ALLIED HEALTH STUDENTS FROM RURAL COMMUNITIES IN SOUTHWEST MISSOURI: WHAT INFLUENCES THEIR DECISION TO STAY OR LEAVE AFTER GRADUATION?

by

Elaine J. Kramer

An Abstract of a thesis submitted in partial fulfillment of the requirements for the degree of Education Specialist in the School of Professional Education and Leadership University of Central Missouri

December, 2018
ABSTRACT

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This research investigated where rural students seek employment after graduating from allied health programs at Ozarks Technical Community College (OTC) in southwest Missouri and what influenced their employment decisions. Literature suggested health care in rural communities was not always able to meet the needs of the rural citizens. Researcher-developed surveys were emailed to 2010-2015 graduates of all OTC allied health programs and to students enrolled in allied health programs during the Fall 2015 semester. Existing state department of education data were also analyzed. Data suggested that over 50% of OTC allied health students were from smaller communities throughout Missouri (N < 10,000). However, fewer than 12% of graduates returned to work in those same rural communities. Reasons for not returning to rural communities included higher salaries, better benefits, and more advancement opportunities were available in larger communities. Recommendations included programs should incorporate clinical rotations in rural areas.
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APPROVED:

Thesis Chair: Dr. Barton A. Washer __________________________________________

Thesis Committee Member: Dr. Gail White ____________________________

Thesis Committee Member: Dr. Alexander Pagnani ______________________

ACCEPTED:

Chair, School of Professional Education and Leadership: Dr. Barton A. Washer

Director, Graduate Education and Research: Dr. Odin Jurkowski

____________________________________________________________________

UNIVERSITY OF CENTRAL MISSOURI
WARRENSBURG, MISSOURI
I would like to first and foremost express my appreciation to my Graduate Advisor and Thesis Chair, Dr. Barton Washer, and other Thesis Committee members, Dr. Gail White and Dr. Alexander Pagnani. We began this journey together from across the globe while I was in Afghanistan and have continued until this point. You were always extremely patient, understanding, and encouraging me to complete this project. Thank you for not giving up on me and being so readily available to answer my questions, even on the weekends!

I could not have completed this research without the cooperation of the faculty, graduates, and students of various allied health programs of Ozarks Technical Community College in Springfield, Missouri, from 2010 to 2016. It was because of you that this project was developed. My hope is that the findings were beneficial and may assist with changing the outlook of allied health education; in addition, evolve into increasing the number of healthcare providers throughout the rural areas of Missouri.

Finally, I would like to acknowledge and thank my husband for all of the support and encouragement you have shown me throughout this journey. Though there were times when I would get discouraged, you were always there to keep me going. Thank you!
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CHAPTER 1
THE PROBLEM AND
ITS SETTING

Background of the Study

Alsgaard (2014) stated there have been many studies on the shortages of rural healthcare providers. According to Alsgaard, it was suggested that the shortage of healthcare professionals was not just a local issue, but nationwide. Furthermore, Alsgaard stated that twenty percent of the population resided in rural areas with only ten percent of physicians located in these communities. Additionally, as of 2014 there was a shortage of over 7,000 doctors nationwide. Another concern contributing to the shortage was the number of healthcare providers nearing retirement age was greater than the number of healthcare students graduating and seeking employment (2014).

However, healthcare shortages may not be the only problem in rural communities. In a book review, Hironimus-Wendt (2011) when discussing rural population problems in the farming context, reiterated that the primary causes of the fall of rural communities were the losses of family farms and high-wage manufacturing jobs. According to Browne (2010), larger corporate farms were purchasing smaller, family farms. As the size of the farms increased, the overall population decreased. The result was a shift in professionals leaving small towns and relocating into more populated areas (Okoh, 2010). As Jackson (2010) stated, this migration can be seen in specialized professions such as healthcare.

Clinton (2015) referred to the problem as “brain drain.” In research titled “Rural areas fight to retain the best and brightest,” Clinton stated that “Brain drain refers to the phenomenon where highly educated people leave one area in favor of another” (p. 1). Rural citizens may
Rural Healthcare Students

leave their small towns to seek better education, and stay away to find the better, higher paying jobs. If they do return to their rural communities, it is due to family ties and lower cost of living (Clinton, 2015). Harrop (2011) stated that larger cities tend to have better quality higher education, high-tech industries, and liberal-minded attitudes. As young people graduate from universities, they seek the higher wages and the social life that larger cities can provide.

Each year, the allied health department of Ozarks Technical Community College (OTC) in southwest Missouri accepts students from various geographic areas into its programs. Some of these students come from rural areas. Many OTC students are from rural locations, which face significant shortages of healthcare providers. This limits access to healthcare services (Chen, Xierali, Piwnica-Worms, & Philips, 2013). To address this, some colleges and universities were revising their clinical rotations to provide exposure to more rural areas in order to increase interest and retention in rural clinics (Wachtel & Dexter, 2012).

Statement of the Problem

There were several smaller-scale studies conducted at OTC which addressed student employment after graduating from an OTC allied health program (Christy, Stafford, Sullivan, & Tessier, 2010; Christy, Tessier, Jensen, & Sullivan, 2011; Christy, Tessier, Tindell, & Sullivan, 2012; Christy, Tessier, Tindell, & Sullivan, 2013; Christy, Tessier, & Sullivan, 2014). However, there was no literature located for this study specifically addressing rural students. Rural residents require healthcare services just as those living in larger cities, and studies have suggested the negative impact a shortage of healthcare providers has on rural communities in other parts of the country (Bhatt, 2010). Furthermore, there were data located for this research that suggested colleges and universities were adapting their programs to include ways to recruit
potential job seekers to these rural areas (Chen et al., 2013; Wachet, & Dexter, 2012; Richards, O’Neil, Jones, Davis, & Krebs, 2011).

Therefore, the problem driving this study was the lack of data on where rural students seek employment after graduating from an allied health program at Ozarks Technical Community College and what influenced their employment decisions.

**Research Questions**

There were five research questions that guided this study. These are:

1. What is the difference between rural graduate and metropolitan graduate employment placement rates after graduating from OTC allied health programs?
2. What percentage of OTC allied health program completers from rural communities are returning to work in rural healthcare facilities that serve remote areas?
3. What percentage of OTC allied health program completers who now work in rural communities are originally from urban areas?
4. What impact do rural healthcare shortages have on students not returning to their rural hometown?
5. How do graduate job placements from OTC allied health programs compare among each program?

**Purpose of the Study**

The purpose of this study was to determine where rural students who have completed their education in an allied health program at OTC are seeking employment after graduation. In addition, the author attempted to determine what factors influenced their decision. According to a blog by Commins (2012), “The increased demand for healthcare services is going to make
recruiting doctors even more difficult for rural providers in the coming years” (para 2). Each year, OTC enrolls students from counties throughout southwest Missouri, and many of those students are allied health students. Allied health programs that offer rotations in rural hospitals as part of student requirements create community connections that may increase recruitment of healthcare providers in rural areas (Bhatt, 2010). The results of this study may assist program directors within the allied health department at OTC by providing data of where program graduates were seeking employment, as well as providing creative ideas to investigate changes and address recruitment and enrollment of rural students. This could potentially lead to OTC better serving rural communities in OTC’s delivery region.

The Hypotheses

The following research hypotheses were presented for this study.

H1. After graduation from an allied health program at OTC, there are more students seeking employment in the larger urban healthcare facilities than in rural healthcare facilities.

H2. There are a smaller percentage of students from rural communities returning to their communities seeking employment than students from urban areas.

H3. There is a smaller percentage of students who chose to work in rural communities who are originally from urban areas.

H4. Allied health graduates are not returning to rural communities because of higher salary, better benefits, and opportunities for advancement.

H5. Some OTC allied health programs have a smaller percentage of graduates returning to rural communities than other programs.
Definitions of Terms

The following terms and definitions were used by this study.

**Allied health.** A group of medically prescribed health-care services provided by licensed professionals (The American Heritage Medical Dictionary, 2007).

**Allied health programs.** For the purpose of this study, this term will be operationally defined as those programs offered within the Allied Health Department at Ozarks Technical Community College (OTC) in southwest Missouri. These include Dental Assisting (DAS), Dental Hygiene (DHY), Emergency Medical Technician (EMT) and Paramedic, Health Information Technology (HIT), Hearing Instrument Science (HIS), Medical Laboratory Technician (MLT), Occupational Therapy Assistant (OTA), Physical Therapist Assistant (PTA), Practical Nursing (LPN), Associate of Science in Nursing (RN), Respiratory Therapy (RT), and Surgical Technology (ST).

**Allied health students.** For the purpose of this study, this term will be operationally defined as those students actively enrolled in the 2015 academic year or have graduated between 2010 to 2014 from one of the allied health programs at OTC.

**Rural area.** The Missouri Census Data Center (2014) defines rural areas as “All territory, population, and housing units located outside of urban areas and urban clusters. The rural component contains both place and nonplace territory. Geographic entities, such as census tracts, counties, metropolitan areas, and the territory outside metropolitan areas, often are "split" between urban and rural territory, and the population and housing units they contain often are partly classified as urban and partly classified as rural” (para 5).
Southwest Missouri. For the purpose of this study, this term will be operationally defined as the counties of and surrounding the Joplin and Springfield metropolitan areas to include the following counties: Barry, Barton, Cedar, Christian, Dade, Dallas, Douglas, Greene, Hickory, Jasper, Laclede, Lawrence, McDonald, Newton, Ozark, Polk, Stone, Taney, Webster, and Wright.

Urban area. The Missouri Census Data Center (2014) defines urban areas as “All territory, population, and housing units located within an urbanized area (UA) or an urban cluster (UC). It delineates these boundaries to encompass densely settled territory, which consists of:

1. Core census block groups or blocks that have a population density of at least 1,000 people per square mile; and
2. Surrounding census blocks that have an overall density of at least 500 people per square mile.

In addition, under certain conditions, less densely settled territory may be part of each UA or UC.” (para 5).

Scope and Delimitations of the Study

The following scope and delimitations were presented for this study.

1. Participants in this study were allied health students and graduates from OTC during the 2010 to 2015 academic years.
2. The population for this study was identified as all graduates from OTC allied health programs since 2010.
3. The number of graduates varied within each allied health program.
4. Participants in this study were selected from email addresses on file at OTC.
Limitations of the Study

The following limitation was identified during the course of conducting this study:

1. This research incorporated a population census approach rather than a sampling technique. One potential drawback for choosing the population census approach was that it may not be truly representative of the shortages health care programs represented by rural health care providers. There were many different health care programs taught at OTC; however, each one may not have been represented in each rural community. Furthermore, the researcher did not attempt to compute correlations of similarities among the groups. Thus, if one program’s graduate participants were more heavily weighted in the census sample, this may have skewed the results.

Assumptions

The following assumptions were presented for this study.

1. OTC’s data on recent allied health graduates did not provide evidence why a graduate sought employment in a particular demographic area.

2. It was assumed the OTC mailing addresses and email addresses for program graduates were accurate.

3. Every potential research participant who received an email inviting them to participate in this research may not have responded.

4. Students attend colleges or universities to obtain a higher degree in order to pursue better employment opportunities (Meece, Hutchins, Bryan, Byun, Farmer, Irvin, & Weiss, 2015).
5. Rural communities have greater healthcare needs than urban areas due to the shortage of providers (Hwang, 2015).

Need and Significance of the Study

According to Richards et al. (2011), “it is becoming increasingly difficult to provide even basic healthcare to patients and to sustain excellent clinical experiences for nursing education” (p. 23). A study conducted at the Purdue University School of Nursing, West Lafayette, Indiana, concluded that rural healthcare facilities provided much needed services to communities with little or poor access to primary care services. Most of the clients who used these facilities were among the working poor, who did not qualify for Medicare or Medicaid (Richards et al., 2011). Furthermore, an increase in the geriatric population of rural communities may require more healthcare providers than previous years. The state of provider shortages at the time of this research may add to the strain of providing adequate healthcare in rural areas. According to Iglehart (2013), the number of physicians and nurse practitioners were more concentrated in urban areas, thus causing an imbalance in the percentages of providers for those who need it the most. In addition to providing much needed health care services, these rural facilities provided an avenue for healthcare students to become aware of the need in the rural communities and were more likely to seek employment in less populated areas (Richards et al., 2011).

According to Garland (2013), individuals who were satisfied with where they live (regardless of the size of their community) were more invested in their communities and were less likely to leave. Satisfaction with one’s community was a result of strong relationships which led to a desire to participate in civil activities and increased community involvement. Social interaction contributed to community growth and individual well-being. Furthermore, having a
sense of belonging fueled the desire to serve the members of the community in other capacities, such as providing health care (Garland, 2013) that would aide in building relationships and lessening the desire to move to more populated areas.

It was not clear how many allied health students who live in rural areas of southwest Missouri sought employment and remained in rural communities. This study attempted to provide background information for OTC and the Allied Health Department in order to find ways to partner with those communities in order to increase the standard of care, offer opportunities that would financially benefit smaller healthcare clinics, and hopefully instill a desire in students to serve the people of smaller communities in their healthcare needs.

Summary

According to Hewett (2012), there was a shortage of healthcare providers, and the greatest impact was in rural communities where citizens may need to travel many miles to the nearest clinic. There were students who enrolled in OTC’s allied health program at OTC who are from rural communities in southwest Missouri. However, there were no data to determine where these rural students sought employment after graduation. While some colleges and universities are making changes to their existing programs to partner with rural health care facilities with the hope of recruiting students to these areas (Chen et al., 2013; Wachet, & Dexter, 2012; Richards et al., 2011), OTC may benefit from implementing similar practices. This study was designed to assist OTC in learning where its allied health students are working after graduating and to determine what impacted their decisions. The results may also assist OTC in program changes to address rural healthcare shortages.
CHAPTER 2
REVIEW OF RELATED LITERATURE

Overview

The purpose of this study was to determine where rural students who have completed their education in an Ozarks Technical Community College (OTC) allied health program were seeking employment after graduation. In addition, the author attempted to determine what factors influenced their decision. Although there were significant data on where students from OTC obtained employment, there was a lack of specific data on where students from rural areas sought employment upon graduation from an allied health degree program. A review of literature was conducted in order to assist with background information for this study. This literature review will address the following areas: Rural Healthcare, Shortages of Rural Health Providers, Strategies of Recruitment and Retention for Rural Healthcare Facilities, and OTC Allied Health Students’ Employment Outlook.

Summary of Search Strategies and Terms

The literature review for this study was based on information located through online databases retrieved from the University of Central Missouri (UCM) John C. Kirkpatrick (JCK) Library and Google.Scholar. Due to the lack of scholarly peer-reviewed journal articles pertaining to the lack of data on the employment of rural students of OTC, other literature sources were explored for related literature. This literature review will reference scholarly peer-reviewed articles pertaining to the supporting information that were found in databases from the JCK library and articles of interest from government websites.
**Search strategies used.** The strategies used for locating literature included online databases through the JCK library, Google.Scholar, and the annual reports from Ozarks Technical Community College (OTC). Once logged into the online library, the research was directed toward “Online databases.” The two databases explored were “EBSCO” and “ProQuest.” Once logged into either of these databases, the search was directed toward the subject of “Life Sciences” and finally through two specific databases, “Consumer Health Complete” and “Family Health.” Once the research landed in either of these databases, it was directed into “Evidence-based reports” to locate the articles cited within this study.

Other supporting information was located through Google.Scholar from Missouri government websites such as “mo.gov.” This website served as a means to locate information pertaining to Missouri’s census of population and employment rates in addition to the definitions of terms pertaining to the regions of southwest Missouri. This website was used as a valid search engine for supporting information for this study.

The annual career employment services reports from OTC were 180 day follow-up reports that were required by the Missouri Department of Elementary and Secondary Education (DESE) at the time this research was conducted, through the Division of College and Career Readiness. These reports included data based on a survey sent to all OTC occupational graduates. The information in these reports indicated whether students were “employed, continuing education, or serving in the military in areas related or non-related to the degree/certificate conferred; or whether students are currently seeking employment, currently unavailable for employment or status unknown” (Christy et al., 2010; Christy et al., 2011 Christy et al., 2012; Christy et al., 2013; Christy et al., 2014).
Search terms used. The following terms were used when searching the JCK databases and Google.Scholar for information pertaining to the study: “Rural healthcare,” “Missouri healthcare,” “healthcare providers,” “allied health education,” “brain drain,” “United States AND rural health AND jobs,” “rural health AND students AND jobs,” “brain drain AND rural AND United States,” “Missouri rural areas,” “Missouri population,” and “mo.gov.”

Rural Healthcare in the United States

Rural areas of the United States are commonly thought to be outlying farms while urban areas are described as larger cities. However, a newer term used in the 2014 Missouri Census is exurbia, which has been referred to those urban/rural areas that seem to meet geographically and be less obviously defined (Missouri Census Data Center, 2014). The Missouri Census Data Center defines population areas by “census blocks” which investigates geographic areas of land rather than the number of people living within that area. For example, according to the Missouri Census Data Center (2014), “within the city limits of Kansas City, Missouri, 1.3% of the population was classified as living in a rural setting. If you look at the breakout based on land area instead of population, you find that 43.3% of the land area of the city of Kansas City is classified as rural” (para 1). Although this may be difficult for some to comprehend considering the expanse of urban areas such as Kansas City, Missouri, as rural areas made up the majority of the land in Missouri per the 2000 Census (Missouri Census Data Center, 2014). The 2014 Missouri Census Data Center listed the following facts on the rural areas of Missouri.

1. There are no counties in Missouri that are 100% urban, except the independent city of St. Louis. Of the 114 other counties in the state, only 33 are classified as being entirely rural (para 2).
2. 97.4% of the land area in the state of Missouri is classified as rural (per the 2000 Census). But only 30.6% of the population is classified as living in rural areas. Thus, almost 70% of the population of the state lives in about 2.6% of the land (para 3).

3. Nationwide, the same 97.4% of the land area is classified as rural, but only about 21% of the population lives in these rural areas (para 3).

The definition of urban areas is “core census block groups or blocks that have a population density of at least 1,000 people per square mile and surrounding census blocks that have an overall density of at least 500 people per square mile” (Missouri Census Data Center, 2014, para 5). The statement, “70% of the population of the state lives in about 2.6% of the land” (Missouri Census Data Center, 2014, para 3), leads one to a better understanding of the dispersion of the state’s population and how it may relate to shortages of healthcare providers. Figure 1 from Missouri Census Data Center (2014) illustrates the rural population number in Census Bureau Statistical Areas (CBSA).

In addition to the less dense population, there are other factors that may influence rural healthcare availability. According to Nelson, Greene and West (2010), due to the lack of large job opportunities, rural residents may tend to be poorer and have less employer-provided health coverage. They may also have a higher death rate, a larger proportion of chronic illness and life-threatening conditions, larger elderly population, and a greater prevalence of environmental hazards.
Challenges Facing Rural Healthcare

One Midwestern state, Missouri, has seen transitions due to brain drain. There are no beaches, mountains, tropical weather, or other amenities that are sought from the young, educated, and mobile population (Holloway & Kuhn, 2015). Okoh (2010) identified “brain
"brain drain" to describe the migration of physicians and scientists from underdeveloped countries to developed countries. Holloway and Kuhn (2015) stated that:

According to the United Health Foundation, Missouri is ranked 39th nationally for health status. Missouri has a higher prevalence of smoking, obesity, and chronic and acute conditions than the national average. In addition, Missouri has a lower rate of immunization and lower per capita public health funding than the national average (para 5).

According to Okoh (2010), brain drain can also occur at the national and international levels. For example, more affluent nations recruited physicians from their home countries and trained them as primary care providers. Political, social, and economic factors may be significant reasons for the migration, such as better pay, working conditions, career prospects, and educational opportunities. Once trained, many of these physicians choose to remain in their donor country and not return to their home countries (Okoh, 2010). According to Jack (2013), the migration of educated, trained healthcare professionals to more affluent areas hinders the recruitment and retention of qualified trained professionals in rural areas. The same model can be compared to what is happening in rural Midwest. Healthcare providers have migrated into the more affluent cities or other states for education and employment, leaving behind a need in the rural community (Holloway & Kuhn, 2015).

In a research study by Schootman, Homan, Weaver, Jeffe, and Yun (2013), rural cancer survivors had a higher rate of poor self-reported health, physical distress, and limitations of daily activity (p. 1). The study was conducted using the 2009 to 2010 Missouri Behavioral Risk Factor Surveillance System data and examined various health outcomes, psychosocial factors,
quality of life, and follow-up care for rural and urban cancer survivors in Missouri. According to Schootman et al., (2013), 29.9% of Missouri cancer survivors lived in rural areas and reportedly exhibited limited physical activities following cancer treatments even though physical activity was beneficial to recovery. Some of the challenges that may have contributed to this phenomenon were lower household income, unavailable services for follow-up medical care, frequent, untreated depression and fatigue, and being denied insurance coverage. Conversely, follow-up care facilities were closer to home for cancer survivors in urban areas, thus providing a more readily available means for support for urban cancer survivors (Schootman et al., 2013).

One major industry in the United States is healthcare (Dotson, Dave, & Cazier, 2012). However, at the time of this research, primary sources of revenue such as Medicare and Medicaid had been undergoing cuts, which have impacted many critical access hospitals and causing rural hospitals nationwide to close (Henry, 2015). Corey (2015) also provided information on hospital closures. Since 2010, there have been 48 hospitals closed with nearly 300 more on the brink of closure. According to Hong et al. (2011), this trend may push some patients into emergency rooms for treatment, even dental treatment, rather than driving long distances for primary care. Hong et al.’s six-year study in Kansas City, Missouri, revealed an increase in emergency room visits for dental complaints among its underprivileged residents rather than using a residential dentist.

**Shortages of Rural Health Providers**

All across the country, hospitals and healthcare facilities are facing a shortage of professional providers in the forms of nurses, technicians, and doctors (Commins, 2012; Hewett, 2012; Bhatt, 2010;). These deficits were placing an increased burden on those facilities and
professional providers living and working in the rural areas. According to MacKinnon (2011), geographic and social isolation, and limited access to human, material, and educational resources create a wider scope of practice with increased responsibility for decision-making for many nurses in rural clinics. Commins (2012) also stated that some of the reasons why there was a shortage could be led to healthcare workers seeking higher pay or preferring to have better access to better performing schools and more entertainment.

According to Nelson et al., (2010), the limited availability to adequate healthcare has created an increase in the stress levels of rural caregivers, especially in specialty services. This added stress significantly impacts issues such as professional-patient confidentiality, professional relationships, and allocation of funding. Some specialty services that were impacted are dental and long term care facilities. As of 2010, dental decay remained the top neglected health concern for children (Martin, Vyavaharkar, Veschesio, & Kirby, 2010). According to Martin et al. (2010), rural children have less access to and experience less utilization of dental services, despite having dental insurance coverage. In addition, skilled nursing care that was available at every shift on every day was challenging for maternity wards in rural hospitals (MacKinnon, 2011). Care for diabetes patients including dialysis was limited in rural communities, forcing patients to drive long distances to receive care (Lynch, Strom & Egede, 2011).

**Strategies of Recruitment and Retention for Rural Healthcare Facilities**

According to Commins (2012), rural hospitals have more difficulty in recruiting physicians. Therefore, they must reach out to more candidates in the hopes of enticing one to practice in a less populated area. Commins’ resources were retrieved from an online health information blog that described what many rural communities have experienced and is supported
from data in the “2012 In-House Physician Recruitment Benchmarking” report from the Association of Staff Physician Recruiters (Commins, 2012). In an attempt to compensate for this, rural communities may sometimes offer higher salaries to entice future healthcare providers (O’Donnell, 2012). Furthermore, according to the Association of American Medical Colleges (AAMC) annual report “Physician Education Debt and the Cost to Attend Medical School,” the average debt of a newly graduated medical school physician in 2012 was $170,000; however, paying their school debt was the least rated factor that influenced specialty career choices (Commins, 2013). Additionally, Commins (2013) referenced that the AAMC report surveyed students who were already accepted into medical schools and did not include those potential physicians from lower socio-economic groups who may have been discouraged from enrolling due to the high cost of tuition.

One method of increasing recruitment in rural communities is through partnerships between healthcare schools and community clinics. The University of Iowa College of Nursing began a new training program with its nurse anesthetist students that included rotating students through rural hospitals and clinics as part of the program requirements. According to Wachtal and Dexter (2012), these rotations provided much needed assistance for rural community healthcare facilities and gave the students an opportunity to gain more experience other than what was generally offered.

Wachtal and Dexter investigated if rotations in rural healthcare practices significantly enhanced recruitment for new graduates and if those graduates would potentially be retained by these hospitals. Their study included 95 students who graduated from the Certified Registered Nurse Anesthetists (CRNA) training program between 1997 through 2000, which included
graduates from the inaugural class that began in 1994. The control group for the study was students who did not reside in the same county as the University of Iowa College of Nursing, but returned to their home counties after graduation.

All of the students in Wachtal and Dexter’s study had completed a sum total of 498 39-day rotations in at least one hospital outside of the university’s county. The student demographic information included home addresses at the time of application to the CNRA program, the rotations they were assigned, and the places of employment after graduation. Wachtal and Dexter concluded that most students who rotated through a rural healthcare practice were more likely to join that practice. Furthermore, most of those students who joined a rural hospital did not reside in the county where the hospital was located.

The study failed to reveal if the hospital that offered the training program had an advantage of retaining graduates of its own program despite where the students resided. Nonetheless, 39% of graduates joined the university program after graduation. One reason could be because the students had become established in the area. Additionally, outside hospitals that participated in student rotations were able to recruit from the pool of new graduates (Wachtal & Dexter, 2012).

In another study by Chen et al. (2013), the graduate medical education (GME) program required physicians to complete additional training after graduation such as internships, fellowships, or residencies, which in turn received monies allocated from federal and state governments. The Medicare Prescription Drug, Improvement, and Modernization Act of 2003 implemented the distribution of its allocated funds to rural hospital training programs as a
priority as part of the GME redistribution program. In turn, GME payments became the largest public investment in healthcare workforce development (Chen et al., 2013).

Chen et al.’s study used the Centers for Medicare and Medicaid Services’ Healthcare Cost Report Information System data of hospitals from 1998 to 2008. Three GME training levels were assessed at three different periods, and a descriptive comparison analysis between residency counts in each period were analyzed (2013). The results of the study revealed the Medicare Prescription Drug, Improvement and Modernization Act’s redistribution of unused hospital resident positions explicitly prioritized rural programs to receive additional positions. The Centers for Medicare and Medicaid Services’ regulation further established priorities such as training in primary care for specific workforce outcomes. However, the analysis revealed that the redistribution fell short of the goal. Less than 4% of rural hospitals benefited from the redistribution by receiving additional positions by receiving less than 3% of all redistributed positions (Chen et al., 2013).

Research also suggested that graduates tended to practice their professions close to where they completed their residency; therefore, the facilities receiving more funding may have the ability to recruit more students and possible long-term providers. This could adversely affect recruitment in rural areas or geographical locations which receive less funding for graduate medical education. According to Chen et al., The GME system needed reform to determine future outcomes to create accountability of investments and meeting the nation’s healthcare needs (2013).

Richards et al. (2011) reported that the Purdue University School of Nursing, West Lafayette, Indiana, had implemented a program in which their nursing undergraduate students
and nurse practitioner graduate students rotated through two public healthcare facilities. These two public facilities were developed to compliment the training rotations of the school. This partnership had strengthened the student involvement in local public health clinics, because it allowed them to work closely with patients in communities and schools outside of the training setting.

Students, during their senior year, were required to complete a 100 hour capstone in which each student worked alongside a registered nurse inside the clinics. These students observed management and decision-making processes in advanced nursing care. According to Richards et al., these experiences enhanced a student’s perspective and facilitated mentoring relationships that resulted in an appreciation for knowledge and expertise and understanding. Many of these students developed an interest in community health and chose to continue to work in these clinics after graduation (Richards et al., 2011).

According to Hewett (2012), there were several advantages to working in a rural community. These advantages included larger compensation packages with higher wages, lower cost of living within rural areas, varied medical experiences, and opportunities for increased work-life balance. The benefits of working in rural communities were being made known to allied health students while still in training. The hope is that these students may become aware of the advantages before choosing a residency.

**OTC Allied Health Students’ Employment Location Outlook**

Data for former graduates’ employment statistics at OTC did not differentiate between students from rural communities or those from urban areas or larger cities (Christy et al., 2010; Christy et al., 2011 Christy et al., 2012; Christy et al., 2013; Christy et al., 2014). Other literature
including government documents, journal articles, and online healthcare information blogs were used for the basis of developing research hypotheses pertaining to this study. Therefore, the problem driving this study was the lack of data on where rural students seek employment after graduating from an allied health program at Ozarks Technical Community College in southwest Missouri and what influenced their employment choices.

**Summary of the Literature Review**

According to the 2014 Missouri Census data, rural settings make up over two-thirds of Missouri’s land mass with less than 3% of its population living in these areas. While some may consider this a small number, there are rural communities that lack adequate access to healthcare. This literature review revealed that shortages of healthcare providers can have adverse effects on its community. There are colleges and universities that have partnered with these rural healthcare facilities in order to allow students a variety of experiences within a rural setting in the hope that it will increase recruitment of healthcare providers in rural communities. However, there was a lack of data on where rural students seek employment after graduating from an allied health program at Ozarks Technical Community College (OTC) in southwest Missouri and what influenced their employment choices.
CHAPTER 3
METHODOLOGY

Overview

The purpose of this study was to determine where rural students who have completed their education in an allied health program at Ozarks Technical Community College (OTC) were seeking employment after graduation. Although there were significant data on where former graduates from (OTC) obtained employment, there was a lack of specific data on where students from rural areas seek employment upon graduation from the OTC allied health degree program and why they chose their job location. This chapter will present the population and sample that was used for the research. The research design, the data collection instrumentation, the data collection methodology, and the data analysis will be presented.

Population and Census

The population for this research was defined as all allied health students in their senior year of study during the 2015-2016 academic year, combined with all allied health graduates of OTC for the years 2010 to 2015. The researcher incorporated a cross-sectional study to investigate the population using a census survey. This technique was used in an attempt to collect and analyze data at the same time from all 2015 allied health students as well as former graduates from each allied health program from 2010 to 2015, rather than an equal percentage from each group as seen in a random sampling (Gay, Mills, & Airasian, 2006). It was unknown how many males versus females graduated from a particular program, or age of participants would most likely participate in the survey. Therefore, this research incorporated a census survey
in an attempt to collect data from all members of the population rather than a form of random sampling, such as the stratified random sampling technique.

**Research Design**

The descriptive survey research design was used for this study based on Leedy and Ormrod’s (2013) recommendation of allowing subjects to self-report data for the purpose of finding out more information from a large group. According to Leedy and Ormrod (2013), descriptive survey research is completed by asking questions and tabulating answers in percentages and frequency counts. The researcher, using the results of the data analysis, can then describe characteristics of a population.

**Data Collection Instrumentation**

This study incorporated two main types of data collection instruments. One instrument documented existing data that were collected from annual career employment services reports from OTC. These OTC 180 day follow-up reports were required by the Missouri Department of Elementary and Secondary Education (DESE) through the Division of College and Career Readiness. These data were collected via existing OTC survey that was to be sent to all occupational graduates every academic year (Christy et al., 2010; Christy et al., 2011 Christy et al., 2012; Christy et al., 2013; Christy et al., 2014). These reports that provided existing data were evaluated to determine if there were any distinguishing data on students from rural communities. The reports also provided existing data for analysis of past allied health students.

The second form of data collection instrument were two researcher-developed surveys. The first survey titled “Allied Health Graduate Survey,” was developed and used for former allied health graduates of OTC and addressed their choice of employment after graduation (see
Appendix A). While OTC’s research department also could have provided some of these requested data, additional data were needed to address this study’s research questions, such as the size of the students’ hometowns.

The second research-developed survey titled “Allied Health Student Survey” was designed for the 2015 and 2016 graduating classes of allied health students at OTC (see Appendix B). This survey was similar to Appendix A with the main difference being that questions were written in the future tense rather than the past tense.

**Data Collection Methodology**

The data collection methodology consisted of retrieving existing data from OTC on the number of recent graduates and the two surveys developed by the researcher that collected new data. Prior to conducting any research, the researcher requested and obtained approval from the University of Central Missouri’s (UCM) Institutional Review Board (IRB) and Ozarks Technical Community College’s (OTC) Institutional Review Board (IRB). The OTC IRB (see Appendix C) approved the research on May 1, 2015, and the UCM IRB (see Appendix C) approved the research on May 29, 2015. Once approved, a consent letter (see Appendix D) was sent with each survey informing the subjects of the purpose of the study and to comply with the IRB guidelines of “protection from harm, voluntary and informed consent, and particular’s right to privacy regarding anything they might reveal about themselves” (Leedy & Ormrod, 2013, p. 263). This study asked the participants to complete an online questionnaire through SurveyMonkey (see Appendix E).

Following approval from the IRB, personal email addresses were retrieved from OTC’s Research Department data on email addresses of current and former students. These research-
developed surveys were distributed, and two follow-up emails were sent: a) four weeks after the initial email, and b) two weeks before the due date. The total timeframe for data collection was expected to be six weeks. Data collection for existing data and survey responses were conducted at the same time. The “Allied Health Graduate Survey” was emailed to former OTC graduates from 2010 to 2014, and the other survey titled “Allied Health Student Survey” was emailed to existing students in the various allied health programs at OTC. Information on how to access the surveys and a consent letter were emailed to current and former students. Additionally, the researcher requested the assistance of allied health program directors to advertise and promote the study to the current students who were enrolled in allied health programs at OTC. The Program Directors were provided with a flyer advertising the study (Appendix F) during an Allied Health Program Directors’ meeting.

The initial surveys (Appendices A & B) with the consent letter (Appendix D) were emailed on September 22, 2015, to 606 allied health graduates and 622 current allied health students with a due date of September 30, 2015. Of the 1,228 total number of surveys that were emailed, 66 (5.4%) were undeliverable. There were 22 (3.6%) graduate responses and 28 (4.5%) student responses.

Due to the low response rate, an IRB amendment was submitted requesting two additional follow-up emails (containing the same information as the initial email) to extend the due date to November 20, 2015. Included in the amendment was a request to present a Student Promotion Flyer (Appendix E) to the allied health program directors during the October 2015 Directors’ meeting in order to promote the study. The first follow-up email was sent on October 21, 2015, and the second follow-up email was sent on November 11, 2015. The result of the two
additional follow-up emails and promotion presentation resulted in an increase to 104 (17%) graduate responses and 81 (13%) current student responses. The number of undeliverable emails remained the same.

**Data Analysis Methodology**

The closed-ended questions of each survey were analyzed using the appropriate descriptive statistics (Leedy & Ormrod, 2013). The answers to the closed-ended questions were gathered, grouped, and analyzed to determine if there were any information that related to current data. The variables within the answers were analyzed for similarities and differences in responses. (Leedy & Ormrod, 2013).

**Summary**

The researcher incorporated a descriptive survey research design which provided data via two researcher-developed online questionnaire as a means for collecting data for analysis. The researcher also retrieved existing data from existing reports from OTC, with new data collected using two researcher-developed surveys.

The population was established to include all existing allied health students from OTC who were graduating in 2015 and 2016, as well as all former allied health graduates from 2010 to 2015. A census survey technique was used in an attempt to collect data from all participants at the same time. This sampling technique allowed all members from each allied health program an opportunity to participate in the study.

The two main data collection methods were used (retrieving existing OTC data and collecting new data via an electronic survey) were implemented following IRB approval. Within the survey data collection methodology, there were two surveys used to collect data from the
population. One survey was used for the current students who were due to graduate in 2015 and 2016 and the other survey was sent to graduates from 2010 to 2014. The consent letter and surveys were distributed via email after IRB approval was obtained. The data packet sent via email contained a consent letter along with the survey link. Follow-up emails were sent four weeks after the initial email and two weeks before the due date, respectfully. The entire data collection procedure was anticipated to last six weeks but was extended (with an IRB approved extension) to pursue a higher response rate. Once collected, the data were analyzed using the appropriate descriptive and statistics. These resulting data allowed the researcher to propose a theory and possibly predict a potential pattern of employment for future rural healthcare students and to predict future growth of rural health care providers.
CHAPTER 4
TREATMENT OF THE DATA

Overview

The purpose of this study was to determine where rural students who have completed their education in an Ozarks Technical Community College (OTC) allied health program were seeking employment after graduation. In addition, the author attempted to determine what factors influenced their decision. Although there were significant data on where students from OTC obtained employment, there was a lack of specific data on where students from rural areas sought employment upon graduation from an allied health degree program. This chapter presents the data that were collected and how they were analyzed.

The research questions for this study were addressed using existing data from the OTC 180 Day Graduate Follow-Up Reports spanning from 2010 to 2014. Additional data were collected using surveys developed by the researcher. The OTC reports included data required by the Missouri Department of Elementary and Secondary Education (DESE) on all occupational graduates, and provided data on the number of students who gained employment upon graduation from an allied health program from OTC (Christy et al., 2010; Christy et al., 2011 Christy et al., 2012; Christy et al., 2013; Christy et al., 2014). Additionally, data from the researcher-developed surveys were used to gather specific data on recent graduates and current students in order to offer a projection or trend in future employment for rural communities. These data were analyzed to test the research hypotheses.
Participant Demographics

Program graduate demographics. The researcher-developed surveys contained questions that were used to gather the demographic information from the research participants. All research participants to the graduate survey were over the age of 18. There were 104 research participants to the graduate survey which yielded the following results by age group: 18-24 = 22 (21%), 25-29 = 31 (30%), 30-34 = 23 (22%), >34 = 28 (27%). There were two graduate research participants who did not answer the gender question nor proceeded with the rest of the survey. Therefore, the gender results from the research participants were 87/102 female (85%) and 15/102 male (15%). The following survey questions (and the resulting data) were used to determine the demographics of the research participants.

Survey question #4. What was the size of the home town in which you spent much of your time BEFORE starting your allied health program? This question was used to establish the percentage of research participants who lived in a rural community prior to attending an OTC allied health program from those who lived in higher populated areas. The data revealed that the graduates’ hometowns before attending one of the OTC allied health programs varied in size. According to the survey results, thirty-eight percent (38%) of graduates came from communities of 0 – 9,999 in population; nineteen percent (19%) came from communities of 10,000 – 24,999; six percent (6%) from communities of 25,000 – 49,999; eight percent (8%) from communities of 50,000 – 99,999; and twenty-nine percent (29%) of graduates lived in communities with over 100,000 residents prior to attending OTC. The majority of the allied health graduates from 2010 to 2015 who responded to the survey resided in communities of less than 10,000 (See Figure 2).
Program student demographics. The researcher-developed surveys contained questions that were used to gather the demographic information of students enrolled in an OTC allied health program during the 2015 academic year. There were 81 research participants who completed the student survey, which yielded the following results by age group: 18-24 = 32 (39%), 25-29 = 11 (14%), 30-34 = 14 (17%), >34 = 24 (29%). There were 77 research participants who indicated they were female (95%) and four research participants who indicated they were male (5%). There were three research participants who did not complete the survey after completing the demographics section. The next survey question was used to determine the population of the research participants’ home town prior to attending OTC.
Survey question #4. What was the size of the home town in which you spent much of your time BEFORE starting your allied health program? Prior to attending OTC, forty-seven percent (47%) of allied health students in the 2015 academic year indicated they lived in a community with fewer than 10,000 residents; twenty-two percent (22%) indicated they lived in communities of 10,000 – 24,999; eight percent (8%) indicated they lived in communities of 25,000 – 49,999; three percent (3%) indicated they lived in communities of 50,000 – 99,999; and twenty percent (20%) indicated they lived in communities of 100,000 or more. Figure 3 presents the data for OTC 2015 allied health students’ residential population prior to attending OTC.

![2015 OTC Allied Health Students](image)

*Figure 3.* Percentage of OTC allied health students in the 2015 academic year living in a specified area prior to attending OTC.

**Research Question One Data**

Research question one stated, “What is the difference between rural graduate and metropolitan graduate employment placement rates after graduating from Ozark Technical
Community College allied health programs?” The OTC reports did not specifically identify graduates from rural areas and compare them to graduates from metropolitan areas; therefore, data were collected and analyzed from the researcher-developed surveys. This research question was addressed via two methods. The first method analyzed and reported data from the OTC 180 Day Graduate Follow-Up reports from 2010 to 2014. The second method analyzed and reported data from the researcher-developed survey sent to OTC allied health graduates from 2010 to 2015. The purpose of this research question was to determine if there were more students seeking employment in the larger urban healthcare facilities than in rural healthcare facilities.

**Existing OTC 180 Day Graduate Follow-Up data.** According to the existing data collected from the OTC 180 Day Graduate Follow-Up Reports (Christy et al., 2010; Christy et al., 2011 Christy et al., 2012; Christy et al., 2013; Christy et al., 2014), there were 1,335 allied health graduates of which 1,109 responded to the OTC 180 Day follow-up surveys as being employed. According to those who responded, 1,024 (92%) reported being employed in a related field of their program of study. The data of each year for the number of graduates, employed research participants of this research, employed in related field, and percentage of research participants who were employed in a related field are presented in Table 1. Due to the length of time it took OTC staff to analyze the data, the reports were published approximately one year following graduation (Christy et al., 2010; Christy et al., 2011 Christy et al., 2012; Christy et al., 2013; Christy et al., 2014). Therefore, the OTC data did not include the 2015 or later allied health graduates or allied health students that the researcher’s surveys targeted.
Table 1

OTC 180 Day Allied Health Graduate Follow-Up Reports from 2010 to 2014

<table>
<thead>
<tr>
<th></th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total of AH Graduates</td>
<td>246</td>
<td>254</td>
<td>244</td>
<td>271</td>
<td>320</td>
</tr>
<tr>
<td>Employed Respondents</td>
<td>196</td>
<td>214</td>
<td>196</td>
<td>223</td>
<td>280</td>
</tr>
<tr>
<td>Employed in Related Field</td>
<td>174</td>
<td>195</td>
<td>193</td>
<td>212</td>
<td>250</td>
</tr>
<tr>
<td>Percentage of Respondents Employed in Related Field</td>
<td>89%</td>
<td>91%</td>
<td>98%</td>
<td>95%</td>
<td>89%</td>
</tr>
</tbody>
</table>

Survey question #5. Did you complete an allied health certificate/degree program at Ozarks Technical Community College (OTC)? According to the data generated by the researcher-developed survey, 101 of 102 research participants (99%) indicated they graduated from an allied health program at OTC further indicating they were eligible to complete the researcher-developed graduate survey. There was one respondent who indicated they did not graduate from an allied health program at OTC, thus not completing the remainder of the survey. The same number of graduates who answered survey question #5 also responded to survey question #6 (99%), and 98 participants (96%) responded to survey question #7 which provided data for the graduation date and the number of research participants from each of the OTC allied health programs respectfully.

Survey question #6. What year did you complete your program? The possible selection choices for this survey question ranged from 2010 to 2015. Over 70% of the research participants indicated they graduated from OTC during 2014-2015 (See Table 2).

Survey question #7. Which allied health program did you complete? There were 98 research participants who specified which allied health program they completed at OTC.
Table 2

**OTC Research Participants From Allied Health Programs who Graduated 2010 to 2015**

<table>
<thead>
<tr>
<th>Graduation Dates</th>
<th># Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before 2010</td>
<td>0</td>
</tr>
<tr>
<td>2010</td>
<td>0</td>
</tr>
<tr>
<td>2011</td>
<td>8</td>
</tr>
<tr>
<td>2012</td>
<td>11</td>
</tr>
<tr>
<td>2013</td>
<td>10</td>
</tr>
<tr>
<td>2014</td>
<td>37</td>
</tr>
<tr>
<td>2015</td>
<td>35</td>
</tr>
<tr>
<td>After 2015</td>
<td>0</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>101</strong></td>
</tr>
</tbody>
</table>

Three of the research participants answered as “other.” One research participant specified they completed a Coding Specialist program, and two research participants indicated they completed both the PN and ASN programs (See Table 3).

Table 3

**OTC Research Participants from each of the Allied Health Programs at OTC During Fall, 2015**

<table>
<thead>
<tr>
<th>OTC Allied Health Programs</th>
<th># of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dental Assisting</td>
<td>10</td>
</tr>
<tr>
<td>Dental Hygiene</td>
<td>10</td>
</tr>
<tr>
<td>EMT/Paramedic</td>
<td>3</td>
</tr>
<tr>
<td>Health Information Technology</td>
<td>3</td>
</tr>
<tr>
<td>Hearing Information Science</td>
<td>9</td>
</tr>
<tr>
<td>High School Health Science</td>
<td>0</td>
</tr>
<tr>
<td>Medical Laboratory Technician</td>
<td>5</td>
</tr>
<tr>
<td>Occupational Therapist Assistant</td>
<td>3</td>
</tr>
<tr>
<td>Physical Therapist Assistant</td>
<td>3</td>
</tr>
<tr>
<td>Practical Nursing</td>
<td>28</td>
</tr>
<tr>
<td>Associate of Science in Nursing</td>
<td>13</td>
</tr>
<tr>
<td>Respiratory Therapy</td>
<td>2</td>
</tr>
<tr>
<td>Surgical Technology</td>
<td>6</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>98</strong></td>
</tr>
</tbody>
</table>
Survey question #8. Did you gain employment in your allied health profession after completing the program? According to data generated by the researcher-developed survey, 81 (84%) of OTC allied health graduates indicated they were employed after completing their program and 16 (16%) indicated they did not gain employment after graduation. One of the research participants who answered the previous questions did not respond, which resulted in 97 total responses to this question. To clarify where the graduates sought employment, the following additional survey questions were presented:

Survey question #9. If you answered “NO” to question #8, please briefly explain why. This survey question was an open-ended question which attempted to elicit unbiased responses from the participants. There were 16 research participants (16%) who indicated they did not gain employment after completing an allied health program at OTC, and 15 research participants (15%) answered the question to explain why. Some of the responses included, but were not limited to, the inability to pay for the cost of licensure, choosing to continue their education, already employed or received a job offer before graduation, over-saturation in their field, no jobs available, or did not want to relocate.

Survey question #10. If you answered “NO” to question #8, in what profession do you work? This survey question was an open-ended question which attempted to elicit unbiased responses from the participants. There were 16 research participants who indicated they did not gain employment after completing an allied health program at OTC, and there were 16 research participants who answered in which profession they were employed after graduation. The responses included: Being unemployed, bartending, cashier, manufacturing, weight loss clinic,
student, child care, and healthcare fields other than their certification/degree such as pharmacy, coding, and sterile processing technician.

**Survey question #11. If you answered “YES” to question #8, are you still working within the same allied health career?** There were 87 research participants who answered if they were still employed in the same allied health career as when they graduated. Originally, 81 participants responded to the OTC 180 Day Follow-Up survey that they gained employment in their allied health field after graduation. However, only 74 (85%) affirmed on the researcher-developed survey that they were still employed in the same healthcare field. Thirteen participants (15%) responded they were not still employed in their chosen healthcare program of study.

**Survey question #12. If you answered “YES” to question #8, what was the size of your new “working” town/city?** The OTC 180 Day Follow-Up Reports do not specifically identify graduates from rural areas and compare them to graduates from metropolitan areas. Therefore, these data were collected from the researcher-developed surveys. According to these data, there were twelve percent (12%) of the research participants who indicated they were employed in communities of 0 – 9,999; fifteen percent (15%) who indicated they were employed in communities of 10,000 – 24,999; six percent (6%) indicated they were employed in communities of 25,000 – 49,999; eight percent (8%) indicated they were employed in communities of 50,000 – 99,999; and fifty-nine percent (59%) indicated they were employed in communities with a population of 100,000 or more. Figure 4 presents a visual analysis of graduates employed in populated communities in southwest Missouri.
Figure 4. OTC allied health graduates from 2010 to 2015 employed in a related field within a populated community.

Research Question Two Data

Research question two stated, “What percentage of OTC allied health program completers from rural communities are returning to work in rural healthcare facilities that serve remote areas?” This research question was addressed via two methods. The first method analyzed and reported data from the OTC 180 Day Graduate Follow-Up reports from 2010 to 2014. The second method analyzed and reported data from the researcher-developed survey sent to OTC allied health graduates from 2010 to 2015. The purpose of this research question was to determine the percentage of graduates from rural communities returning to their communities seeking employment than seeking employment in urban areas.

Existing OTC 180 Day Graduate Follow-Up data. According to the existing data collected from the OTC 180 Day Graduate Follow-Up Reports (Christy et al., 2010; Christy et
al., 2011 Christy et al., 2012; Christy et al., 2013; Christy et al., 2014), there were no data that distinguished between graduates who were from rural areas versus urban communities. Consequently, there were no existing data to determine the percentage of OTC allied health graduates from rural communities who returned to work in those rural or urban communities. Therefore, data were collected and analyzed for this study through researcher-developed surveys to determine the percentage of rural allied health graduates who worked in the various populated areas used in this research.

Survey question #15. After completing your allied health program at OTC, did you return to your hometown/city/community to work? According to the survey data, fifty-nine percent (59%) of OTC’s allied health graduates indicated they did not return to their hometown to seek employment. As previously stated, thirty-eight percent (38%) of graduates indicated they were from communities with less than 10,000 residents. However, only twelve percent (12%) indicated they returned to work in those same communities. Those data suggested that 26% of OTC’s allied health graduates were seeking employment elsewhere. This trend was less severe in communities of 10,000 – 24,999, in which approximately nineteen percent (19%) indicated they reside in that size community and only four percent (4%) indicated they sought employment elsewhere. The percentage of residents and graduates seeking employment remained the same for communities of 25,000 – 99,000. In relation to changing trends within the lower populated areas, the data suggested that the opposite were true for communities over 100,000. In addition to twenty-nine percent (29%) of graduates from those larger communities seeking employment, thirty percent (30%) more graduates indicated they were employed in communities over 100,000 (See Figure 5).
Figure 5. The percentage of OTC allied health graduates from 2010 to 2015 who indicated they lived in a specified area prior to attending OTC compared to OTC allied health graduates from 2010 to 2015 employed in a related field within a populated community.

Survey question #16. If you answered “NO” to question #15, please briefly explain why. This survey question was an open-ended question which attempted to elicit unbiased responses from the participants. Fifty-nine percent (59%) of the participants indicated they did not return to their hometown to seek employment after completing an allied health program at OTC, and sixty percent (60%) of those participants answered the question to explain why. Some of the responses included, but were not limited to, not wanting to relocate/keeping their children in the same school, staying close to family, more job opportunities, helping the people in their community, responsibilities to their employer, and opportunities to travel to remote area clinics.
Survey question #17. If you answered “NO” to question #15, in what town/city/community do you work? This survey question was an open-ended question which attempted to elicit unbiased responses from the participants. There were 56 (53%) participants who listed the name of the town in which they were employed after completing an allied health program at OTC. Of those participants who responded, sixty-two percent (62%) indicated they lived in Springfield, Missouri, seven percent (7%) indicated they lived out of state, one percent (1%) indicated they lived in other urban/metropolitan areas in Missouri, and thirty percent (30%) indicated they lived in rural communities throughout Missouri. Not all participants responded to this question.

Survey question #18. Are you still working in your same hometown/city/community today? There were 90 (86%) participants who responded to this question. Seventy-eight percent (78%) of those who responded to this question affirmed that they were still living in their same hometowns since gaining employment after graduation. The remaining twenty-two percent (22%) indicated they were not still living in their same hometowns since gaining employment after graduation.

Research Question Three Data

Research question three stated, “What percentage of OTC allied health program completers who now work in rural communities are originally from urban areas?” According to the existing data collected from the OTC 180 Day Graduate Follow-Up Reports (2010 to 2014), there were no data that distinguished between graduates from rural versus urban communities. The data from the researcher-developed surveys revealed a lower percentage of OTC allied health graduates working in rural communities than in urban areas; however, the surveys did not
differentiate if those who worked in rural areas were originally from rural or urban areas. As previously stated, there were fifty-nine percent (59%) of graduates who indicated they did not return to their home towns to seek employment, yet may have relocated to similar-sized communities. Upon reflection, additional data are needed to address this research question.

**Research Question Four Data**

Research question four stated, “What impact do rural healthcare shortages have on students not returning to their home town?” There were no existing data collected from the OTC 180 Day Graduate Follow-Up Reports (2010 to 2014) that addressed this research question related to the impact of students not returning to their hometown to find employment after graduation. According to the data generated from the researcher-developed surveys, the reasons research participants stated reasons for not returning to their hometowns to seek employment were due to more job opportunities in higher populated geographic areas, higher income in higher populated geographic areas, better hours, advancement, furthering education, and overall job satisfaction.

The researcher-developed survey data from the 2015 academic year allied health students reflected a desire to seek employment where jobs were more plentiful. According to the graduate survey responses, some research participants stated that more jobs were available in the larger cities. The student survey data also suggested that students were seeking employment with the notion of higher salaries to pay off student loans while providing for their families. Twenty-six percent (26%) of the research participants indicated they preferred to seek employment after graduation in cities with populations over 100,000 residents, while fifty percent (50%) who indicated they preferred to work in cities of less than 25,000 residents. The remaining twenty-
four percent (24%) were divided almost evenly among cities of 25,000 – 49,999 and 50,000 – 99,999 in population (See Figure 6).

Figure 6. Population of an area which OTC allied health students in the 2015 academic year preferred to seek employment.

In addition to the research participants indicating they preferred employment in more populated geometric areas, the researcher-developed survey data revealed many OTC allied health students in the 2015 academic year were less willing to commute longer distances to their job site. There were four percent (4%) of the research participants who indicated they preferred to commute less than 10 miles to work. Twenty-eight percent (28%) of the research participants indicated they would commute 10 – 20 miles to work. The highest number of research participants, thirty-eight percent (38%), indicated they would commute between 20 – 30 miles to work. Only sixteen percent (16%) of the research participants indicated they would commute 30 – 40 miles to work. Eleven percent (11%) of the research participants indicated they would
commute between 40 – 50 miles to work, and only three percent (3%) of the research participants indicated they would commute over 50 miles to work (See Figure 7).

![Figure 7. Number of preferred commute miles of 2015 OTC allied health students.](image)

When aligning these data to the literature, according to a study by Lynch, et. al. (2011), the elderly are more likely to have an increase in chronic diseases and physical limitations. The aging population residing in rural areas are less likely to have access to quality medical care. This is due in part to the fewer number and offices of health care providers, the distance needed to travel to a health care specialist, and the intolerability to endure the travel for services (Lynch, et. al., 2011). The areas that are classified as having a shortage of providers and healthcare facilities have a greater need for allied health graduates; however, job opportunities are not found in areas with no facilities. Furthermore, a larger number of OTC 2015 academic year allied
health students preferred to travel less than 30 miles to work, which impacts graduates’ decisions when seeking employment.

**Research Question Five Data**

Research question five stated, “How do graduate job placements from OTC allied health programs compare?” Using the OTC 180 Day Graduate Follow-Up Reports (2010 to 2014), data were compared for the percentage of graduates employed in a related field from each of the allied health programs offered by OTC. According to the data, the highest percentage of graduates employed in a related field of study were the Registered Nursing (RN) graduates with 100% job placement. This was followed very closely by the Emergency Medical Technician (EMT) graduates with 99%. There were three programs each with 98% of graduate job placement: Dental Hygiene (DHY), Medical Lab Technician (MLT), and Occupational Therapy Assistant (OTA). Next, in order of highest percentages, were Respiratory Technician (RT) with 95%, Physical Therapy Assistant (PTA) with 94%, Practical Nursing (PN) with 93%, Surgical Technology (ST) with 92%, Dental Assisting (DAS) with 91%, Heath Information Technology (HIT) with 80%, and finally Hearing Instrument Science (HIS) with 72%. It should be noted that the HIS program was introduced to OTC after the other allied health programs with its first graduating class in 2013; therefore, there are only two years of data for the HIS program in the OTC 180 Day Graduate Follow-Up Reports. Figure 8 illustrates the comparison of the OTC allied health graduate job placement in a related field from 2010 to 2014.

Additional data analysis from the OTC 180 Day Graduate Follow-Up Reports (2010 to 2014) revealed an annual, average rate of 92.5% research participants from all allied health programs were employed in related fields. However, the graduate responses from the researcher-
Figure 8. OTC Allied Health Graduates’ Job Placement Percentages in Related Fields. Adapted from *OTC 180 Day Graduate Follow-Up Reports*, (Christy et al., 2010; Christy et al., 2011 Christy et al., 2012; Christy et al., 2013; Christy et al., 2014).

devolved surveys revealed an average of 83.5% employment in the research participants’ related fields. This could be due in part to the OTC reports ending in 2014 and the researcher’s survey being sent to students who graduated through 2015. Some responses in the researcher-developed survey regarding the decrease in employment were related to continued job searching at the time of the survey, seeking higher education, and accepting unrelated job offers prior to graduation. The responses to the researcher-developed survey did not distinguish between graduates in the individual allied health programs.
Summary

The purpose of this study was to determine where rural students who have completed their education in an allied health program at OTC were seeking employment after graduation. Data were analyzed using existing information obtained from follow-up reports of allied health graduates of Ozarks Technical Community College (Christy et al., 2010; Christy et al., 2011 Christy et al., 2012; Christy et al., 2013; Christy et al., 2014) and collected from research surveys for graduates from 2010 to 2015 and current allied health students in fall, 2015. The data from all resources were used to address five research questions in order to investigate and potentially predict a pattern of employment for future rural healthcare students and the future growth of rural health care providers. Based on the data retrieved, collected, and analyzed, more graduates indicated they sought employment in highly populated areas rather than returning home to more rural areas.
CHAPTER 5
SUMMARY, FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

Overview

Many residents of rural communities are more likely to travel more miles than urban and suburban residents to receive healthcare due to a shortage of healthcare providers in less populated areas (Hewett, 2012). Ozarks Technical Community College (OTC) in Springfield, Missouri, had allied health graduates and students enrolled in various allied health programs that could have met this need. Since there were a lack of data on where rural students seek employment after graduating from an allied health program at OTC and what influenced their employment choices, this study was conducted. This chapter will summarize the research to provide the reader a clear understanding of the problem, the research questions, methodology, collection of data, the findings, and recommendations based on the data analysis.

Summary

The problem that drove this study was the lack of data on where rural students sought employment after graduating from an allied health program at OTC in Springfield, Missouri, and what influenced their employment choices.

The research questions which guided this study were as follows:

1. What is the difference between rural graduate and metropolitan graduate employment placement rates after graduating from Ozark Technical Community College allied health programs?
2. What percentage of OTC allied health program completers from rural communities are returning to work in rural healthcare facilities that serve remote areas?

3. What percentage of OTC allied health program completers who now work in rural communities are originally from urban areas?

4. What impact do rural healthcare shortages have on students not returning to their home town?

5. How do graduate job placements from OTC allied health programs compare among each program?

The purpose of this study was to determine where rural students who have completed their education in an (OTC) allied health program were seeking employment after graduation. In addition, the author attempted to determine what factors influenced their decision. Although there were significant data on where students from OTC obtained employment, there was a lack of specific data on where students from rural areas sought employment upon graduation from an allied health degree program.

Chapter 2 of this research described previous research findings based on an extensive literature review of other similar studies. Included in the literature review were the terms this author used to conduct the literature review. According to the Missouri Census Data Center (2014), population areas were defined by “census blocks” which considers geographic areas of land rather than the number of people living within that area. One interesting fact was that 97.4% of Missouri’s land area was classified as rural (per the 2000 Census). But only 30.6% of the population was classified as living in rural areas. Thus, almost 70% of Missouri’s population
lived in approximately 2.6% of the land. This finding led to additional literature searches to determine why there was a decreased number of healthcare providers in rural communities.

This shortage of healthcare providers had a significant impact on rural communities (Nelson et al., 2010), especially for providing 24 hour care for maternity wards in rural hospitals (MacKinnon, 2011), diabetes patients including those needing dialysis (Lynch et al., 2011), and dental care for children. Dental decay remained the top neglected health concern for children according to Martin et al. (2010). Some colleges and universities have changed their allied health programs to include student rotations in rural hospitals and healthcare facilities in the hopes of influencing recruitment of future graduates. Wachtal and Dexter (2012) at the University of Iowa School of Nursing reported an increase of 39% employment in rural communities following a program that had incorporated such a rotation requirement in its curriculum.

Chapter 3 focused on the research methodology that included a description of the population and sample, research design, the data collection instrumentation, the data collection methodology, and the data analysis. The population for this research was all allied health students in their senior year of study in 2015-2016 and all graduates of OTC for the years 2010 to 2015. Rather than incorporating a sampling technique for participant selection, the researcher incorporated a census of the population that allowed the researcher to select all students from all allied health programs, rather than a sampling from each program. This study incorporated the descriptive research design, using two main types of data collection: (1) The annual career employment services reports from OTC from 2010 to 2014, and (2) two researcher-developed
surveys titled “Allied Health Graduate Survey” and “Allied Health Student Survey.” The researcher used SurveyMonkey (Appendix E) to distribute both questionnaires.

Prior to conducting research, the researcher requested and obtained approval from the University of Central Missouri’s Institutional Review Board and Ozarks Technical Community College’s Institutional Review Board (see Appendix C). Following approval, the researcher emailed a consent letter (Appendix D) and the “Allied Health Graduate Employment Survey” (Appendix A) to former OTC graduates who graduated between 2010 to 2014. The second researcher-developed survey titled “Allied Health Student Survey” (Appendix B) and consent letter (Appendix D) were emailed to existing students in the various allied health programs at OTC during the Fall, 2015 semester. To promote the study to allied health students during the Fall 2015 semester, the researcher provided OTC allied health program directors a flyer (Appendix F) during a program director’s meeting for dissemination in their respective allied health programs. Email reminders were also sent to all prospective subjects on two separate occasions.

Chapter 4 presented the data from both data from the OTC 180 Day Graduate Follow-Up Reports spanning from 2010 to 2014 and data collected from the researcher-developed surveys. The Missouri Department of Elementary and Secondary Education (DESE) required student placement data on from all occupational education graduates who gained employment upon graduation from OTC’s allied health programs (Christy et al., 2010; Christy et al., 2011 Christy et al., 2012; Christy et al., 2013; Christy et al., 2014). However, these reports did not differentiate between rural students versus students from a more populated area. Regardless, these existing data from the OTC 180 Day Graduate Follow-Up Reports spanning from 2010 to
2014, along with the data from the researcher-developed surveys, were used to gather information on student employment after graduating from an OTC allied health program. These data could provide a projection or trend in future employment for rural communities, and were therefore analyzed to address the research hypotheses.

**Findings**

According to Christy et al. (2010); Christy et al. (2011); Christy et al. (2012); Christy et al. (2013) and Christy et al. (2014), 1,024 of 1,109 (92%) of OTC allied health graduates from 2010 to 2014 reported as being employed in their related fields of study. The OTC 180 Day Graduate Follow-Up Reports did not specify which graduates were from rural areas and which were from more populated areas; therefore, additional data were needed. The data collected from the researcher-developed surveys revealed that eighty-four percent (84%) of OTC allied health graduates from 2010 to 2015 were employed in a related field. Those data were published one year after the participants graduated; therefore, the existing OTC data did not include those graduates from 2015. However, the data from the researcher-developed surveys did provide these data.

While a census was used to include all allied health students who graduated between 2010 and 2015, 104 (17%) of the population elected to participate in the research. Additionally, the census was used to include all allied health students enrolled in Fall, 2015 semester. However only 81 (13%) participated in the research. The majority of those responding graduated in 2014 (n=37; 36%) and 2015 (n=35; 35%). There were more nursing graduates (Practical Nursing and Associate of Science in Nursing) who responded than any other group (n=41; 42%).
The student demographics and self-reported data in the surveys assisted the researcher in determining the size of the research participants’ town/city before attending OTC and the size of the town/city of employment after graduating. The graduate response data indicated that thirty-eight percent (38%) lived in an area with a population of fewer than 10,000 before attending OTC and only twelve percent (12%) reported they lived in an area with a population of greater than 100,000. After graduating and gaining employment, those numbers changed to twenty-nine percent (29%) reported they lived in areas of less than 10,000 and fifty-nine percent (59%) living in an area with more than 100,000 residents. The fall 2015 allied health student data suggested that forty-seven percent (47%) lived in an area with a population less than 10,000 and twenty percent (20%) reported they lived in an area of over 100,000 while attending OTC. At the time of this research, those students had not yet graduated; therefore, there was no further information on that demographic.

Discussion

Based on the data retrieved, collected and analyzed, there were more graduates who indicated they were seeking employment in highly populated areas rather than returning to their original home to more rural areas. Those remaining/living in areas with a population greater than 100,000 rose forty-seven percent (47%) after graduation; whereas, those returning/living in rural areas with a population less than 10,000 dropped nine percent (9%). Furthermore, graduates from areas more populated than 10,000 but less than 100,000 also saw a downward shift in returning employee potential after graduating from an OTC allied health program.

Only twelve percent (12%) of research participants who indicated they lived in rural areas with a population less than 10,000 indicated they returned to work in the same
towns/communities they lived before attending OTC. That left twenty-six percent (26%) seeking employment elsewhere. In communities of 10,000 – 24,999, only four percent (4%) sought employment elsewhere. The population remained the same for areas of 25,000 – 99,000 population. When asked why someone did not return to their rural area for employment after graduation, the responses included, but were not limited to not wanting to relocate/keeping their children in the same school, staying close to family, job opportunities, helping the people in their own community, responsibilities to employer, and opportunities to travel to remote area clinics. According to the data from the researcher-developed surveys, seventy-six percent (76%) of research participants indicated they still worked in the same town/community where they gained employment upon graduation. There were fifty-nine percent (59%) of graduates who indicated did not return to their home towns to seek employment, yet may have relocated to similar-sized communities.

Some research participants stated that more jobs were available in the larger cities. Twenty-six percent (26%) of the research participants indicated they preferred to seek employment after graduation in cities of over 100,000 and fifty percent (50%) preferred to work in cities of less than 25,000. The remaining twenty-four percent (24%) were divided almost evenly among cities with populations of 25,000 – 49,999 and 50,000 – 99,999 respectfully. One reason the participants provided as a factor for job location preference was to obtain higher salaries to pay off student loans while providing for their families.

One potential misconception of higher salaries is that one may make more money in the larger cities. However, according to O’Donnell (2012), rural communities may sometimes offer higher salaries to entice future healthcare providers to seek employment in the smaller towns.
Some specialties may not have job opportunities available in rural areas, thus elderly residents are less likely to have access to quality medical care (Lynch, et. al., 2011).

The data collected from the researcher-developed surveys did not distinguish between individual allied health program graduate job placements following graduation. Therefore, data from the OTC 180 Day Graduate Follow-Up Reports (2010 to 2014) were used to address this. The data revealed that 100% of Associate of Science in Nursing graduates had 100% job placement, followed by Emergency Medical Technician with 99%, Dental Hygiene, Medical Lab Technician and Occupational Therapy Assistant graduates with 98%, Respiratory Technician with 95%, Physical Therapy Assistant with 94%, Practical Nursing with 93%, Surgical Technology with 92%, Dental Assisting with 91%, Heath Information Technology with 80% and Hearing Instrument Science with 72%. At time of this research, the Hearing Instrument Science degree was in its third year of existence.

Some responses that addressed the decreased rate in employment were related to continued job searching at the time of the survey, seeking higher education, and accepting unrelated job offers prior to graduation. At the conclusion of this research, three years had passed since the original researcher-developed surveys were disseminated and over two years since the data were collected and analyzed. Furthermore, OTC had integrated an additional program (Behavior Health Support) into its allied health Department, with the first graduating class in Fall, 2017. None of those graduates nor students were included in this study.

Conclusions

The following conclusions were drawn based on existing OTC data and researcher-collected data:
Research question #1. What is the difference between rural graduate and metropolitan graduate employment placement rates after graduating from Ozark Technical Community College allied health programs? Based upon the data collected in this research, more allied health graduates were employed in the more populated areas rather in rural areas.

Research question #2. What percentage of OTC allied health program completers from rural communities are returning to work in rural healthcare facilities that serve remote areas? Based on the data collected and analyzed in this research, there was a smaller percentage of allied health students from rural areas returning to those areas to seek employment after graduation.

Research question #3. What percentage of OTC allied health program completers who now work in rural communities are originally from urban areas? The data from the researcher-developed surveys could not determine if those who worked in rural areas were originally from rural or urban areas. Additional data are needed to address this research question.

Research question #4. What impact do rural healthcare shortages have on students not returning to their home town? Based on the data collected and analyzed for this research, allied health students’ primary desires were to seek employment where jobs were more plentiful.

Research question #5. How do graduate job placements from OTC allied health programs compare among the programs? Based on the data collected and analyzed for this research, the majority of OTC allied health programs had over 90% of their graduates gainfully
employed. The two exceptions were Health Information Technology and Hearing Instrument Science.

**Recommendations**

The following recommendations are based on the methodology, findings, and conclusions in an attempt to assist in further research.

1. This research should be replicated with a broader population that can include multiple allied health programs within the state of Missouri.
2. Additional demographic research should be conducted to include information on specific rural areas in Missouri where a lack of healthcare providers is most detrimental to its population.
3. Additional research should be conducted to include data that would differentiate between rural participants versus urban/metropolitan participants in an attempt to include more accurate data.
4. Additional research should be conducted to ensure that all allied health programs for various colleges/universities are represented in the methodology.

The following recommendations are stated for improved practice in allied health programs.

1. Allied health programs should recruit from rural areas where healthcare shortages are known to exist.
2. Allied health programs should partner with rural healthcare facilities to develop internships for students to participate during their program of study.
3. Alternative methodologies of delivery such as online or hybrid instruction should be incorporated into allied health programs to reach more rural communities.

4. Allied health programs should promote the advantages of student employment in rural communities.

5. Allied health programs should perform their own research to collect and analyze data for existing students to determine their preference or desire to seek employment in a certain populated area and use this data to promote working in rural areas.
REFERENCES


APPENDIX A
ALLIED HEALTH GRADUATE EMPLOYMENT SURVEY
Allied Health Graduate Survey

Disclaimer: Should you choose to participate in this survey, your confidentiality and any identifiable information will be protected in accordance with the Federal Guidelines on Human Subjects Rights and Protection and the University of Central Missouri Institutional Review Board (IRB).

Directions: Please read each question and mark the answer that best describes you and your circumstances.

DEMOGRAPHICS

1. Are you at least 18 years old?
   o Yes. Please proceed to Question 2.
   o No. Due to Human Subjects protection procedures, you are not eligible to participate in this research. Please return your survey to the researcher.

2. What is your age range?
   o 18 – 24
   o 25 – 29
   o 30 – 34
   o 35 +

3. What is your gender?
   o Male
   o Female
   o No comment

4. What was the size of the home town in which you spent much of your time BEFORE starting your allied health program?
   o 0 – 9,999
   o 10,000 – 24,999
   o 25,000 – 49,999
   o 50,000 – 99,999
   o 100,000 +

OTC Programs

5. Did you complete an Allied Health certificate/degree program at Ozarks Technical Community College (OTC)?
   o Yes. If yes, please proceed to Question #6.
   o No. If no, thank you. Please return the survey.

6. What year did you complete your program?
7. Which Allied Health program did you complete?
   - Dental Assisting
   - Dental Hygiene
   - EMT (Basic and Intermediate) and Paramedic
   - Health Information Technology
   - Hearing Instrument Science
   - High School Health Sciences
   - Medical Laboratory Technician
   - Occupational Therapy Assistant
   - Physical Therapist Assistant
   - Practical Nursing
   - Associate of Science in Nursing
   - Respiratory Therapy
   - Surgical Technology
   - Other ______________________________

**OCCUPATIONAL EXPERIENCE AFTER OTC**

8. Did you gain employment in your Allied Health profession after completing the program?
   - Yes. If you answered yes, please proceed to Question 11.
   - No

9. If you answered “NO” to question #8, please briefly explain why.

   __________________________________________________________
   __________________________________________________________
   __________________________________________________________

10. If you answered “NO” to question #8, in what profession do you work?
11. If you answered “YES” to question #8, are you still working within the same Allied Health career?
   o Yes
   o No

12. If you answered “YES” to question #8, what was the size of your new “working” town/city?
   o 0 – 9,999
   o 10,000 – 24,999
   o 25,000 – 49,999
   o 50,000 – 99,999
   o 100,000 +

13. How far would you be willing to commute to work each day?
   o Less than 10 miles
   o 10 – 20 miles
   o 20 – 30 miles
   o 30 – 40 miles
   o 40 – 50 miles
   o Over 50 miles

14. Which type of healthcare facilities are in the town/city/community in which you lived before attending the allied health program at OTC? (Check all that apply.)
   o Dental
   o General Physician
   o Pediatrician
   o After Hours Clinic
   o Emergency Care Clinic
   o Hospital
   o Specialty Clinic
   o Other ___________________________
   o None

15. After completing your Allied Health program at OTC, did you return to your hometown/city/community to work?
   o Yes. If you answered yes, please proceed to Question #18.
   o No

16. If you answered “NO” to question #15, please briefly explain why.
17. If you answered “NO” to question #15, in what town/city/community do you work?
_______________________________________________________________
_______________________________________________________________

18. Are you still working in your same hometown/community today?
   o Yes. If answered, yes, please proceed to Question #20.
   o No

19. If you answered “NO” to question #18, do you think you may one day return to work in your hometown/community?
   o Yes
   o No

20. Please briefly explain why?

   _____________________________________________________________
   _____________________________________________________________
   _____________________________________________________________

Thank you very much for your participation in this study. Please complete by **September 15, 2015**.
APPENDIX B
ALLIED HEALTH STUDENT SURVEY
Allied Health Student Survey

Disclaimer: Should you choose to participate in this survey, your confidentiality and any identifiable information will be protected in accordance with the Federal Guidelines on Human Subjects Rights and Protection and the University of Central Missouri Institutional Review Board (IRB).

Directions: Please read each question and mark the answer that best describes you and your circumstances.

DEMOGRAPHICS

1. Are you at least 18 years old?
   o Yes. Please proceed to Question 2.
   o No. Due to Human Subjects protection procedures, you are not eligible to participate in this research. Please return your survey to the researcher.

2. What is your age range?
   o 18 – 24
   o 25 – 29
   o 30 – 34
   o 35 +

3. What is your gender?
   o Male
   o Female
   o No comment

4. What was the size of the home town in which you spent much of your time BEFORE starting your allied health program?
   o 0 – 9,999
   o 10,000 – 24,999
   o 25,000 – 49,999
   o 50,000 – 99,999
   o 100,000 +

OTC Programs

5. Will you complete an Allied Health certificate/degree program at Ozarks Technical Community College (OTC)?
   o Yes. If yes, please proceed to Question #6.
   o No. If no, thank you. Please return the survey.

6. What year do you anticipate completing your program?
7. Which Allied Health program will you complete?
   o Dental Assisting
   o Dental Hygiene
   o EMT (Basic and Intermediate) and Paramedic
   o Health Information Technology
   o Hearing Instrument Science
   o High School Health Sciences
   o Medical Laboratory Technician
   o Occupational Therapy Assistant
   o Physical Therapist Assistant
   o Practical Nursing
   o Associate of Science in Nursing
   o Respiratory Therapy
   o Surgical Technology
   o Other ______________________________

8. Will you seek employment in your Allied Health profession after completing the program?
   o Yes. If you answered yes, please proceed to Question 11.
   o No

9. If you answered “NO” to question #8, please briefly explain why.

   ___________________________________________________________

   ___________________________________________________________

   ___________________________________________________________

10. If you answered “NO” to question #8, in what profession do you work?

    ___________________________________________________________

11. If you answered “YES” to question #8, do you intend to continue working within the same Allied Health career?
   o Yes
12. If you answered “YES” to question #8, what size of your new “working” town/city do you prefer?
   o 0 – 9,999
   o 10,000 – 24,999
   o 25,000 – 49,999
   o 50,000 – 99,999
   o 100,000 +

13. How far would you be willing to commute to work each day?
   o Less than 10 miles
   o 10 – 20 miles
   o 20 – 30 miles
   o 30 – 40 miles
   o 40 – 50 miles
   o Over 50 miles

14. Which type of healthcare facilities are in the town/city/community in which you lived before attending the allied health program at OTC? (Check all that apply.)
   o Dental
   o General Physician
   o Pediatrician
   o After Hours Clinic
   o Emergency Care Clinic
   o Hospital
   o Specialty Clinic
   o Other ___________________________
   o None

15. After completing your Allied Health program at OTC, will you return to your hometown/city/community to work?
   o Yes. If you answered yes, please proceed to Question #18.
   o No

16. If you answered “NO” to question #15, please briefly explain why.
   ________________________________________________________________
   ________________________________________________________________
   ________________________________________________________________
17. If you answered “NO” to question #15, in what town/city/community will you work/seek employment?

_______________________________________________________________

18. Are you still living/working in your same hometown/city/community today?
   o Yes. If answered, yes, please proceed to Question #20.
   o No

19. If you answered “NO” to question #18, do you think you may one day return to work in your hometown/community?
   o Yes
   o No

20. Please briefly explain why?

_______________________________________________________________

_______________________________________________________________

_______________________________________________________________

Thank you very much for your participation in this study. Please complete by September 15, 2015.
APPENDIX C
IRB APPROVAL LETTERS
5/29/2015

Elaine Kramer

Dear Elaine Kramer:

Your research project, "ALLIED HEALTH STUDENTS FROM RURAL COMMUNITIES IN SOUTHWEST MISSOURI: WHERE ARE THEY SEEKING EMPLOYMENT AFTER GRADUATION?", was approved by the Human Subjects Review Committee on 5/28/2015.

Please note that you are required to notify the committee in writing of any changes in your research project and that you may not implement changes without prior approval of the committee. You must also notify the committee in writing of any change in the nature or the status of the risks of participating in this research project.

Should any adverse events occur in the course of your research (such as harm to a research participant), you must notify the committee in writing immediately. In the case of any adverse event, you are required to stop the research immediately unless stopping the research would cause more harm to the participants than continuing with it.

At the conclusion of your project, you will need to submit a completed Project Status Form to this office. You must also submit the Project Status Form if you wish to continue your research project beyond its initial expiration date.

If you have any questions, please feel free to contact me.

Sincerely,

Janice Putnam, Ph.D., RN
Research Compliance Officer
putnam@ucmo.edu

Protocol Number: 257

Equal Education and Employment Opportunity
Ozarks Technical Community College  
1001 E. Chestnut Expressway  
Springfield, Missouri 65802

Permission Letter from Institution

May 1, 2015

Dear Dr. Sherry Taylor,

I am conducting research titled, *Allied health students from rural communities in southwest Missouri: Where are they seeking employment after graduation?* in partial fulfillment of the requirement for the Education Specialist degree from the University of Central Missouri.

The purpose of this quantitative study is to determine where rural students who have completed their education in an allied health program at OTC are seeking employment after graduation, and what influences their decision. The hope is that by knowing where students are seeking employment, it may assist in recruiting more students from those areas. Additionally, it may also increase healthcare providers in rural communities throughout Missouri.

I am seeking your permission as the Principal Investigator in this study to contact the faculty, staff and students at your institution that may be interested in participating in this study. Participation in the study is completely voluntary. The participants may withdraw from the study at any time without penalty. Additionally, the identity of the participants will remain confidential and anonymous in the thesis or any future publications of this study.

Please do not hesitate to contact me with any questions or concerns about participation in the study. A copy of this letter and your written consent should be retained by you for future reference.

Sincerely,

*Elaine Kramer*

Elaine J. Kramer  
Education Specialist Candidate  
University of Central Missouri

[Approval signature]

Sherry Taylor  
Dean of Allied Health  
5/4/15
Dear Elaine Kramer:

Your amendment for your project titled, "ALLIED HEALTH STUDENTS FROM RURAL COMMUNITIES IN SOUTHWEST MISSOURI: WHERE ARE THEY SEEKING EMPLOYMENT AFTER GRADUATION?" was approved by the Human Subjects Review Committee on 7/27/2015.

Please note that you are required to notify the committee in writing of any changes in your research project and that you may not implement changes without prior approval of the committee. You must also notify the committee in writing of any change in the nature or the status of the risks of participating in this research project.

Should any adverse events occur in the course of your research (such as harm to a research participant), you must notify the committee in writing immediately. In the case of any adverse event, you are required to stop the research immediately unless stopping the research would cause more harm to the participants than continuing with it.

At the conclusion of your project, you will need to submit a completed Project Status Form to this office. You must also submit the Project Status Form if you wish to continue your research project beyond its initial expiration date.

Sincerely,

Janice Putnam, Ph.D., RN
Research Compliance Officer
putnam@ucmo.edu

Protocol Number: 257
0/14/2015

Elaine Kramer

Dear Elaine Kramer:

Your amendment for your project titled, 'ALLIED HEALTH STUDENTS FROM RURAL COMMUNITIES IN SOUTHWEST MISSOURI: WHERE ARE THEY SEEKING EMPLOYMENT AFTER GRADUATION?' was approved by the Human Subjects Review Committee on 10/12/2015. Your informed consent is also approved until...

Please note that you are required to notify the committee in writing of any changes in your research project and that you may not implement changes without prior approval of the committee. You must also notify the committee in writing of any change in the nature or the status of the risks of participating in this research project.

Should any adverse events occur in the course of your research (such as harm to a research participant), you must notify the committee in writing immediately. In the case of any adverse event, you are required to stop the research immediately unless stopping the research would cause more harm to the participants than continuing with it.

At the conclusion of your project, you will need to submit a completed Final Renewal Report to this office via Blackboard. You must also submit the Final Renewal Report if you wish to continue your research project beyond its initial expiration date.

Sincerely,

Janice Putnam, Ph.D., RN
Research Compliance Officer
putnam@ucmo.edu

Protocol Number: 257
APPENDIX D
CONSENT LETTER FOR PARTICIPANTS
Dear OTC Former/Current Allied Health Student,

My name is Elaine Kramer and I am a graduate student at the University of Central Missouri (UCM) in Warrensburg, MO. I am conducting research as partial requirements for the fulfillment of an Education Specialist degree in Human Services (Technology & Occupational Education).

As part of my research requirements, I am conducting a survey on where allied health students seek employment after graduation. My focus will be on students from Ozarks Technical Community College. The reason I chose this topic is to determine if students from rural communities return to their hometowns to offset the shortage of rural healthcare providers. My research will also explore why they do not return to rural areas and ideas of ways the allied health department could partner with rural healthcare facilities.

Your participation in this research will assist in developing a training plan to incorporate rural clinics as part of the student rotations and recruit more allied health students to the rural communities of Missouri. This will benefit the future allied health students in giving them a more varied learning experience as well as providing patient care to deserving communities.

In accordance to the federal guidelines and UCM’s Institutional Review Board (IRB), any information you provide will be protected. The following applies:
1. You must be 18 years or older to participate.
2. Participation is voluntary.
3. You will not be penalized for non-participation.
4. You have the right to withdraw from the study at any point without penalty.
5. Your anonymity will be protected by the researcher’s design and no identifiable information will be collected.
6. Your confidentiality will be protected should you chose to provide any identifiable information.
7. There is no risk of injury, illness, emotional distress, or loss of privacy associated with this study.
8. At any time during the course of this study, you may contact the UCM Institutional Compliance Official with any questions regarding human subjects at 660-543-4621.

You may indicate your willingness to participate by completing the enclosed survey and returning to me in the self-addressed stamped envelope by September 15, 2015. You may also keep a copy of this consent form for your records.

Thank you very much for your participation in this study. If you have any questions, please feel free to call or email: (417) 447-8836 or ejc22750@ucmo.edu or kramere@otc.edu.

Sincerely,

Elaine Kramer
Dental Programs Instructor
Ozarks Technical Community College
Springfield, Missouri
(417) 447-8836
kramere@otc.edu
ejc22750@ucmo.edu

Dr. Barton Washer
Thesis Committee Chair
Professor
Career & Technology Education
University of Central Missouri
(660) 543-4580
bwasher@ucmo.edu
APPENDIX E
SURVEYMONKEY APPROVAL LETTER
Re: Permission to Conduct Research Using SurveyMonkey

To whom it may concern:

This letter is being produced in response to a request by a student at your institution who wishes to conduct a survey using SurveyMonkey in order to support their research. The student has indicated that they require a letter from SurveyMonkey granting them permission to do this. Please accept this letter as evidence of such permission. Students are permitted to conduct research via the SurveyMonkey platform provided that they abide by our Terms of Use, a copy of which is available on our website.

SurveyMonkey is a self-serve survey platform on which our users can, by themselves, create, deploy and analyze surveys through an online interface. We have users in many different industries who use surveys for many different purposes. One of our most common use cases is students and other types of researchers using our online tools to conduct academic research.

If you have any questions about this letter, please contact us through our Help Center at help.surveymonkey.com.

Sincerely,

SurveyMonkey Inc.
ARE YOU FROM A RURAL AREA OF MISSOURI?

WHERE WILL YOU WORK AFTER GRADUATION?

According to Alsgaard (2014) there have been many studies on the shortages of rural healthcare providers. Stephens, Dickmann, Chesney and Jaspen (as cited in Alsgaard, 2014) suggest that the shortage of healthcare professionals is not just a local issue, but nationwide (p. 591). One concern contributing to the shortage, according to Bassett (as cited in Alsgaard, 2014), is the number of healthcare providers nearing retirement age is greater than the number of healthcare students graduating and seeking employment (p. 592).

Many students from rural areas enroll in Allied Health programs at Ozarks Technical Community College. This survey is a part of the research required for completion of a graduate thesis to obtain an Education Specialist degree from the University of Central Missouri. The purpose of this research is to determine if students from rural communities return to their hometowns to offset the shortage of rural healthcare providers, and explore why they do not return to rural areas.

Your participation will assist in determining the number of allied health students from rural communities that return to work in those areas after graduation and the impact that rural healthcare shortages may have.

Recently, an email was sent to all allied health students enrolled at Ozarks Technical Community College, containing the link to the survey. This link is: https://www.surveymonkey.com/r/Allied_Health_Student

A consent form requesting your participation will be attached to the email. Please consider completing the survey by November 20, 2015.

Thank you for your participation!

Elaine Kramer
Dental Programs Instructor
Ozarks Technical Community College
Springfield, Missouri
(417) 447-8836
kramere@otc.edu