.31	12471.5
	Total	460		

When total bed size was compared to the grouping variable gender, the Mann-Whitney U test (U) = 10530.500, and the Sig (two-tailed) or p value of .779 was more significant than the conventional threshold of .05, indicating that there was no association between bed size of hospitals and CEO gender (see Table 5).

Table 5

Mann-Whitney U, Wilcoxon W, Z, Asym. Sig (two-tailed)-Bed Size

Statistical analysis	Bed size
Mann-Whitney *U*	10530.500
Wilcoxon W	93558.500
Z	-0.280
Asymp. Sig. (two-tailed)	0.779

a. Grouping variable gender

Table 6 shows results of the Mann-Whitney (*U*) test for categorized bed size 1 (0–49) = 1548.500, bed size 2 (50–99) = 335.000, bed size 3 (100–250) = 415,000, bed size 4 (251–500) = 300.00, and bed size 5 (500 and greater) = 68.00. The *p* value of each test resulted in 1.000, which was more than the conventional threshold of .05, indicating no associations with each category size of the hospital and female or male CEO gender.

Table 6

Mann-Whitney U Results for Gender and Bed Categories Size 1–5

Mann-Whitney Test

			Gender		Mean Rank		*U*	*W*	*p*
Variable	*n*	*%*							
Bed Size			Male	Female	Male	Female			
1 (0-49)	182	39.6	163		91.5		1548.500	1738.500	1.000
				19		91.5			
2 (50-99)	77	16.7	67		39.00		335.000	390.000	1.000
				10		39.00			
3 (100-250)	93	20.2	83		47.00		415.000	470.000	1.000
				10		47.00			
4 (251-500)	70	15.2	60		35.00		300.000	355.000	1.000
				10		35.00			
5 (500 and greater)	38	8.3	34		19.50	20.825		78.000	1.000
				4		19.50			
Total	460	100	407	53	229.87	235.31			

The independent variable (bed size) was not statistically significantly associated with CEO gender (the dependent variable). Therefore, the results did not meet the determination that there was a significant difference ($p < 0.05$) in the association between hospital bed size and CEO gender. An independent samples *t* test was used to determine whether there was a statistically significant difference between the means of two different groups (see Creswell & Creswell, 2018). The Levine test showed $F = 141$, Sig. = 707. For equal variances not assumed, results showed $t = .147$, $df = 71.881$, and one-sided and two-sided *p* significance greater than the conventional *p* value of .05 (.442 and .884). The *t* test for equality of means showed a 4.037 mean difference with a standard of error of 27.57 (see Table 7).

Table 7

Independent Samples Test for Bed Size-Leven's Test for Equality of Variances

Levene's Test			t-test		Sig				95% CI	
Variable **Bed Size**	F	Sig	t	df	One-Sided p	Two-Side d p	Mean Differenc e	Std. Error Differenc e	Lower	Upper
Equal Variances assumed	0.141	0.707	0.130	458	0.448	0.897	4.037	31.081	-57.042	65.116
Equal Variances not assumed			0.147	71.881			4.037	27.557	-50.899	58.974

A binary logistic regression model was then created to predict gender with dependent variable encoding (0=male, 1=female). Categorical variable codlings showed the frequency of each bed size group. Iteration step 0 from 1-5 showed -2 log likelihood 327.747. Estimation terminated at iteration number 5 because parameter estimates changed by less than .001. A review of the data and methodology was sufficient to confirm the dependent variable was not bivariate, and the bed size group was independent. The overall prediction of the gender showed no relationship to the bed size results (Cox & Snell .002 and Nagelkerke $R^2 = .004$). The results did not meet ($p = .666$) the determination that there is a significant difference ($p < 0.05$) in the association between bed size and gender. Therefore, we reject the alternative hypothesis and retain the null hypothesis. Table 8 describes the logistic regression results of bed size group 1-5 categories and their relationship with gender.

Table 8

Binary Logistic Regression Bed Size Categories and Gender

Variable	-2 Log likelihood	Cox & Snell R square	Nagelkerke R square
Bed Size Category			
1	121.807	0.000	0.000
2	59.466	0.000	0.000
3	63.484	0.000	0.000
4	57.416	0.000	0.000
5	25.574	0.002	0.004
Overall	327.747	0.002	0.004

Summary Results of Research Question 1

Research Question 1 attempted to determine if there was an association between the bed size of nonprofit hospitals in Texas and CEO gender. Logistic regression and Mann U test were utilized with a 99% confidence level resulting in the independent variable of bed size was not statistically significant in association with the CEO being male or female. In assessing the relationship between gender and bed size group (BSG), the results indicate that there is a consistently higher percentage of males (85-89%) than females (10-14%). These results indicate two findings. First, more hospitals are smaller in size with beds ranging from 1 to 49, with the next size at 100-250 beds. The additional bed sizes of 50-99, 251-500, and 500 and above had an average of 70 beds. Second, there is a wide disparity between male CEOs (averaging 87%) and their female counterparts (average 13%). Logistic regression and Mann U analyses concluded a p value high above the conventional threshold of a significant $p < .05$. The results, therefore, indicate the alternative hypothesis was rejected and we retain the null hypothesis. From the analysis, I concluded there was no association between the size of hospitals, either small or large, and the gender of the CEO, as there was no statistically significant relationship or

association between the independent variable of bed size and the dependent variable CEO gender.

Statistical Analysis for Research Question 2

Is there a statistically significant relationship between urban/rural nonprofit hospitals and the gender of the chief executive officer? A second statistical binary logistic regression was conducted to predict gender, dependent variable encoding (0=male, 1=female). Categorical variable coding showed location urban (322) and rural (138) frequency. The variables in the equation resulted in *B. -549, df 1, sig .122*. Table 9 binary logistic regression results show iteration history resulting in -2 Log-likelihood of *326.110*, Cox & Snell R square *.006*, and Nagelkerke R square= *.011*. When the dependent variable was tested separately with the independent variable urban and rural, test results showed (*U)* -2 Log-likelihood *249.365,* Cox & Snell R square *.000*, Nagelkerke R square *.000* and *Rural (R)* -2 Log-likelihood *76.745,* Cox & Snell R square *.000,* Nagelkerke R square *.000.*

The results did not meet ($p = .122$) the determination that there is a significant difference ($p < .05$) in the association between the location of the hospital, urban or rural, and gender type. The independent variable (urban and rural) was not statistically significant with CEO gender (dependent variable) and was greater than the conventional threshold of $(p < 0.05)$. Therefore, indicating there is no association between the urban and rural location of hospitals and CEO gender.

Table 9

Binary Logistic Regression of Gender and Urban/Rural Location

Variable	Male	Female	Total	*2 Log likelihood*	*Cox & Snell R2*	*Nagelkerke R2*
Urban	280	42	322	249.365	.000	.000
Rural	127	11	138	76.745	.000	.000
Total	407	53	460	326.110		

The Kruskal Wallis test was used to examine if there was an association between the grouping of hospital location and the gender of CEO. Table 10 shows urban hospitals consisting of n = 280 males and 42 females. The Rural hospitals consisted of n =127 males and 53 females with a mean rank of 161.5. The mean rank was the same for males and females in urban (161.5) and rural at (69.5), chi-square of 2.438, and p .118.

Table 10

Kruskal Wallis Test Gender and Locations

Variable	Male	Female	Total	*Mean Rank Male/Female*	*Chi-square*	*p*
Urban	280	42	322	161.5	2.438	.118
Rural	127	11	138	69.5		
Total	407	53	460			

Table 11 shows the grouping of location and gender with *Kruskal-Wallis =2.433, df 1, p=.119*. The *p value of .119* is more than the conventional threshold of significant $p < .05$. The results, therefore, did not meet the determination that a significant association is evident between the independent variable location of the hospital (urban, rural) and the dependent variable, the gender of the CEO.

Table 11

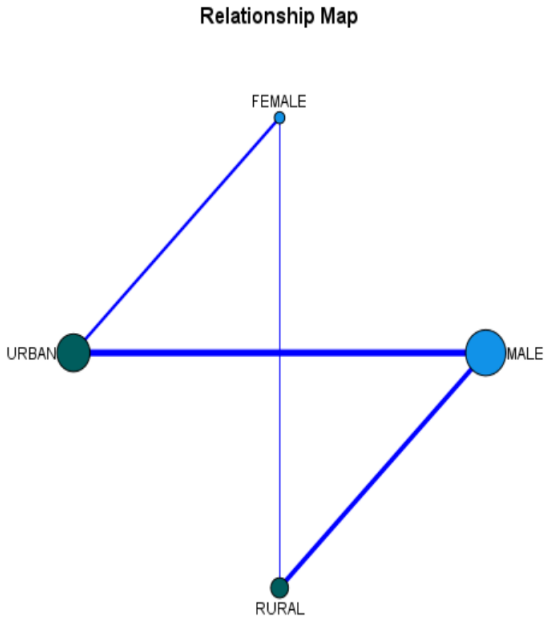
Kruskal-Wallis Test, df, Asymp Sig for Grouping Variable of Gender and Location

	Location
Kruskal-Wallis H	2.433
df	1
Asymp. Sig.	0.119
a. Kruskal Wallis Test	
a. Grouping Variable: Gender	

Figure 5 shows a relationship map indicating color and linear strength and connection rank of male, female, and urban/rural locations.

Figure 5

Relationship Map of Gender and Location



Note. Each node shows the relationship rank of male, female, and urban/rural locations

Summary of Research Questions Results and Hypothesis

Results of Research Question 1, which attempted to establish a relationship between hospital bed size and the gender of the CEO in Texas, show that the *p-value = .779,* and therefore, the results did not meet the determination that there was a significant difference *($p<0.05$*) in the association between bed size of the hospital and CEO gender. Therefore, we reject the alternative and retain the null hypothesis. The results of Research Question 2, which explored the association between the location of urban or rural hospitals in Texas and the gender of the CEO, showed a *p value .119,* which is greater than the conventional threshold *($p<0.05$*) in the association between urban and rural hospitals and CEO gender. Therefore, we reject the alternative hypothesis and retain the null hypothesis.

Summary

Section three provided a detailed account of the analysis of the sample aggregate, data collection, binary gender characteristics, associated descriptive statistics, and geographical landscape of hospital locations with findings, and the statistical analysis used to determine the association between bed size of hospitals and gender of the CEO. The collection process, results of descriptive statistics, binary logistic regression, Mann-Whitney U statistical methods, and Kruskal-Wallis were used. This section also examined the assumption of nonparametric tests and Kruskal-Wallis to determine the association between urban and rural locations to CEO gender. Several methods were applied to find an association; however, regardless of the methods used, the results demonstrated no statistical significance. While there was no statistically significant

association between the size and location of hospitals and the gender of the CEO, there was a considerable equity disparity between the number of male and female CEOs. This doctoral study helped to answer an inherent question. Next, Section 4 highlights the analysis of the results and findings of the research questions and interpretations utilizing the Competing Values Framework. Additionally, the section highlights this study's limitations, recommendations, and concluding parts of the doctoral research.

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

The principal objective of this quantitative correlational study was to address the research gap in the relationship between hospital CEO gender and the size (categorized from smallest to largest) of nonprofit hospitals and location (rural and urban) in Texas. The results from the binary logistic regression, Mann-Whitney U, and Kruskal-Wallis statistical analysis indicated no significant association between the CEO gender and hospital bed sizes ranging from 1 to 5 (small to large) and the location of the hospitals. In Section 4, the interpretation of findings, study limitations, and recommendations for future research analysis are presented. A discussion of the study's relevance and implications for professional practice and social change is also provided. Additionally, I consider the findings through the lens of the competing values framework and the logical connection between the framework and the nature of size and location of the hospital and CEO gender.

Interpretation of the Findings

Research Question 1 Analysis

The study findings showed no statistically significant relationship between bed size of nonprofit Texas hospitals and CEO gender, with a p value of 1.000 well above the conventional threshold of a significant $p < .05$. The results of the data set analyses showed high prevalence of male CEOs in each of the five different bed size categories. Specifically, a higher prevalence of male CEOs was found in bed size 1 (0–49) with a *MR* of 91.5 and in bed size 3 (100–250) with a *MR* of 47.00. The results

indicated no statistically significant difference between the bed size of nonprofit Texas hospitals and the gender of CEOs; therefore, the null hypothesis was retained.

Although the results indicated no significant statistical association, a disparity in the number of male CEOs compared to female CEOs in the overall sample size was noted and was not surprising. Because few studies had addressed gender and hospital size, the current study was conducted to fill the gap by focusing on the hospital industry and gender diversity (see Mkwandawire, 2017). The results of this study align with the research of Soklaridis et al. (2017) who studied gender bias among women hospital CEOs in a male-dominated hospital executive leadership milieu. The study found a few women felt they could get a position only in community general hospitals, while males were placed in the large academic hospitals. Most of the women felt they progressed to the CEO level without being discriminated against because of their gender. Comparable to Larcker and Tayan's (2020) study, I found shortages of female leaders in major academic institutions. Silver et al. (2018) noted women make up 4% of CEOs and 19% in larger hospitals, while I found 11.5% of CEOs are women, with 10.5% at larger hospitals. This indicates a possible paradigm shift in female CEOs; however, increased representation of female CEOs at larger institutions is still lacking.

Research Question 2 Analysis

The findings indicated no significant association between urban/rural nonprofit hospitals and the gender of the CEO, with $p = .122$, which is higher than the conventional threshold of 0.05. Therefore, the null hypothesis was retained. The results of this study indicated more nonprofit hospitals within Texas urban territories than their rural

counterparts, $U = 322$ and $R = 138$. The percentage of male CEOs from the results of this study was higher in both locations, $U = 87\%$ and $R = 92\%$ (13% and 8% in women) and increased within *R* topography. In contrast, Lewellen (2020) found more female CEOs in densely populated urban areas. However, the results of the current study align with the research of Mose (2021), who stated that women's likelihood of being a COO, the pathway to being a CEO, showed a decrease of 54% in the Northeast region of the United States, and in the Midwest and South regions women were respectively at 18 and 13 percentage points lower in the probability of becoming a COO. A significant difference was not found between the female gender of CEOs and the location of nonprofit hospitals, with a $p < 0.05$; therefore, the null hypothesis was retained.

Findings to the Literature

The findings of this study reaffirm the need for hospital boards to assess current hiring practices to level the inequity of women leading hospitals. Although current results showed no statistical significance, the data showed men superseded women in all bed sizes of nonprofit Texas hospitals, regardless of location. The CDC (2020) reported a higher percentage of women than men throughout the U.S. population, yet a wide disparity continues between leadership CEO roles of women leading hospitals. Although more women are rising to top levels of companies, there is still underrepresentation at every level (McKinsey & Company, 2020). In this era of diversity, there is heightened awareness of equal opportunity and so everyone has a chance to grow and advance. Women holding the same positions as men in the workplace fosters a diverse culture, reduces gender gaps, and creates a better road to equality (McKinsey & Company, 2020).

Furthermore, examining the diversity pipeline of new CEOs and hospital board hiring practices is imperative to create awareness for positive social change.

Findings to Theory

Researchers had studied the relationship between hospital leader position and financial and quality outcomes; however, few had attempted to determine the association of size of hospitals and urban/rural location with CEO gender in Texas. The current study was based on the competing values framework, which grounded this study with the perspective of organizational culture and the hospital leader's role. There had been no similar study in my review of the literature.

According to Cameron and Quinn (2011), there are two competing prioritizing dimensions (first and second) that leaders face within organizations. When the leader engages the organization from internal or external activities (first dimension), they choose to be either flexible or maintain stability (second dimension). According to Joseph and Kibera (2019), applying this competing values framework to the association between gender and the size of a hospital can encourage an innovative workplace with cultural diversity, including leadership gender, which contributes to innovation.

Applying the framework aids in an innovative culture leading to strong hiring and performance review process. Diversity targets require diverse slates for hiring and promotions to establish clear and consistent evaluation prior to beginning the process, which is the foundation for diversity and minimizes bias in decision making. Furthermore, utilizing this process aids in driving pipeline diversity leading to employee satisfaction in viewing the hiring process as fair and equitable.

Limitations of the Study

There were several limitations that may have impacted the reliability, generalizability, and validity of the study results. Because data sets were not available to the public, I could not access them despite the formal request and maintaining membership in several hospital associations. Therefore, I had to seek out a marketing company that had access to the required data. As required by Walden University, the data were not assessed prior to initiating the study concerning the data source selected from the Datacapative company. Because of this, the calculations of the data for linear regression were not as simple as originally proposed. Once approval for the study was provided by the Walden Institutional Review Board, the data were downloaded, and I discovered the data variables were not normally distributed and, therefore, required unexpected nonparametric testing.

The data set included only nonprofit hospitals and did not include all hospitals within Texas. More than 52% of Texas hospitals are private (Ellison, 2021). Additionally, I examined only the association of CEO gender and Texas nonprofit, urban/rural locations. I did not examine the relationship of CEO gender with all hospital types within the nation. Moreover, there were multiple definitions for rural counties in Texas, which created confusion and may have resulted in not capturing all rural and urban hospitals in Texas. For example, the Texas Workforce Commission categorizes any county with a population of 10,000 or less as rural; the Texas Department of Agriculture defines rural as 150,000 or less; and the Texas Medical Board accepts only counties with a population of 5,000 or less as rural based on the most recent decennial census, which leaves out many

counties (Brown, 2019). Lastly, the limitations of this study included the use of binary gender. In today's era, the opportunity for nonbinary gender associations should be explored (Rushton et al., 2019).

Recommendations

The limitations of this study indicated the need for future scholars to explore various locations locally, nationally, and perhaps internationally. It is recommended that future researchers expand the scope of this study to all types and sizes of hospitals to determine differences in the association of CEO gender and hospital location and size among the states. This expansion could highlight the larger gap between binary and nonbinary gender CEOs and its association with hospital size and location.

With Texas's population growth rate of 16% in 2021, doubling the growth of the nation (7.4%), a reevaluation of urban versus rural geographies is needed (Texas Demographic Center, 2021). Additionally, it is recommended that this type of research include data established by Texas or the American Hospital Association. Lastly, a reliable process for confirming data by contacting hospitals should be considered, as the secondary data may be missing information.

Implications for Professional Practice and Social Change

In today's era of diversity and inclusion, more attention should be focused on gender equality throughout many institutions including health care. Women are still underrepresented in the CEO positions within the hospital industry, in both large and small nonprofit organizations. With mostly men identified as CEOs in Texas hospitals, this may lead to a larger systematic issue requiring an in-depth review of the HSOs'

hiring process including pipeline and succession planning within Texas and the nation at large (Soklaridis et al., 2017). Organizational infrastructure may cause men and women to be promoted differently into CEO positions; therefore, the results of this study could lead to further studies on gender and various type of hospitals, in various locations, throughout the nation and internationally. Further research may lead to strategies to decrease the gap of inequality and strengthen workplace culture.

Conclusion

This study revealed no statistically significant association between CEO gender and nonprofit hospital bed size and urban/rural locations in Texas. Although a large number of male CEOs was found throughout Texas hospitals, there was no relationship between the size of hospitals (divided into five separate groups) and the CEO gender. Overall bed size and gender showed a consistently higher percentage of men than women. When assessed by bed size, logistic regression showed no association. CEO gender was tested separately with urban and rural locations, which resulted in no association between the location of the hospital and gender type.

This study did have limitations, such as only 460 data points to use from originally over 600, only nonprofit hospitals, and only Texas hospitals. Further research is recommended to examine gender and its association with all hospital types throughout the nation and the world, as doing so may provide critical information on hiring practices, the pipeline backfill process, and identify any gaps in practices among hiring boards throughout different communities. The current study may serve as a guide for inquiry into human resources career options for aspiring CEO enthusiasts, may provide a call to

action for board leaders to review current CEO selection practices, may encourage boards to address pipeline backfill methods and address disparity among leaders. Addressing gender diversity and reducing the gap may help health care leaders develop institutions that reflect the changing diverse community landscape and demonstrate equality for both men and women.

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