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Reducing Cost of Healthcare Facilities by Decreasing Nursing Turnover

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Walden University
2019

Abstract

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MS, University of Phoenix, 2010

BA, North Carolina Central University, 2003

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Healthcare Administration

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Abstract

Registered Nurse (RN) turnover is costly for hospitals and healthcare facilities. The problem that healthcare administrators face today is their inability to retain nurses for long periods of time and the detrimental effects that come from the lack of retention. The purpose of this quantitative secondary data analysis is to explore the relationship between the retention of RNs and the geographic regions in which they work. The theoretical framework for this study was Barney's concept of viewing people as resources. Deidentified secondary data of RNs was utilized from the Healthforce Center at the University of California San Francisco to probe differences in retention rates between full-time and part-time RNs and the differences in retention rates between new graduate and specialty RNs in California geographic regions. The data was analyzed through descriptive and inferential statistical techniques to perform a *t* test of independent means. As a result, it was determined that there was no significance in geographic regions in California influencing the retention rates of full and part-time RNs neither was there a significant finding that geographic regions in California influence the retention rates of new graduate RNs or specialty nurses. It was concluded that the retention of RNs is determined by how well they are maintained and managed. A recommendation would be to investigate retention strategies that create longevity among RNs. This study can contribute to positive social change by having a cohesiveness that builds trust and creates a better work environment and positive outcomes for healthcare facilities which will reduce overall cost.

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Dedication

I dedicate this study to my children, Jennifer and Shannon, who sacrificed mommy/daughter time countless days, nights and weekends so that I could study and write. My hope is that when you are looking for strength, a role model, a superhero, or black girl magic, you look no further than the woman standing in your corner every single day. I thank God for you both and I love you both beyond the words in my vernacular. I also dedicate this study to my wonderful husband, James Richardson, III who has stood by my side through this journey. You have been my calm, my sounding board and my rock. You have no idea how much I love you. “Now unto Him that is able to do exceedingly, abundantly above all that I could ever ask or think according to the power that is already working in me”- Ephesians 3:20

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Introduction

Turnover of healthcare workers, particularly nurses, are on the rise with no signs of decrease (Halter et al., 2017). Nurses are integral to hospitals as they balance communication and workflow between the patient and the physician (Paulsen, 2018). It is difficult to maintain consistency within a hospital when there is constant turnover of staff, especially when that turnover is within the first year or shortly thereafter (Brook, Aitken, Webb, MacLaren, & Salmon, 2019). Therefore, patient satisfaction, quality of care, a healthy workplace environment and financial fitness heavily relies on the stability of nurses and how to reduce turnover.

According to Nursing Solutions Incorporated (NSI, 2017), 2017 held the highest recorded rate of hospital turnover for nurses. Turnover in this group (nursing) more so than other staff groups in a hospital is costly and can be very detrimental to a hospital. Nursing turnover needs to be studied to provide hospitals a baseline dollar amount of how much money could potentially be saved if nursing staff were retained. This is especially true for rural versus urban areas. Multiple researchers have discussed hospital turnover as it relates to cost, but these results are inconsistent. Mainly, because hospital turnover has various definitions and it depends on the researcher as to how they define turnover (Brook et al., 2019). These studies also focus on factors as it relates to the quality of care and/or impact on the environment, but not specifically cost. Furthermore, these studies do little to explore the impact of nurse turnover and retention as it relates to geographic regions. The potential positive social change from this study is that hospital

administrators may begin to spend money investing in the retention and longevity of its nursing staff, especially in geographic regions where nurse population is low, instead of losing money with all the cost associated with the hiring of new nursing staff due to turnover.

Problem Statement

For over two decades, there have been multiple documented reports on how nurse staffing effects patient outcomes and quality measures in healthcare facilities (Harrington, Schnelle, McGregor, Simmons, 2016). In 2017, even though nurse turnover declined according to one report, on average it still cost a hospital from $38,900 to $59,700 per nurse which resulted in a loss of $5.13M-$7.86M per year (NSI, 2017). The issue that hospital administrators are facing today is their inability to retain nursing staff for long periods of time and the negative effects that come from this lack of retention. One issue with the retention of nursing staff is location. The nursing workforce varies depending on the geographic location of a hospital. Rural healthcare settings have reported a lower number of nursing staff versus urban healthcare settings (Lasala, 2017). Some of the key issues contributing to this disparity is salaries, population of patients, and the difference in rural versus urban economy (Lasala, 2017). Funding for the recruitment and retention of nurses is sometimes unevenly distributed. Giving more to areas that are heavily populated and less to areas that are sparsely populated thus leading nurses to go towards areas where salaries are higher. Shortages in some geographic areas stem from the lack of the specialty of nurses in that region (Haddad & Toney-Butler, 2019). For example, critical care registered nurses and labor and delivery registered

nurses may have a greater shortage in some rural areas of a region versus other rural or urban areas of a region.

Researchers have predicted that the retention of nurses will be a global issue by the year 2030 (Mills, Woods, Harrison, Chamberlain-Salaun, & Spencer, 2017). Nurses not only spend a lot of time with patients, they also spend a lot of time with the physician. Registered Nurses (RNs), especially new RNs, like a sense of cohesion and support. When these factors are overshadowed by heavy workloads and being overwhelmed, they feel as though the work they do no longer matters which increases their intent to find work elsewhere (Mills et al., 2017). When a nurse leaves knowledge and information are also lost. The environment of the hospital also changes. The physician must now spend time rebuilding trust, the nurse must build positive relationships with the other staff members and patients (Hayward, Bungay, Wolff, & MacDonald, 2016). It is a process that must be learned all over and hospital staff must allot for errors and mistakes which are all part of the learning pains when a new employee comes onboard.

Purpose of the Study

The purpose of the quantitative study was to explore the relationship between the retention of registered nurses and the geographic regions in which they work. There are many changes occurring in healthcare related to cost and quality of care. Nurses will have key roles in the upcoming years regarding these changes and the areas in which these changes occur will have a major impact on the position of nurses in geographic regions (Salmond & Echevarria, 2017). This descriptive research study explored the difference in retention rates among registered nurses across six regions from the State of California;

Sacramento and Northern California, San Francisco Bay Area, Central California, Los Angeles, Inland Empire and Southern Border.

Independent variables are variables that has an influence over some other variable (Flannelly, Flannelly, & Jankowski, 2014). The independent variable in this research study is geographic regions. Specifically, the independent variable of geographic regions in the State of California (Sacramento and Northern California, San Francisco Bay Area, Central California, Los Angeles, Inland Empire and Southern Border). The presumed effect of the cause and effect relationship is known as the dependent variable (Flannelly et al., 2014). In this research study the dependent variables are retention rates, new graduate RNs with a bachelor's degree (BSN) or higher in nursing and specialty RNs (nurse anesthetists, clinical nurse specialists, nurse midwives and nurse practitioners). The intent of this study was to find out the differences in retention rates between full-time and part-time registered nurses and if there are differences in retention rates between new graduates and specialty nurses.

Research Questions and Hypotheses

This quantitative descriptive study was solely based on relationship between two variables; therefore, the research question is a relationship-based question. When a researcher is looking to see if there is a relationship between two or more variables that relationship can be causal, by association, trends and/or interactions (Bettany-Saltikov & Whittaker, 2013). Designs that can be used in such studies are experimental, quasiexperimental or correlational based. An experimental research design allows the researcher to examine two or more variables. Experimental designs are best used when

determining the differences in variables while correlational designs are best used when looking for patterns or relationships (Bettany-Saltikov & Whittaker, 2013). Quasiexperimental designs establish the cause and effect between variables (Bettany-Saltikov & Whittaker, 2013). This study will use the descriptive method to help establish if there is an association between the variables.

The research questions of this study and the null and alternative hypothesis are as follows:

Research Question 1: Are there differences in retention rates between full-time and part-time registered nurses in California geographic regions?

H_a1: Geographic region does influence the retention rates of full and part-time registered nurses in California.

H_01: Geographic region does not influence the retention of nurses of full and part-time registered nurses in California.

Research Question 2: Are there differences in retention rates between new graduates (BSN or higher) and specialty nurses (nurse anesthetists, clinical nurse specialists, nurse midwives and nurse practitioners)?

H_a2: Geographic region does influence the retention rates of new graduates (BSN or higher) and specialty nurses (nurse anesthetists, clinical nurse specialists, nurse midwives and nurse practitioners).

H_02: Geographic region does not influence the retention rates of new graduates (BSN or higher) and specialty nurses (nurse anesthetists, clinical nurse specialists, nurse midwives and nurse practitioners).

Theoretical Foundation for the Study

The major theme of this study of minimizing cost by reducing nurse turnover is from Barney's (1991) concept of viewing people as resources. This theoretical framework has strong implications in economics and the business arena. However, if administrators looked at caring for people who are sick as a business and ensuring that strategic financial business decisions are being made then perhaps more care and consideration would go into focusing on how to retain employees instead of replacing employees with such ease. Barney's concept of viewing people as resources has its foundation rooted in the Penrosean (Edith Penrose) theoretical framework of strategic management and organizational economics (Kor & Mahoney, 2004).

Penrose in 1959 wrote and published a book that explained her belief that firms are first administrative (people) in nature not productive first. Her belief was that firms build financial wealth not just because they have resources, but how well they effectively manage the resources they have (Kor & Mahoney, 2004). Thus, it is the people within the firm that make it productive and, in her theory, it is the people who help to build the financial wealth of the firm. If the administrative framework is off, then the firm is less productive. Penrose second belief was that there is a link between managerial resources and future leaders within the organization (Kor & Mahoney, 2004). When there are opportunities for growth within an organization that makes for fresh new ideas which helps to keep a firm innovative and alive which builds more economics. Lastly, she believed that top managerial and technical staff are the drivers of a firm and they have the power to shape the rate and direction in which a firm is going (Kor & Mahoney, 2004). A

strong firm is built around the versatility of its people. When a firm is built with versatile people, they all bring something different to the table and have the potential to allow that firm to have a competitive advantage over another (Barney & Arikan, 2001). Overall, Penrose felt that when an organization is using its people at their optimal performance level there is opportunity for financial profitability.

Barney built on this theory beginning in the mideighties. He recognized that there was major competition among firms over resources. Whoever had the best resources had a better economic advantage. Resource-based theorists such as Barney believes that firm specific investments are resources that can generate income (Barney & Arikan, 2001). In other words, when an organization invests in its people, they will in turn produce quality services for the organization which will generate the income. Barney suggested that for a firm to be consistent and create maximum performance there must be some strategic structure as to how a firm acquired and maintains its resources (Barney & Arikan, 2001). Barney introduced a concept known as strategic factor market to understand the financial costs it takes to implement a strategy. These "markets" have flaws when there are expectations about the future value of what a resource is able to bring to the table (produce) for a firm versus what that actual value is and when other firms understand the value of that resource more so than others (Barney & Arikan, 2001). Administrators need to show value in their resources (nurses). However, administrators may be fearful of placing too much value in a nurse when they know nurses are plentiful and will easily resign for "the next best opportunity".

This thinking may be flawed because people will want to stay where they feel a sense of connection, appreciation, and value. A hospital which values their nurses will do what is necessary to show them how much they are appreciated and valued and that becomes a place of purpose and a place where nurses would want to stay and would want to work hard to ensure the quality of care to patients. Longevity in staff produces better quality of care (Stevie, Ashley, & Lisa, 2015). If staff remained in a place of employment for an adequate amount of time there is the potential that hospital costs overall would be reduced as evidenced by lower adverse events, increased patient satisfaction and a retention of knowledge.

Nature of the Study

A quantitative methodology using secondary data analysis was used for this study. A quantitative method was most appropriate for this study as it allows the researcher to explore the relationship between two or more variables. Quantitative methods help a researcher to use data in numerical form to confirm a hypothesis from which a highly structured method was used to gather the data (Bettany-Saltikov & Whittaker, 2013). As a result of using a quantitative method, the researcher can provide objective, statistically accurate answers to the research questions.

The key variables in this study are; registered nurses, geographic regions, and retention. The independent variable is geographic regions in California, which is divided by Sacramento and Northern California, San Francisco Bay Area, Central California, Los Angeles, Inland Empire, and Southern Boarder. The dependent variable in this quantitative study is retention and registered nurses. The information obtained for this

study was collected by the Healthforce Center at UCSF. The Healthforce Center at UCSF believes that the most important thing in health care is human capital (healthforce.ucsf.edu). Data was analyzed using the Statistical Package for Social Sciences and Microsoft Excel. The information obtained for this study was collected by the Healthforce Center at UCSF. The instrument used for the study was developed around 2010 by the State of California Nursing Workforce Center (J. Spetz, personal communication, May 17, 2019). The survey was electronically powered by Qualtrics Platform and follow-up surveys was completed by telephone to increase the response rate (J. Spetz, personal communication, May 17, 2019). Data were also received from the Hospital Association of Southern California who conducts surveys on vacancies and turnover (J. Spetz, personal communication, May 17, 2019).

Literature Search Strategy

There was a delicate balance between understanding the retention of nurses as it related to the turnover of nurses and hospital costs. There have been many studies that connect hospital costs and retention of nurses. There have also been many studies that focused on various factors of the retention of nurses and the overall quality of patient care and how that all tie into costs. However, there have been no studies in the United States that examined turnover and retention as it relates to nurses in geographic locations and how this all relates to hospitals losing money due to nurse turnover. In the end, there are many factors that contribute to nurse turnover, nurse turnover does affect over all hospital costs, and it is important to know and understand how the retention of nurses can help save money for hospitals in the future.

This literature review was conducted through Google Scholar, ProQuest, ResearchGate, EBSCOhost, Sage, Journal of Nursing Management, and National Center for Biotechnology Information (NCBI), using keywords nurse turnover, hospital turnover, nurse retention, registered nurse turnover, hospital costs, nurse turnover rates, and turnover costs geographic location, geographic regions. These words were key themes that related to understanding hospital costs, retention and the turnover of their biggest staff-nurses. The literature review included journals, peer-reviewed articles, books, hospitals, and government websites. The total number of resources used in this study altogether was sixty-three. The total number of resources used in this literature review was twenty-seven and all peer-reviewed journals and peer-reviewed articles were published within five years of the anticipated approval of the Walden University Chief Academic Officer.

A Review of the Professional and Academic Literature

Turnover in any industry can be expected. There are varying reasons why one may decide to leave their place of employment. When working in healthcare, rapid or constant turnover can affect the quality and efficiency of healthcare. Studies have been done that highlight nursing turnover and its relationship to poor quality of care, negative patient satisfaction, and adverse events. Many of these studies call for retention of nurses and things that healthcare personnel can do such as; better orientation processes, offering nurses more money, and improving relationships among doctors and nursing in order to improve on these factors. None of these studies go in depth to examine how geographic

locations can also play an important role in whether a nurse chooses to leave or stay in their current place of employment.

The challenge has been connecting all these factors (poor quality, negative patient satisfaction, human resource time, adverse events, etc.) that occur in a hospital to nursing turnover financially. In other words, the amount of money that is lost due to rapid and/or frequent nursing turnover. Nursing turnover not only has financial pitfalls towards human resources when it comes to the gaps in employment, it also has detrimental effects on the entire healthcare facility. Nurses have the most interaction with patients on any given day. They monitor and take vitals, answer patient calls for medication and other items of comfort, and much more. Most of the time the patient makes a connection with the nurse first before making a connection with the physician.

Nurse Shortage

There have been previous research and studies that projects there will be another nursing shortage within the next 10 years (Hudgins, 2016). It is estimated that there are currently 29 million nurses and midwives in the world and 3.9 million of those are in the United States (Haddad & Toney-Butler, 2019). The U. S. Bureau of Labor Statistics (2018) projects there will be a need for nurses more than any other profession through the year 2026. There are many variables that are related to this suggestion; lack of graduates going into the field of nursing, high turnover, aging population, aging workforce, career and family and a growing increase in violence within the healthcare industry (Haddad & Toney-Butler, 2019). The Baby Boomer generation creates a two-fold issue related to nursing shortage. The first issue is that the Baby Boomer population is the largest

population to date and thus is currently at the age of retirement and leaving the workforce. In fact, 55% of the RN workforce is age 50 or older (Snavely, 2016). The second issue is that the Baby Boomer population because of their age has an increased need for health services (Haddad & Toney-Butler, 2019). The Baby Boomer generation is considered the largest generation to date. If 55% of the RN workforce is retiring it will be difficult to replace this population due to the sheer numbers of nurses leaving the workforce alone. These issues together create a huge gap in the nursing industry that administrators need to fill.

Snavely (2016) explained that the skills, knowledge and abilities that nurses in the United States have is unmatched and to continue staying ahead of other countries in innovative and excellent healthcare qualified nursing personnel is essential. If supply and demand are not equal that could pose threats to our healthcare system and economic health (Snavely, 2016). Snavely pointed out that throughout history there have always been a shortage and surplus of nurses. One such moment in history was in the early 2000s when there was a nursing shortage until the recession at which time the number of nurses increased. Snavely projected that in the coming years there will be a critical shortage of nurses due to nurses exiting the workforce because they feel they no longer have a need to work. He also acknowledged that a significant number of nurses are getting older and therefore nearing the age of retirement. There is also a shortage of nursing teachers in colleges and universities creating further difficulty with enrolling future nurses. In 2012, nursing schools denied 80,000 qualified nursing students due to an “insufficient number of classroom space, teachers, clinical sites and budget constraints” (Snavely, 2016).

Lastly, nursing shortages exists because the job alone can be very demanding and exhaustive. Burnout and fatigue often cause nurses to leave the profession sooner than expected. The result of a nursing shortage is the direct contribution it has on increased healthcare cost. In the end, Snavely concluded that there is a direct correlation to high readmission rates, unnecessary readmissions, and a high patient-to-nurse ratios which increased patient infections.

A literature review by Goodare (2017) further strengthens the idea that the shortage of qualified nurses will leave hospitals without the knowledge and experience needed to provide quality of care. Goodare not only focused on this problem as it relates to nursing in Australia, but he looked at this as more of a global issue. In his literature review he found there were two reasons for nurse shortage: organizational factors and individual factors. Organizational factors consist of the area in which a nurse works, the environment that a nurse works in, culture and the demands of the job (Goodare, 2017). Nurses want to work in a structured and stable environment. If there is constant confusion and chaos along with a decline in organizational values nurses are less likely to remain in such an environment. There can also be an imbalance of work expectations and age. Younger nurses are less likely to want to work nights and weekends, while senior nurses are less likely to work weekends to spend time with family (Goodare, 2017). This causes nurses who may not fall into these categories to have an increase in workload. Some nurses are not able or willing to handle this increased workload and therefore have intentions on leaving. Individual factors include job satisfaction, demographics and burnout (Goodare, 2017). The job of a nurse is to provide quality of care, nurture and

support to patients and their families. When nurses feel that the place in which they work does not support those same beliefs they are less likely to stay. The constant turnover of nurses whether it is due to organizational factors or individual factors causes an overall financial burden on any hospital.

Nurse Turnover

There are a lot of factors associated with nurse turnover that are very costly. Nurse turnover is a global challenge with studies showing that turnover creates issues such as; increased pressure injuries, medication errors, and falls (Nelson-Brantley, Park, & Bergquist-Beringer, 2018). When hospital environments and staff change to a more positive cohesive unit it creates better nurse outcomes (McHugh & Ma, 2014). Nurses, much like any other profession are also seeking the better wage for the services they provide. Unfavorable wages coupled with dissatisfaction and a bad work environment are reasons for constant nurse turnover. Research shows that some hospitals do not show a desire to strive for nurse longevity due to the belief that nurses are plentiful and can easily be replaced. McHugh and Ma (2014) pointed out however, that a nurse would be apt to remain in a place that may not have the better wage, but instead have a more harmonious and enjoyable work environment. McHugh and Ma conducted a secondary data analysis to prove how wage, work environment and staffing affect nurse outcomes. In the end they were able to show that work environment and staffing indeed played a role in nurse turnover, but wage not so much. Even though wage is important their study showed it did not have as much effect on nurse turnover. This means that it takes more

than a good salary to attract and therefore keep a nurse in a workplace (McHugh & Ma, 2014).

Nurse turnover can lead to decreased patient access and adverse events due to poor patient satisfaction and decreased quality of care (Mazurenko, Gupte, & Shan, 2015). The workload for the remaining nurses increases potentially causing even more safety issues. Reducing the nurse turnover rate is an important indicator that hospitals are meeting financial quality indicators (Nelson-Brantley, et al., 2018). Hospital costs also increase due to higher recruitment and hiring (Mazurenko et al., 2015). It has been difficult in previous studies to get a handle on nurse turnover due to how each person researching the topic has defined this term.

Types of turnover. Mazurenko et al. (2015) explained that organizational turnover is when a nurse leaves and organization but remains in the health care industry. Organizational turnover usually occurs when a nurse is unhappy with structural or policy related issues within an organization. They are content with their job of being a nurse, but not content in the place in which they work. The perception of internal advancements and promotions also influence a nurse' decision to stay or leave (Mazurenko et al., 2015). Nurses who have been in the profession for a lengthy period or have worked in the same organization for a while may be looking for advancement and if the perception is that there is no advancement available, they are likely to leave for the chance of a better opportunity.

Some nurses leave the profession to work in another industry which is known as a professional turnover. The main factor in professional turnover is the work environment

in which a nurse works (Unruh, Zhang, & Chisolm, 2016). A high workload, stressful environment, non-cohesive team, poor pay and benefits and no room for growth are all reasons nurses cited leaving the profession altogether. These are some of the same reasons cited for organizational turnover as well. Unruh et al. (2016) also stated that there are certain demographics for nurses leaving the profession. These include; younger nurses who get into the industry and realize it is not what they thought it would be therefore they go back to school to study another profession, less tenure or experience, single and having smaller children or no children at all. Nurses with health problems and those with higher degrees are also more likely to leave the profession than nurses without these issues (Unruh et al., 2016). In this study, a multivariate model was used to look at nurses' intent to leave the profession. In the end, the study suggested that a nurses' intent to leave the profession is a combination of personal and work characteristics. This combination according to the results of this study can be problematic for an organization and for the nursing profession because it leaves a hole in the profession that is difficult to fill thus causing a financial strain. Nurses leaving the profession causes further demand because the supply is non-existing (Unruh, et al., 2016).

Finally, nurses who leave their job due to retirement or who have become permanently unemployed is known as an involuntary turnover (Mazurenko et al., 2015). As the Baby Boomer population in the nursing workforce gets older health issues could arise that prevents a nurse from working at full capacity. Instead of continuing to work with growing health issues, they could go into early retirement. Duffield et al., 2015) conducted a quantitative study in Australia to further determine factors that causes older

nurses to leave the workforce. They noted that nurses who are older in age look at the financial stability as a determining factor as to whether they can retire. Older nurses take into consideration where they live (rural or urban), family needs and overall living expenses (Duffield, et al., 2015). The nurse shortage is a global issue and Australia along with other countries has reviewed their policy to determine if raising the retirement age would help improve the shortage. The study showed the top three factors that influenced a nurses' decision to retire early were: financial, health and marital status (Duffield, et al., 2015). The study also concluded that increasing retirement age may assist the global crisis of maintaining nurse retention to reduce overall hospital costs. Nurses who stay in their profession longer have a wealth of knowledge and experience which is considered human capital, but if the age is increased then future studies should be done to understand the effects this may have on the quality of care and work environment for older nurses (Duffield, et al., 2015).

Hospital Costs Related to Nurse Turnover

When nurses leave unexpectantly it places a gap of nursing staff within the hospital that continues to add to the hospital budget. The cost of separation, recruitment, and staff replacement all must be configured into the budget which adds more money spent out versus money saved or coming into the hospital (Nelson-Brantley, et al., 2018). It is estimated that replacing a nurse in a hospital can costs upward of $64,000 (Park, Gass & Boyle, 2016). This amount like all other amounts may not be accurate due to varying factors such as reduced productivity, loss of knowledge, adverse events, etc. If vacancies are not filled in a timely manner, there are not enough nurses to care for and

monitor patients which results in other adverse events. Park et al. (2016) looked at reasons for nurse turnover in magnet and nonmagnet Hospitals by using a descriptive, correlational study. This study also sought to prove if there was a difference as to why Magnet hospitals had lower staff turnover versus nonmagnet hospitals. Magnet hospitals are distinct in their standards of high-quality care and low staff turnover (Park et al., 2016). Being recognized as a Magnet hospital is one of the highest honors a hospital can receive. The results of their study showed that the number of turnovers in a magnet hospital were slightly lower (14% versus 17% turnover) than that of a nonmagnet hospital. Findings from their study proved that reducing hospital costs related to a reduction in nurse turnover in non-Magnet and Magnet hospitals is important in improving the work environment. Improving workload conditions, staffing and scheduling are also helpful in the retention of nurses which reduces the financial burden of hospitals (Park et al., 2016).

An article in the Australian Journal of Nursing Practice notes that throughout world research there is a strong correlation between nurse turnover and negative patient outcomes. These negative outcomes and further turnover results in a huge strain on hospital budgets. Roche, Duffield, Homer, Buchan, and Dimitrelis (2015) recognized that hospitals vary in pinpointing costs due to the methodologies and calculations used. They explained that there are two different distinct costs that should be taken into consideration when calculating nurse turnover: direct and indirect costs.

Direct versus indirect cost. Direct costs relate to the direct costs of hiring nurses. These costs include recruitment and hiring (Roche et al., 2015). They can also include

administrative time, advertising, traveling to and from job fairs, and setting up job descriptions on job websites. From the unit or floor these direct costs include using other nurses filling in during the recruitment process, referring patients to another hospital due to few beds or nurse staff able to accommodate, or the hiring of traveling nurses to fill positions temporarily. Indirect costs are costs associated with orientation and training such as; training personnel salaries, supplies and equipment (Roche et al., 2015). Other indirect costs are associated with more nurses leaving due to the workload and burnout, tension among nurses and other co-workers, early retirement and unused vacation and sick time (Roche et al., 2015). These are all costs whether direct or indirect that people do not always take into consideration but add financially to hospital budgets. This furthers the argument that financial costs of nurse turnover are extremely difficult to calculate because of all the factors that need to be included. Researchers do not always take this into consideration. In the end, this study showed that indeed hospital costs are significant when there are constant nurse turnovers. Roche et al. (2015) stated that a greater emphasis needs to be placed on retention and creating an efficient workforce.

Geographic Region

Nursing staff needs have changed over time. In the past, nurses have been needed more in hospitals and like settings, but now nurses are in the community more. Currently, half of the world's population resides in rural areas, but a small percentage (38%) of nurse's work in rural areas and an even smaller percentage of RNs (10.8%) work in remote areas (Rohatinsky & Jahner, 2016). There are currently geographic regions that are designated as nursing shortage areas (Lasala, 2017). Due to these areas of shortages

some hospitals have reduced beds and others have closed altogether (Lasala, 2017). Nurses are impacted by rural areas due to high unemployment rates in rural communities and a lack of necessary resources. In Taiwan, the work stressors and pressures are higher in rural areas than in urban areas (Ma, Yang, Tseng, & Wu, 2016). It is hard to maintain nurses in rural areas due to the lack of recruitment efforts, limited resources and lack of ties to the area (Rohatinsky & Jahner, 2016). Retention of nurses in rural areas are especially important for ensuring optimal health services that produces improved health outcomes (Humphreys, Wakerman, Pashen, & Buykx, 2017). Urban areas have a promise of better salaries and an overall better atmosphere. However, urban areas are not without their pitfalls. There is mounting pressures from government, economic changes, and policy changes for hospitals in urban areas to downsize which creates reduced budges, layoffs, and less trained nurses (Lasala, 2017).

California geographic regions. California is the third largest state in the United States of America with a total of fifty-eight counties. These counties are divided into twelve regions however, for the purpose of this study the geographic regions in the State of California were divided according to the regions used in the California Board of Registered Nursing (Survey, 2018). Some regions in California had low responses and thus those regions were combined with other regions to strengthen numbers. The California Board of Registered Nursing divided California into six total nursing workforce regions: Sacramento and Northern California, San Francisco Bay Area, Central California, Los Angeles, Inland Empire and Southern Border. It is predicted according to the 2017 National Center for Health Workforce Analysis that by the year

2030, California will have the greatest shortage of nurses in the United States (registerednursing.org, n. d.). The San Francisco Bay Area along with Central California are two regions that are predicted to have the greatest shortage of nurses. This is due to the influx of people moving to the area and not enough nursing schools in the area to produce graduates who will fill nursing positions (Spetz, 2018). The Baby Boomer population is also at the age of retirement and thus there are not enough nurses graduating to fill the positions of those who are retiring (Spetz, 2018). In the Los Angeles/Sacramento, Inland Empire, Southern Border and Northern California area Registered Nursing education programs are rapidly growing, therefore these regions will see a surplus of nurses (Spetz, 2018). The regions that have a predicted shortage of Registered Nurses are said to be a result of the lack of clinical expertise of new nurses and the difficulty of hiring nurses who lack this experience.

California is one of the top states with the highest paid registered nurse salary according to the 2018 Bureau of Labor Statistics. The annual mean wage of a registered nurse in California is $106,950. Other areas in California, specifically northern regions receive a little less ($96,930). Spetz (2018) states that it is important to consider regional differences in salaries in the State of California because of its size. The cost of living is very expensive in the San Francisco Bay Area and as such, employees are paid more than in other California regions. California passed a law in 1999 that established nurse-to-patient ratios which increased the need for registered nurses as well as increased the wages in California urban areas by as much as twelve percent (Ibarra, 2016). Higher

salaries are also contributed to high demand for registered nurses, high cost of living and union power (Ibarra, 2016).

Retention

Low retention rates have a great effect on the health care industry (Halter, et al., 2017). Nurses are extremely important in the health care industry. In fact, they are considered one of the most valuable resources in the health care industry (Heidari, Seifi, Gharebagh, 2017). There are a lot of factors that contribute to retention of nurses. Organizational factors such as a good salary, benefits, staff appreciation, low stress, and effective management have always been effective strategies for nurse retention (Heidari, et al., 2017). Other industries outside of nursing report that using a performance-reward based system, long-term career prospects, recruitments, and socialization are all ways that can be used to boost retention (Halter, et al., 2017).

Hospitals with a great work environment and supportive nurses have a better retention of nurses (McHugh & Ma, 2014). Due to the demand of patients increasing it is equally important to focus energies on the retention of good nurses. One major concern in the nursing industry is the low retention of new nurses even though there is an increasing number of newly educated nurses (Blegen, Spector, Lynn, Barnsteiner, & Ulrich, 2017). Strengthening retention of nurses and supporting nurses in their profession for the long haul will be beneficial in maintaining a healthy work environment and reducing hospital costs (Mills, Chamberlain-Salaun, Harrison, Yates & O'Shea, 2016). Being able to sustain a strong nursing workforce will help to improve patient and hospital outcomes. An Australian study focused on ways that hospitals could reduce turnover by focusing on

retention efforts during the first five years of practice (Mills, et al., 2016). Administrators must center on the effort that it takes to retain good employees. Some hospital administrators focus a great deal of effort on hiring and training, but rarely look at what it takes to retain nurses once they are on the floor. This is a step that is often missed and causes potential pitfalls. The results of this study stressed that improving retention relies heavily on understanding the factors that influence a nurse' decision to leave or stay within the organization and the profession (Mills, et al., 2016).

A quantitative study using secondary data analysis was conducted to analyze nurse retention factors by using the Baptist Nurse Health Retention Questionnaire (BNHRQ). The purpose of this tool was to look at factors that promoted nurse retention. These factors included; generation (baby boomers, millennials, generation X, etc.), nursing degree, unit worked, and experience (Bugajski, Lengerich, Marchese, Hall, Yackzan, Davies & Brockopp, 2017). Common themes throughout this study were burnout, nurse satisfaction, and healthy work environments which all contributed to turnover intention. It is also identified that nurse retention relates to nursing workload, staff shortage, conflict with management, and poor scheduling (Bugaiski, Lengerich, et al., 2017). Results of this study showed that there was no significant difference among generation, nursing degree, unit worked or experience. However, the results did show that nurses have similar concerns as it relates to retention (Bugaiski, Lengerich, et al., 2017). The implications of this study suggest that administrators focus their efforts on increasing training for managers, so they have the confidence needed to build a suitable work environment in hopes of retaining nurses.

Blegan et al. (2017) conducted a secondary data analysis to study retention habits of newly licensed Registered Nurses (RNs). They defined retention as nurses that were newly licensed and still employed by their hiring hospital by end of their first year (Blegan et al., 2017). Their study found that newly licensed RNs retention rate was 83% and urban hospitals had the highest retention rates (85%) while rural hospitals had the lowest retention rates (77%). Their study also supports the fact that Magnet Hospitals have a higher retention rate of nurses versus non-Magnet Hospitals. This study showed that rural hospitals must work harder to maintain newly licensed RNs than hospitals in urban areas (Blegan et al., 2017). Some factors that may contribute to this is that hospitals in larger cities are able to offer more in salary and is more appealing to new nurses than rural hospitals. Specialty hospitals where the focus is on one specific area may do better with nurse retention because nurses become familiar with the routine much faster than having to become familiar with a little bit of everything (Blegan et al., 2017). This all goes back to the environment of the hospital. Nurses want to be in a place where they feel supported, have great communication and not feel burned out and overwhelmed at the end of the day.

Researchers Approach

A review of the literature related to hospital costs and nurse turnover shows that researchers used a variety of models to link costs and nurse turnover. A strength that was found within the research is all researchers regardless of the design method and the angle of the research agree that there are common factors such as; burnout, age, hospital environment, where the hospital is located (rural versus urban), and satisfaction that

contribute to nurse turnover. All literature reviewed also supports the fact that these factors contribute to hospital costs. All studies agree that nurse turnover is a human resource and global issue that is detrimental to not only the finances of a hospital, but also to the quality of patient care (Smith, et al., 2019). There is a strong correlation among all studies that a nursing shortage does exist which has the potential to create a crisis within the next decade (Mazurenko. Gupte & Shan, 2015). This is especially true when looking at rural versus urban areas. There is also a strong correlation that geographic areas affect the retention and turnover of nurses (Ma, et al., 2016). Weaknesses presented throughout the literature is how turnover and retention is defined. Although definitions of turnover and retention shared some similarities there are distinct differences in each. It is challenging to calculate the cost of nurse turnover due to the variability in how each hospital defines turnover and that creates issues across research studies (Kurnat-Thoma, Ganger & Peterson, 2017). The size and type of hospital reviewed, or the number of nurses surveyed in each study may be different. Hospital sizes and types and number of nurses surveyed have a profound impact on the actual calculation of nurse turnover. As an example, the secondary data analysis conducted by Smith, et al. (2019) showed that there was significance in factors that causes nurse turnover. However, that turnover was only 21%. One could assume that 21% is not a lot of turnover in a hospital, but if that hospital was small or if only a small sample of nurses were surveyed that makes a difference.

Selection of Variables and Concepts

These concepts were chosen in the literature review due to the relativity to the study. Throughout research it is clear there is a nursing shortage, but the questions to ask are; why is there a shortage, how does that shortage relate to hospital costs, does it impact hospital cost negatively and if so, what can be done to reduce the negative impact? One major factor related to nurse shortage is nurse turnover. The literature revealed many variables that relate to nurse turnover. One such recurring variable is age. A large population of nurses are getting older and nearing the age of retirement. Not only that, but there are patients who are now at the same age who have a lot of major health issues and needs care (Roche et al., 2015). The age difference and gap in-between nurses may at times cause a lack of cohesion which can compromise patient care. The health workforce today comprises of four generations: veterans, baby boomers, millennials, and generation X, and each generation has a unique approach as to how they deliver care to patients (Moore, Everly, Bauer, 2016). This uniqueness in groups can either create a better environment of mutual respect, communication and understanding or cause friction and a breakdown in the environment (Moore, et al., 2016). When there is friction and breakdown in the environment this can lead to turnover and poor patient care. When this occurs, there becomes a greater demand for nurses as the influx of patients increases. If there are not enough nurses to cover the influx of patients this becomes costlier for hospitals. One study suggests that the baby boomer population will be high users of health services in the near future. Further shortage is created by the lack of nurses entering the workforce. It has been predicted by the U. S. Bureau of Labor Statistics that

1.1 million more nurses would be needed to avoid future shortages (Haddad, Toney-Butler, 2019). If there are not enough nurses entering the workforce to balance the nurses that are leaving the workforce, it creates a greater strain on hospitals. There is also an inequitable distribution of nurses (Haddad &Toney-Butler, 2019). There are areas in the United States that still struggle to fill the shortage of nurses that are needed for the population. The areas where retirement is highest are the areas where there is a greater need for more nurses (Haddad & Toney-Butler, 2019).

Most research points to factors that causes turnover. Current research alludes to the fact that nurse turnover is highest in certain regions and that it has a financial impact on hospitals but does not place a dollar amount on the impact itself. Kurnat-Thoma, et al. (2017) expressed in their study that it is difficult to pinpoint the actual cost of nurse turnover due to external market forces and regulatory control but acknowledged that the cost of nurse turnover is detrimental in a hospital's fiscal and operational effectiveness. One possible reason for this difficulty is researchers not being able to include all the issues within a hospital that relate to nurse turnover. Another possible reason is that there is no way to place a dollar amount on what is lost when a nurse resigns, retires, or is fired. A researcher cannot place a dollar amount on loss of knowledge, productivity, and compassion of a nurse. They can only acknowledge that there is a lack and that this lack does cost. Other costs hospitals incur that are less difficult to pinpoint in dollars as it relates to nurse turnover are; increased adverse events, recruitment, hiring, advertising, and overall effects of quality of patient care.

Conclusion

A review of the literature related to geographic regions and nursing turnover or retention connects the variables together showing that there are many causal effects that are related and should be taken into consideration. Understanding the key concepts within the literature helps to find missing pieces that can be filled in by other researchers. The literature shows that nursing turnover indeed drives up the financial bottom line of any hospital. If changes are made within hospitals and the focus shifted from nurse turnover to nurse retention, especially in certain geographic regions it can lead to better hospital patient care and better fiscal profitability.

Operational Definitions

Geographic region: Ways of grouping and organizing location-based data of areas so that they may be compared with other location-based areas (Bureau of Labor, n. d.)

Cost: To providers, cost is the expense incurred to deliver health care services to patients (Arora, Moriates, & Shah, 2015).

Registered Nurse (RN): Provide and coordinate patient care, educates patients and the public about various health conditions, and provide advice and emotional support to patients and their family members (Bureau of Labor Statistics, n. d.).

Nurse turnover: Nurses leaving their job or leaving the profession of nursing (Halter et al., 2017).

Nurse retention: The time between engagement to a service and separation or departure from that service, and thus is a measure of the length of stay (Humphreys et al., 2017).

Turnover rate: The rate in which nurses leaves the organization or profession whether voluntary or involuntary (Halter et al., 2017).

Assumptions

For a study to progress there must be assumptions. Even though assumptions are out of the control of the researcher they are still things the researcher believes is true. The same assumptions cannot be applied to every situation. Assumptions are based on what the research believes is necessary to yield valid results (Wargo, 2015). It is the foundation and purpose of the research. Being able to express these assumptions allows the researcher to be objective.

Assumptions are ideas a researcher believes is true without actual proof that it is true. The idea that something could be true is what sparks most researchers and their need to begin finding solutions to their ideas/problems. It is the perception that frontline employees (nurses) are sometimes taken for granted. The “revolving door” of nurses seems to be ongoing with no solution in sight. As the researcher, my first assumption is that this ongoing issue causes an unstable work environment. A second assumption is that this constant turnover of staff must affect the cost of hospitals and hospital-like facilities in some way. My third assumption is that there would be available data to support this research and reflect my perspective that the stability of staff, especially those that work closely with patients are valuable and can either save or cost a hospital financially. My

final assumption is that geographic regions in which hospitals are located determines the type of support they receive and the type of support that is available to them. Early career nurses are less likely to enter the workforce in rural communities due to the lack of professional and financial benefits (Cosgrave, Maple, & Hussain, 2018). Most early and experienced nurses are working in urban areas where they have the benefit of more money and better opportunities for professional growth (Cosgrave, Maple, & Hussain, 2018). Nurses are paid differently based on their years of experience, area of expertise, the location in which they work, and education. An RN, licensed nurse, nurse midwives, nurse practitioners, and nurse anesthetist are all very different and thus hold different salaries.

Scope and Delimitations

Scope

The scope of any study defines clearly what will be included in the research project. The main focus of this study was to analyze retention rates for each category of nurses according to the region in which they work. This study used a secondary dataset from the Healthforce Center at UCSF and the Hospital Association of Southern California. This research study includes deidentified Registered Nurses (RNs) from deidentified hospitals from the State of California. This information was broken down into six different geographic regions from California. This data was gathered through research of its original use from an online survey using Qualtrics platform (J. Spetz, PhD, personal communication, 2019). This research focuses on registered nurses at various hospitals from geographic regions and their retention rates.

Delimitations

Delimitations describe the specifics of the research study. It is the boundaries that are set by the researcher (Theofanidis, Dimitrios, & Fountouki, Antigoni, 2019). Delimitations are important to ensure the goals set by the researcher are achievable (Theofanidis, et al., 2019). It provides the boundaries in which the researcher will stand firm. The first delimitation of this study is that the focus was only on Registered Nurses from the State of California. This research looked at the geographic regions in the State of California. The nurses included in this study are full and part-time Registered Nurses (RNs) and new graduates and specialty nurses.

Generalizability

Even though this research will only focus on nurse retention from regions in the State of California results from this study will be able to be replicated to other geographic regions within the United States. Administrators will be able to use the same variables within this study to conduct their own analysis that could show areas that could focus on nurse retention.

Significance, Summary, and Conclusion

Significance

Nurses are among the largest group of staff at any given hospital. The job of nurses is to care for those that are sick, communicate vital information to physicians, families and patients within the hospital and to provide support where needed. Without their support a hospital cannot function properly. Nurse turnover affects a hospital greatly because it hinders a hospital from producing the results needed to improve quality of care

and maintain good fiscal fitness in the operational budget. When there is a shortage of nurses it hurts all aspects of a hospital. The intent of this study is to review the financial impact nurse turnover has on healthcare facilities in different geographic regions. If the focus was on strengthening nursing workforce in the areas that are greatly needed, then that would reduce cost in healthcare facilities.

Contribution to Hospital Administration

This study has the potential to advance current knowledge by looking at the financial impact of retaining nurses in healthcare facilities in geographic locations where they are scarce and very much needed. Previous studies have acknowledged that nurse turnover costs hospitals money and previous research has also shown that hospitals located in rural areas lack adequate registered nurses. Hospitals in rural and remote areas lack the financial resources, workplace conditions, and social factors to maintain nurses for long periods of time (Cosgrave et al., 2018). Current studies focus only on how nurse turnover affects quality of care, patient satisfaction, adverse events and the costs related to those issues. They also give only an estimated amount as to how much a hospital loses when nurse turnover occurs. One study showed that new-hire of nurses who soon left was somewhere between 28.8% and 49.6% (Kurnat-Thoma et al., 2017). This same study showed that due to the variability in how nurse turnover is calculated, and the varying factors included or not included in nurse turnover, the amount reported from hospitals can be anywhere from $10,098-$88,000 (Kurnat-Thoma et al., 2017). Another study stated that the turnover of newly licensed RNs was somewhere between 10.5% and 12.6% which is a vast difference than the previous study (Blegen et al., 2017). However, there

are very few studies that focus on issues that may cause turnover and even fewer studies that focus on how geographic locations influence turnover. Studies also show why nurses are either leaving their place of employment or leaving the profession all together, but again these studies do not explain how the location of a hospital can influence those decisions. These studies places emphasis only on turnover and does not look at financial implications of nurse retention in geographic regions, especially those that are in rural or other non-urban areas.

Implications for Social Change

Nurses play a very important role in today's healthcare facilities. This study can help to identify how to create a culture of retention and longevity in nurses that will improve healthcare facilities financial stability over time. By focusing on geographic locations as it relates to nurse retention and the financial impact of hospitals, administrators will be able to adjust as to how the recruit and strengthen retention efforts as they see fit in specified areas. This will potentially reduce financial waste by creating financial benchmarks according to locations specific to the facility as they improve nurse to patient ratios.

Conclusion

A review of the literature indicates that nursing shortage is a global problem that will get worse within the next decade. Factors that contribute to the nursing shortage are the age of nurses leaving the workforce, the influx of the same age population that will need critical care, geographic location and not enough people entering the profession of nurses (Duffield, et al., 2015). The cost of turnover currently depends on how researchers

are defining this concept and can include many other variables that make the numbers difficult to interpret.

Poor quality of care increased adverse events, loss of knowledge, inconsistent communication, nurses changing locations or changing their profession altogether, and a poor work environment are all results that manifest negatively in the hospital budget. Understanding these issues can assist administrators in focusing on retention efforts and be able to track these efforts to show financial improvements.

Transition

Financial stability is important in any organization and hospitals are no different. If administrators developed an indicator to monitor financial gains and losses related to retention of nurses, improve benefit packages in rural and other areas that show poor nurse retention that appeal to young career nurses, it can lead to improved operational and financial stability. The literature review examined as part of this study reveals facts that nursing shortages exist and is a major problem nationally and internationally. There are internal and external factors that lead to nurse turnover. Nurse turnover indeed affects hospital costs especially in certain geographic locations, and emphasis should be placed on retention efforts in those areas. Section two of this study provides a more detailed view of the reason for this proposed study of geographic locations and its relation to the retention of nurses. Section three will provide the results of this study with recommendation that can be utilized in any region for other administrators who wish to implement strategies to retain nurses and save hospitals money.

Section 2: Research Design and Data Collection

Introduction

The purpose of this study was to identify strategies that have been explored by researchers to reduce turnover and improve on the retention of nurses in hospitals and healthcare settings in geographic regions. The information in Section 2 covers in further detail the purpose statement, research design and rationale. Section 2 will also provide information regarding the target population, data collection methods, instrument used for my constructs, and data analysis plan. The final portion of this section will describe threats to validity and ethical procedures. Section 3 will include a presentation of the results in relation to the conceptual framework as detailed in Section 1.

Research Design and Rationale

I conducted a quantitative study using secondary data analysis. This study was descriptive in nature to best help explore the association between geographic regions and the retention of registered nurses. Secondary data is data that has already been gathered by another researcher for another primary purpose (Johnston, 2017). The purpose of using secondary data is to review what has already been done in the same area of interest. Using secondary data allows for review of the same variables to find if there is an association between geographic regions, full and part-time nurse, and graduates and specialty nurses located in certain areas of a state.

Research Design

The purpose of this quantitative study was to explore the relationship between the retention of registered nurses and the geographic regions in which they work. The intent

of this study was to explore differences in retention rates between full-time and part-time registered nurses and differences in retention rates between new graduates and specialty nurses. The research questions ask:

Research Question 1: Are there differences in retention rates between full-time and part-time registered nurses in California geographic regions?

Research Question 2: Are there differences in retention rates between new graduates (BSN or higher) and specialty nurses (nurse anesthetists, clinical nurse specialists, nurse midwives and nurse practitioners)?

There are two variables to consider in this study; retention, which is a nominal, dichotomous, fixed dependent variable and geographic region which is the independent variable and determined by how areas (towns, cities, municipalities), are divided in the State of California. Retention of registered nurses (RNs) and geographic regions are being tested based on the assumption that if nurses remained in geographic areas longer, they would remain in their place of employment longer thus saving hospitals money that is associated with nurse turnover.

The population being studied are registered nurses (RNs) from California hospitals, intervention is geographic regions, and the outcome is retention of nurses. There are many types of designs that can be utilized to test a hypothesis, however, the best fit design in a study are correlational, descriptive or experimental (Bettany-Saltikov & Whittaker, 2013). A descriptive study was most appropriate as it helped to examine the association between retention rates, geographic regions and Registered Nurses.

Rationale

This research was also exploratory in nature and used a Chi-squared test to answer the research question. The nature of this study was best explored using a Chi-squared test because it allows the researcher to determine if there was an association between the variables (Rana & Singhal, 2015). Chi-squared test was developed by Karl Pearson. It is a non-parametric test that is used for two specific purposes: to test the hypothesis of no relationship between two or more groups or to test the likelihood that the observed data fits the distribution (goodness of fit) (Rana & Singhal, 2015). Differences in retention rates between categories of nurses (full-time vs. part-time; new graduate vs. specialty) was examined using chi-squared for independence. A Chi-squared test will also help to show future predictions about what hospitals could do to strengthen retention in geographic regions that show high turnover of registered nurses and in the end improve cost that is associated with turnover.

Past research has explained the difficulty in obtaining an accurate number for nurse retention and turnover in healthcare settings due to methodological differences. A Chi-squared test can show that there is a relationship between two variables, but it will not tell how close that relationship might be (Rana & Singhal, 2015). Using a Chi-squared test can benefit future researchers and advance knowledge in the discipline by exploring the closeness of the relationship and researchers as well as administrators could focus more on strengthening hospitals in needed geographic regions.

The gaps in current research that are related to high turnover and low retention such as; loss of productivity, adverse events, poor quality of care, etc. can be added as

additional variables to the Chi-squared test over time to see if there is a relationship between these variables and the retention of registered nurses. Chi-squared test can result in better performance improvement of an organization.

Methodology

Population

The sample population was drawn from the Healthforce Center at UCSF. This information was gathered through research of original data collected from the State of California Nursing Workforce Center (J. Spetz, PhD, personal communication, May 17, 2019). The target population are a total of 195,005 Registered Nurses (RNs) from six different regions in the State of California. Of this original sample I used a sample size of only 3,234 full-time and part-time registered nurses, new graduate nurses (BSN or higher) and specialty nurses consisting of; nurse anesthetists, clinical nurse specialists, nurse midwives, and nurse practitioners.

Sampling

This secondary dataset was selected after a review of the 2017 Demand for Registered Nurses in California: The California Chief Nursing Officer Survey. This report aligned with my research to further understand nursing shortages and how it affects healthcare facilities. In the fall of 2017, surveys were conducted by email/web as well as telephone follow-up surveys (J. Spetz, personal communication, May 17, 2019). Original data was also received from the Hospital Association of Southern California. This report focuses on overall demands of registered nurses and the changes that have occurred over time in the State of California (Survey, 2018). After reading the report, I

contacted the Associate Director of Research via email to inquire on the process needed to receive and use the raw data that was used the 2017 California Nursing Report. This first contact was an introductory letter to explain who I am, describe my research interest and what I was seeking.

After receiving an email back from the Associate Director of Research of her interest, I sent a more formal letter describing in detail intricate parts of my research. In my request, I discussed my research topic, points of interest related to nurse turnover and retention and research question. Specific requests related to the sampling frame was; data not less than five (5) years old, total number of nurses in a hospital for one year, the number of nurses that were supposed to be staffed for each hospital for that year, how many nurses were hired for that year and how many were fired within that same year. Regional data would have been acceptable if there were no specific hospital data available. As the researcher, I also informed the Associate Director of Research that I will be the sole person analyzing the data and provided her with key terms and definitions in my research and the specific research information needed. In the email, I also described the intended use of the information and Walden University's Internal Review Board (IRB) process for approval was also added.

Power Analysis

Power analysis are used to test the hypothesis in order to avoid Type I and Type II error. The researcher is most interested in preventing Type II errors. Type II errors occur when the researcher fails to reject the null hypothesis that is truly false (false positive) (Kim, 2015). A Type II errors is when the researcher says the observations observed were

the same even though they were not. The way to reduce a Type II error is by making the criteria stricter (Kim, 2015). The purpose of a power analysis is to help the researcher find the smallest sample size to determine if the significance level is strong enough or too weak. The desired power level, strength of the relationship between the variables, sensitivity (number of true positives), and the variation of the dependent variable also affects the power in a power analysis (Statistical Solution, n. d.).

There are three important parameters that a researcher needs to know to achieve validity; the effect size, alpha level and power level (Statistical Solution, n. d.). The effect size measures the strength of the relationship between two variables. It also helps the researcher know if the results are real or due to a change of factors. The effect size for my sample is .53. This was achieved by using the Statistical Package for Social Science (SPSS) to analyze the variables using general linear models. This function calculates the probability that the variable will fall at or below a specified value. The alpha level of significance is.05. This determines the level at which the null hypothesis will be rejected (Statistical Solution, n. d.). The power determines the accuracy that the researcher will reject the null hypothesis. It also shows the probability of avoiding Type II errors (Statistical Solution, n. d.). Power is calculated using 1-beta. The power of a hypothesis test should be between 0 and 1 (Statistical Solution, n. d.). The power level of this study is 0.92. Based on my research question, I sought to find a relationship between retention of nurses and geographic locations in the State of California. This is best answered by taking all the nurses (full and part-time) that resigned or were fired within the past year as my sample size. I used the Statistical Package for Social Science (SPSS) to calculate the

sum of nurses that resigned or were fired from all regions in the State of California within the year of 2017.

Instrumentation

There were two instruments used to collect the data for California Nursing Workforce. The 2017 instruments were designed by a team of researchers from the University of California San Francisco (UCSF), Hospital Association of Southern California (HASC), the California Hospital Association (CHA), FutureSense, Inc. and HealthImpact (Survey, 2018). The survey was live after approval by the UCSF Committee on Human Research. The first instrument was developed by University of California San Francisco and the other was developed by the Hospital Association of Southern California (Survey, 2018). The survey was able to be completed online and a PDF version was also available to allow respondents to fax or mail their responses in.

Permission to use this data was granted by the Associate Director of Research at Healthforce Center at University of California at San Francisco (UCSF). This instrument is appropriate for the study as it consists of various geographic regions and hospitals within those regions from the State of California. The data collected in these surveys are consistent with nurse information needed to answer my hypothesis. The purpose of the survey was to focus on labor market perceptions, hiring expectations, and characteristics of new graduate programs (Survey, 2018). To strengthen validity of responses, telephone calls and follow-up emails were also conducted to increase participation (Survey, 2018).

Operationalization

This was a correlational study as it is best used to help determine if truly a relationship exists between geographic regions and the retention of nurses. This study was statistical in nature as it uses mathematical formula to organize and interpret variables (Simpson, 2015). There were two different types of statistics: descriptive and inferential. This study used descriptive statistics because of the comparisons between geographic regions and retention of nurses. Retention rates were independently calculated for each category of nurses for each region. The retention of Registered Nurses was the dependent variable in the study. Retention of Registered Nurses are also a dichotomous, nominal, fixed variable as they have no numerical value. Geographic regions were the dependent variables as it depends on the action of something or someone else. In this case, the geographic regions that may have more or less retention rates depends on the nurses in those areas. This study was parametric in nature because the values were normally distributed. Differences in retention rates between categories of nurses were examined using Chi-Squared for independence.

Data Analysis Plan

I processed the secondary data set using Microsoft Excel. The data was analyzed using the Statistical Package for Social Sciences (SPSS) version 24. Data cleaning and screening is the process of ensuring your data is fit and ready to use before further statistical analysis is done (DeSimone, Harms, & DeSimone, 2015). Screening the data ensures reliability and validity and focuses on six specific issues: missing data, outliers, normality, linearity, homoscedasticity, and multicollinearity (DeSimone, et al., 2015).

Screening and Cleaning Procedures

If data is missing, there would not be enough data to complete the analysis. To find out if there are missing values, SPSS was used to enter variables to find how many are valid and if any are missing. The output of data determined if all variables are valid or if any variables are missing. Outliers have the potential to skew the results by pulling the mean too far away from the median. Outliers were checked in SPSS by going to graphs, legacy dialogues and box plots. As the researcher, I used a simple box plot to determine possible outliers. A box plot also helped to determine normality of the variables.

Research Question and Hypothesis

Research Question 1: Are there differences in retention rates between full-time and part-time registered nurses in California geographic regions?

H_a1: Geographic region does influence the retention rates of full and part-time registered nurses in California.

H_01: Geographic region does not influence the retention of nurses of full and part-time registered nurses in California.

Research Question 2: Are there differences in retention rates between new graduates (BSN or higher) and specialty nurses (nurse anesthetists, clinical nurse specialists, nurse midwives and nurse practitioners)?

H_a2: Geographic region does influence the retention rates of new graduates (BSN or higher) and specialty nurses (nurse anesthetists, clinical nurse specialists, nurse midwives and nurse practitioners).

$H_0 2$: Geographic region does not influence the retention rates of new graduates (BSN or higher) and specialty nurses (nurse anesthetists, clinical nurse specialists, nurse midwives and nurse practitioners).

Analysis Plan

As this is a quantitative study it is important to understand the variables within the study. Variables define specific set of items within the study (Simpson, 2015). Geographic regions are nominal variables as it describes different areas within the State of California. Registered Nurses dichotomous, nominal variables as they will only have two categories: yes (retained) or no (fired or resigned). Geographic regions are the independent variable and Registered Nurses are the dependent variable. This analysis was inferential as it was used to make a comparison and draw a conclusion (Simpson, 2015).

I used a Decision Tree to determine the best statistical test that will be used to test my hypothesis. The research question was correlational as it sought to find a relationship between two variables. Based on the study the level of measurements can either be nominal, ordinal or interval. Nominal measurements or variables are names, while ordinal measurements say that the variables can be placed in a meaningful order and interval measurements have variables between categories that have a meaning (Simpson, 2015). In this analysis, the measurement was nominal meaning the type of test that best fits this study was Chi-squared. There were also two groups within this study: those that were retained and those that were not retained. The samples were taken from more than twenty different registered nurses which further confirms Chi-squared as being the most appropriate test. The confidence interval used in this test will be .05 or 95%. This means

that as the researcher I want to be 95% certain that the values contain the true mean of the population.

Threats to Validity

Validity is important in research as it describes how sound or valid your research is. Validity strengthens the design and methods chosen and confirms that the researchers claim stands firm (Bolarinwa, 2015). Validity ensures that the result meets the requirements of the scientific method. There are two types of validity: internal and external.

External Validity

External validity informs the researcher if the results are transferable to other groups of the same interest. A researcher can improve external validity by increasing representation of the population, using heterogenous groups, non-reactive measures and using precise description to allow for replication of results (Mohajan, 2017). In this study threats to external validity were minimized by using only one type of nurses regardless of their specialty. Registered nurses that specialized in different areas were used in this study (i. e. registered nurse midwife, registered nurse social worker, new graduate registered nurses). Part-time as well as full-time registered nurses were included in the study to ensure a sufficient sample size. The fact that secondary data was being used eliminates all testing reactivity as the sample population have no awareness of their results being used for this study.

Internal Validity

Internal validity states that the results are correct based on the group(s) selected or the analysis performed (Mohajan, 2017). Internal validity ensures that the study can replicated (Mohajan, 2017). There are eight threats to internal validity; repeat testing, history, instrument change, statistical regression, maturation, experimental mortality, selection and selection interaction (Flannelly, et al., 2014). It is difficult to control for internal validity when handling secondary data, however, internal validity was minimized when collecting this data for its original purpose. Surveys were emailed to participants and responses were collected in one day. This was to avoid the maturation of participants and to shorten the length of time the survey was out. Selection interaction was reduced by only surveying registered nurses within the geographic region. Experimental bias has also been eliminated as the data is being used for a purpose other than what it was originally intended.

Ethical Procedures

It is important that research ethics guides the research to protect the rights, dignity and welfare of human participants. Conducting research means that there is a question or idea that is important enough to be thoroughly examined. There are seven main principles that should guide ethical research: social and clinical value, scientific validity, fair subject selection, favorable risk-benefit ratio, independent review, informed consent, and respect for potential and enrolled subjects (National Institute [NIH], 2016). Furthermore, because this was secondary data it is imperative that the data not be excessive, the data is relevant and adequate (Tripathy, 2013). The data was also evaluated to ensure the methodology of

data collection, accuracy of the data, period of time in which the data was collected and the purpose for which it was collected (Tripathy, 2013). Initial communication was made with the Professor of the Research Institute in February regarding permission for the use of secondary data. The Professor granted the request and sent data along with the original report in which the data was intended. Specific identifying information was not included in the secondary data set. Human participants' identity was never disclosed nor any specific hospital information.

In order to analyze the secondary data set, the proposal was approved by the committee. After a successful defense of the proposal, the Internal Review Board (IRB) Application was submitted to the Chair for review and then submitted formally. No data was collected or analyzed until approval was granted. Walden University's IRB approval number for this study is 09-30-19-0672858. There are no ethical concerns related to the recruitment or the collection of the secondary data set. All secondary data obtained was deidentified and confidential. All data is stored and maintained for a total of no less than five (5) years. Secondary data is stored on an encrypted flash drive and encrypted in my personal computer.

Summary

The intended purpose of this quantitative study was to add to the body of knowledge that focuses on nurse retention from the eyes of a healthcare administrator. The problem as stated in section one identified the industry and target population as hospitals and registered nurses (RNs) from different geographic locations in California. Secondary data was used from results from a Survey of Nurse Employers in California

conducted by UCSF Philip R. Lee Institute for Health Policy Studies, HealthImpact and the Hospital Association of Southern California. I requested this data from the Assistant Research Director via email correspondence. Once I received the secondary data, it was reviewed and synthesized to ensure accuracy, usefulness, and relevancy to my research. Section 3 contains data collection of the secondary data set and results of the analysis from this data.

Section 3: Presentation of the Results and Findings

Introduction

The purpose of this quantitative study was to explore the relationship between the retention of registered nurses and geographic regions in which they work. Both descriptive and inferential statistical techniques were used to address the study's research questions and accompanying hypotheses. There are two research questions and corresponding hypotheses that fulfilled this purpose;

Research Question 1: Are there differences in retention rates between full-time and part-time registered nurses in California geographic regions?

H_a1: Geographic region does influence the retention rates of full and part-time registered nurses in California.

H_01: Geographic region does not influence the retention of nurses of full and part-time registered nurses in California.

Research Question 2: Are there differences in retention rates between new graduates (BSN or higher) and specialty nurses (nurse anesthetists, clinical nurse specialists, nurse midwives and nurse practitioners)?

H_a2: Geographic region does influence the retention rates of new graduates (BSN or higher) and specialty nurses (nurse anesthetists, clinical nurse specialists, nurse midwives and nurse practitioners).

H_02: Geographic region does not influence the retention rates of new graduates (BSN or higher) and specialty nurses (nurse anesthetists, clinical nurse specialists, nurse midwives and nurse practitioners).

In order to answer the research question, I used secondary data analysis from the Healthforce Center at University of California in San Francisco (UCSF). Section 3 is comprised of data collection of the secondary data set, report of statistical analysis findings and tables and figures to illustrate results. Section 4 will discuss the application to professional practice and implications for social change.

Data Collection of Secondary Data Set

In the fall of 2017, the Healthforce Center at UCSF conducted surveys via email/web and follow-up surveys was conducted via telephone. Paper surveys were also provided in PDF form and could be faxed or mailed back to the center at UCSF (Survey, 2018). Telephone interviews were conducted to strengthen the response rate of the surveys (J. Spetz, personal communication, May17, 2019). The data was collected in the month of September 2017 and covered the third quarter of the year from July 1-September 31, 2017 (Survey, 2018). Survey response rates were approximately 54.4% from the Hospital Association of Southern California (HASC) and 29.9% from the University of California at San Francisco (Survey, 2018). The geographic regions were divided based on the California Board of Registered Nursing, but if there was a small number of responses in one region they were grouped together for the purpose of stronger numbers (Survey, 2018).

Discrepancies

In Section 2, I detailed using a sample size of 3,234 full-time and part-time registered nurses, new graduate nurses (BSN or higher) and specialty nurses consisting of; nurse anesthetists, clinical nurse specialist, nurse midwives and nurse practitioners.

After looking at the secondary dataset I determined that it was best to use a different section of the sample. This section in the secondary dataset provided a more robust and accurate number of the variables by increasing the sample size which provided a good retention rate formula. I also determined after viewing my dataset, that a Chi-Squared test would not be the most appropriate test to use in order to determine those retention rates. Instead I used a T-test of independent means, Kolmogorov-Smirnov (K-S) test, factorial ANOVA and a Mann-Whitney *U* test. These tests were best used to provide a more accurate statistical analysis for nurse employment status in California geographic regions.

Baseline Descriptive and Demographic Characteristics

The sample is comprised of full-time and part-time registered nurses, new graduate nurses who hold a Bachelor of Science in Nursing (BSN or higher) and specialty nurses (nurse anesthetists, clinical nurse specialists, nurse midwives, and nurse practitioners).

Descriptive statistics were used to establish validity of the sample (Statistical Solutions, n. d.). Prior to addressing the study's two research questions, preliminary descriptive analyses were conducted on the study's data set. One analysis centered upon the mean score retention rate comparisons between full-time and part-time nurses across the six regions identified in the State of California for study purposes. Table 1 contains a summary of the comparison of mean retention rates between full and part-time nurses in the State of California by specific geographic region:

Table 1

Retention Rate Comparison by Employment Status and Geographical Region

Geographic Region	Full-Time RN	Part-Time RN
Sacramento/Northern California	97.0%	96.8%
San Francisco Bay Area	95.0	95.6%
Central California	98.2%	98.1%
Los Angeles	97.3%	96.7%
Inland Empire	96.7%	94.4%
Southern Border	97.7%	97.4%

A second preliminary analysis conducted upon the study's retention rate data arrays involved an evaluation of the distribution of data for "normality" purposes. The Kolmogorov- Smirnov (K-S) test statistic was used to assess the normality of retention rates for both full-time and part-time nurses across the six identified regions of the State of California. K-S values of $p > .05$ are indicative of relative normality of data distribution.

Retention rates in four of six geographical regions (67%) for full-time nurses were found to be relatively normally distributed ($p > .05$). However, for part-time nurse retention rates, two of the six region's retention rates (33%) were found to be relatively normally distributed. In two regions, retentions rates for both full-time and part-time nurses were relatively normally distributed (Sacramento/Northern California; Central California). Similarly, in two other geographic regions, retentions rates for both full-time

and part-time nurses were not relatively normally distributed (San Francisco Bay Area; Los Angeles).

Table 2 contains a summary of finding for the preliminary analysis of data normality within the study's data set regarding retention rates by geographical region and status of employment:

Table 2

Normality of Retention Rate Data Comparison by Employment Status and Geographical Region

Geographic Region	Full-Time RN (K-S)	Part-Time RN (K-S)
Sacramento/Northern California	0.15[a]	0.20[a]
San Francisco Bay Area	0.36	0.34
Central California	0.21[a]	0.17[a]
Los Angeles	0.24	0.30
Inland Empire	0.17[a]	0.32
Southern Border	0.21[a]	0.26

[a] $p > .05$ (Relatively Normally Distributed)

Descriptive and non-parametric inferential statistical techniques were used to specifically address research question two. Regarding the overall comparison of "new-graduate" and "specialty nurses" retained in the State of California, the mean score difference (.87%) favored the retention of nurses considered as employed as "specialty nurses". The mean rank score difference favoring the employment and retention of "specialty" nurses in the State of California was manifested at a non-statistically significant level ($p = .49$) using the non-parametric alternative to the t test of Independent

means, the Mann-Whitney *U*- Test. Moreover, using Cohen's *d* effect size statistic the magnitude of effect in the mean rank score difference (*U*) was considered "medium" at *d* = .48.

Table 3 contains a complete summary of finding for the comparison of "new-graduate" and "specialty" nurses retained across the State of California:

Table 3

Overall State of California Nurse Retention Rate Comparison by Employment Category

Group	Mean Rank	SE	*z*	*p*
New Grad RN	5.67	6.25	0.80	.49
Specialty RN	7.33			

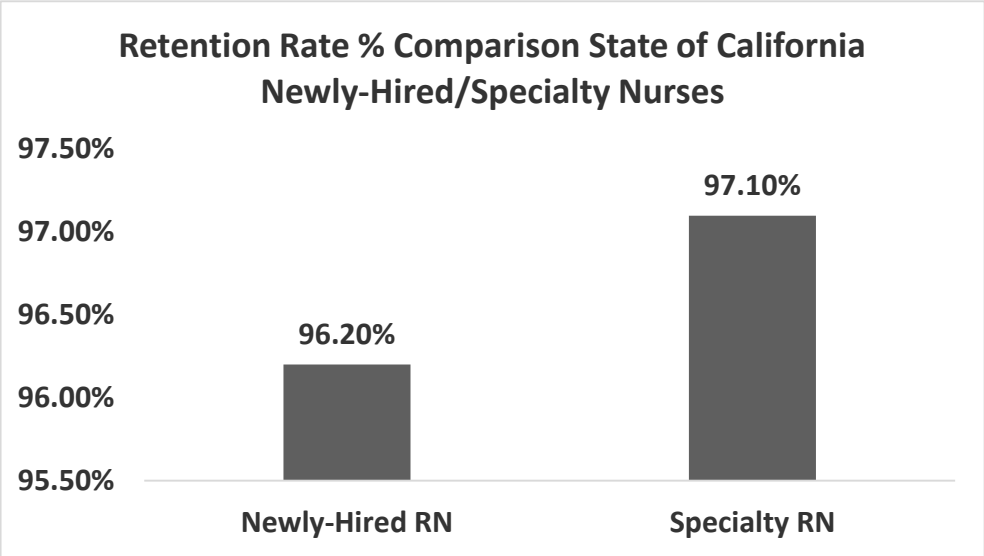


Figure 1. Retention rate percentage comparison.

Results

Research Question 1

Are there differences in retention rates between full-time and part-time registered nurses in California geographic regions? Descriptive and inferential statistical techniques were used to specifically address research question one. Regarding the overall comparison of full-time and part-time nurses retained in the State of California, the mean score difference (.48%) favored the retention of nurses considered as employed on a full-time basis. The mean score difference favoring the employment and retention of full-time nurses in the State of California was manifested at a non-statistically significant level ($p = .53$). Moreover, using Cohen's *d* effect size statistic the magnitude of effect in the mean score difference (effect size) was considered small at $d = .11$.

Table 4 contains a complete summary of finding for the comparison of full-time and part-time nurses employed and retained across the State of California:

Table 4

Overall State of California Nurse Retention Rate Comparison by Employment Status

Group	Mean	SD	*t*	*d*
Full-Time	.9698	0.03	0.62	.11
Part-Time	.9650	0.05		

***p* = .01

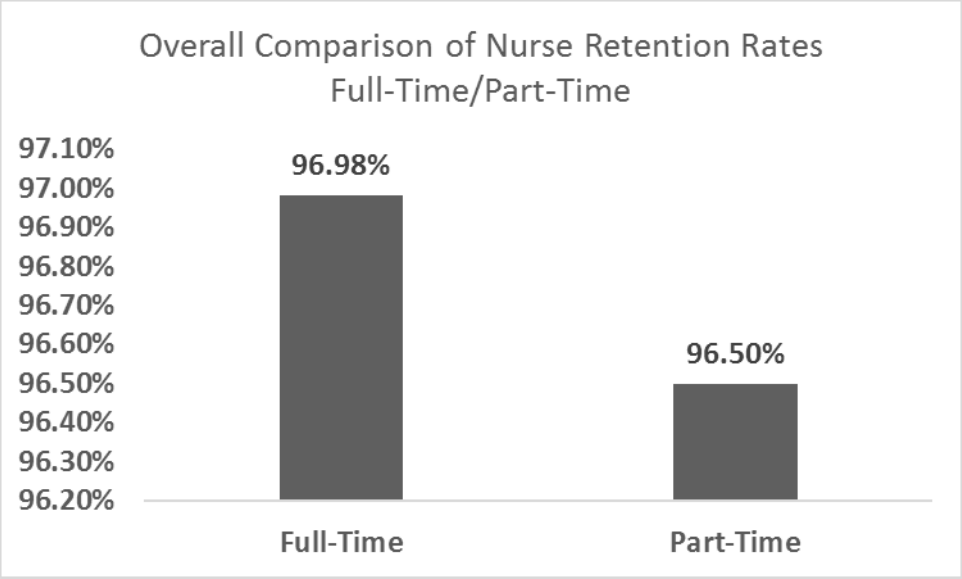


Figure 2. Overall comparison of nurse retention rates.

Regarding effect of geographical region upon retention rate and using a 1 x 6 ANOVA for analytic purposes, there was no statistically significant effect for region upon the retention rate of full-time nurses ($F_{(5, 72)} = 1.04$; $p = .40$) and part-time nurses

($F_{(5, 65)} = 0.66$; $p = .65$). Using a Factorial ANOVA to assess the interaction effect for nurse employment status (full-time; part-time) and geographical region upon the retention rate of nurses in the State of California, no statistically significant effect was found for the interaction of both employment status and geographical region ($F = 0.24$; $p = .94$)

Considering geographic region represented in the study and the comparison of retention rate of nurses by employment status, mean differences in five of the six geographic regions between employment status and retention of full-time and part-time nurses favored those nurses employed and retained via full-time employment status. However, using the t test of Independent Means for statistical significance testing purposes in the comparisons, none of the mean score comparisons of employment status by geographic regions were manifested at a statistically significant level ($p < .05$).

The comparison manifesting the greatest degree of effect was manifested in the employment and retention of full-time and part-time nurses in the "Inland Empire" region of the State of California. The magnitude of the effect for the comparison was considered approaching medium at $d = .33$. The least magnitude of effect in the comparison of employment and retention of nurses was manifested in the "Central California" region. The magnitude of the effect for the mean comparison difference (.0009) was considered trivial at $d = .04$.

Table 5 contains a summary of comparison of full-time and part-time nurses by geographical region:

Table 5

Comparison of Full-Time/Part-Time Retention Rates of Nurses by Geographic Region

Comparison	Mean	SD	*t*	*P*
Sacramento/N. CA (Full-Time)	.9700	0.02	0.18	.86
Sacramento/N. CA (Part-Time)	.9679	0.04		
San Francisco Bay Area (Full-Time)	.9501	0.09	0.17	.87
San Francisco Bay Area (Part-Time)	.9555	0.07		
Central California (Full-Time)	.9820	0.02	0.12	.91
Central California (Part-Time)	.9812	0.02		
Los Angeles (Full-Time)	.9733	0.02	0.52	.61
Los Angeles (Part-Time)	.9671	0.04		
Inland Empire (Full-Time)	.9666	0.02	0.82	.42
Inland Empire (Part-Time)	.9441	0.10		
Southern Border (Full-Time)	.9769	0.01	0.28	.79
Southern Border (Part-Time)	.9744	0.03		

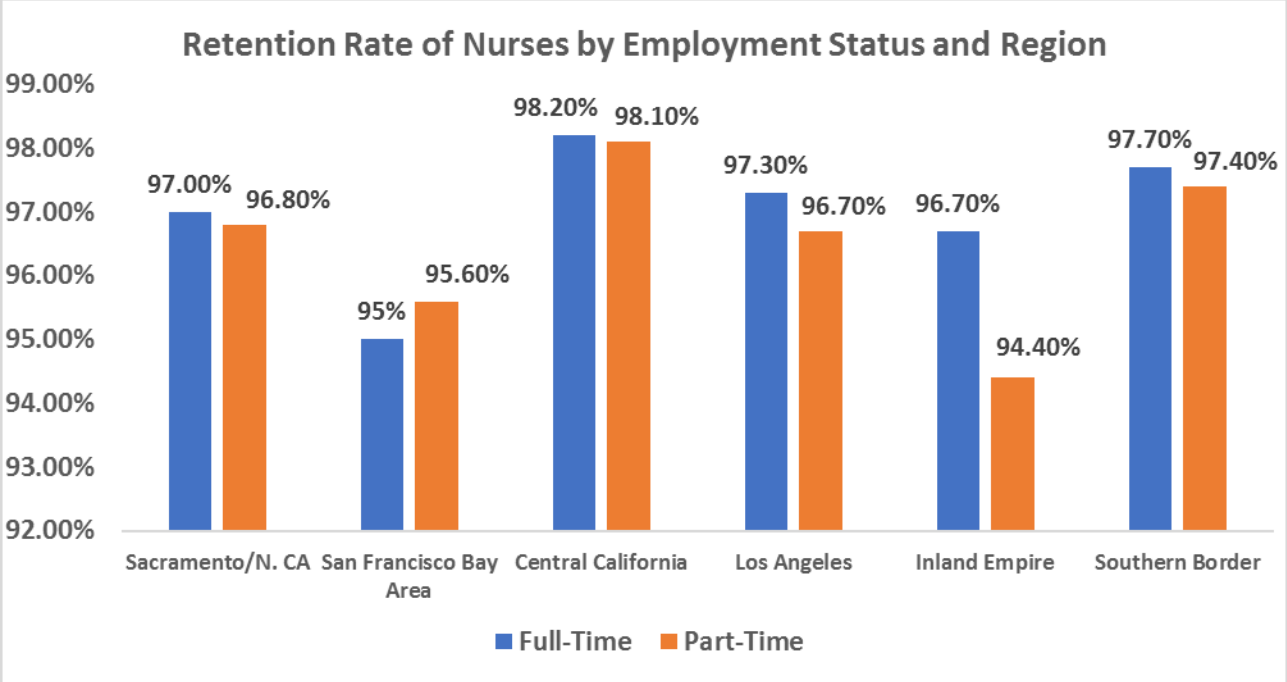


Figure 3. Retention rate of nurses by employment status and region.

$H_0$1: Geographic region does not influence the retention rates of full and part-time registered nurses in California. Considering the non-statistically significant finding for retention rate difference in Full-Time and Part-Time nurses across geographic region, the Null Hypothesis in research question one was retained.

H_a1: Geographic region does influence the retention rates of full and part-time registered nurses in California. Considering the non-statistically significant finding for retention rate difference in Full-Time and Part-Time nurses across geographic region, the Alternative Hypothesis in research question one is rejected.

Research Question 2

Are there differences in retention rates between new graduates (BSN or higher) and specialty nurses (nurse anesthetists, clinical nurse specialists, nurse midwives and nurse practitioners)? Regarding the comparison of retention rates of "new-graduate" and "specialty" nurses by geographical region, three of the six comparisons favored the retention rates of "new-graduate" nurses (Sacramento/Northern California; San Francisco Bay Area; and Southern Border). The greatest mean percentage difference in comparisons favoring "new-graduate" nurses was manifested in the Sacramento/Northern California area (3.1%).

Three of the six comparisons also favored the retention rates of "specialty" nurses (Central California; Los Angeles; and Inland Empire). The greatest mean percentage difference in comparisons favoring "specialty" nurses was manifested in the Central California area (5.8%).

Using the non-parametric statistical alternative to the One-Way ANOVA, the Kruskal-Wallis Test, the distribution of retention ratio was not found to be statistically significant for either "new-graduate" nurses nor "specialty" nurses across geographic region in the study's sample ($K\text{-}W_{(5)} = 5.00$; $p = .42$).

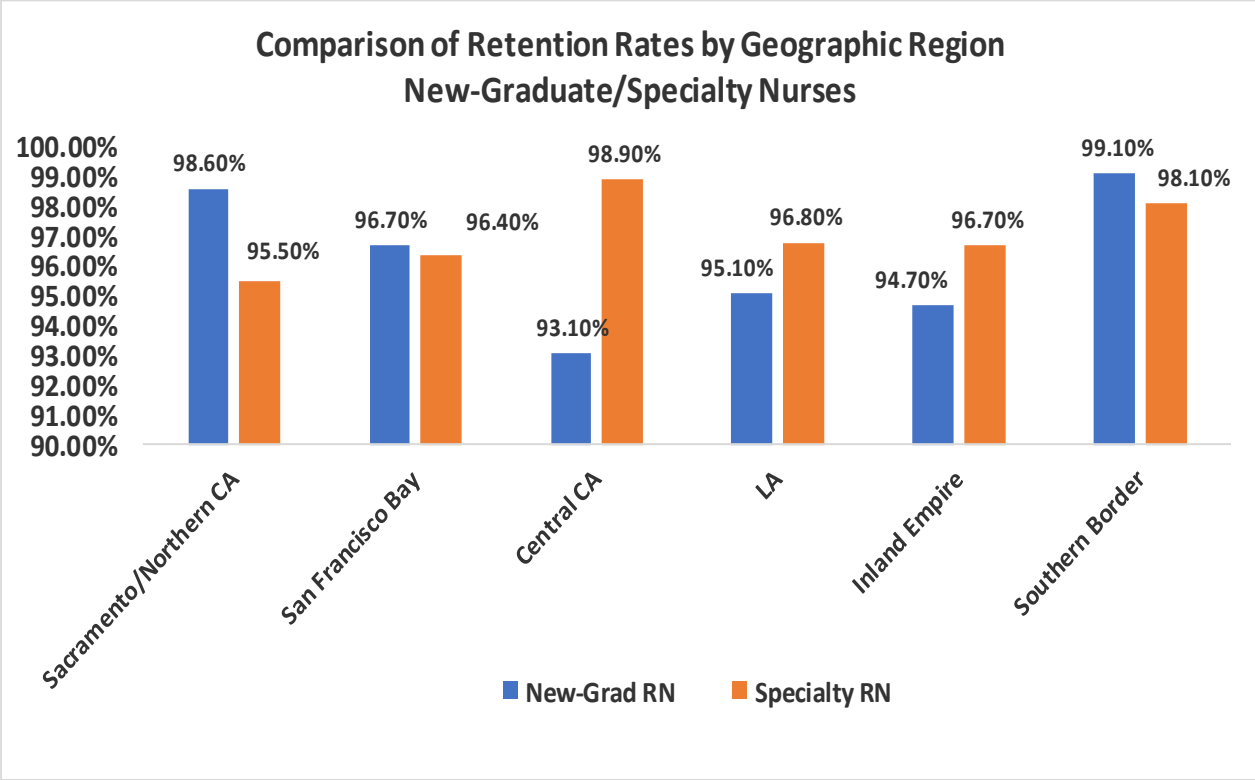
Table 6 contains a descriptive summary of comparison of "new-graduate" and "specialty" nurses by geographical region:

Table 6

Retention Rate % Comparison by "RN Category" and Geographic Region

Geographic Region	New-Graduate RN	Specialty RN
Sacramento/Northern California	98.6%	95.5%
San Francisco Bay Area	96.7%	96.4%
Central California	93.1%	98.9%
Los Angeles	95.1%	96.8%
Inland Empire	94.7%	96.7%
Southern Border	99.1%	98.1%

Figure 4. Comparison of retention rates new graduate/specialty nurses.



***H_a*1: Geographic region does influence the retention rates of new graduates (BSN or higher) and specialty nurses (nurse anesthetists, clinical nurse specialists, nurse midwives and nurse practitioners).** In light of the non-statistically significant finding (p = .49) for effect of geographical region upon retention rates of new graduate and specialty nurses in the study's sample, the Alternative Hypothesis (H_1) in research question two was rejected.

***H_0*1: Geographic region does not influence the retention rates of new graduates (BSN or higher) and specialty nurses (nurse anesthetists, clinical nurse specialists, nurse midwives and nurse practitioners).** Considering the non-statistically significant finding (p = .49) for effect of geographical region upon retention rates of new graduate and specialty nurses in the study's sample, the Null Hypothesis (H_0) in research question two was retained.

Summary

The analysis of Research Question 1 retains the null hypothesis that geographic regions in California does not influence the retention rates of full-time and part-time registered nurses and the analysis of Research Question 2 retains the null hypothesis that geographic regions does not influence the retention rates of new graduate (BSN or higher) registered nurses and specialty nurses (nurse anesthetists, clinical nurse specialists, nurse midwives, and nurse practitioners). Even though the analysis showed no statistical difference in either research question there is still valuable information that was learned from the analysis of data. Section 4 of this study will provide the application to professional practice and implications for social change. Interpretation of the analysis,

limitation of the study, recommendations for further research, recommendations for professional practice and the impact for positive social change will be explored in this section.

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

Introduction

The purpose of this quantitative study was to examine retention rates of registered nurses in geographic regions. Nurses have a major role in hospitals and are considered the biggest staff in any healthcare facility. The nature of this study was to find out the differences in retention rates between full-time and part-time registered nurses and new graduate and specialty nurses. In order to answer the research questions secondary data was utilized from the Healthforce Center at UCSF.

The initial data was gathered using surveys and follow-up telephone surveys. The data specifically addressed questions of retention, vacancies and turnover (voluntary and involuntary). I used the Statistical Package for Social Sciences version 24 in order to answer the research questions. By conducting the quantitative analysis two key findings emerged: there was no real statistical significance between the retention of part-time versus full-time registered nurses in California geographic regions or new graduate versus specialty registered nurses in California geographic regions. However, even though there was no statistical significance for either research question there are still inferences that can be made.

Interpretation of the Findings

Two key findings emerged from the analysis of the data. One finding is that there was no real significance between full-time and part-time nurses or new graduate and specialty registered nurses in California geographic regions. The other key finding is that other inferences emerged as a result of this analysis.

Comparison of Full-Time versus Part-Time

When looking at the overall comparison of nurse retention rates for full-time versus part-time nurses the significance was not that great (96.98% full-time versus 96.50% part-time), however the data still show a favor for the retention of full-time nurses overall versus part-time nurses. This confirms the literature overall that the shortage of nurses is affecting hospitals and healthcare organizations and they are doing what they can to make the supply (nurse shortage) equal to the demand by hiring part-time registered nurses even though full-time registered nurses is more favorable (Snavely, 2016).

The analysis also showed when looking at the comparison of full-time versus part-time registered nurses in California the greatest degree of effect for full-time nurse retention was best seen in the Inland Empire region. The magnitude of effect was small, however, when compared to the other geographic regions in California, Inland Empire has a greater retention of full-time registered nurses versus part-time registered nurses. This supports research by McHugh and Ma (2014) that nurses will stay in places that have a more harmonious and enjoyable work environment even though the wage may not be the greatest. According to a 2018 report by M. Roosevelt in the Los Angeles Times, Inland Empire continue to struggle with poverty and low earnings. From 2010 to current there has been a huge surge in healthcare employment due to the Affordable Care Act (ACA). The ACA brought healthcare to thousands of Inland Empire residents who could not afford regular insurance on their own and the companies they worked for did not provide it (Roosevelt, 2018). The report also notes that the Baby Boomer generation is

getting close to the age of retirement and therefore requiring more care. This further supports the work of Haddad and Toney-Butler (2019) suggesting that the Baby Boomer generation has an increased need for health services because of their population size. Also, a large majority of nurses are near the age of retirement therefore leaving a nursing shortage. Finally, the analysis confirms that Inland Empire is a geographical region that will see a surplus of nurses due to its nursing education programs (Spetz, 2018).

Comparison of New Graduates versus Specialty Nurses

The analysis of new graduate registered nurses versus specialty registered nurses confirms that there was no statistical significance in the retention rates. The data shows that although there was no statistical significance, the retention rate of newly hired registered nurses is greater in the geographic region of Sacramento/Northern California (98.6%) and Southern Border (99.1%). This confirms that the education programs for nurses are growing in these areas and will therefore these regions will see a greater number of nurses (Spetz, 2018). These regions are also considered urban areas in California and as such will have budget for better wages and an overall better environment. California overall has the best paid registered nurse salary (Bureau of Labor, n. d.). There is a slight difference in salary based on location, but on average the wage of a RN in California is $106,950.

Central California showed the greatest retention rate percentage difference between new graduate registered nurses (93.1%) and specialty registered nurses (98.9%). It extends knowledge that the Central California region have a better retention rate of specialty nurses versus new graduate nurses. This can confirm that the Central California

region has a greater shortage of new graduate nurses as literature suggests versus the other regions but extends the literature to suggest that Central California has the greater retention rate for specialty registered nurses than other regions in the State of California.

Lastly, the retention rates between new graduate registered nurses and specialty registered nurses further strengthens the idea that registered nurses are looking for a place of work that provides satisfaction and a good work environment. The data shows that overall, retention rates in both areas (new graduate and specialty registered nurses) are high (over 90%) and contributing factors could be work environment and staffing as suggested in the study conducted by McHugh and Ma (2014). On the other hand, there could be multiple factors that contribute to the retention of registered nurses such as; good wages, benefits, staff appreciation, low stress and effective management as inferred by Heidari et al. (2017).

Analysis of Findings to Theoretical Framework

The greatest asset in an organization is its people. It is important for healthcare facilities to show appreciation and value to nurses which are their biggest staff and bloodline for the organization. Barney's theoretical concept states that it is the people within an organization that makes it strong and help to build the financial wealth. Financial wealth of an organization does not depend on the resources alone, but how well those resources are managed/maintained (Kor & Mahoney, 2004). The data suggests that California depends on not only full-time registered nurses, but part-time, new graduate and specialty registered nurses to mitigate the predicted nursing shortage and maintain some form of steady retention. Barney and Arikan (2001) stated that a strong

organization is built around the versatility of its people and allows for an organization to have a competitive advantage. Barney also stated in his theory that there must be some strategic structure as to how an organization acquires and maintains its resources- the strategic factor market (Barney & Arikan, 2001). What are healthcare facilities offering to registered nurses in order to retain registered nurses and is the healthcare facility offering something better than the next healthcare facility?

Limitations of the Study

One limitation to this study was that the secondary data was not a complete data set. It provides data at the cellular level only, but not individual levels. If this data would have shown individual responses it would have been a massive dataset but provided for a better statistical analysis. When working with cellular level data the p-value was limited which could be a reason there was no real significance. Despite having a limited dataset to work with it was still a very comprehensive data set. When looking at the data, there were various data points that I could have used to answer my research questions so I had to be careful to pick the data that would provide for the greatest analysis. This limitation is why different statistical tests were used. There were more cells to compare for Research Question 1 which is why the K-S and Factorial ANOVA was used. Research Question 2 had smaller cells to compare and thus non-parametric tests were used; Mann-Whitney *U* and Kruskal-Wallis Tests.

A reliability issue with the secondary data set lies within the division of the California regions. California's geographic and land regions are divided differently depending on the websites. Some websites states there are four geographic regions in

California while others state there are three such as the *Visit California* website. The original study divided the geographic regions into six categories according to how they are divided by the California Board of Registered Nursing (Survey, 2018). This can cause confusion within the study itself. For example, the San Francisco Bay Area is the largest part of Northern California, yet it is a geographic region all its own in the data set.

Recommendations

The purpose of this study was to explore the relationship between the retention of registered nurses and the geographic regions in which they work. This was to probe into ways to reduce the cost of healthcare facilities by decreasing nursing turnover. A recommendation for further research would be to duplicate this study in a state that has consistent geographic regions of both rural and urban areas. A second recommendation would be to expand this study to other disciplines that show high turnover in healthcare facilities (i. e. habilitation technicians, recreational therapist, social workers). A final recommendation would be to investigate retention strategies that create longevity among registered nurses.

Implications for Professional Practice and Social Change

Professional Practice

The implications for professional practice that relate to reducing the cost of healthcare facilities by decreasing nursing turnover is to focus on retention efforts at hire. According to the study, retention rates were higher among full-time Registered Nurses. Healthcare facilities should seek to hire full-time registered nurses who express interest in learning and growing within an organization. When registered nurses are retained it

decreases the overall cost of healthcare facilities that come from adverse events and poor patient care as reported by Mazurenko, Gupte & Shan (2015). These goals to improve retention and reduce turnover can easily be included into a healthcare facilities Strategic Plan as discussed by Barney and Arikan (2001) or added to financial performance improvement as a financial quality indicator (Nelson-Brantley, et al., 2018). The addition of these goals will provide a constant reminder to look at solutions to reduce turnover and ways to improve retention. The data from these goals can provide a visual to management as to how they are doing at retaining registered nurses.

Positive Social Change

The implications for positive social change for retaining Registered Nurses is to improve quality of patient care and reduce adverse events in all geographic regions. A nurse is a person who nurtures, communicates instructions and concern between the physician and the patient or patient's family. There is cohesiveness that builds trust and creates a better work environment and positive outcomes. Geographic regions could also explore ways to provide education programs to produce more nurses which could help to improve the nurse shortage.

Conclusion

My goal in providing the information in this study was to show one factor of many that challenge the retention of registered nurses in healthcare facilities and how the lack of nurse retention in healthcare facilities play a role in the overall high cost of healthcare facilities. Nurse Turnover is a global issue and has proven to be very costly in the United States. Nurse turnover can be detrimental to healthcare facilities and very

costly. Healthcare leaders are compelled to focus on retention efforts and look for solutions reduce overall hospital costs. Barney's theory of viewing people as valuable resources provides the bridge that connects the thought of investing in your people (staff) so they can produce quality services for the organization. Managers of healthcare facilities should be strategic in ways of looking for the best nurses and retaining nurses once they are in the door. The study showed that a positive work environment, valuing nurses for the important work they do and providing effective management strategies are all ways that can support nurse retention. No matter how small the significance it can save hospitals thousands of dollars that can be used to support other needed areas within the hospital.

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