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Closing the Gaps in Rural Healthcare in Texas: A Formative Bounded Case Study

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Walden University

College of Health Sciences

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Marianne Bogel

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2019

Abstract

Closing the Gaps in Rural Healthcare in Texas: A Formative Bounded Case Study

by

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MSN, Benedictine University, 2010

BSN, Chamberlain College of Nursing, 2009

Diploma, Barnes Hospital School of Nursing, 1966

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Public Health – Community Health

Walden University

November 2019

Abstract

Maldistribution of healthcare professionals persists in remote and rural communities throughout the world. Adoption of a Community Paramedic (CP) program could improve access to quality healthcare for rural communities. The conceptual framework defined rural communities by their distinct characteristics — community efficacy, weaknesses, attitudes, assets, deficits, local culture, and the driving and restraining forces — and not defined by their small populations or distances to cities. The theoretical foundation was a synthesis of theories of Bandura, Rogers, and Lewin. This study assessed community characteristics that may influence the likelihood of success, sustainability, or program failure of the Australian CP model in a single remote Texas border community. In this qualitative formative bounded case study, 3 bounded groups were examined; data collection was by in-person interviews. Group members were purposively selected: 5 residents and 3 EMS members. The 3rd group consisted of 4 randomly self-selected resident interviews, field observations, news articles, and local social media. Data transcripts were coded using theoretical coding based on the conceptual framework and theoretical foundation. Strong individual and group efficacy, efficacy resilience, adaptability, strong communications, overlapping groups, and a strong sense of community program ownership were evident in this study. The probability of establishing an effective CP program based on the Australian model is high based on study findings. Improved access to quality healthcare in remote and rural communities could result in improved health of community members and significant social change.

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Dedication

I dedicate this dissertation to my two great-grandmothers, Clara Caffery Pancoast and Sarah Newton Bogel, and to my two grandmothers, Julia Beall Mead and Mary Pancoast Bogel — all hardy pioneer women on the Texas frontier.

As a toddler, Clara Pancoast lived through the end of the Civil War and Reconstruction in Louisiana, surviving starvation conditions. She later moved to Texas, married my great-grandfather (a descendant of Pennsylvania Quakers) in San Antonio, and became one of the celebrated Early Texas Artists and a newspaper editor. Sarah Newton Bogel was from San Antonio, where she married my first-generation German great-grandfather. After ranching briefly in Monterrey, Mexico, in 1884, Sarah and W. W. Bogel traveled to the Texas border region where they were pioneer ranchers and raised seven children. Sarah was active in her remote community and engaged in social change; together with the women of the county, she was instrumental in shutting down all of the bars in the county — not a popular activity among the family's men folk!

My maternal grandmother, Julia Mead, another true Texas pioneer woman, was a member of the first class to graduate from the College of Industrial Arts in Denton, Texas, in 1907; today, that institution is the Texas Woman's University. Before marrying my grandfather, she taught school in a one-room schoolhouse in central Texas. My paternal grandmother, Mary Pancoast Bogel, was a graduate of the New England Conservatory of Music; after marrying my grandfather, a second generation German-American rancher, she moved to the wild region where the ranch was located on the

Texas-Mexico border. There she raised her family on that remote ranch. A violinist and teacher, she also learned to ride and shoot, like her mother-in-law Sarah Newton Bogel.

To these fine pioneer ancestors, I owe my passion for learning, my creativity, my inquisitiveness, my personal strength, and my penchant for being an advocate and seeking to effect social change.

Acknowledgments

First, I am thankful to my heavenly father that I survived so many serious illnesses and a serious injury against all odds during my doctoral courses and the dissertation process. Thank you, dear Lord, for giving me the strength and tenacity to keep going. I am thankful for my committee chair, Dr. Shanna Barnett, for her understanding, generosity, and kindness throughout so many health problems and for sticking with me when it would have been easy to take a different path.

I would like to thank Dr. Richard Jimenez, my committee member, for serving on my committee and for helping me begin to focus my research interests in his course in communications, marketing, and public relations for public health leaders. I would also like to thank Dr. Vasileos Margaritis who, in his community health assessment course, helped narrow my research interests and begin to sharpen my focus.

Thanks are also due to my cousin, Dr. J. D. Cowsar, for encouraging me throughout my dissertation process, and to my cousin Dr. Jeanne Hubbard Simpson for her review of my proposal.

I owe special thanks to my ADA Assistant, Jeannette Gamez, who kept me organized, helped me have some fun, and pulled my service dog Halsey out of the San Antonio River after he slipped over the edge at the fiesta river parade. Thanks are also due to Roger Cabico of the XGamer store, San Antonio; thanks for keeping my computers functioning.

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Chapter 1: Introduction to the Study

Introduction

Health professionals are unequally distributed throughout rural and remote areas of the United States; the preponderance of healthcare providers practice in metropolitan areas. Maldistribution of healthcare providers leaves rural and remote populations medically underserved (Allred, Duffrin, Brinkley, & Jones, 2015; Grobler, Marais, & Mabunda, 2015; Housing Assistance Council, 2011). An estimated 50% of the world's population resides in rural areas, yet only 24% of all physicians and 38% of all nurses serve these rural populations; this results in inadequate healthcare services for a significant portion of the global population (Grobler et al., 2015). Approximately 90% of U. S. counties carry the rural designation, with an equal percentage of the nation's landmass falling into the rural category; 20% of the U.S. population resides in these rural areas. Only 11% of practicing physicians in Texas are living in and serving rural counties (Allred et al., 2015). Texas has 254 counties, of which 82 (32%) are designated as urban and 172 (68%) are designated as rural (Turner & Simmons, 2015). In 2013, the population to primary care physician (PCP) ratio in Australia's remote rural areas was 2.4 doctors per 1,000 residents. In remote Texas communities, the ratio varies from 1,410 to 12,155 residents to a single physician, with some counties completely lacking any PCP for many miles (Grobler et al., 2015; Kelly, Hulme, Farragher, & Clarke, 2016; "Primary care physicians by county, 2018," 2018). These data strongly indicate the size of the need to identify and employ innovative programs to reduce the healthcare disparity that exists in rural counties in Texas.

While the goal is to address health professional shortages and find creative ways to fill the gaps in care, the effects of a successful program will be twofold: Residents will receive significantly improved health and emergency care and will experience significant positive social change. The successful establishment of a viable, sustainable program in one remote community could lead to the implementation of that program in other rural and remote communities, which would multiply the impact of the positive social change experienced.

Health Professional Shortage Areas

When there is no PCP in a rural community, the residents must drive some distance to receive healthcare that is acute, emergent, or preventive. There is also a need for a higher level of emergency care in remote and rural communities. Without a local PCP, the screening and early diagnoses of potentially serious chronic and life-threatening conditions are less likely to occur (Allred et al., 2015; Goodridge & Marciniuk, 2016). Failure to detect diabetes at an early stage is particularly problematic in rural and remote areas of Texas, specifically in those counties near the Texas-Mexico border (Ryabov, 2014; Lotfy, Adeghate, Kalasz, Singh, & Adeghate, 2017). No physicians resided in the community in this study. The nearest physician was located 65 miles away from the primary community in this study, but at least 120 miles away from the furthestmost *colonias* (unincorporated poor communities along the Texas-Mexico border) associated with this community. An analysis of this data reveals the extent of the disparity and the need to identify and adopt a program to mitigate the effects of healthcare provider workforce shortages in rural and remote Texas; such a program must be both attainable and sustainable (O'Meara, 2014; Trede, McEwen, Kenny, & O'Meara, 2014). This

formative study is a first step to assist rural and remote communities in Texas evaluate, adapt, and implement an advanced scope of practice paramedic program similar to the successful programs evolving in Australia.

Australian Researchers

An Australian research team has produced the vast majority of all peer-reviewed literature about the successful community paramedic (CP) program now in use throughout Australia. This team has assisted researchers in other countries to begin researching community paramedicine in their countries. Given the success of the Australian programs, contrasted with the failure of a similar pilot program in New Mexico (Hauswald, Raynovich, & Brainard, 2005), it is important to evaluate the social forces and the resources available in a remote community, which could help a program launch successfully. This study should be a catalyst for the development and adoption of creative innovations to improve access to healthcare in underserved remote and rural communities, with significant potential implications for the future of positive social change in rural United States and beyond.

Background

Rurality: Texas and Australia

This study of a Texas pioneer community in a remote county located on the Texas-Mexico border is set within the context of rurality relevant for the assessment of the community in this current research study in preparation for the possible adoption of the CP program developed in Australia. The concept of rurality in rural health embraces people, space, and place; in rural and remote communities, culture, social structures, geography, and environment play major roles, encompassing far more than surface-level

meanings (Cummins, Curtis, Diez-Roux, & Macintyre, 2007; Winterton, Hulme-Chambers, Farmer, & Munoz, 2014). The remote and rural communities of Australia bear a strong resemblance to those in Texas; a self-sufficient pioneering culture rooted in regional history holds true in both locations. For this reason, combined with the limited similar program development and research studies available in other countries, the focus of the literature review was on a CP program as it has developed in Australia and its adaptability to a remote Texas-Mexico border community.

The Literature Gap

Until recently, the publishers of all peer-reviewed research articles on the topic of the advanced scope of practice CP programs consisted of a team of researchers in Australia. Researchers outside of Australia recently published a few studies jointly with Australian researchers as members of the research teams. I found no study that represented research performed in advance of implementing an expanded scope of practice paramedic program in a community. In addition to the successful Australian CP program, I explored the single program reported in the 1990s in Red River, New Mexico; that pilot program failed (Hauswald, Raynovich, & Brainard, 2005). The failed pilot program attempted in New Mexico is a rich source of valuable information for review prior to planning to implement a rural expanded scope of practice paramedic program in the future. There was no evidence in the literature of a study done in advance of implementation of the Red River pilot program or in any other location. In hindsight, perhaps a study in advance of the failed New Mexico pilot CP program might have prevented the problems that occurred there, and the resultant failure of the program.

A number of articles were available that discussed the health disparities of rural Texas populations, but none explored the creative possibilities for improvements that are needed. There is a need to find alternative models of healthcare delivery that will work in the rural and remote counties in Texas and beyond; the Australian CP program appears to present potentially valuable possibilities for Texas communities.

This current study begins to fill a gap in the research literature, while providing a model for rural and remote Texas communities to evaluate the way forward when considering the adoption of the CP program, or any other innovative program, to improve access to quality health and emergency care. Validation of this study must occur with further studies in different communities in the future given the unique characteristics of individual rural and remote communities.

Problem Statement

Maldistribution of healthcare professionals presents the necessity to assess the likelihood of success of a program to improve access to a higher level of emergency and primary care in a remotely located Texas-Mexico border community that is both a health professional shortage area (HPSA) and a Medically Underserved Area (MUA). Many, if not most, rural counties in Texas lack healthcare providers and are located many miles from a major metropolitan city where medical centers and specialists are located. Additionally, there is a need to increase the level of emergency care available in the field when the nearest hospital is some distance away. To address this problem, it is essential for local residents to be engaged in the innovation decision process and adaptation of a program to fit the unique needs of the local community for the program's successful adoption.

Rural Australia and Texas share many characteristics, including remoteness, rural communities with small populations, variations in geography, and issues with recruiting and retaining healthcare providers. In many rural communities in Texas, these shortages of healthcare professionals have been historically long-standing; these conditions persist. Several members of the Bogel family, pioneer ranchers in the Texas-Mexico borderlands, died without available medical care in the late 19th and early 20th centuries (Personal communication, Mary Bogel, 1965). The same area of Texas today remains an HPSA.

The residents in HPSAs experience health disparities that the development and implementation of new innovative approaches to providing healthcare might improve. Members of communities must be active players in that process to customize innovative programs to serve their own unique communities (Rogers, 2003). A comparison of the successful CP program in Australian communities and the failed pilot program in Red River, New Mexico (Hauswald et al., 2005) indicates a need to develop a study method to assess the strengths and weaknesses of rural and remote communities in advance of implementing a similar program. Formative studies conducted in advance of implementation of a major new program, such as the CP program, could improve the potential for successful implementation of a sustainable program.

Purpose of the Study

The purpose of this formative qualitative bounded case study is to explore the likelihood of success if a particular remote community in Texas chose to assess, then possibly adapt and implement, the CP program as developed in Australia. This study, performed in advance of implementing a CP program in a rural or remote community, fills the current literature gap; no such formative studies are available in the published

research literature. In this study, I used a formative qualitative bounded case study to explore and assess the strengths, deficits, weaknesses, attitudes, perspectives, needs, culture, and the driving and restraining forces in a remote, rural community in Texas on the Texas-Mexico border. This study addresses the phenomenon of interest: healthcare deficits in remote and rural communities. I conducted this study MUA in this remote community in advance of implementation of a CP program in an HPSA and MUA area. I examined the community's social, personnel, and economic assets and deficits. It is important to know the strengths of the community and build on them during implementation, to identify factors that would contribute to long-term sustainability, and to be aware of those influences that could prevent successful adoption of a sustainable program (Cummins et al., 2007; Winterton et al., 2014). The goal of this study was to explore the likelihood of successful adoption and adaptation of a CP program in a remote Texas border community to overcome local healthcare shortages.

Research Questions

The primary research questions guiding this study are the following:

RQ1: What are the assets, deficits, strengths, weaknesses, and current healthcare delivery processes in a remote border community in Texas that could assist the community in deciding whether to adopt or reject implementation of a CP program?

RQ2: How would these factors affect the likelihood of successful adaptation and implementation of the program?

Community Resident Interview Questions

Prior to beginning each interview, I explained the CP program and the purpose of this study to each participant. As a qualitative study, the initial research questions stated

below underwent an iterative process in the field as interviews progressed, with the goal of obtaining rich information through the interview process.

1. Why do you live in this community so far away from a city? What are the best things about living here? What are the worst things about living here?

2. How do members of your community help each other?

3. How and where do you get healthcare? Where do you go to see a doctor? How far away is it?

4. Do you think this program would be good for your community? Why? Why not?

Additional Questions for EMS Personnel

5. How do you see yourself and other EMS members collaborating as team members with distant physicians?

6. Why do you think this program would be successful in this community? What are the community strengths that would support the program? Weaknesses?

Theoretical Foundation

The theoretical foundation consists of a synthesis of the work of three theorists: Lewin (Burnes & Bargal, 2017), Rogers (2003), and Bandura (2000; 2001; 2002; 2006). The purpose of this synthesized theoretical foundation is to facilitate focusing and telling the story of the many forces within a medically underserved remote frontier community in a Texas-Mexico border county. Interviews, news articles, local social media, and observations illustrated the complex and variable social networks that might potentially affect the ability of a community to successfully implement and adapt this CP program to serve the healthcare needs of this particular remote community. Social change was not

the direct goal of this study. The actual goal — the reduction of health disparities in a remote Texas community through implementation of a CP program — should be the catalyst for significant positive social change in that community that could grow as the program spreads to additional communities.

This study begins with a theoretical foundation that guides the research in all aspects. The theoretical foundation for this study begins with Lewin's field theory and seeking out the driving and restraining forces in this community that would affect the success or failure of the CP program implementation (Burnes & Bargal, 2017). I identified the dynamics of how implementation, dissemination, and diffusion, as identified by Rogers (2003), occur through social systems in the selected remote Texas community. Finally, the third piece of the theory I integrated into this synthesized theory was Bandura's (2001; 2002; 2018) social cognitive learning theory (SCT), addressing how people learn through observing others, the significance of social networks, and the importance of individual and group efficacy; this is the glue that holds the synthesized theory together. This synthesized theory served as a guide in the development of the research questions and during interviews and observations. It also served as the guide for coding all data collected. A detailed discussion of the theoretical foundation and its development is located in Chapter 2.

Conceptual Framework

The conceptual framework, based on the clear definitions of *rurality* and *place*, provided a contextual lens for this study; through this lens, I assessed a remote Texas community's social structure, attitudes, assets, and deficits in preparation for implementing the CP program there in the full context of rurality. In the past, researchers

defined *rurality* by the combination of distance from an urban or metropolitan center, a relatively small population, and by community deficits that were perceived as problems needing to be fixed (Cummins et al., 2007; Winterton et al., 2014). The term *rural* has different meanings based on experiences and perspectives; these meanings include location, geography, population, and distance to a major metropolitan center, but that is only a starting place. In actuality, the location, population density, cultures, population attributes, health problems, behaviors, local economic strength and concerns, community history, relationships, and resource assets and shortages combine to form the context of each unique rural community (Cummins et al., 2007; Winterton et al., 2014). This describes the phenomenon of interest for this bounded case designed to examine a community in preparation for implementing the CP program within the full context of rurality and place. This idea of rurality and place sets the context for the literature review, research questions, data analysis, and recommendations for adoption of the CP program in rural and remote Texas communities. A detailed discussion of the conceptual framework is located in Chapter 2.

Nature of the Study

The goal of this study is an assessment of the strengths and weaknesses of a remote border community in Texas in advance of possible adoption, adaptation, and implementation of a CP program as developed in Australia. This formative qualitative bounded case study is built on a synthesized theory based on a combination of a force field analysis, the diffusion of innovations theory, SCT, and a conceptual framework built on the model of rural as the experiences and perspectives of individuals (Cummins et al., 2007; Winterton et al., 2014). I interviewed three bounded groups of participants: (a)

purposely recruited residents, (b) EMS personnel from the community, and (c) observed the greater community, including residents who randomly approached me in the community during the 10 days I was there. I notated the informal conversations in the community as verbatim reports. Data were coded and analyzed thematically. The purpose of this exploration was to assist the community as they explore the possibility of adopting a program similar to the CP program developed in Australia.

Definitions of Terms

Expanded emergency medical services (E-EMS): A term used for advanced paramedics in the pilot program in New Mexico

Health professional shortage area (HRSA): “Designations that indicate healthcare provider shortages in primary care, dental health; or mental health. These shortages may be geographic-, population-, or facility-based” (“Health Professional Shortage Areas (HPSAs),” 2019).

Health Resources and Services Administration (HRSA): A U.S. Department of Health and Human Services agency that addresses issues related to limited access to quality healthcare (“About HRSA,” 2016).

Medically underserved area (MUA): “Medically Underserved Areas/Populations are areas or populations designated by HRSA as having too few primary care providers, high infant mortality, high poverty or a high elderly population” (Health Resources & Services Administration, 2019).

Community paramedic (CP): Advanced practice paramedics who work in rural and remote communities (O’Meara, 2014)

Rurality: The location, population density, cultures, population attributes, health problems, behaviors, local economic strength and concerns, community history, relationships, and resource shortages that combine to form the context of each unique rural community (Cummins et al., 2007; Winterton et al., 2014).

Assumptions

My assumption prior to commencing this study was that the Australian model of the CP program might be highly beneficial if implemented in rural and remote Texas communities that have limited availability of healthcare professionals (Goodridge & Marciniuk, 2016; O'Meara, 2014). The preponderance of published research studies came from Australian researchers covering the successful CP program there. My personal experience and knowledge, both as a registered nurse with 53 years of experience and as a descendant of ranchers from the same area, informed this study. I recognize the potential for program implementation failure, as represented by the failure in the Red River program discussed in Chapter 3 (Hauswald et al., 2005). I am aware of the potential for less than ideal characteristics in any community that may prevent a program's successful implementation and sustainability. The distinctive assets and deficits of each individual community potentially hold the power for a program to either succeed or fail; programs should be unique to each community, and therefore, a formative study of each individual community could help tailor the CP program to that area.

Scope and Delimitations

The focus of this research study is the exploration of the strengths, deficits, weaknesses, attitudes, perspectives, needs, and the driving and restraining forces in a remote, rural community in Texas. When adopting and adapting a CP program from

Australia, these characteristics of a unique community should support and shape the CP program. This focus was selected based on the context of introducing the Australian model of the CP program for possible adoption by a remote, medically underserved community in Texas (Grobler et al., 2015; O'Meara, 2014). For the purposes of this study, the focus was on this community, not on remotely located physicians who might provide medical supervision of the program at some time in the future. The population studied consists of residents in a remote Texas border community; bounded groups included purposively selected community residents, the EMS personnel who live there and serve their community, and the greater community, as illustrated in Figure 1 below.

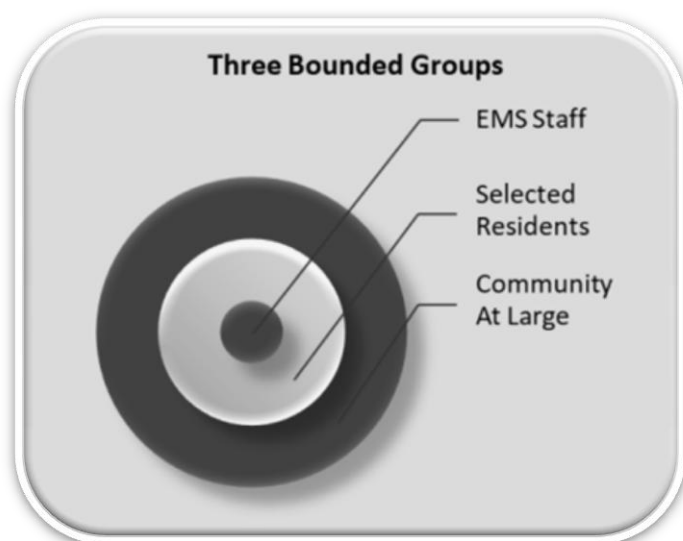


Figure 1. Three bounded groups for this frontier community study

Transferability

Transferability of this formative bounded case study is limited to the extent to which the elements of this study and its outcomes may apply to other communities and populations. Situations in each community are unique, as are the individual community's social and geographical structure (Anney, 2014; Cope, 2014). This study may provide a process guide for other communities that may consider implementing the same CP

program; it may be important for other communities to assess their own strengths and weaknesses in advance of implementation of a new program, and this study could be a useful tool. The transferability of this study lies in the ability of future researchers to replicate the design of this study, while the actual results may differ in another unique community.

Limitations

The structural boundary of this qualitative study is limited to a particular remote Texas border community. Although each community is unique, rural and remote communities share the characteristics of being rural or remotely located; such characteristics include population density, cultures, population attributes, health problems, behaviors, local economic strength and concerns, community history, relationships, and resource assets and shortages that combine to form the context of each unique rural community (Cummins et al., 2007; Winterton et al., 2014). Generalizability or transferability of this study will depend on the degree to which the methodology, process, and results of this study are adequate to determine if there is a general fit between this study and other communities (Anney, 2014). Similar communities may have different results, but that would not affect the transferability of the study methodology and process.

This study sought to fill a gap in the research literature by conducting the initial formative study of a remote community in advance of implementation of the CP program in that community; therefore, no other studies are available for comparison of methodology, process, or results. Additional limitations include the following: (a) small sample size recruited by purposive sampling, thereby limiting generalizability; (b) time

limitations in the field due to distance and costs; (c) my significant disabilities and an injury prevented subsequent trips to the field; (d) my family history in the same region may be a source of bias that affects trustworthiness and validity; (e) my family name, associated historically with a nearby ranch, was recognized in the community; and (f) qualitative data analysis is subjective.

I am familiar with the region and the community in this study, although I have never lived there and had no acquaintances in the selected community prior to conducting research there. My ancestors were early pioneers in the same county, but did not live in the selected community; my great-grandparents had a ranch close to this community. Throughout this study, I was conscious of the potential for bias and was constantly aware of maintaining my focus on the participants and what they said. My field notes also served as my personal journal. I kept all field observations and my thoughts about the process and how my history connected in the same file, similar to a diary. Field notes that summarized each interview, written shortly after the interview concluded, were in the form of a verbatim report. This kept my focus on the words of the participants. My association with the community's geographical region gives me significant understanding of the social structure, customs, and healthcare issues that may be beneficial to this study.

Significance of the Study

The concept of the CP program is relatively new to healthcare systems in the United States; limited research on the topic to date has been produced by an Australian research team. The preponderance of peer-reviewed research literature discusses the program development and success in Australia (Martin et al., 2016; O'Meara, 2014); the primary exception is a failed pilot CP program in New Mexico (Hauswald et al., 2005). I

found no studies that discussed research completed in preparation to implement this program in any community. Given the Australian program's success and the single documented failed pilot program in New Mexico, this current formative bounded case study provides a roadmap for other rural and remote communities to follow when considering a similar program for their communities (Trede et al., 2014). The outcome of this study could reasonably support the successful implementation and adaptation of a program similar to the Australian CP program; it could result in sustainable improved access to quality health and emergency care in a remote community. This could become a catalyst for positive social change through improvement of rural and remote community healthcare.

Summary

The concept of rurality in rural health embraces people, space, and place in which social structures, geography, and environment play major roles; this encompasses far more than surface-level meanings (Cummins et al., 2007; Winterton et al., 2014). This concept of rurality seems to be lacking in many studies with a focus on rural health (Cummins et al., 2007; Winterton et al., 2014). The practice of looking at rural health exclusively through the lens of deficits, defining rural health and healthcare systems by what is lacking, has been widespread, but it is ineffective (Jones, McAllister & Lyle, 2016). The practice of defining rural and remote communities by deficits effectively shifts the focus away from intrinsic community strengths and culture to a focus exclusively on problems to be addressed by people outside the community.

A look through the lens of rurality reveals that these remote communities are fertile ground for innovations in the methodologies used in addressing the health and

wellness needs of rural, remote, and frontier communities; there is also the potential for failure. An Australian research team thoroughly documented the successes of its CP program implemented in Australian rural and remote communities (O'Meara, 2014; Martin et al., 2016). Researchers from the Department of Emergency Medicine at the University of New Mexico documented the single failure of a pilot CP innovation program in New Mexico (Hauswald et al., 2005). The failed program raises cautionary flags, indicating that there may be value in conducting studies in advance of launching a CP program in a community. Remote and rural communities in Texas and Australia share many similarities; the Australian CP model seems suitable for possible future adoption in Texas due to the strong similarities between the rural regions of Texas and Australia.

In Chapter 1, I provided an overview of this formative bounded case study designed by the use of three bounded groups and in-person interviews to explore the community characteristics that would support the successful adoption and adaptation of the Australian CP program. In Chapter 2, I present a discussion of the theoretical foundation, the conceptual foundation, and the current research literature available regarding the CP program developed in Australia. There is also an assessment of the single pilot CP program failure documented in the analysis of the Red River project in New Mexico.

Chapter 2: Literature Review

Introduction

Maldistribution of healthcare professionals persists in remote and rural communities. Rural residents travel long distances for healthcare; transporting patients takes EMS staff out of communities for long periods and delays necessary emergent care. Adoption of a CP program could improve access to quality healthcare and immediate Level 1 emergency care in the field and reduce transports. The CP program has been successful in Australia, but a community pilot CP program in New Mexico failed. Did individual community characteristics contribute to the success or failure of the CP program?

The purpose of this study was to explore community characteristics that may affect the likelihood of success if a remote border community in Texas implements a program similar to the CP paramedic program developed in Australia. The program must be adapted to the local community's culture and needs; it is important to know the unique strengths of the community and build on them during implementation, without losing sight of all factors that would contribute to long-term sustainability (Bischoff et al., 2014; Malatzky & Bourke, 2016; O'Meara, 2014). The residents of this community are the major players in the adoption of this innovative CP program. Their knowledge about programs that will be suitable locally, together with their cultural and other community assets, is important to the successful adoption and adaptation of a CP program; they must be involved in the entire process (Farmer et al., 2018). In this study, I sought to identify the cultures, population attributes, health problems, behaviors, local economic strengths

and concerns, community history, relationships, and both positive resources and resource shortages of a remote Texas border community.

This literature review presented focuses on those articles that are relevant to the purpose of this current study. The journal articles describing the CP program, primarily written by a research team located in Australia, described the development of the successful program there (McTernan & Matthews, 2015; O'Meara, Stirling, Ruest, & Martin, 2015b; O'Meara & Duthie, 2018; O'Meara, 2014; O'Meara, Ruest, & Martin, 2015a; O'Meara, Wingrove, & Nolan, 2018; Perona, Rahman, & O'Meara, 2019; Reaburn, Zolcinski, & Fyfe, 2017). A review of the failed New Mexico pilot program supports the need to study the strengths and weaknesses of communities prior to attempting to implement an innovative program based on the successful Australian CP model (Hauswald et al., 2005). Without an understanding of the culture of the community holistically in advance of designing a program for a specific community, it is possible that the program will never reach its full potential to sustainably reduce the health disparities of the community (Cummins et al., 2007). Adoption of this program by a community without adequate preparation and planning to meet the specific needs of the community could prove unproductive.

The theoretical foundation of this study was a synthesis of three theories combined to support the study that seeks to identify the characteristics, both positive and negative, of a remote rural community prior to implementation of the Australian model of the CP program in Texas. These theories guided the development of the interview questions, the analysis and interpretation of the data, and sharply focused the meaning and application of the collected data.

The first theory that combines to form the theoretical foundation is Lewin's field theory and force field analysis, with attention to the theory of life space (Burnes & Bargal, 2017; Kaiser & Schulze, 2018).

The second theory synthesized into the theoretical foundation is the diffusion of innovations theory; Rogers described this theory as the process of dissemination, diffusion, and adoption of innovations that is fundamentally a social process and supported by communication (Mannan & Haleem, 2017).

The third theory incorporated into this synthesized theoretical foundation is SCT as described by Bandura. At the heart of SCT, a concept known as an agentic perspective recognizes that individuals are creators of their experiences, and can affect the nature and outcomes of events, both as individuals and as groups or communities (Bandura, 2001; Bandura, 2018).

The design of this synthesized theoretical foundation is to support a study that may result in beneficial social change in the form of increased access to quality health and emergency care. This foundation, combined with the conceptual framework, guided all interview questions used in the field and all analysis and coding.

The conceptual framework establishes that place and rurality in this study integrate the location, population density, cultures, population attributes, health problems behaviors, local economic strength and concerns, community history, relationships, and both positive resources and resource shortages. These concepts overlap with Lewin's concept of life space (Bischoff et al., 2014; Cummins et al., 2007; Farmer et al., 2012; Kaiser & Schulze, 2018; Winterton et al., 2014). All of these factors combine to form the

context of each unique rural community in the adoption of an innovative program process.

The extent of land masses in the United States that are designated as rural, the percentage of the population residing in those rural areas, the small percentage of physicians serving those rural regions, and distances to Level 1 trauma centers is significant. This information sets the stage for an understanding of the size of the problem of maldistribution of health and emergency care services in rural and remote areas of the United States (Allred et al., 2015; Cummins et al., 2007; Douthit et al., 2015; McGrail & Humphreys, 2015; McGrail et al., 2017a; McGrail et al., 2017b; Ryabov, 2014; Winterton et al., 2014). This information serves as the background that defines the population and the size of the health disparity problem in the selected remotely located border community in Texas prior to adoption of the CP innovation that has emerged from rural areas of Australia.

Descriptions and assessments of rural and remote healthcare and successful CP programs in several Australian states provide valuable information, including an analysis of what makes the Australian CP program successful (Early et al., 2016; Edwards et al., 2016; Mulholland et al., 2014; O'Meara, 2014; Mulholland, O'Meara, Walker, Stirling, & Tourle, 2009; O'Meara et al., 2015a; O'Meara et al., 2018; Housing Assistance Council, 2011; Sanders et al., 2015; Ryabov, 2014). Following the information about the successful Australian program, a pilot advanced paramedic program that was begun in New Mexico in 1992 is discussed; that program failed by 1997 (Hauswald et al., 2005). Analyses of both the successful programs studied in Australia and the contrasting failed pilot program in New Mexico, combined with an understanding of the dynamics of the

remotely located Texas community studied will guide the implementation process for the CP program in Texas. This study could enable the CP program's subsequent dissemination to other Texas communities for their possible adoption and adaptation to their specific needs.

Literature Search Strategy

I conducted searches in multiple databases available through the Walden University Library and through Google Scholar; 100% of the articles located through the Walden University Library databases were also located through Google Scholar; conversely, the majority of relevant articles included in this study and found in Google Scholar were not available in the Walden University Library. Searches in Google Scholar led me to the rich work of the Australian research team. There was a dearth of literature on the subject of the CP program published by anyone outside of Australia. With the exception of the failed CP program in New Mexico (Hauswald et al., 2005), I maintained a focus on the research published by the Australian team. This research included articles from the early 21st century up to 2019. Databases searched were EBSCOhost Academic Search Complete, EBSCOhost Business Source Complete, EBSCOhost Political Science Complete, EBSCOhost PsycARTICLES, Elsevier SD Business Management & Accounting, EBSCOhost SocINDEX with Full Text, Elsevier SD Health Sciences, Google Scholar, ProQuest, and SAGE Premier 2015.

The search strategy I used was an iterative process that began with searches that included various strings of keywords, followed by a snowball approach, locating additional articles through the Google Scholar tools labeled "cited by" and "related" articles. An additional strategy used was the identification of relevant journals and then

searching within those journals using an assortment of keywords. The list of key search terms employed is as follows: *adoption of innovation, agency, agentic, Albert Bandura, case study, collective agency, communication, community health worker, community paramedic, community participation, conceptual framework, deficit, diffusion of innovations, diffusion theory, dissemination, driving distances, driving forces, empowerment, Everett Rogers, field theory, force field analysis, group agency, health professional shortage areas, innovation, interdisciplinary teamwork, interpreting qualitative data, isolation, Kurt Lewin, leadership, medically underserved areas, paramedic education, paramedics, personal agency, place, power, Promotora, Promotores, proxy agency, remote health, restraining forces, rural health, rural paramedics, rural sociology, rurality, silo mentality, social cognitive theory, social network, sustainability, telehealth, telemedicine, theoretical framework, and value systems.*

Theoretical Foundation

The theoretical foundation consisted of a synthesis of theories by Lewin, Rogers, and Bandura. The purpose of this synthesized theoretical foundation was to facilitate telling the story of the many forces in a medically underserved remote Texas community in a Texas-Mexico border county. It supported the study of the complex and variable social networks that might potentially affect the ability of a community to successfully implement and adapt a new program to serve the healthcare needs of their particular community. The goal is to reduce the health disparities in a remote Texas community; the result should be significant beneficial social change.

This synthesized theory begins with the Lewin's field theory, based on his concept of life space, which seeks out the driving and restraining forces in a community that would affect the success or failure of the CP program implementation (Burnes & Bargal, 2017; Kaiser & Schulze, 2018).

Next, consideration is given to the dynamics of how implementation, dissemination, and diffusion, as identified by Everett Rogers (2003), occur through social systems in the selected remote Texas community, where there is no resident PCP (Mannan & Haleem, 2017).

Finally, the third piece of the synthesized theory is Bandura's SCT. Bandura addressed how people learn vicariously through observing others, the significance of social networks, and the importance of both individual and group efficacy (Bandura, 2001; Bandura, 2002; Pillai et al., 2017). Social phenomena are the glue that holds the synthesized theory together. Figure 2 is an illustration of this synthesized theoretical foundation.



Figure 2. Synthesized theoretical foundation.

The basis of this theoretical foundation is to facilitate exploring and telling the story of the many different forces in a medically underserved remote frontier community in a Texas-Mexico border county. The three theories incorporated into this synthesized theoretical foundation provided a cogent guide for the research in the field. It also

provided a strategy for the interview questions and a framework for grouping the coding of the data collected in the field. I did not find any study where the researchers used this particular synthesis of theories.

Social change to reduce the health disparities in a remote Texas community is not the goal or purpose of this study; however, it should be the result of the successful implementation of the CP program in this, or other, remote communities in part because of the design of this study. The results of this study are not generalizable, but the study model can be replicated in other unique communities.

First Theory: Force Field Analysis

A force field analysis builds on the tenets inherent in Lewin's life space theory that individuals, groups, and the environment are interdependent. For actions addressing social issues to be effective, it is important first to discover how individuals and groups form the concepts that define their world and the context in which they built these concepts. Cummins, Curtis, Diez-Roux, and Macintyre (2007) in their concept of place, concurred with Kurt Lewin, who placed the forces within a community in the context of his theory of life space; thus, he acknowledged the inseparable factors of location and social culture (Cummins et al., 2007; Malatzky & Bourke, 2016; Winterton et al., 2014).

Gordon Allport, in his foreword to the 1948 edition of *Resolving Social Conflicts: Selected Papers on Group Dynamics* by Lewin's wife, following his death, wrote:

The unifying theme is unmistakable: the group to which an individual belongs is the ground for his perceptions, his feelings, and his actions . . . Just as the bed of a stream shapes the direction and tempo of the flow of water, so does the group determine the current of an individual's life. This interdependence of the ground

and the figured flow is inescapable, intimate, dynamic, but it is also elusive.

(Lewin, 1948, pp. vii–viii)

Allport's (1948) statement is consistent with Bandura's (2001) theory that people and their environments have a reciprocal relationship. The purpose of Lewin's force field analysis was to understand the people and the positive and negative cultural forces within a community and to effect sustainable social change (Kaiser & Schulze, 2018). Lewin built his field theory on principles from two fields: psychology and physics (Burnes & Bargal, 2017; Kaiser & Schulze, 2018). Lewin demonstrated that the context, the environment, and all forces could affect the behavior of any group examined. He agreed with the concept of place put forward by Cummins et al. (2007), who stated that communities are complex in all aspects. A force field analysis provides a tool for individuals, communities, or organizations to understand their social structures and identify forces within or outside the community that either drive or restrain efforts to be effective at establishing a new program.

The goal of using a force field analysis in a program innovation process is to identify, analyze, and reduce or redirect those forces within the community that would restrain or block the development of a program. It is important to strengthen those forces that should help drive the program or organization to success (Burnes & Bargal, 2017; Kaiser & Schulze, 2018). Use of a force field analysis in advance of implementing the Red River, New Mexico, paramedic program that failed, as discussed later in this chapter, might have revealed critical information about the community that had an effect on the ultimate negative outcome (Hauswald et al., 2005). One possible deficit in that community might have been the missing link of deep, long-term small community

relationships, the community culture rooted in community history and identity; instead, the average length of time lived in that community was only 7 years (Hauswald et al., 2005). Based on the research evidence on the CP program in Australia, and the report on the failure of a similar program in New Mexico, it is possible that the New Mexico program needed a different design based on the transient characteristics of that particular small community and different qualifications for the paramedics the program employed.

Second Theory: Diffusion of Innovations

Throughout history, innovations have developed, spread, and been adopted by communities around the world. In the 1940s, Rogers began developing the theory of diffusion of innovations in the context of rural and medical sociology, communications, and marketing; he defined diffusion as the spread of new ideas through communication and imitation (Rogers, 2003). Rogers reviewed the research of Ryan and Gross (1943) who identified individual opinion leaders who influenced other individuals through social networks to consider adoption of a newly synthesized variety of corn and its subsequent diffusion by farmers in Iowa (Rogers, 2003). Diffusion research, originally conceived in the context of rural sociology and agriculture, evolved into general categories of applications in a range of disciplines that extended well beyond the category of agriculture (Rogers, 2003). The discovery of the power of social networks evolved into a tenet of diffusion science; it crosses all boundaries into a primary component of diffusion science (Rogers, 2003). Medical sociology researchers linked diffusion to professionals connected in networks. It may be true that a lack of social network data was a significant factor in the failure of the Red River pilot CP program. The development of social networks in that particular community was weak due to the short average length of time

the residents had lived there. Weak social networks, combined with the high volume tourist influx to enjoy the recreational facilities, could contribute to the level of failure experienced in that pilot study (Hauswald et al., 2005). The diffusion of innovations moves through the process of:

- (a) introduction of a new idea,
- (b) attitude development,
- (c) a decision made to accept or reject the new idea,
- (d) implementing the new idea, and
- (e) affirmation that the decision made was reasonable (Rogers, 2003).

As previously stated, communication, relationships, and networks are at the heart of diffusion theory (Rogers, 2003). The diffusion process is a continuum from implementation through dissemination, and eventually to diffusion or widespread adoption (Rogers, 2003). The process of adoption, dissemination, and diffusion is fundamentally a social process, accomplished through communication between individuals and groups about a new idea, and eventually constructing and reconstructing the innovation through a process of adaptations to the local settings (Rogers, 2003). People and communication are essential to the discussion and adoption of new ideas and innovations. Illustrated in Figure 3 is a timeline of adoption as a bell curve.

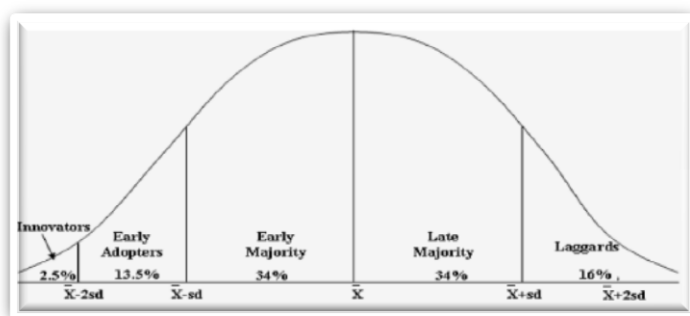


Figure 3. Descriptor of innovation adopter stages (Wani & Ali, 2015, p. 105).

The exchange of information about an innovation occurs through social networks such as family members, friends, members of groups or communities, and those who serve communities from afar. This exchange of information is particularly true when seeking information regarding other peoples' personal opinions about the possible innovation, experiences, and evaluations of the innovation in question (Cummins et al., 2007; Rogers, 2003; Winterton et al., 2014). According to Rogers (2003):

Diffusion is a type of social change, defined as the process by which alteration occurs in the structure and function of a social system. When new ideas are invented, diffused, and adopted or rejected, leading to certain consequences, social change occurs. (pp. 431-432)

Many different types of innovations are, in fact, forms of social change. Examples include the industrial revolution and the adoption of equipment and techniques to speed products through production, and the adoption of motor vehicle use by the population. Both innovations, when adopted, changed where people lived and how mobile the population became. Most of today's major innovations are the result of the development of digital technology; the result is significant change in the way we communicate, and significant social changes throughout the world. Improving access to healthcare in remote locations is no less a form of social change.

Third Theory: Social Cognitive Theory

Social Cognitive Theory closely resembles elements of the other theories, in particular those included in the synthesized theoretical foundation used in this study. Elements of SCT are inherently present in both the force field analysis theory of Lewin (Kaiser & Schulze, 2018) and the diffusion of innovations theory of Rogers (Mannan &

Haleem, 2017; Rogers, 2003). Those theories include social networks, communication, behaviors, and the intended outcome of social change. Albert Bandura based his SCT on the shared nature of personal, interpersonal, and social factors that include intellectual, emotional, genetic, interactive, and environmental elements (Bandura, 2000). Each of these factors influences the other elements, is bidirectional in nature, and affects the function of organizations (Scannell & Gifford, 2017). Individuals must possess a strong drive towards and belief in their own personal agency if their actions are to contribute to creative changes in a group, organization, or community (Bandura, 2001; Ng & Lucianetti, 2016; May et al., 2014). This is the foundation for group and community agency, inventive activities, and transformational leadership; it is also the foundation for positive, effective social change.

Efficacy, both self-efficacy and community or group efficacy, are important elements of healthy communities. Individuals with strong self-efficacy who are also community oriented are inclined to hold a mutually dependent self-concept within the community (Ng & Lucianetti, 2016). For a program to be successful, the leaders must also have a strong moral efficacy. When ethical concerns arise in an organization, leaders who possess moral efficacy will be able to confront those concerns and prevail over any obstacles that would defeat the purposes of the organization or a program (May et al., 2014). Leaders must believe in their own ability, incentives for actions, their skills, and their self-efficacy (May et al., 2014). This will enable the leader to transform their intentions, based on ethics, into ethically sound accomplishments and, ultimately, healthy organizations.

Human agency in all its forms is essential for the success of a Community Paramedic program in a remotely located community. As described by Bandura, human agency may be personal efficacy at the individual level, the collective agency as the strength of a group or community, or it may be a proxy agency whereby a designated intercessor represents the individuals, groups, or communities as their agent (Bandura, 2001). A blend of all three different types of agency is required to operate successfully, yet the foundation of collective and proxy efficacy is still individual personal efficacy of the community members (Bandura, 2001; Ng & Lucianetti, 2016). According to SCT, people learn how to learn by observing others, distilling from their observations the behavioral rules inherent in the behavior of others that they observed, and then applying the distilled rules to their own behaviors (Bandura, 2000). Although it is possible to learn from observing one's own actions, it is more efficient to learn from the actions of others through the lens of strong personal agency (Bandura, 2002). If we only learn from ourselves, we may not learn useful and positive characteristics that move us forward; we may not learn which characteristics of our lives are productive, and which ones are detrimental.

As the remote, Texas border community in question in this study considers a CP program in the future, they should learn by watching what successful groups have done in Australia and the United States. They should also learn from the example of the failed program in New Mexico (Bandura, 2002; Hauswald et al., 2005). None of this occurs in a vacuum; agency, whether individual or collective, always transpires in the setting of communications within local social systems. This also occurs through dissemination of published research. SCT shares this characteristic of communications within local social

systems with Rogers' diffusion of innovations. Bandura (2000) stated that although the environment shapes people, they are in a dynamic relationship affecting and producing their own environments. The perceived self-efficacy of individuals has a direct impact on the collective efficacy of a group or community (Bandura, 2000). The strength of collective agency is realized when individuals recognize that, although an individual alone may not have the power to effect change, the necessary power may be present within the group or community in the form of collective agency (Bandura, 2000). Collective agency can be realized when the full identity of a community is considered within the definition of place as described by Cummins, Curtis, Diez-Roux and Macintyre, (2007). The beliefs, attitudes, and actions of a particular social system are inseparable from the people who comprise that system.

The beliefs of people who comprise a social system and the strength of their collective efficacy impacts the degree to which they value a proposed social change, and the effort they will exert to make a change effective and sustainable. Efficacy resilience among individuals and groups is essential to adopting sustainable innovations. The level of effort required, combined with the degree of uncertainty in a new endeavor, may be high (Bandura, 2002). Significantly, both Albert Bandura and Everett Rogers were both faculty members at the same time at Stanford University between 1975 and 1985; they were friends and colleagues, and had a synergistic association that permeates the work of both theorists ("Chapter 5: On integrating social cognitive and social diffusion theories," 2006). Innovations need to be formative and iterative without lessening the strength of agency of individuals or groups. Problems in the adoption of a new social change may arise from failing to understand the environment and culture.

Conceptual Framework

Traditionally, in the past, researchers defined rurality by the combination of distance from an urban or metropolitan center, and a relatively small population. The term rural has different meanings based on the experiences and perspectives of individuals, or by what they have learned from others (Cummins et al., 2007; Malatzky & Bourke, 2016; Scannell & Gifford, 2017; Winterton et al., 2014). Location, geography, population, and distance to a major metropolitan center affect the meaning of rural, but these factors are inadequate in understanding the full meaning of place and rurality (Bourke et al., 2015; Cummins et al., 2007; Malatzky & Bourke, 2016; Scannell & Gifford, 2017; Winterton et al., 2014). This new definition of place and rurality describes the phenomenon of interest for this formative study designed to examine a community in preparation for implementing the CP program in the context of rurality. Using this definition of place and rurality as the conceptual framework, together with the synthesized theoretical foundation, kept this study focused on its purpose and goal. This was especially helpful when planning and conducting interviews, and in the analysis of the interview data.

For many years, the rural health definition evolved by comparing rural with urban in a simplistic mode; this bases the comparison variously on location and population density, thereby defining rural entirely by perceived deficits. Effectively, this absurd contradiction defines rural by what it is not, instead of by what it actually is, thus using a standard of indirect proof (Cummins et al., 2007; Malatzky & Bourke, 2016; Scannell & Gifford, 2017; Winterton et al., 2014). This is a proposition that the popular concept of rural is true because the opposite concept (urban) is false (Cummins et al., 2007;

Malatzky & Bourke, 2016; Scannell & Gifford, 2017; Winterton et al., 2014). When defining the concept of the meaning of rural, the use of direct evidence is the valid approach, defining the concept by what it is holistically, not by what it is not (Cummins et al., 2007; Malatzky & Bourke, 2016; Scannell & Gifford, 2017; Winterton et al., 2014). A philosophical absurdity occurs when someone attempts to find meaning by defining something by what it is not; this does not accomplish the goal of finding an accurate definition.

Equally ineffective has been the practice of looking at rural health exclusively through deficits, defining rural health and healthcare systems by what is not there. The effect is that the focus is not on the intrinsic community strengths; instead, it shifts to an exclusive focus on problems to the exclusion of strengths (Cummins et al., 2007; Malatzky & Bourke, 2016; Scannell & Gifford, 2017; Winterton et al., 2014).

Policymakers and researchers outside rural and remote communities frequently overlook the strengths and positive characteristics of rural communities (Bischoff et al., 2014; Cummins et al., 2007; Malatzky & Bourke, 2016; Scannell & Gifford, 2017; Winterton et al., 2014). Rural and remote communities are fertile ground for innovations in the methodologies used in addressing the health and wellness needs of rural and remote communities. Community needs and the strength of community efficacy drive the remote and rural communities to adopt innovative programs. Positive characteristics should matter no less than identified deficits for the residents of a remote community in the Texas-Mexico borderlands; yet the traditional definition of rural and remote communities continues to ignore their essential positive characteristics.

The history of the community studied is rooted in pioneers settling and growing a cohesive community in a harsh remote environment. Success in settling such a community grew out of the innovative character of the pioneers who settled there. In this setting, innovations such as the CP program from Australia, tried successfully in a similar environment, should be appealing. Sustainability of an innovative program may depend on the extent of community involvement and the efficacy of the community to adapt the program as necessary as it matures in their community (Malatzky & Bourke, 2016). A sustainable program is less likely to succeed if started from the top down; it must be responsive to individual community social structures, needs, and resource availability, and begun in collaboration with the community (Malatzky & Bourke, 2016). Any creation of change in a community must involve community participation; this is an important concept in the thinking of Kurt Lewin (Kristiansen & Bloch-Poulsen, 2017). Through community participation in the research and program implementation, a community's level of efficacy emerges (Bischoff et al., 2014; Cummins et al., 2007; Kristiansen & Bloch-Poulsen, 2017; Malatzky & Bourke, 2016; Winterton et al., 2014). The well-being of the community should remain the focal point throughout the process of any changes, including adopting the innovative CP program; the program must be of the community, by the community, and must serve the community.

As stated previously, communities are more than the definition of the distance from cities or by any other perceived deficits. The location, population density, cultures, population attributes, wellness, health problems, behaviors, local economic strength and concerns, community history, community stability, communication, relationships, and resource assets and deficits combine to form the context of each unique rural or remote

community (Bischoff et al., 2014; Cummins et al., 2007; Malatzky & Bourke, 2016; Winterton et al., 2014). These factors are no less true for the remote Texas border community assessed in this study. Although there are shared characteristics among rural and remote communities, each community retains its own uniqueness (Cummins et al., 2007; Malatzky & Bourke, 2016; Winterton et al., 2014). The concepts of place and rurality form the conceptual framework of this study. Place and rurality set the context for the literature review, research question, interview questions, data analysis, and recommendations for adoption of the CP program in a remote Texas community. My searches of the literature resulted in no studies that approached a study prior to implementation of the CP program through the theoretical foundation and conceptual framework as described here.

Historical Background: Rurality and Rural Health

The study of any aspect of rural health or delivery of rural healthcare services is necessarily contextual. The best approach is through qualitative research studies that produce rich information, that is, information of high quality (Fusch & Ness, 2015). These communities are small, and a researcher may not accumulate data in any large quantity (Fusch & Ness, 2015). This is no less true for this study of a Texas pioneer community remotely located on the Texas-Mexico border. The concepts of rurality and place, as defined previously, form the conceptual context of this study (Cummins et al., 2007; Malatzky & Bourke, 2016; Winterton et al., 2014). Context in rural health embraces people, culture, space, and place, encompassing far more than surface-level meanings (Cummins et al., 2007; Malatzky & Bourke, 2016; Winterton et al., 2014). In this framework, social structures, community history, geography, and environment play

major roles. The geography of the remote and rural communities of Australia bears a strong resemblance to many areas of Texas; a self-sufficient pioneering culture holds true in both locations. Given the paucity of peer-reviewed research about the CP program development available from researchers outside of Australia, the focus of this literature review is primarily on the program as it is developed, researched, and published by researchers in Australia.

The United States conducts a census of the entire population every 10 years to distribute representation in Congress and to determine the amount of federal funding necessary in different areas of the United States. When the first U. S. census was completed in 1790, it showed that 90% of the residents of the United States lived in rural parts of the new nation ("Rurality in the United States," 2011). Over the many years between the 1790 and 2010 censuses, the majority of the population shifted from the rural areas to cities and urban areas as economic drivers, such as manufacturing, drew the people to new types of employment ("Rurality in the United States," 2011). The most recent census completed in 2010, revealed that approximately 21% of U. S. residents live in small towns, rural, and remote regions that represent 90% of the U. S. land mass (Marcin, Shaikh, & Steinhorn, 2016; "Rurality in the United States," 2011). Twenty-one percent of the U. S. population resides in these rural areas; the majority of rural and remote counties are designated HPSAs and MUAs (Allred et al., 2015; "Rurality in the United States," 2011). The county where the community in this study is located is designated a "High Needs Geographic HPSA" in all healthcare provider disciplines ("HPSA find", 2019). This is the same designation assigned to most of the United States-

Mexico border communities. Figure 4 identifies where the 90% remote and rural areas of the United States are located.

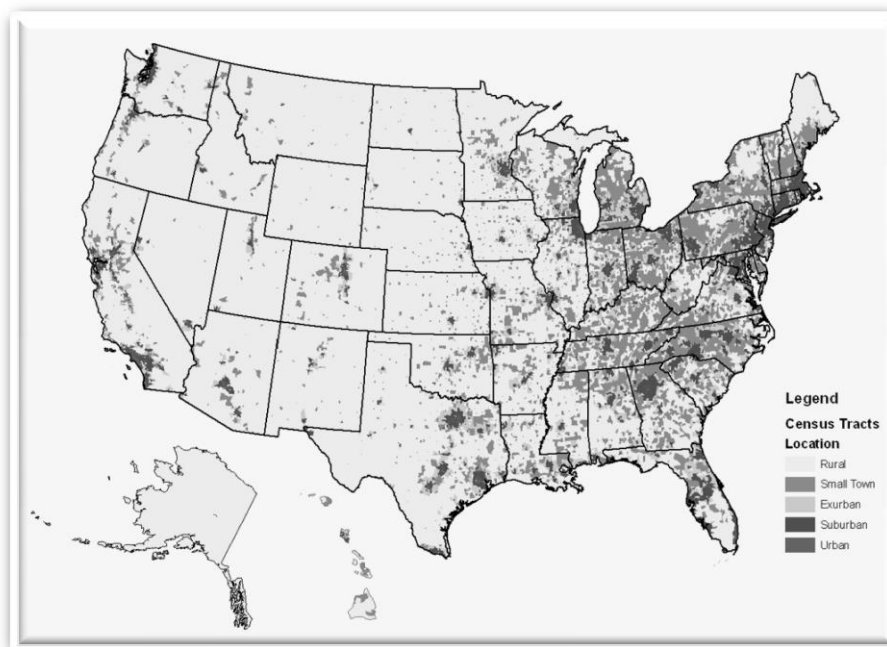


Figure 4. Rural and remote areas of the U. S. land mass ("Rurality in the United States," 2011, p. 3).

Figure 4 shows that the vast majority of the Texas land mass, like most of the United States west of the Mississippi River, is rural and remote; many parts of the state are long distances from the major metropolitan areas. The majority of the areas along the United States-Mexico border stand out as lacking any cities of any size; it is all rural and remote. Many of the rural and remote counties in Texas lack adequate primary care providers. A new CP paramedic program, now in the adoption stage in Australia, may have value for these Texas communities. Such a program must be successfully adapted to the local community's needs and culture, and it must be sustainable (Fleiszer, Semenic, Ritchie, Richer, & Denis, 2015; Trede et al., 2014). A pilot program similar to the Australian CP model failed in New Mexico between 1992 and 1997 (Hauswald et al., 2005). The Community of Red River pilot program was a notorious failure due in part to

poor planning, supervision, communication with the community, and failure to consider the social structure of the community (Hauswald et al., 2005). The Red River report serves as a warning, strongly demonstrating the need for a study in advance of new program implementation in a remote community.

In this formative qualitative study, I explored the factors that may indicate the potential for successful adoption and adaptation of the Australian CP program by a remotely locate border community in Texas. A large number of rural and remote counties in Texas, located long distances from a major metropolitan city, have no physician resident in the community; these are medically underserved and health professional shortage areas. In addition, there is a need to increase the level of emergency care that can be delivered in the field when the nearest healthcare provider or hospital is some distance away. To address this problem, it is essential that the local residents be engaged in the decision process (Farmer et al., 2018; Rogers, 2003). The local community should consider the adaptation and adoption of an innovative successful program tailored to fit the unique needs of the local community; they must be involved in, and own, the program.

Place and Rurality

An accurate assessment of a rural or remote community must occur in the context of place and rurality, as previously described. The location, population density, cultures, population attributes, health problems, behaviors, local economic strength and concerns, community history, relationships, and resource shortages combine to form the context of each unique rural or remote community (Cummins et al., 2007; Malatzky & Bourke, 2016; Winterton et al., 2014). This definition runs counter to the stereotypical definition

of rural as determined by distance from a metropolitan area and low population density; both distance and population size continue to be part of the definition of rural and remote communities (Cummins et al., 2007; Malatzky & Bourke, 2016; Winterton et al., 2014). Of the 254 Texas counties, 173 are rural, while only 81 counties are urban; not all counties designated as urban have large medical centers with specialists in all healthcare specialty fields. The greatest areas of Texas are rural and remote; in many cases, the rural counties lie at a great distance from a metropolitan area.

Rural Health Professional Shortages

The United States conducts a census every 10 years; a new U. S. Census will take place in 2020. Until that census is accomplished, the data from the most recent U. S. census in 2010 serves the purposes for this study. The 2010 census determined that approximately 21% of U. S. residents live in small towns and the rural and remote regions that represent 90% of the U. S. land mass (Marcin et al., 2016; "Rurality in the United States," 2011). Twenty one percent of the U. S. population resides in these rural and remote areas (Marcin et al., 2016). Texas has 254 counties, of which 82 counties (32%) are designated as urban, and 172 (68%) are designated as rural (Turner & Simmons, 2015). It will be interesting to see if there is any change in the rural and remote community population trends, both nationally and in Texas, in the 2020 United State census.

The majority of rural and remote counties throughout Texas have the designation of both HPSA and MUA. The county in Texas where this remote border community is located is both an MUA and HPSA community. It also has a designation as a "High Needs Geographic HPSA" in all healthcare provider disciplines ("HPSA find", 2019).

Distribution of health professionals is unequal throughout the United States, with the preponderance of providers located in metropolitan areas; this leaves rural and remote populations medically underserved (Grobler et al., 2015). An analysis of the Texas population data reveals the extent of the healthcare disparity in rural and remote areas; the need to identify or develop a program that will mitigate the effects of workforce shortages of healthcare providers in rural Texas is clear. Such a program must be both attainable and sustainable (O'Meara, 2014). The majority of Texas counties are Health Professional Shortage Areas, as depicted by the dark grey areas on the map in Figure 5.

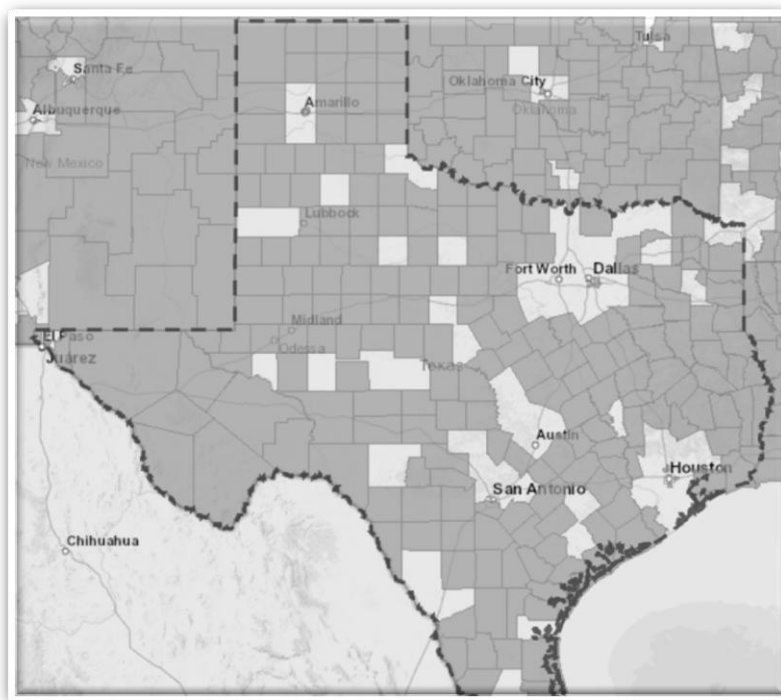


Figure 5. Health Professional Shortage Areas in Texas depicted by the grey areas ("Map tool," 2019).

With no local physician within the community, screening and early diagnosis of potentially serious conditions is less likely to occur. The healthcare outcomes of the residents of remote and rural communities are inferior to the outcomes of residents in urban and metropolitan areas (Bradford et al., 2015; Bradford et al., 2016; Malatzky &

Bourke, 2016; Marcin et al., 2016). The population data for Texas strongly indicates the size of the need to create new, or identify and adopt, innovative programs to reduce the healthcare disparity that exists in rural and remote counties in Texas. When there is no physician in a rural community, it becomes essential for rural residents to drive some distance to receive healthcare that is preventive, acute, or even emergent (Malatzky & Bourke, 2016; McKnight et al., 2017; Sanders et al., 2015). Failure to detect diseases such as diabetes, cancer, high blood pressure, complications of pregnancy at an early stage, and other serious conditions is problematic in rural and remote areas of Texas.

Driving Distances: Effects on Health and Emergency Care

One of the major characteristics of life in a remotely located community is the distance to healthcare providers. Distance has a negative effect on the quality of preventive care and early screening services (Del Rio et al., 2017; Goodridge & Marciniuk, 2016; Malatzky & Bourke, 2016; McKnight et al., 2017; Sanders et al., 2015). The need to travel long distances for specialist care carries the additional burdens of the cost of travel, the time away from family, jobs, or school, and may result in costly delays that lead to poor outcomes (Allred et al., 2015; Bradford et al., 2015; Bradford et al., 2016); Marcin et al., 2016). The distance from rural and remote communities to specialist care providers is particularly problematic (Bradford et al., 2015; Marcin et al., 2016). Driving distances to healthcare providers may cause residents of remote communities to delay seeking care for symptoms that may indicate a serious disease. The ability for patients to drive any distance for care is dependent upon the patient or a family member holding a driver's license and having access to a vehicle. The availability of a bus system that can get the residents where they need to be in a timely and manner at a reasonable

cost may have limited value (Del Rio et al., 2017; Douthit et al., 2015). Variables that affect traveling to a distant care provider include the availability, quality, and cost of transportation, availability of a driver, and the conditions of roads in different seasons, particularly in the winter.

A systematic review of the research literature related to rural communities and the distances to medical centers revealed a clear association between distance and time to travel to healthcare facilities, less than optimal outcomes, and the dangers associated with driving long distances (Kelly et al., 2016; Yonge et al., 2019). Follow-up monitoring and care from specialists is equally a problem when the distances are great; each trip to a specialist can add significant cost to the overall cost of care (Allred et al., 2015; Bradford et al., 2015; Bradford et al., 2016; Marcin et al., 2016). Driving any distance can be hazardous, depending on extremes in the weather; this is true for patients and providers who travel to rural and remote communities (Yonge et al., 2019). Some areas of Texas are prone to tornadoes, flooding, ice, high winds, occasional grass fires, and dust storms. In an online search for news articles related to EMS ambulance accidents, I found numerous published stories about accidents that involved ambulances; some resulted in the deaths of EMS personnel.

In the United States, a colloquialism attributed to the East and West coast residents (highly populated areas) refers to the vast open spaces in the center of the United States as “fly-over country,” a saying which perpetuates the practice of defining rural by not being highly populated and close to metropolitan areas. This practice ignores the fact that many of these same people travel by land to large rural recreational areas, passing through and arriving in rural and remote counties where there are few or no

healthcare providers, and limited emergency services. When traveling through, or visiting remote areas, their lives are likely in the hands of rural volunteer fire departments located many miles from the nearest emergency department. In the designated remote area for this current study in Texas, there are three large parks, including one national and two state parks; this causes significant tourism to increase the burden on local EMS services. These facts illustrate the need for a higher level of emergency care in most remote and rural communities, and use of new technologies such as telemedicine that can link a remotely located community to various distant specialists. In remote areas of Texas, the distance to the nearest emergency trauma center may be many miles, as illustrated in Figure 6.

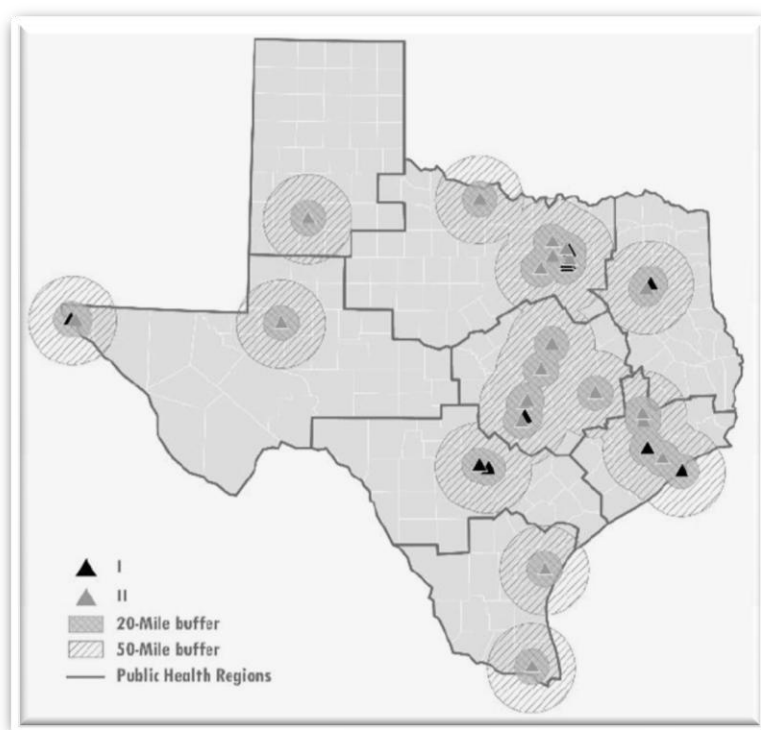


Figure 6. Texas' high-level trauma centers surrounded by 20- and 50-mile buffers (Protas, 2018, p. 46).

Prevalence of Diabetes in Rural Texas

With no available local physician, screening and early diagnosis of a number of potentially serious conditions is less likely to occur. Failure to detect diabetes at an early stage is highly problematic in rural areas of Texas, particularly in those counties that are located near the Texas-Mexico border (Millard et al., 2017; Ryabov, 2014). A report prepared by the Texas Diabetes Council (2014) stated, “In 2012, diabetes cost an estimated \$18.5 billion in Texas, including \$12.3 billion in direct medical costs and \$6.2 billion in indirect costs” (p. 95). Failure to diagnose and treat diabetes at an early stage in the disease process can lead to neurologic, cardiovascular, and renal complications, and macular degeneration and blindness (Lotfy et al., 2017). The result of lack of adequate primary care in rural and remote communities results in late screening and poor management of blood sugar levels. The delay is likely to result in the diabetic complications related to the cardiovascular and neurological systems, including amputation of lower extremities (Lotfy et al., 2017). Education of community members about the care and prevention of diabetes does not always occur.

Lay health workers can provide a local health screening and education asset. In Texas, trained lay health workers, known locally as *Promotores*, have been involved in community health education and coaching in some communities along the Texas-Mexico border for a number of years, although they are active in non-border communities around the state as well (Early et al., 2016; Ryabov, 2014). *Promotores* are residents of the communities they serve; they understand the local culture and speak the local language (Early et al., 2016; Ryabov, 2014). An experimental study was carried out in the Lower Rio Grande region of Texas in Hidalgo County, a Texas-Mexico border county, in which

the experimental and control groups of Mexican-American residents were diagnosed with Type 2 diabetes (Ryabov, 2014). The researchers provided the experimental group members diabetes education and coaching by *Promotores*, whereas the control cohort received none (Ryabov, 2014). At the end of the longitudinal study, the HbA1c levels of the control group improved significantly at the end of the study (Ryabov, 2014). This study is included here to demonstrate one potential role future Community Paramedics could perform in their communities.

Innovation and Diffusion: Australian Successes

Over the past 19 or more years, the roles of paramedics in Australia and elsewhere have been evolving gradually, moving away from the traditional basic EMS services focused on transport to a hospital. The new role expanded to a community focused and collaborative role; it is a distinct part of the healthcare team working in basic healthcare, emergency healthcare, and public health (Martin & O'Meara, 2019; O'Meara & Duthie, 2018, O'Meara, 2014, Reaburn et al., 2017). This is a transformative change in the role of paramedics and the health and safety of the residents of their communities.

A Changing Role for Paramedics

Rural paramedic practice in Australia has evolved into an expanded scope of practice model that includes both pre-hospital advanced emergency care and non-emergent healthcare and education. It is becoming one part of a much larger practice integrated into the greater healthcare delivery system. The definition of a paramedic who is a CP is no longer simply an ambulance attendant who transports patients (Reaburn et al., 2017). Community Paramedics now function in an expanded role to provide primary healthcare in the community by collaborating with distantly located physicians in a

relationship similar to the way physician assistants practice in the United States (O'Meara et al., 2014; Reaburn et al., 2017). This new role is still gradually evolving. Community Paramedicine (CP) is an innovation designed to fill emergency, health, and public healthcare gaps in rural and remote communities that lack adequate access to healthcare professionals and emergency centers (Martin & O'Meara, 2019; O'Meara et al., 2015a). Health disparities magnify in rural and remote communities where poorer health outcomes are often the result (Wakerman et al., 2017). Remote communities in particular are typically more geographically isolated than rural communities are from urban and metropolitan areas where practitioners, especially specialists, and hospitals are located.

As previously discussed, the vast majority of published research surrounding the new CP program occurred in Australia. In 2012, O'Meara, Tourle, Stirling, Walker, and Pedler used a qualitative multiple case study approach to review the progression of changes that had evolved in the practice of rural paramedicine in four rural and remote areas of South-East Australia. Some of the areas assessed claimed to use some of the innovative new paramedicine practices; these states studied included Tasmania, New South Wales, South Australia, and Victoria (O'Meara et al., 2012). The geography of these areas is diverse, yet the selected regions shared common characteristics including small community populations, remoteness, shortages of healthcare professionals, paramedics at risk of losing skills due to small number of cases, and EMS services that were either all volunteer or had only one paramedic (O'Meara et al., 2012). These characteristics are similar to those that exist in many communities in Texas. Each area assessed claimed to use some of the innovative new paramedicine practices; these states included Tasmania, South Australia, and Victoria (O'Meara et al., 2012). Their early

participation in the development of the new CP paradigm would make them innovators, according to the works of Ryan and Gross (1943), and Everett Rogers (Wani & Ali, 2015). Either the EMS services in these areas consisted of all volunteers without the paramedic training and certification, or some had only one paramedic (O'Meara et al., 2012). These characteristics are similar to those that exist in many regions of Texas. The paramedics in these three Australian states were some of the innovators of the CP program.

Of the four states studied by the Australian research team, not all adopted the CP program in its entirety by the time of the study. According to O'Meara et al., (2012), the paramedic practice of New South Wales alone stood out as demonstrating no substantial changes in the traditional paramedic role. The paramedics in that state were aware of, and were eager to implement the CP changes that would serve their communities better (O'Meara et al., 2012). It appears that the dissemination of the new CP program was not the result of an organized top down effort by an emergency services organization actively communicating to all EMS groups; it occurred primarily through local innovative efforts, and word of mouth communication. This is consistent with Rogers' diffusion of innovations theory at the innovators or early adopters stages (Rogers, 2003). The researchers provided no reason for the delay in the adoption of the CP program in that one state.

Among the CP programs evaluated in several Australian states, the program located on the East Coast of Tasmania stood out above the others (Mulholland et al., 2009; O'Meara et al., 2012). The researchers attributed the successes of this particular regional program to the quality and depth of interdisciplinary relationships, and the CP

relationships with the community members (Mulholland et al., 2009; O'Meara et al., 2012). Among the factors that determined the level of success in Tasmania were the involvement of the communities, interdisciplinary professional support, training, and education (Mulholland et al., 2009). Notably, when paramedics transported a patient to the hospital, they stayed and assisted with the patient and provided continuity of patient care as they assisted the hospital staff. The staff did not indicate any infringement on their roles by the Community Paramedics; teaching went in both directions as physicians, nurses, and paramedics exchanged knowledge (Mulholland et al., 2009). The program in Tasmania demonstrated the great value of collaboration and not working in silos.

The CP paramedics in Tasmania were effective in establishing solid relationships with their communities, resulting in holistic relationships in their communities that enhanced community health and health literacy (Mulholland et al., 2009). Paramedics not only went to the homes of residents to provide care, residents began going to the homes of the paramedics for care, health information, and fellowship; this dissolved any semblance of paramedic anonymity, and strengthened the benefits of care in a relationship-based community model (Mulholland et al., 2009). The paramedics became involved in many aspects of community life, helping to establish programs related to health issues, and engaging in community planning (Mulholland et al., 2009; O'Meara, Ruest, & Martin, 2015; O'Meara et al., 2012). In turn, the communities took ownership of their CPs; this sense of ownership was an indication of the level of acceptance of the new role, and the respect the residents had developed toward the paramedics (Mulholland et al., 2009). Hospital emergency department personnel demonstrated the same attitude toward the paramedics; this further validated the professionalism of the new CP role

(Mulholland et al., 2009). This was another step on the way up the ladder to the effective establishment of Community Paramedics as professionals.

The current goals of the CP program, as it has developed in Australia, are to mitigate the effects of healthcare provider shortages and develop integrated healthcare systems in rural areas that are both accessible and sustainable. These advanced scope of practice paramedics provide Level I emergency medical and trauma care in the field before arrival at a hospital emergency department (Martin & O'Meara, 2019; O'Meara, 2014). The CP program makes efficient use of the available emergency services personnel workforce in rural areas, in some cases underutilized as they sit and wait for occasional emergency calls (O'Meara, 2014). These new CP practices began to move paramedics into an expanded role that is no longer limited and task-oriented; it moves the role to a more holistic approach that involves participation in the total process of a patient's care (Carter & Thompson, 2015). In the United States, this compares to a task-oriented vocational nurse moving into the role of a professional registered nurse (RN) through a higher level of education and training. The role of an RN engages a much higher level of thought, assessment, analysis, and care planning (Carter & Thompson, 2015). The type of changes occurring in the EMS role moves paramedics toward becoming a recognized profession through more advanced education.

Telemedicine and Telehealth Technology

Telemedicine is a recent technology that holds promise for improving access to specialist care for residents of rural and remote communities; they utilize the same technology, but are different in their application (Marcin et al., 2016). Researchers also refer to these as mobile health devices that make it possible for a physician in a distant

location to provide direct patient care to a resident in a rural or remote community (Miao et al., 2017). Telemedicine equipment makes it possible for someone, such as a CP in a remote community, to connect a patient to a distant healthcare provider in real time, through use of digital equipment and a video uplink. Today, specialty consults are available in other areas via telemedicine if the equipment and internet, cell tower, or satellite connections are available (Miao et al., 2017). This technology carries tremendous possibilities for connecting residents of remote communities to specialist care.

In 2014, the Houston, TX Fire Department implemented a pilot program and study program using telemedicine equipment; Houston is a major metropolitan city with extensive healthcare facilities (Langabeer et al., 2016). In the following 12 months, researchers monitored the Fire Department use of the telemedicine technology to determine whether use of the equipment by their EMS units had any effect on reducing the number of transports to emergency departments for patients who were low-acuity patients; these were non-emergent cases (Langabeer et al., 2016). The study was a case-control type of study; the pilot program resulted in a 56% reduction in transporting of non-emergent cases to an emergency department; there was no change in the control group (Langabeer et al., 2016). The adoption of this technology by rural and remote EMS services, where the number of personnel and ambulances are limited, and the time required to drive the distance to an emergency department deprives the community of EMS coverage in their absence for transport. Use of the same equipment in emergent cases would also be beneficial, and may stand between life and death for patients in situations of cardiac, neurological, and pregnancy emergencies.

Teamwork Versus a Silo Mentality

Historically, some emergency services members were protective of their turf and tended to function in silos. I experienced this hostile attitude twice when I attended statewide emergency services gatherings many years ago in a different state. Emerging from the research literature is an emphasis on the importance of interdisciplinary collaboration and teamwork, and full integration of the CP paramedics into the overall healthcare system, especially in rural and remote communities (Brightwell & Bange, 2014; Malatzky & Bourke, 2016; Mulholland et al., 2009; Mulholland et al., 2014; O'Brien et al., 2014; Stirling et al., 2007). This new role represents a paradigm shift, and it is the antithesis of a silo mentality; this paradigm shift cannot occur in the absence of collaboration and recognition of the new CP role as a partner in the full healthcare system (Brightwell & Bange, 2014). This process of integrating the CP services into the system is dependent in large part on the quality of advanced paramedic educational support (O'Brien et al., 2014). Becoming a team player in the interdisciplinary and community settings is central to the CP role. The traditional model of emergency care personnel functioning in a silo, independent of the interdisciplinary team and communities, is the antithesis of the new CP role.

Paramedic Education

Advanced education and training programs increasingly support the new Community Paramedic (CP) role. The role requires addition of advanced emergency care skills and some basic healthcare service to the paramedic's skill set, under the oversight of a remotely located physician (O'Meara et al., 2014). This is a collaborative role resembling that of a physician assistant or a nurse practitioner in the United States

(Reaburn et al., 2017). The new role may include assisting at emergency departments, an interdisciplinary teaching role to improve emergency care skills of physicians and nurses, and involvement of the local community to improve the health of its population (Mulholland et al., 2014; O'Brien et al., 2014; O'Meara et al., 2015b). The new CP role is much broader in scope than the traditional EMS role of the past.

The new Community Paramedic paradigm requires advanced education for paramedics. As adoption of this new paradigm of Community Paramedicine increases, the need for university faculty qualified to teach in the field of paramedicine also increases (Munro, O'Meara, & Kenny, 2016). Paramedic education degrees have been active in Australia and New Zealand universities since 1995 (Munro et al., 2016). Prior to the implementation of those academic programs, a vocational training diploma was the primary path to emergency services practice (Munro et al., 2016). Bachelor's degrees and advanced postgraduate education were determined to be the necessary pathway to the professionalization of paramedicine practice in Australia (Munro et al., 2016). Among the barriers identified for paramedics to transition into an academic setting were differences between their own community of practice and the very different academic climate, the level of required academic preparation together with the cost of acquiring those skills, and the academic skills to accomplish research and all facets of that process (Munro et al., 2016). At the same time, universities struggle to find enough academically prepared faculty members to teach in the paramedicine degree programs (Munro et al., 2019). These barriers would tend to create a limiting factor in the growth of professionally qualified Community Paramedics.

Paramedics who enter universities for the first time as new faculty members may discover they are not adequately prepared for their new role in the university. The issues they encounter include not knowing basic operational information in the new faculty setting, no teamwork relationships established yet with other faculty members, and an overall sense of isolation (Munro et al., 2019). Clearly, the distance, cost, and practicality of leaving a community without adequate services factor into the effort to advance to paramedic and advanced degree levels. Use of online courses in some cases may assuage these factors.

Continuing education and skills training are also important factors. The Australian researchers conducted a study in the state of Victoria, Australia; their study revealed the need for ongoing training in cardiac resuscitation for all emergency responders (Dyson et al., 2015). The researchers in this study documented the decline in the number of out of hospital cardiac arrests attended by emergency workers; there was no discussion of the possible reasons for this decline (Dyson et al., 2015). The researchers revealed the need for increased training, and recommended the use of simulation for training in all resuscitation, with particular emphasis on pediatric resuscitation (Dyson et al., 2015). This type of training involves use of expensive simulation equipment and the availability of instructors who know how to use simulation equipment and teaching methods. Paramedics who are located in large cities are more likely to have access to a center for simulation training.

As newer technologies emerge, they may help overcome some of the difficulties in training. In a recent study, Birt, Moore, and Cowling (2017) discussed the use of 3D printing as a way to make simulation training accessible in rural and remote locations.

According to Birt et al. (2017) the idea of using 3D printing would involve downloading the necessary printing information to a 3D printer from a cell phone; by this method, a 3D printer could print task simulators limited to single tasks. The question unanswered by the researchers in this study concerning 3D printing use as described, is whether small, remote and rural EMS departments have a 3D printer, or would be able to afford such a printer and the supplies required to print a 3D task simulator. Task simulators are useful for specific tasks such as intubation and intravenous starts, however today's high-fidelity simulation manikins provide a higher level of training opportunities. There would be a greater benefit if such sophisticated simulation equipment could be loaded on a truck to circulate continuously through rural and remote areas to provide a higher level of training with the use of complete training scenarios.

Professional Status of Paramedics

Attaining professional status is an important factor for paramedics as their role expands and integrates into the wider healthcare community. Full integration of the Community Paramedics into some rural Australian communities' healthcare systems is increasing, as recognition of their role as valued participants in a multidisciplinary practice grows (Acker, 2016; O'Brien et al., 2014; Mulholland et al., 2014; O'Meara, 2014). The majority of Community Paramedics who completed a study survey wanted their role to achieve professional status (O'Brien et al., 2014). When they responded to the survey in 2014, those surveyed did not think this status change would occur in the near future (O'Brien et al., 2014). In Australia, establishing a registration process for CP paramedics was lagging until December 2018, when the new regulations regarding registration finally went into effect ("Fact sheet: Using the title 'paramedic' after 1

December 2018," 2019). The new national regulated standard in Australia for paramedics depends on higher levels of education (Murcot et al., 2014; O'Brien et al., 2014). Before the professionalization of paramedics in Australia could occur, CP educational programs and educational requirements needed to be improved and standardized, clearly demonstrating the presence of a "unique body of knowledge" (O'Brien et al., 2014, p. 8). Today, the professionalization of the CP role is well underway.

Interdisciplinary Training

Becoming a team player in the interdisciplinary and community settings is central to the CP role. As discussed above, the traditional model of emergency care functioning in a silo, independent of the interdisciplinary team and communities, is the antithesis of professionalism and the new CP role (Malatzky & Bourke, 2016; Mulholland et al., 2009). A major element of the CP role is teaching, which is bidirectional as CP paramedics interacted with other members of the healthcare system, and with members of their communities (Mulholland et al., 2014; Mulholland et al., 2009). The CP paramedics extend their teaching support beyond their community residents to other healthcare professionals communities (Mulholland et al., 2014; Mulholland et al., 2009). The outcome of this effort is the strengthening of interdisciplinary and community relationships (Mulholland et al., 2009; O'Meara et al., 2012). The outcomes should be greater job satisfaction of the CPs, and safer care of the patients.

The Current State of Community Paramedic Research

The focus of the majority of research reports addressing an expanded model of practice CP is on a number of areas in Australia. There are a very small but increasing number of studies on the CP role discussing the successful implementation of this role

outside of Australia, although most authors researching outside of Australia are members of the Australian research team (Martin & O'Meara, 2019). This fact would seem to indicate that the Australian research team is actively engaged in the dissemination process around the world as they assume a leadership role in publishing peer-reviewed research articles and working with paramedics in other countries. In the United States, an in depth report chronicling the failure of the Red River, New Mexico pilot program was published in 2005 (Hauswald et al., 2005). This report of a failed pilot program provides valuable information on what could go wrong in a new program.

The changes to paramedic roles first began to emerge in Australia in from approximately 2000 until 2019. By 2016, only a single research team in Australia had published peer-reviewed research about the newly emerging new CP practice paradigm that was changing the role of rural and remote paramedics (O'Meara, 2014; O'Meara et al., 2012). The lead researcher in the group, Dr. Peter O'Meara (2014), wrote, "One Australian research team has published all of the peer-reviewed theoretical papers underpinning this innovation in paramedic practice" (p. 1). In a subsequent peer-reviewed research study published in 2016, the authors commented again on the sparseness of the peer-reviewed research literature surrounding the CP program; again, the authors cited the Australian research team as the primary source of all CP research (Martin, O'Meara, & Farmer, 2016). That research team is diffusing the CP innovation throughout the world.

Missing from the literature are studies that evaluated a community in advance of implementing such a program. The failed Town of Red River, New Mexico pilot program strongly demonstrated the need for such a study in advance, when planning to implement

a similar program (Hauswald et al., 2005). The focus of this literature review for the current study is limited primarily to the unique paramedic role, as it has developed in Australia. This model seems most suitable for possible future adoption in Texas due to the strong similarities between the rural regions of Texas and Australia.

An Innovation Failure: A Pilot CP Program in New Mexico

During the literature search process, I discovered a single example of a failed expanded scope of practice paramedic program. The failed pilot program began in response to a request of the New Mexico Senate for the New Mexico Department of Health to develop and assess an expanded scope of practice EMS program in Red River, New Mexico (Hauswald, Raynovich, & Brainard, 2005; Raven, Tippett, Ferguson, & Smith, 2006). The pilot program, launched in 1994, initially covered two New Mexico counties, Taos and Morano; the Town of Red River is located in Taos County (Hauswald et al., 2005; Raven et al., 2006). According to Hauswald et al. (2005), the leadership decided to abandon the program in the two counties, but continued only in the Town of Red River. There was no discussion of why the program did not continue in the other county; there was no evidence of a study conducted in advance of launching the pilot program.

The evidence indicates that a top-down attempt took place primarily in order to improve care and reduce the time the local EMS staff spent transporting patients to a distant emergency department. The intention of the New Mexico Senate was to see what effect such a program might have on the delivery of healthcare in a remote rural community that had no hospital or physicians (Hauswald et al., 2005; Raven et al., 2006). That decision and implementation process set this program apart from the CP

innovations in Australia. Following the availability of education for advanced paramedic practice for all paramedics throughout Australia, the use of the new skills developed differently between rural/remote and urban settings (Mulholland et al., 2009). The Australian CP program appears to have grown organically from within the communities, both urban and rural; in this setting, rural advanced practice paramedics recognized the unique needs of their rural communities and the CP innovation emerged (Mulholland et al., 2009). A significant difference between the successful Australian innovation process, and what occurred in New Mexico, appears linked to presence or absence of strong, ethical leadership and inadequate oversight.

The concept as envisioned was to train and utilize existing EMS personnel in an advanced practice paramedic role. The pilot program included intervention before a disease process became critical, to decrease costs, and to reduce the number of times EMS staff needed to transport a patient to the nearest hospital (Hauswald et al., 2005; Raven et al., 2006). Each time EMS transport was required to take a patient to the nearest hospital an hour away, the transporting EMS staff were absent from the Red River community for at least two and a half hours (Hauswald et al., 2005). Of note is the fact that although the normal resident population of Red River was approximately 500 to 700 residents, the population of this resort town expands to nearly 10,000 with the influx of seasonal tourists (Hauswald et al., 2005). Most residents of the Town of Red River only lived there an average of six years, a fact possibly significant in this failed case. This raises questions about the cultural assets, local resident communications, strength of transformational leadership, and strength of moral efficacy of the paramedics in the pilot program in the community that could have a negative effect on the implementation of a

new program (Burnes et al., 2018; Hauswald et al., 2005; May et al., 2014). In contrast, the Australian communities studied appear to be well-established communities, not communities with highly fluid communities. No researchers reported a study done in advance of the implementation of this program in New Mexico to assess the strengths and weakness of the community.

The number of trained EMS personnel to participate in the program dwindled, triggering a request for more trained personnel. This led to the first request for an official evaluation of the New Mexico pilot program 5 years following its implementation. The attrition of personnel left only one paramedic trained in an expanded scope of practice; this triggered the request for additional trained paramedics for the program (Hauswald et al., 2005; Raven et al., 2006). A research team from the University of New Mexico, Department of Emergency Medicine published an evaluation of the Red River program 5 years after the program began, and prior to training any more personnel for the program (Hauswald et al., 2005; Raven et al., 2006). In the program evaluation, Hauswald et al. (2005) identified a number of ethical and legal problems in the Town of Red River pilot program that merited discontinuance of the program. Foremost was the issue of EMS personnel practicing beyond their authorized scope of practice boundaries with an apparent silo mentality; they also failed to follow the rules of required oversight by physicians (Hauswald et al., 2005). Other issues identified included:

- Location of the EMS service on the second floor of a building without an elevator, limiting access for patients with disabilities
- Poor record keeping practices, with failure to record all visits
- Failure to report financial statements as required

- Violations of medication administration in the absence of a local pharmacy
- Failure to refer patients to a physician, or follow up, assess, and record the outcomes of treatments for 85% of the patients
- Medical records kept on an unsecured computer
- Computer records that could be altered without tracking changes
- Improper suturing of lacerations
- Poor care quality
- Lack of continuing education for the E-EMS personnel involved in the program
- No difference in rates of transport of patients to the hospital
- 10% of E-EMS visits were for unauthorized school and insurance physical examinations, outside the E-EMS defined scope of practice
- Improper billing for services
- Violations of pharmacy regulations by filling prescriptions (Hauswald et al., 2005; Raven et al., 2006)

Overall, it appears that the paramedics in the pilot program functioned as a silo, independently of the required collaboration with physicians. A survey of residents of the Town of Red River revealed a favorable overall opinion of the E-EMS service, but also showed a lack of knowledge about what the actual the service was (Hauswald et al., 2005). Lack of awareness may have been the result of poor communication combined with a fluid, ever changing population. There was no mention of what percent of the surveyed residents had lived in the community since the initial implementation of the

program, and should have been aware of the new program. Interviews with physicians and physician assistants in the region revealed a pattern of physician-shopping behavior on the part of the E-EMS personnel to get prescriptions for patients without including the practitioners in the actual assessment and care of the patients (Hauswald et al., 2005). Reports of substandard care included non-E-EMS personnel performing procedures for which they had no training or authorization by the state to perform (Hauswald et al., 2005). Although the E-EMS service was charging patients for their services, they continued to receive the financial support by local taxes (Hauswald et al., 2005; Raven et al., 2006). The evidence found in the review strongly indicates a lack of moral efficacy on the part of the EMS team.

Adequate supervision of the pilot program stands out as central to the problems occurring in the pilot program. In the review, an absence of external supervision and quality control was clear (Hauswald et al., 2005; Raven et al., 2006). The researchers evaluating the program cited a combination of individual participants' traits, flawed conceptual implementation, lack of adequate formal training for the E-EMS personnel, and inadequate supervision as root causes of the failure (Hauswald et al., 2005; Raven et al., 2006). Originally thought to be stable, the EMS workforce suffered high attrition rates, and proved to be an unstable workforce; these attrition rates may originate from the fluid local population tendency (Hauswald et al., 2005). Due to the pioneering nature of this pilot program, it preceded any semblance of State regulatory oversight activities, further complicating implementation of the program; accountability was evidently lacking; this could doom the program from its inception (Hauswald et al., 2005). New Mexico Department of Health suspended the E-EMS program after the researchers

completed their report. Hauswald et al. (2005), stated, “The extremely high incidence of protocol violations and substandard care was concerning regardless of whether the sample was random or selected” (Hauswald et al., 2005, p. 251). When considering implementation of the CP program in Texas, approval of the State of Texas is necessary, with a clear delineation of scope of practice.

This failure is significant because it provides valuable insight into what can go wrong with the CProle innovation and the implementation process. A preliminary study examining local attitudes, history, community characteristics, and culture prior to implementing the program might have prevented some of the issues that emerged. Mulholland et al. (2009), when discussing the attributes of successful expanded scope of practice paramedic innovations in Australia, identified strengths that were present in the Australian programs. These strengths appear to have been absent in the Town of Red River pilot program. The attributes in Australia included:

- Sufficient education and training for the paramedics
- Strong multi-disciplinary collaboration
- Participation of the local communities
- Strong community support
- A strong sense of teamwork in a fully interdisciplinary context (Mulholland et al., 2009; O’Meara, 2014; O’Meara et al., 2012; Stirling et al., 2007)

The contrast between the Australian CP program and the failed pilot program in the Town of Red River is stark. A thorough evaluation of the reported research data regarding this failed program (Hauswald et al., 2005; Raven et al., 2006), contributes to the literature base the importance of a qualitative evaluative study in advance of initial

implementation of a program similar to that of the Australian CP paramedic practice. It also demonstrates the need for adequate educational and regulatory support prior to implementation of the program.

Summary

In this study, I explored the factors that might indicate the potential for successful adoption and adaptation of the Australian CP program by a remotely located border community in Texas. Large regions of Australia and Texas share many characteristics, including remote and rural communities with small populations, and variations in geography and climate. They also share issues with recruiting and retaining healthcare professionals and skilled EMS personnel to live and work in these small, remote communities. In many rural and remote communities in Texas, these shortages of healthcare professionals have been historically long-standing; they are not new to today's healthcare system. Several members of my ancestors in the Bogel family, pioneer ranchers on the border in this area of Texas, died on their ranch without available medical care (Personal communication, Mary P. Bogel, Summer 1965). Health professional shortages areas are not a new phenomenon in Texas.

The residents in Health Professional Shortage Areas (HPSAs) experience significant health disparities. The development and implementation of the CP program might ameliorate the effects of these shortages in more than one remotely located community (Wakerman et al., 2017). This requires that the members of the communities that implement innovations must be active players in that process, customizing, and adapting successful innovative programs from other locations to their own unique communities. The contrast between communities that successfully implemented a version

of a CP program, and the failed pilot CP program in the Town of Red River, New Mexico, is stark.

For many years, researchers, who typically used the traditional definition of rurality, documented the health disparities that are present in most rural communities in the United States. This approach to rural and remote healthcare is based on an absurd contradiction that defines rural by what it is not, instead of by what it actually is; this uses a standard of indirect proof. This absurdity is a proposition that the popular concept of rural is true because the opposite concept (urban) is false; this approach totally ignores all of the factors that, combined, define the community as a whole (Cummins et al., 2007; Malatzky & Bourke, 2016; Scannell & Gifford, 2017; Winterton et al., 2014). The traditional definition of rurality is deficient and lacks any focus on the inherent strengths and positive attributes present in many rural communities.

Researchers published a number of studies showing the need to address rural healthcare deficits with high quality interdisciplinary collaborative rural healthcare models. The Australian researchers reported common themes among the successful programs in Australia. These included the importance of community participation, interdisciplinary collaboration of CP paramedics, physicians, nurses, and other healthcare professionals, improved levels of CP education, and the development of professionalism among paramedics (Mulholland et al., 2009; O'Meara & Duthie, 2018; O'Meara et al., 2014). The absence of a silo mentality among the successful programs in Australia is obvious, based on the levels of collaboration and interdisciplinary practice reported by the researchers. If the program is to be successful and sustainable in rural and remote Texas communities, Community Paramedics must become an integral part, not an

isolated niche, of the overall healthcare system. The diagram in Figure 7 depicts the complete healthcare system.

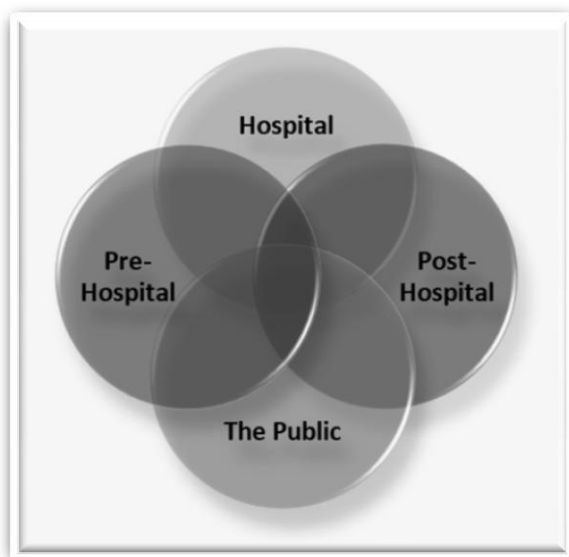


Figure 7. The integrated healthcare system

An assessment of the Red River pilot program report revealed flaws in paramedic attitudes and practices in that community that violated ethical, scope of practice, and care standards. Additionally, the authors of the Red River pilot program demonstrated the importance of adequate regulatory support in advance of implementing the CP program (Hauswald et al., 2005; Raven et al., 2006). The identified deficits in that pilot program violated the principles of ethical and safe practice; inadequate educational and regulatory oversight and support appeared to be root causes of the failure. I found no studies done in advance of implementing any innovative CP program; this represents a significant gap in the research literature.

The theoretical foundation for this study is a synthesized theory for social change. It consists of elements from three well-established theories: the life space and force field theories of Kurt Lewin (2010), the diffusion of innovations of Everett Rogers (2003), and the SCT of Albert Bandura (2001; 2002, 2006). The purpose of this synthesized

theoretical foundation is to facilitate telling the story of the many forces in a single remote frontier community in a Texas-Mexico border county that illustrate the complex and variable social networks; this is a snapshot of a moment in time in a Texas borderlands frontier community.

The conceptual framework for this study uses the concepts of place and rurality; these are closely aligned with Lewin's life space. The process of storytelling for this community uses the conceptual framework framed in the context of the uniqueness of individual rural communities and what they are, rather than what they are not (Cummins et al., 2007; Winterton et al., 2014). When defining the concept of the meaning of rural, each community must be defined by its own unique characteristics, and not by the traditional standard that defines them by what they are not; the selected community's story is explored in this formative bounded case study (Cummins et al., 2007; Winterton et al., 2014). Positive social change cannot occur in the vacuum of communities defined by what they are not, rather than through the lens of rurality and place. This may be one reason the CP program in New Mexico failed; those who planned and implemented the CP program based their approach on the deficits of that community, not on the definitions of rurality and place. The participants in this effort are the local residents, the EMS personnel of a frontier border community in Texas, and the greater community in this medically underserved community where there is no resident PCP.

The researchers who published the research literature regarding the CP program that I found in the literature search were primarily Australian, as were the CP programs they studied. According to O'Meara (2014), a single research team in Australia was the only group of researchers who published peer-reviewed research about the newly

emerging Community Paramedicine (CP) paradigm that was changing the role of rural and remote paramedics. The lead researcher in the group, Dr. Peter O'Meara (2014), wrote, "One Australian research team has published all of the peer-reviewed theoretical papers underpinning this innovation in paramedic practice" (p. 1). Only a few articles on the topic of the advanced scope of practice CP program were available outside of the literature emanating from the researchers in Australia.

There appeared to be no studies published that represented research performed in advance of implementing an expanded scope of practice paramedic program; this represents a significant gap in the research literature. The failed CP program in the Town of Red River, New Mexico (Hauswald et al., 2005) serves as a rich source of information about the potential pitfalls when considering implementation of a CP paramedic program in a community the future. The present study addresses this gap in the research literature and seeks to provide a method for future use for program implementation plans related to rural and remote communities.

The literature reviewed for this study provided strong guidance and insight into the health aspects of rural and remote communities, the similarities between rural states in Australia and Texas, and the innovative program that is evolving in Australia. The failed program cited from New Mexico provides additional strong guidance for the process of seeking and analyzing the stories of residents of a remote, pioneer community in Texas, and the physicians who serve those residents in advance of their adoption of the CP program.

The literature from Australian researchers, combined with the report from New Mexico, served as clear guides in the overall development of this formative bounded case

study. In particular, the case studies published by the researchers in Australia provided a useful model for the formative bounded case study methodology employed in this study (Mulholland et al., 2009; O'Meara, 2014; Stirling et al., 2007). The discussion of the research methodology follows in Chapter 3.

Chapter 3: Research Method

Introduction

The purpose of this formative bounded case study was to examine the likelihood of success if a remote community in Texas implemented a CP program similar to the one developed in Australia. This case study examined the perspectives of three bounded groups of participants consisting of purposively recruited residents, local EMS personnel, and the greater community.

In Chapter 3, I provide an overview of the case study methodology employed in this study. This study design supports the collection of rich qualitative data collected by semistructured interviews and field observations. I conducted in-person interviews in the community either in the participant's home or in a private area at the resident's place of work, according to the participant's choice. I used semistructured interviews that allowed participants the opportunity to talk about personal experiences set within the history of the community. I conducted the interviews on site in the community, while also observing the community for 10 days; this added richness to the data (Cummins et al., 2007; Martin et al., 2016; Mills et al., 2017; Winterton et al., 2014). The role of the researcher, the ethical procedures, and data management follow below.

Prior to beginning an interview, I explained the CP program and the purpose of my study to each participant before beginning each interview. As a qualitative study, the initial interview questions underwent an iterative process in the field as the interviews progressed; the goal was to obtain rich information through the interview process.

Research Questions

The primary research questions guiding this study are the following:

RQ1: What are the assets, deficits, strengths, weaknesses, and current healthcare delivery processes in a remote border community in Texas that could assist the community to decide to adopt or reject implementation of the CP program?

RQ2: How would these factors affect the likelihood of successful adaptation and implementation of the program?

Community Resident Interview Questions

1. Why do you live in this community so far away from a city? What are the best things about living here? What are the worst things about living here?

2. How do members of your community help each other?

3. How and where do you get healthcare? Where do you go to see a doctor? How far away is it?

4. Do you think this program would be good for your community? Why? Why not?

Additional Questions for EMS Personnel

5. How do you see yourself and other EMS members collaborating as team members with distant physicians?

6. Why do you think this program would be successful in this community? What are the community strengths that would support the program? Weaknesses?

Research Design and Rationale

The phenomenon of interest for this study is the shortage of adequate healthcare in remote and rural communities. The purpose of this study was a consideration of the culture, assets, and deficits of a remote rural community in Texas in advance of implementation of the CP program developed in Australia. The perspective for each

participant in this study is within the context of place and rurality as described in Chapter 2 (Cummins et al., 2007; Malatzky & Bourke, 2016; Scannell & Gifford, 2017; Winterton et al., 2014; Yazan, 2015). This study has a holistic design consistent with the theoretical foundation and conceptual framework of this formative bounded case study, which focuses on the culture of a remotely located border community in Texas.

I built this formative bounded case study on a synthesis of the theories of three theories: (a) Lewin's force field analysis (Burnes & Bargal, 2017; Kaiser & Schulze, 2018), (b) the diffusion of innovations theory (Rogers, 2003), and (c) SCT (Bandura 2000; Bandura, 2001; Bandura, 2002; Bandura, 2003; Bandura, 2018). In addition, I used the conceptual framework built on the concept of rurality and place defined as a combination of location, geography, population, distance to an urban area, the people, culture, community history, social networks, local politics, and the experiences and perspectives of individuals who live or work in the community (Cummins et al., 2007; Winterton et al., 2014). The purpose of this examination was to explore the factors that may indicate the potential for successful adaptation and adoption of the Australian CP program by a remotely located border community in Texas.

Role of the Researcher

As the researcher in this study, I was the research instrument. I conducted in-person interviews with members of the community and members of the local fire department's EMS team. Interviews were conducted by following a list of previously formed interview questions and guided by the theoretical foundation and conceptual framework.

During the time I was in the field, I also had the opportunity to observe the community for 10 days; my direct observations of the community and surrounding area yielded additional rich data (Baillie, 2015). Prior to arrival in the field, I formulated a set of interview questions for all community participants, with a few additional questions for the EMS staff. I used no surveys or other research instruments in the completion of this study.

My background knowledge of the region enhanced the design of this study. For several generations, my family lived and ranched not far from the community where I conducted my research, but I have never lived there. I visited the area over the years with various relatives, particularly my paternal grandmother who had lived on the family ranch. I had no relationships in the selected community prior to conducting this research study.

I am aware of the values and cultural characteristics of the region, and the healthcare deficits in this remote area. This personal knowledge of both the community and the greater region minimized the distance between those I was interviewing and me. One participant revealed that his ancestors had known my ancestors whose ranch adjoined his family's ranch property. One of this community's numerous strengths is the length of time many of the families have lived there. In the interests of avoiding bias, I was consciously aware of the potential of skewing the results by interjecting my own opinions, and I remained cautious about maintaining clean data. I kept a journal of field notes in the format of a diary with a running commentary that included field observations and my own reflections on the process, my feelings, and interview/casual conversation

notes in the form of verbatim reports. This helped to keep my focus on the participants and check my own bias.

Methodology

This formative bounded case study is a relational study defined by the remote community and its location. I divided participants into three bounded units consisting of (a) residents, (b) EMS personnel, and (c) the greater community (Winterton et al., 2014). These three bounded groups of local residents and their EMS personnel are central to the development of any program designed to remedy the healthcare shortages in a remote community (Farmer et al., 2018). The residents' knowledge about programs that would be suitable locally and their cultural and other community assets are important to the successful adoption and adaptation of a program; they must be involved in the entire process (Farmer et al., 2018). The residents of this community are the major players in the adoption of this innovative CP program.

Within the context of site, the focus of a case is in the local setting. For purposes of this study, *setting* means the single study site, community, and locations where I interviewed each participant and where I observed the greater community (Winterton et al., 2014). The emphasis is on the local social, cultural, and physical setting and the community's assets and deficits (Farmer et al., 2018; Winterton et al., 2014). Case study research, a qualitative method, is used when a researcher seeks to understand the why or how of a phenomenon in the natural setting, or site, where the researcher does not control either events or behaviors (Cypress, 2015). Case studies occur in real time and are only a single snapshot of a community at that time.

No historical data were used other than personal historical information, as described by interviewees, observed in the community, or information seen in local news articles and social media. The data collected represent a snapshot of the phenomenon as a moment in real time in the real life of individuals, families, and their community (Winterton et al., 2014). The use of a case study methodology here was determined by the phenomenon being studied and the emergent research questions (Yazan, 2015). Three community groups in this case study form bounded groups to provide a triangulated view of the phenomenon, much as one would look at an igloo from three different angles (Abdalla et al., 2018; Fusch, Fusch, & Ness, 2018; Moon, 2019; Nelson, 2017; Renz, Carrington, & Badger, 2018). The three bounded groups together formed a single bounded case for the purposes of this study.

Case studies may include the collection of data from a variety of sources. These may include interviews with individuals or groups, observations by the researcher in the field, reports, and other material such as that available in the media (Miles, 2015). Time spent in the community observing the activity and culture of the place represents valuable case study data (Winterton et al., 2014). This process is aimed at collecting the broadest and deepest data possible and therefore is both a linear and an iterative process (Miles, 2015). This current case study is limited to qualitative data only, although a case study may include both qualitative and quantitative data.

A case study methodology allows a researcher to explore deeply the social and cultural characteristics and perspectives of a community in anticipation of the CP program's possible adoption and the eventual dissemination and adoption of the CP program by rural communities throughout Texas and beyond. It is necessary to explore

the strengths and weaknesses of a community prior to attempting to implement this innovative program, given the reported failure of a similar program in New Mexico and the valuable lessons gained from that failure (Fleischer et al., 2015; Hauswald et al., 2005). Inadequate planning may compromise a new program; because of inadequate consideration for place, a new program may never reach its full potential to reduce the health disparities of the community.

Population

The population of this formative bounded case study consisted of the residents of a frontier community, represented by *residents*; the community's EMS personnel; and the greater community. The residents illustrated in Figure 10 represent residents who recognized me in the community and casually engaged me in conversation. In this bounded case study, the two community groups and the community's EMS personnel represent a bounded unit within the larger bounded case (Winterton et al., 2014). The bounded cases for this study follow in Figure 8.

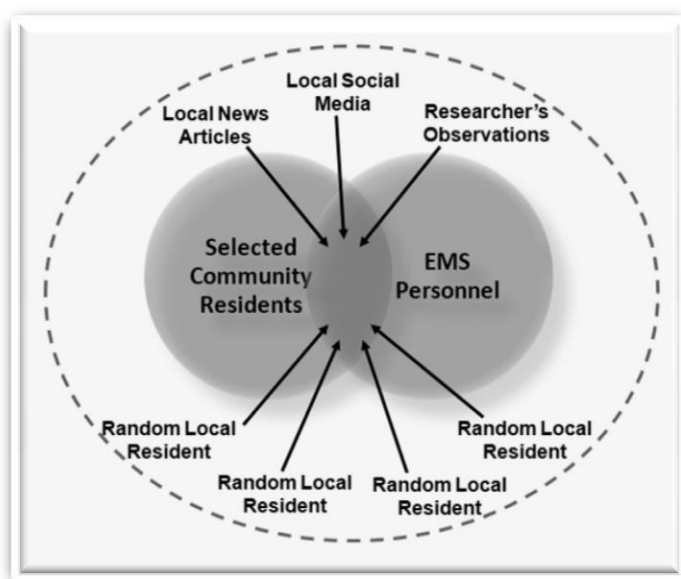


Figure 8. Case study boundaries for this frontier community.

The system of bounding applied to define this study recognizes that the community's EMS personnel are residents of either the frontier community or other communities. Even though some may travel various distances to work in the community, they have unique perspectives on the topic of implementation of a CP program; their perspectives may be similar to, or different from, the local residents who are not members of the EMS personnel (Miles, 2015). I grouped the three bounded units in this case study according to their roles in the community, or relationship to the community, and the greater community.

Sampling Strategy

The context of this study, together with the conceptual framework, was central to my sampling strategy. Forms of nonprobability sampling include both convenience and purposive sampling (Etikan, Musa, & Alkassim, 2016; Guetterman, 2015; Moser & Korstjens, 2018). For this study, I used purposive sampling as a means to identify residents who were likely to have valuable information regarding both emergency and remote healthcare in the expanded border community. The community only employs six EMS personnel; only three were available for interviews due to the many emergency calls coming in to their department. The residents who approached me while I was moving around the community appeared to be randomly self-selected; they knew who I was and had something they wanted to tell me.

By use of purposive sampling, I located residents who had a variety of backgrounds, were long-term residents, or were new residents in the community. Either the individual experienced some sort of health crises, or a family member had. I purposely selected participants to obtain the best possible data to answer the research

problem; this is purposive sampling (Etikan et al., 2016; Guetterman, 2015; Moser & Korstjens, 2018; O'Meara et al., 2014; Yazan, 2015). A single site was the focus of this study. I chose the composition of the three bounded groups intentionally to reveal different perceptions of the research problem, and within the conceptual framework of the meaning of place and rurality (Cummins et al., 2007; Nelson, 2017). Access to quality healthcare while living in a remote border community was the primary interest (Martin et al., 2016). As stated previously, the three participant groups consisted of local residents, community EMS personnel, and the greater community.

Sample Size, Saturation, Setting

The sample size initially was to include five members of each of the bounded resident and EMS groups, and five distantly located physicians, with the expectation that saturation was likely to occur within this sample size. Due to lack of availability of physicians, I eliminated the physician group and exchanged it for the greater community (Guetterman, 2015; Malterud, Siersma, & Guassora, 2016). Few physicians are available in this remote region. A re-examination of the theoretical foundation and conceptual framework of this study supported this decision. The community is at the heart of this study; through telemedicine technology, physicians in many other locations can serve the community.

I began the process of coding by doing a simple analysis of what the transcriptions of the text said; the initial codes that evolved were descriptive of themes within the definitions of rurality and place. I attempted this initial coding manually with the use of the Excel program. After my return from the field, I used the NVivo software program for all coding; I used NVivo to recode my initial coding attempts. In the final

stage of coding, the thematic analysis stage, I grouped the initial codes into four groups under the conceptual framework and the three elements of the theoretical foundation. I looked for major themes and any indication that saturation had occurred when no new information emerged from the data (Fusch & Ness, 2015; Martin et al., 2016). If saturation did not emerge with the eight participant interviews I conducted in this study, I would have expanded the number of participants as necessary to reach saturation (Fusch & Ness, 2015). Much larger sample sizes in a qualitative study are not desirable when seeking deeply detailed information (Fusch & Ness, 2015; Martin et al., 2016). The setting for this study was in the selected local community, and by telephone with two of the EMS staff.

Participant Selection

It was important for participants to be residents of the particular community, or its expanded region. All participation was voluntary. The relevant experiences that would be most useful to this study included:

- The need to travel a distance for primary or specialty care
- They (or a family member) may have a chronic disease
- They may have used EMS or hospital emergency department services at any time (or have family members who did)
- They may be veterans who travel a distance for VA healthcare
- They may be older than 50 years old
- EMS department personnel may live in any part of the wider region

All participants in this study were required to speak English. The residents of the community in this study, located directly on the Texas-Mexico border, are primarily of

Mexican-American heritage, and are generationally rooted in the community. Most are bilingual; I interviewed only English-speaking residents. I did not attempt to select participants based on gender, heritage, or ethnicity, other than the requirement that participants must be able to speak English fluently.

Recruitment, Participation, and Data Collection

Recruitment of five residents occurred through word of mouth networking. I recruited the three EMS participants through direct contact with the local fire department. No physicians were available to interview in the region of this MUA and HPSA. While observing the community, several residents recognized me from descriptions someone gave them, and spontaneously approached me and offered their thoughts and opinions on the study. These spontaneous conversations, combined with my field notes, observations, news articles, and community social media formed the third bounded group. My goal was to collect rich data from this small remote community. Saturation occurred with the small number of participants, the rich data collected; I also exhausted the coding possibilities (Fusch & Ness, 2015). The data collected was repetitive, and no new information was emerging. The common themes within the data collected from various sources in the community validated the data.

I accomplished the data collection in the field, and by telephone. I made one trip to the remote region for data collection within the community. I cancelled a planned subsequent trip to the field following my involvement in a serious accident; I carried out two subsequent interviews of EMS staff by telephone. Ironically, the serious injuries I sustained in a small, rural community in Alabama added great depth of understanding to the subject matter of this research study. The availability of good equipment and adequate

EMS training, preferably at the paramedic level, were both lacking by the EMS unit that transported me to a hospital.

In-person interviews in the field using my predetermined list of interview questions lasted from 45 minutes to two hours. I recorded the interviews using two microphones and a Tascam digital recorder. I backed up recorded interviews on a portable hard drive in the field. I asked participants if they would be available for additional questions if necessary, either in person or by telephone. I interviewed each participant privately. Following both the phone interviews and the in situ interviews conducted in the field, I notated each interview by use of verbatim techniques. My use of the dictation software, Dragon NaturallySpeaking by Nuance, proved valuable in the field and for the telephone interviews. In addition to the recorded interviews, I dictated field notes that consisted of my observations during the week I spent in the community. I collected no personal medical data from any participants. The interview sites were in private locations of the participants' choice, without distractions; some were in the participant's homes, while I interviewed other participants in a private space at the participant's workplace. I interviewed the EMS participants locally and on the telephone. I documented the casual conversations initiated by local residents in my field notes.

Setting and Instrumentation

The site for this study was a geographically remote small, but extended community in the border region located along the Rio Grande River that defines the Texas-Mexico border. This community, that includes several small communities, extends approximately 110 miles along the Rio Grande River.

I used a set of previously developed questions and prompts during the interviews. The instrumentation consisted of in-person interviews on site at locations chosen by each participant; the researcher was the instrument of data collection through semistructured interviews and observations. I used no published data collection instruments to collect data for this study; I was the author of the interview questions. Questions used came forward from information trends that had emerged from the literature review; I adjusted these questions in the field according to what the individual participant said and the circumstances.

Data Analysis Plan

In the data analysis process, I used a thematic analysis approach; I based my analysis on both the theoretical foundation and conceptual framework for this study (Maguire & Delahunt, 2017; Nowell, Norris, White, & Moules, 2017; Renz et al., 2018). After initial use of the Dragon NaturallySpeaking[®] software to transcribe the digitally recorded interviews, I began coding manually in the field while the data were fresh. This was fortunate because some of the recordings were of poor quality. Initially, I organized the interview data into categories, and then themes and patterns as they related to each of the research questions (Nowell et al., 2017). Similarly, I categorized all memos and other observational data I collected on site, and I noted the context of each observation after expanding the memos into a brief report for my own use. I continued doing the coding manually throughout the rest of the process; this method seemed to work best with my thematic and conceptual approach (Maguire & Delahunt, 2017; Nowell et al., 2017; Renz et al., 2018). This method made it easier for me to code this data accurately while using categories related to a force field analysis, the diffusion of innovations, and Social

Cognitive Theory, all set within the definition of place and rurality as described previously.

The recorded interviews varied greatly in quality and volume, rendering accurate and complete verbatim transcription impossible in some cases. Some participants did not speak clearly or hold the microphone close enough to their mouth throughout the interview to get an audible recording for transcription. My field notes proved to be valuable in reconstructing several of the interviews. This process made it possible for me to analyze the data and interpret the meaning. No participant interview data were discrepant, and there was no additional need to interview any participants further to determine the nature and extent of any deviance from the data collected from other participants.

Issues of Trustworthiness

The credibility and validity of this case study are consistent with the standards for qualitative research studies. This exploratory case study's credibility, reliability, and generalizability depend on (a) the study methodology, (b) how I structured the study, (c) how I collected the data, (d) the analysis, and (e) whether collection of the study data can be replicated (Leung, 2015; Maguire & Delahunt, 2017; Moon, 2019). The 10 days I spent in the community observing the daily life of the community increased the validity and credibility of the study.

As the sole researcher for this study, I designed the study to use a variety of data sources; this design established triangulation as the structure. Use of various data sources such as the three different bounded groups of participants, field notes of observations of the researcher, news articles, and social media from the community sites formed the basis

for triangulation of the study (Baillie, 2015; Fusch, Fusch, & Ness, 2018; Moon, 2019). Triangulation, rich descriptions, participant selection, and research question development based on the Theoretical Framework and Conceptual Foundation of this study, combine to provide a basis for establishing the extent to which the study has reliability and validity (Fusch et al., 2018). The degree to which this study is generalizable relates to similarities of other communities similar to this study site. Triangulation helps the researcher see the whole picture of what is happening from different perspectives (Baillie, 2015; Fusch et al., 2018; Moon, 2019), similar to looking at all of the different sides of an igloo, to understand the phenomenon known as an igloo. An observer must walk all the way around an igloo to understand the concept completely from different perspectives; the same is true for understanding the content of a qualitative study. The illustration of triangulation employed in this study follows in Figure 9.

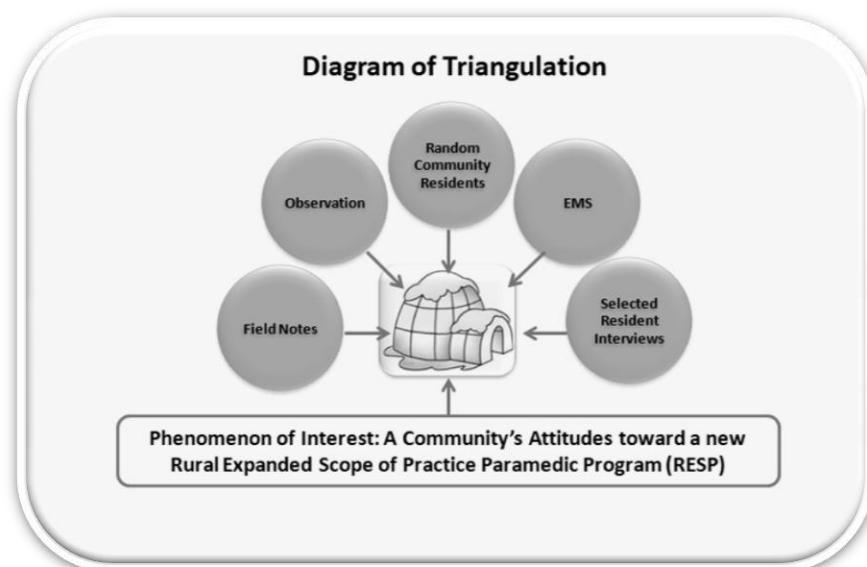


Figure 9. Triangulation views a phenomenon of interest from different perspectives.

Ethical Procedures

The Walden University Institutional Review Board (IRB) granted approval for this study following their review of my research plan; my study approval number is 11-

18-16-0290110. Documents submitted for review and approved included participant consent forms, a cooperation consent form for the assistance of a city government staffer, recruitment flyers, research questions, and a nondisclosure form for an Americans with Disabilities Act personal assistant for the researcher. I obtained approval for this research study from the Walden University Institutional Review Board (IRB) prior to beginning the participant recruitment process. Upon recruitment, I provided each participant with full disclosure explaining the study. This included an explanation of how I would use the information. The information provided the rights of all to refuse to participate or to withdraw from the study at any time; none withdrew from the interview process after agreeing to an interview. Each participant, as required, signed a consent form before participation in the study; the researcher ascertained whether each individual understood the disclosure statement and consent form.

I informed participants that I would not publish their names, and I sought consent for any direct quotes selected to be included in the final study. Interviews began only after I explained the study to each person interviewed and their feedback indicated they understood the purpose of this study. Interviews began after each person signed an informed consent form. Confidentiality was maintained throughout. I transcribed all recorded interviews through use of two different software programs, Dragon NaturallySpeaking and the NVivo software transcription tool. All recordings, transcripts, and notes containing identifying information in a secured online data backup service provided by Carbonite, and in a USB drive in my safe deposit box at the bank, to which no one else has access. All records will be stored in this manner for five years as required by Walden University.

Summary

The purpose of this formative bounded case study was to identify and assess the strengths, deficits, weaknesses, attitudes, perspectives, needs, and the driving and restraining forces of a remote community in Texas. This study assesses the community's likelihood of success in the implementation of a program similar to the CP paramedic program as developed in Australia. The concepts of rurality and place, following the definition of a community holistically with both its positive assets and deficits, and not on the perceived deficits alone, guided me in this study,

The formative case study methodology employed in this study supported the development of high quality descriptions that are context rich. This made converging conclusions possible upon analysis (Baillie, 2015; Fusch et al., 2018; Moon, 2019). These factors combined to support an assessment of transferability to other similar communities for the possible adoption of the CP paramedic program (Baillie, 2015; Fusch et al., 2018; Moon, 2019). The results of this formative bounded case study are in Chapter 4.

Chapter 4: Results

Introduction

The purpose of this formative bounded case study was to seek rich information that answers the primary research question: What are the assets, deficits, strengths, weaknesses, and current healthcare delivery processes in a remote border community in Texas that could assist this community to decide to adopt or reject implementation of the CP program? A secondary question was: How would these factors affect the likelihood of successful adaptation and implementation of the program?

The purpose of the study was to assess the likelihood of success for a remote Texas border community in the implementation of a program similar to the CP program developed in Australia (Cummins et al., 2007; Malatzky & Bourke, 2016; Winterton et al., 2014). A discussion of the research questions and themes and a summary of the answers to the research questions follow.

Setting

The community in this research study was a remote South Texas frontier border community located on the Rio Grande River that forms the Texas-Mexico border. A busy port of entry connects this community to a small city across the river in Mexico. The port is undergoing a major expansion for a significant increase in commercial traffic. These two small cities are located in a rugged and remote desert region bounded by large mountains on both sides of the river. For the purposes of this study, research was limited to the Texas side of the Rio Grande between Community C to the northwest, and Community B on the southeast, a distance of about 70 miles of a winding highway along the river's bank.

Demographics

I interviewed eight participants who were selected purposively: three Anglo-Americans, four Hispanics of Mexican ancestry, and one Native American. One of the selected community residents was a woman, and four were men. Three of these were EMS staff members; two of the EMS team members were women, and one was a man. All four of the individuals who approached me casually in the community-bounded group were women. All but one of the selected residents and one of the EMS participants had lived in this frontier region all their lives and had a long family history of living there. The ages of the participants ranged from mid-twenties to 92; all EMS participants were in their twenties and thirties, while all but one of the purposively selected community residents were older than 55. All but one selected resident interviewee had long-term deep familial roots in the community.

One interviewed participant was a rancher living and working on the same land in Community C that his ancestors had ranched for 300 years, and another participant lived in Community B on the land granted to his family by the government of the Republic of Texas a few years after Texas won its independence from Mexico. The family of another participant had farmed their land along the riverbank for three generations. Another participant was a descendant of a Mexican-American family that had settled in Community A after Texas won independence from Mexico; an ancestor of that participant married into a pioneer ranching Anglo-American family. One participant, who had lived there for about 5 years, accepted a job in the community and then stayed because he loved the stark beauty of the region and the opportunities for hiking; he also liked the residents of the area, and he liked his job. Another participant, an advanced

practice paramedic, lived in a neighboring county and was an employee of the EMS department of this frontier community.

I interviewed five resident participants at their location of choice, either in their homes or in a private space at their place of work. The interview locations served to enhance the interview experience; it allowed me to see and experience the community in a way not otherwise possible. Interviews with the EMS personnel were more problematic due to the large number of emergency calls coming into the EMS service. I interviewed one EMS participant at a location in the community, and I interviewed the remaining EMS participants on the telephone; only three EMS participants were available for interviews due to their many emergency calls. No physicians were available for interviews. My observations of the community, news articles, community social media, and several casual conversations with additional residents who approached me formed the basis for the third bounded group, the greater community.

Data Collection

I used semistructured interviews to collect the data, which allowed the interviewees to add information and thoughts as the interview progressed. I interviewed five residents selected purposively and three EMS staff members; the total of purposively selected interviewees was eight. In addition, four random residents of the community approached me to offer their own thoughts, opinions, and experiences; these residents were self-selected, and their information provided additional rich data. I interviewed each person one time; the interviews varied from 30 minutes to 2 hours, depending on the information the participant chose to provide. The longest interviews revealed rich background data that described the life, history, and culture for multiple generations of

three participant families living alongside the Rio Grande River, their ties to both Texas and Mexico, and how they have received healthcare over the generations. In addition, I collected news articles from the community, and information from the community's social media pages. My field observations were valuable and included the casual conversations with the four residents who approached me in the community.

Data Recording

I recorded the in-person interviews using a Tascam digital recorder with two external microphones attached. In two instances, the quality of approximately 15% of the recordings of the participants was too poor for complete transcription but could be clarified by use of the field notes dictated immediately after departure from the interview location. My past training in writing verbatim reports in hospital chaplaincy work proved its value in recording my field notes. I used dictation software to dictate my personal field notes and two telephone interviews with EMS staff members. I initially used Dragon NaturallySpeaking to transcribe interviews and then changed to the new transcription service provided by the software company NVivo. The latter yielded more satisfactory transcriptions than the former, which requires that each voice must train to the software.

The Iterative Process: An Unexpected Bounded Group

The original plan for this study was to interview three bounded groups consisting of five residents, five EMS staff members, and five regionally located physicians. However, as described above, no physicians were available for interviews, and only three EMS staff members were available due to their busy schedules. In assigning physicians to the third bounded group, I was inadvertently thinking in terms of rural and remote community deficits, a trap into which many researchers and program planners

traditionally fall. My plan to use physicians as the third bounded group was misguided. With the telemedicine equipment available today, physicians can practice in any location and serve remote communities anywhere in the world; it is not necessary for them to be in any particular location or region. As I reviewed the coding for all recorded interviews and field notes, the verbatim reports in my field notes stood out. These included notes of casual conversations with four nonselected residents who approached me to share their opinions. I realized there was another bounded group within this study: the greater community.

Four women in the community approached me at the local restaurant, a parking lot, a grocery store, and a local hardware store during my 10 days in the community. All heard from other residents who I was and why I was there; as a power wheelchair user, I was easily described and identified. They were interested in the community's possible adoption of a CP program in Community A. They seemed well-informed about my research and wanted to tell me how much they want the CP program to start there, and they wanted to be included in some first responder training. They shared personal experiences with emergencies experienced by themselves, their family members, and a visitor to the community who died of a stroke in the main parking lot. One of those had a family member injured in an accident and airlifted out by helicopter. I noted these conversations as verbatim reports in my field notes; I am a former hospital chaplain with training in interviewing and writing verbatim reports. These impromptu conversations, combined with my own observations over a 10-day period, added a valid third bounded group to this study. This change in the planned third bounded group of physicians, who live at least 85–100 miles away, increased the validity of the theoretical foundation and

conceptual framework more than interviews with remote physicians could. This new group added strength to this study.

This third bounded group, the greater community, consisted of my observations in the field, field notes that included verbatim reports of casual conversations with the four women, my observations, news articles, and local organizations' social media pages. The entire research process in the field was iterative. As a result, the three bounded groups in this study yielded a rich description of this community. This new bounded group consisting of the greater community maintained the strength of triangulation as originally designed, with at least three bounded groups as intended for this study. Triangulation occurred within the elements of this group, and between the three bounded groups. Triangulation diminishes the unintended effects of the researcher on the data analysis.

Data Analysis

Initial Coding

In the data analysis process, I used a thematic analysis approach. I based my analysis on both the conceptual framework and the synthesized theoretical foundation I developed for this study (Maguire & Delahunt, 2017; Nowell, Norris, White, & Moules, 2017; Renz et al., 2018). After use of the Dragon NaturallySpeaking software to transcribe the first couple of digitally recorded interviews, I began coding manually into an Excel file in the field while the data were fresh. This was fortunate because some of the recordings were of poor quality, and both my field notes and memory helped in the initial coding process.

Secondary Coding

As the initial coding of the interviews developed, a pattern of coding began to emerge that aligned with the conceptual framework. In the second stage, I recoded the data using NVivo software. In the next step, I rearranged the initial codes and assigned them to appropriate conceptual and theoretical nodes as they related to each of the interview questions, the conceptual framework, and the theoretical foundation (Nowell et al., 2017). Similarly, I categorized all memos and other observational data I collected on-site, and I noted the context of each observation after expanding the memos into a brief report for my own use. I coded all data, including interviews, field notes, news articles, and social media using NVivo software, a “computer-aided qualitative data analysis software” (Chowdhury, 2015, p. 1140; Maguire & Delahunt, 2017; Nowell et al., 2017; Renz et al., 2018). Coding with the use of NVivo was a much more efficient method for organizing and coding all the data accurately than doing those tasks manually. A list of the themes and codes is in Table 1.

Table 1.

Themes and Codes

Conceptual and Thematic Categories	Nodes
Conceptual framework: Rurality & place	Culture Distance Healthcare access Best things about living here Worst things about living here
Theoretical foundation: Community efficacy	Adaptability to change Helpful community Stability of community
Theoretical foundation: Diffusion of innovations	Desire to adopt innovative community paramedic program Groups Positive communications within the community Negative communications within the community
Theoretical foundation: Force field analysis	Driving forces Restraining forces

The recorded interviews varied greatly in volume and quality, which rendered accurate and complete verbatim transcription impossible in two cases; approximately 15% of those recordings were unintelligible. Some participants did not speak clearly or did not hold the microphone close enough to their mouth throughout the interview to get an audible recording for transcription. I transferred transcription of all the recorded interviews to the NVivo transcription tool, which improved the transcription quality somewhat. My field notes proved to be valuable in reconstructing some words in several of the interviews. This process made it possible for me to analyze the data and interpret the meaning. No participants' interview data were discrepant, and there was no additional need to interview any participants further to determine the nature and extent of any deviance from the data collected from other participants.

Evidence of Trustworthiness

Credibility

Prolonged engagement. The several techniques I used to establish credibility included 10 days spent in the community setting, becoming familiar with the community, observing activities in the community, and the frequency of EMS responses observed as the ambulance raced to an emergency. I personally observed how busy the EMTs were, and the problems that arose when the EMTs were out on a call when another emergency occurred concurrently. This process, combined with the theoretical foundation and conceptual framework, and the coding process, increased the scientific rigor of this study.

Within 24 hours of my arrival in the community, the first of several residents approached me on the street to ask if I was the woman doing research; this resulted in the gathering of impromptu information offered by those who saw me and had something they wanted to say. Four residents approached me in several areas of the community with information they wanted to share; each time I was approached it was in a public place my recording equipment and consent forms were not available. I was pressed for time to complete the purposively recruited participants, and did not formally recruit these residents. I dictated the encounters into my field notes as soon as I was back in my van and had access to my laptop computer. While eating in the local restaurant, on two different days, residents of the community approached me; they were not participants but they heard about the study and recognized me as the researcher. Each one communicated a concern they had about emergencies they knew about that had occurred recently while the EMS personnel were already on an emergency call. I concluded that communication within the community was a strong asset, and that members of the community trusted me

quickly. Word spread swiftly as to the topic of my research. As mentioned previously, I am a power wheelchair user, and I was easy to describe and easily identified in that small community. I included these impromptu conversations in my field notes.

Triangulation. Triangulation is another technique I used in this study to establish credibility. Triangulation is a way of looking at the study from different angles, different perspectives to verify the credibility of the study (Fusch et al., 2018; Leung, 2015; Moon, 2019). To accomplish triangulation, I used multiple sources of data including:

- (a) three bounded cases representing different data sources,
- (b) field observations and notes,
- (c) news articles, and
- (d) the city's social media pages.

Each of the three bounded cases was comprised of a particular population: (a) residents of the area communities, (b) EMS personnel serving the communities, and (c) the greater community. All study participant interviewees in all three groups consistently described the deficiencies in healthcare due to the lack of a permanent, resident physician, and revealed how the EMS department helps fill in the primary care gap; the EMS participant interviewees confirmed that many of their calls are welfare checks and to treat non-emergent conditions. Data saturation occurred when all data sources concurred and no new data emerged.

Persistent observation of the data. I spent 10 days in the field, observing the community, engaging in the interviews, and recording my field notes. The time I spent observing within the community, recording the interviews and my field notes, and immersed in the data as I coded allowed me to gain a much deeper understanding of the

community and the perspectives of the residents (Anney, 2014; Cope, 2014). I read and reread the data multiple times, and initially began coding manually while I was still in the field. I changed to use of the Nvivo software program and found that it was easier to see patterns developing. I started over with fresh coding when I moved the data over to NVivo. The various tools provided by NVivo were helpful in detecting patterns objectively. The word count tool helped to identify the words used most frequently, while the word cloud tool provided interesting graphic depictions of the most frequently used words.

Transferability

Transferability of the results of a qualitative study depends on the quality of the data collected. If the data has meaning for other communities, it may be transferable to a different community (Cope, 2014). Generalizability or transferability of this study will depend on the degree to which the methodology, the study design, and the results of this study are adequate to determine if there is a general fit between this study and other communities (Anney, 2014). Purposive sampling should increase the transferability. I believe the complete data collected, including interview narratives, field notes and observations spotlighting the context, news articles, and social media pages of the local government provided a rich description of this community. The transferability of this study lies in the ability of future researchers to replicate the design of this study in remote and rural communities. I am confident that the research study design and process established here is transferrable to studies of other rural and remote communities; the actual results will vary for each unique community.

Dependability and Confirmability

Dependability and confirmability are reliant based on how well my analysis is in line with the accepted standards of qualitative analysis. The degree of dependability of this study will be confirmed when this study can be replicated (Abdalla et al., 2018; Cope, 2014). The three components of the theoretical foundation, plus the conceptual framework, provided strong guidance throughout all elements of this study. I believe the study design and the process I engaged in of coding guided by the theoretical framework and conceptual foundation, and then recoding all types of data multiple times, increased the dependability (Anney, 2014). Triangulation played an important role in establishing confirmability; it diminishes the unintended effects of the researcher on the data analysis (Abdalla et al., 2018). Throughout the analysis process, I consciously upheld neutrality and allowed the interpretations to emerge from the data.

Reflexivity

Throughout this research process, I maintained awareness of my own family connection to the region of the study, and my many visits to that area over many years; personally, I never lived in that region. My ancestors were early ranchers near this community. During this study, I understood the potential of skewing the results by interjecting my own opinions, and remained cautious about maintaining the cleanness of the data. At the same time, I am aware that my knowledge of the area and its culture gave me insights that other researchers without knowledge of that area would not have. This knowledge is consistent with the definition of rurality and the conceptual framework.

The Australian CP program reverberates throughout this study; it was the only source of research literature as I first began my literature search, with very few studies

published later from other areas. The Australian CP program pioneered this program, and it is the most researched of the CP programs; as stated earlier, this study is focused on the program as it developed successfully in Australia, a country with geographical regions similar to parts of the central and western United States.

Results

At the heart of this community are the people who live there and have a lifelong relationship with the community, and all the people who work there, and may commute. I initially coded sentences and paragraphs in a simple way, according to what they said. Following the initial coding, I organized the initial codes into nodes using the names of the three synthesized theories and the conceptual framework as depicted in Table 1 above. The NVivo software program builds word clouds as illustrations of word count analyses. The word cloud depicted in Figure 10 created from a composite of all the data collected, serves as an introduction to the analysis of the data.



Figure 10. Word cloud created from all data collected

Theme 1: Rurality and Place

The codes in the first theme, rurality and place, include the best things about living in this community, the worst things about living in this community, culture, distances, and healthcare. These codes, together with the codes associated with the theme community efficacy, provide a strong description of this remote, border community.

Code: The best things about living in this remote community. At the heart of the community are the characteristics that anchor the residents in this community and give the community its strength and resilience. Resident 1 said: “I think that the people and the culture is the most beautiful in this part of Texas.” This resident’s comment expressed the sentiment underlying the various responses; it is an indication of the social capital of this remote community. Other comments by participants somewhat reflect the traditional definition of what a rural community is by what it is not, although with a positive twist. Resident 4 said: “Well, I choose to live here because it’s so far away from a city.” Resident 3 responded,

It’s not Dallas or Houston. There’s not people everywhere here . . . It’s not noisy; it’s clean and quiet with mountains outside instead of buildings and for the most part you know most of the people you come across — you know who they are.

His comments reflect both the geographical and social differences between this remote community and a city. A response by Resident 5 expressed the essence of what several participants said. Resident 5 said: “Of course, the city is a fairly dangerous and strange place for people to visit or move to for those who live in the wide-open spaces. It’s the local traffic in the city — it’s more dangerous than rattlesnakes!”

Code: The worst things about living in this remote community. Participants identified several characteristics regarding the worst part about living in this remote community, but none of them reflected negatively on the community or its culture. These represent inconveniences that they choose to adapt to so they can live here in the community of their choice.

Resident 3 said: “It’s the climate.” Resident 1 said, “The worst thing is definitely lack of access to amenities and resources.” Resident 2 highlighted inadequate access to fresh fruit. Resident 3 said, “There’s not any real medical care here that I would be completely comfortable with, unless I went to Communities F, H, or K. There’s just a couple of clinics here, good for ingrown toenail or a flu shot.” EMS 1 said: “Well, that’s the distance to school for all paramedic training. We don’t have big stores, either.” Resident 5 said something that indicates the reality of impending cultural change for some members of the community when he said: “You don’t always have family that can help you as you age here. Well, most younger people make their living away from here because there’s not enough jobs you have here. They can’t take care of us.”

I also coded some of the worst things about living in this community in the Driving Forces node. The residents of this community proved that they were adaptable and resourceful; they have figured out ways to overcome many of the inconveniences of living in a remote community.

Code: Healthcare access. The limited healthcare access in this remote community presents a major problem as reflected in the comments of the participants. When asked if he or his family members had ever been to an emergency room or called EMS, Resident 3 responded,

I haven't been in an emergency room or used paramedics, but my family has. My youngest son had to be flown up to Community K by air ambulance. He was apparently born with a heart problem and he has a doctor in Lubbock that he has to go see. He's worn heart monitors countless times.

Another participant, Resident 2, said he had to call the EMS team several times, and was airlifted to a major hospital in Community H three different times. Resident 5 said: "As the population grows, we are hoping for a six or eight bed hospital and emergency room here in [Community A]. The community really needs the hospital, to help keep you from the medical 'crash.'" He was not the only participant who mentioned the community desire for a hospital there in the small community. All selected interviewees mentioned the need for a hospital, as did the four residents who approached me in the community. Resident 4 added, "And we have a pharmacy here now."

Resident 3 said, "I have a physician's assistant in [Community D] and so I go have a checkup once a year. It is 90 miles one way to the PA's office, and there's not much in between, not even cell towers." Resident 5, a diabetic amputee, said: "I went to [Community F]. I had insurance to pay for 24-hour care to save my other leg and I'm going to [Community F] right now to save my eyes because of diabetes affects your eyesight." The consensus was that all interviewed members of the community travel a distance to receive basic healthcare.

Code: Culture. A number of highly interesting responses that described the local culture emerged from the interviews. In response to the question about how members of the community help others, Resident 3 said:

I've noticed that from my experience with people that I've known, they are just kind of like Asians. Asian people revere the elderly. The Hispanic people are willing to dedicate time and resources to help elderly members of the family. They care about other people in the community too. They care and are constantly doing something to help someone, like selling hamburgers or some kind of enchilada plates to raise money for somebody in the community. The community supports people in the community. They'll go take care of someone. They're not looking to dump someone off at a nursing home. You're more likely to have an elderly person being taken care of in a home here than in other places.

Resident 3 was not the only resident to describe the local Hispanic population as being similar to the Asian culture. Resident 5 was particularly interested in discussing his family's culture, and showed me a number of books he had about the region. Resident 5 said:

One's land if you are Native American - it really becomes part of one's family – the land. One of my great, great, grandfathers was kidnapped by Apaches from the ranch on this side of the river in about 1820. He eventually escaped and moved to [Community N] in the 1830s, so we've been here in this area a long time, but we are all Native Americans. We stay in the same place and build extra rooms and construct family compounds like the Chinese and other Asians and stay in the same area as a family group. So it's a cultural thing, if you grew up in the desert. Well, this is our home. Been here so long, our culture, we speak, we have a history. Here we have we have the title to our land. My great-great-grandparents moved from [Community M] in Mexico, which is across the river

from [Community L] in Texas and by 1870 they had moved to [Community B] and then they were given land grants in 1876 by the governor of Texas. We have the original grant here if you want to see it. It was for a hundred and 60 acres for people who came from Mexico to settle here after the War Between the States. There were very few American settlers in this part of Texas, so my family was recruited in Mexico to come here to get land to learn English to get the citizenship after 5 years as part of homesteading fixes. So we've been here ever since then, but walking in the region a lot longer.

Most of those who live in Community A seemed eager to share their family history, heritage, and culture. This information underscored the strength of the community.

Code: Groups in the community. Several references to groups were mentioned in the interviews. Groups included Native American clans, veterans, churches, and the historical society. The participants indicated participation in more than one group, with participants overlapping in different groups. An illustration of the community groups identified in interviews follows in Figure 11.

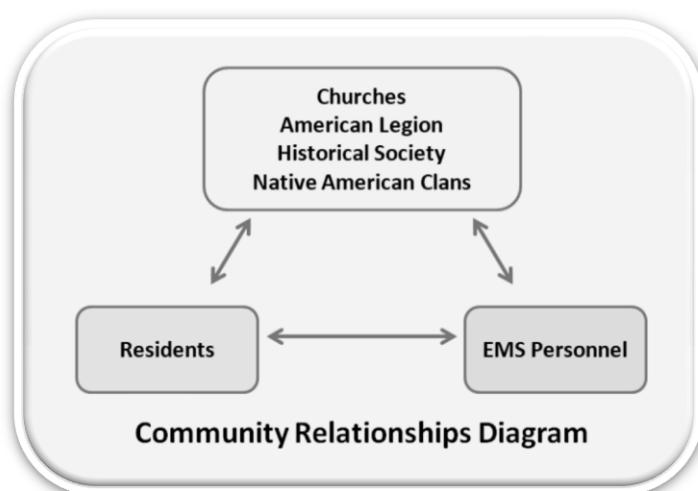


Figure 11. Community relationships

Resident 4 said:

Joe is our new commander for the American Legion, so they're in the process of regrouping and Joe is taking a strong leadership in rebuilding the American Legion here and so that's very exciting . . . My father was a Marine on Guadalcanal: he was badly injured. I sang the Marine Corps hymn almost before I could say mama.

EMS 1 said, "We have a Catholic Church and then we have a Baptist Church."

Resident 2 said: "I know there are groups of families out there that come over during the weeks so the children could go to schools, and go back to Mexico. That has been the practice for more than a hundred years." Groups of families cross the river each week from Mexico so their children can go to school, and then return to Mexico each weekend; they do not typically participate in the community organizations.

Code: Distance. Distances to hospitals, PCPs, and specialists are a major problem in this remotely located small community. Different participants reported traveling 82 miles, 90 miles, and 200 miles or more one-way for care, and one reported travelling even farther. EMS 1 said:

Our closest EMS backup is in Community J, 82 miles away . . . The other option is like use what's here, the clinic here in Community A and or the hospital in Community D that's an hour and 30 minutes away from here.

Resident 1 said:

The other option is like use what's here, the clinic here in Community A and or the hospital in Community D that's an hour and 30 minutes away from here. We

have no ER, for instance. If I get injured, for me to get to the ER is gonna take an hour and 30 minutes.

Several respondents and residents who approached me in the community mentioned the subject of ranch accidents. Ranches are typically difficult to access from a highway and have gravel or dirt roads. A distance as short as 28 miles on a ranch road can take an hour to drive if the ranch road has many curves and the road is rough, or there is a danger of hitting livestock. Rainy weather further complicates travel on ranch roads, and some are subject to dangerous flash floods. Few ranches have access to a cell tower. Resident 3 said:

There are a lot of ranch accidents. Sometimes just getting in from a ranch can take over an hour. Access for EMS, especially for the State Park, and there's other big ranches, it's difficult to get down to the highway and then you gotta get to the hospital, and I'm just saying that it's not easy access for an ambulance, and it takes a lot of time. There's a lot of country out here, and you know when there is a medical emergency. There are a lot of areas where there are mountains, you know, you don't have cell service.

Clearly, geography plays a major role in healthcare access for this remote community.

Theme 2: Community Efficacy

Code: Adaptability to change. Adaptability to change manifests in various ways in this community. Resident 5 addressed the change in population over the years, a condition to which he and the community had to adapt. Resident 5 said:

It is not quite as easy as it was like 50 years ago when we were all almost literally, all related to each other. We have with immigration and migration from Mexico here, so we have new families moving in. Most of those families that are here, they eventually become part of the community.

Another example of this community's adaptability to change relates to the question about the distance to primary care, specialist care, and the Community Paramedics' possible use of telemedicine in the future. Another older member of the community, Resident 2 said:

Rather than move to the city or move somewhere else, economically it is just not feasible for most people to take the trip, so basically I think it would be helpful if the paramedics here had the advanced training and telemedicine and monitoring equipment.

The question of training the EMS staff to the paramedic level, the distance to training, and the equipment that would be required for the training program was a topic of interest to residents and EMS staff alike. Residents shared concerns for training with the EMS staff, and expressed an interest in being included in some training that would use high technology simulation manikins. This desire for training by the residents relates to the common knowledge that the EMS department cannot handle two calls at the same time. Resident 3 said:

I think the people who live here will be interested in getting in hands-on training. I believe that if you get the word out and it was explained so they really knew what the training was about, I think people would be interested. I think you could

sell the idea of circuit riding training. Yes, I picture you could add on a barbecue and have a street fair is a great idea.

Resident 3 suggested that at the street fair there could also be blood pressure and blood sugar testing stations. Another resident who had voiced the same desire for residents to be included in training with simulation manikins, Resident 4, said the following:

Did you hear about the woman who had the stroke on the pavement downtown? I drove by and saw a lot of police vehicles - many police vehicles, and there was a body with a sheet over it. What had happened is that there was one of the border patrol officers that had a bad accident out on the river road and was critically injured. The EMT's had to race with him to the airport for the air ambulance plane. So while this was going on a woman from [across the river in Mexico], her daughter and granddaughter was there, and apparently she began to have some issues in the parking lot. Her daughter didn't know the procedure but she called 911. She could not give the location where she was at. They couldn't pinpoint the location of the [TelMex] cell phone. Okay. And so these two emergencies were going on at the same time. And we do have major accidents sometimes and also stroke situations. Residents need some training.

I had already heard that story from a waiter at the local restaurant the same day it happened. The waiter had asked me if I was the woman doing research about the EMS department. This waiter expressed hope that the Community Paramedic program would start in Community A, and that residents would be allowed to participate in the simulation training. The news that I was there in the community and the purpose of my

research had spread around the community in the first 24 hours I was there. I am easy to recognize and describe, as I am a power wheelchair user; I stood out in that small community. The comments above indicate not only adaptability to change, but also a desire to be active agents in that process; this indicates strong community efficacy.

Code: Helpful community. The degree to which a community is a community of residents that helps others in the community is another indicator of the strength of the community's group efficacy, and willingness to engage actively in the community.

Resident 5 said:

We help each other. My father was a County Commissioner so he would help to do what he could to alleviate the poverty and things like that and extend credit to the people who needed so help people help each other.

Resident 4 said: "There is a lot of outreach through the church." Resident 1 said:

"I can speak to the fact that a lot of times folks will need assistance with certain types of technology, whether it's computers or what not." Resident 2 said: "They reach out here, check in on people." Resident 3 said:

The Hispanic people are willing to dedicate time and resources to help elderly members of the family. They care about other people in the community too. They care and are constantly doing something to help someone, like selling hamburgers or some kind of enchilada plates to raise money for somebody in the community.

The community supports people in the community. They'll go take care of someone.

Resident 4, said:

I have a 90-year-old neighbor who is a veteran, and for Veterans Day, I checked with him to make sure he was going to the Veterans Day event. He said: ‘well you know last year I tried to go but then I got there and I couldn’t walk to get all the way to where the luncheon was being held.’ So this year I made an arrangement for a wheelchair to be available to him. I was supposed to go to a historical commission meeting on that day, but I took him to the event.

The evidence in the community during the time I was there is that the people in this community are aware of the needs of others in the community. Residents exhibit a desire to be helpful; this is a strong indicator of both individual and community efficacy.

Code: Stability of the community. The stability of the community is another indicator of community efficacy. In this community, the majority of the residents have extensive generational roots, and most newcomers to the community seem to blend into the community fairly soon after their arrival. The exception to this dynamic with newcomers integrating into the community was described by Resident 2 in the community farthest upriver but still in this community’s service area. In his small community, a *Colonia*, families cross the river from Mexico and send their children to school during the week, and then return to Mexico on the weekends. Several respondents said that these families are undocumented aliens and call EMS to take them to the hospital, 132 miles away, a distance that can be traveled one way from that location in 2 hours and 45 minutes. These calls are reportedly typically for fevers, sore throats, and women about to deliver a baby. They place a major strain on the EMS services, taking them out of the community for several hours, while leaving the other residents of the community unattended. The EMS staff confirmed this fact.

Resident 3 said: “For the most part you know most of the people you come across - you know who they are.” Resident 4 said: “I am fourth-generation [Community A]. Both of my great-grandfathers on my mother’s side were men who came here to create a new home for their families.” Resident 1 said: “I came here primarily for work, and I have stayed five years now.” Resident 2 said:

We stay in the same place and build extra rooms and construct family compounds like the Chinese and other Asians and stay in the same area as a family group. So it’s a cultural thing, if you grew up in the desert.

The story of Resident 4 is typical of other residents in this area. Families have lived here for several generations. When describing an ancestor, Resident 4 said:

He was born in New York. He was a young man who joined the soldiers who went to Mexico with US-Mexico war, so he traveled up through Mexico and in the Texas war for independence, then fought in the Civil War, and then eventually settled here. My great-grandfather came from near C., Mexico fleeing Pancho Villa and went to Community F, Texas with all of his family. I have a copy of the records there that indicated their passage. He came here to [Community A] He built a home in 1917. It was registered on the county records and it is where I live now in that house. I love it. It’s the land.

Resident 5, whose family has lived in this area for several generations, said:

One of my great, great, grandfathers was kidnapped by Apaches from the ranch in about 1820. He eventually escaped and moved to Community N in the 1830s, so we’ve been here in this area a long time, but we are all Native Americans. . . . so we’ve been here long time, and we are still here alive and kicking!

Some people move into this community from distant communities, and some immigrate from just across the river, yet the local population, many with deep generational roots in the community, seems to incorporate the newcomers into the life of the community to the degree the newcomers want to be included. The exception to those who join the community in a meaningful way appears to be the Mexican families who cross the river without papers so their children can go to school, keep to themselves, and then return to Mexico on the weekends. The long-term stability of the community strengthens the community's collective efficacy.

Theme 3: Diffusion of Innovations

Code: Positive communication patterns. The positive communication patterns of the community became apparent to me within the first 24 hours of my arrival in the community. Following appointments made for interviews with participants, residents of the community began approaching me at various locations in the community, including the local grocery store, the main restaurant in town, the parking lot in the downtown area, and a local hardware store. These people knew about my research and wanted to tell me how much they wanted the Community Paramedic program to “come” to this community. Each of those residents also told me that the community hopes to open an eight-bed hospital. They also told me that the international port located in that community is being “doubled” with a federal grant of \$2 million dollars.

Two of the residents who approached me in the community told me about the woman from Mexico who had a stroke in the city parking lot while the EMS crew was racing to the airport with a critically injured man; the woman with the stroke reportedly died there in the parking lot. They expressed concern about the EMS department not

being able to handle more than one emergency at a time. Both of those residents wanted to be included in some of the first aid and emergency medical training that might come to town for the benefit of the EMS staff. They suggested that the EMS staff might offer some first responder training for the residents.

The participants expressed additional indications of excellent communication in the community. Resident 4 said: “At the community event someone made an announcement that he is our senior veteran and proceeded up and they put his picture on the front of the newspaper.” Resident 1 said: “I will get around people pretty good about communicating.” Resident 3 said: “If you have this need, you might talk to someone.” Resident 4 said:

Something is that when I speak to people, they answer and people smile back. It is safe to walk around. My friendship circle is very diverse because of both the people who’ve been here for very long time and with the Homeland security folks. I have some very good friends.

Effective communication is at the heart of the diffusion of innovations, and supports both individual and the community’s group efficacy.

Code: Negative communication patterns. There were only two examples that represented negative communications voiced in the interviews. Although negative, these two comments are still examples of communication within the community.

Resident 1 said: “I guess a side effect of people knowing each other is that they may talk behind your back.” Resident 4 said: “It’s also the gossip in a small town. Sometimes it can be hurtful.” These comments reflect a normal occurrence in all

communities and groups. While in the field, I spoke with many people, and those were the only negative comments.

Code: Desire to adopt this innovative cp program. The residents' desire to adopt the Community Paramedic program was enthusiastic and strong, without any indication of negativity or doubt. Residents showed concern for the load placed on their EMS department; their comments demonstrated a positive sense of ownership of that department by the community. This appeared to be in stark contrast with the City of Red River, where a pilot CP program failed, as discussed in detail in Chapter 3 (Hauswald et al., 2005). Resident 4 said: "I think it would be an excellent program for this community." Resident 1 said: "In this community due to the distance to get health services, I think it will be a great idea to have a program like this to get immediate treatment in any situation that we have." Resident 3 said:

The paramedics, they normally transport the patients, but I would hope they would be able to hopefully do more, rather than the patient waiting a couple of hours. It just makes sense, because sometimes there are things that can't wait. You know there is a gap before you get to the point where you need to be transported. It may be that the patient does not really need to be transported.

One 92-year old resident, Resident 2, was concerned about the possibility of getting some basic care from the paramedics when he gets sick. His doctor of many years lives in a community across the river in Mexico. Previously, his doctor crossed the river on a little bridge between the two small, remote communities on opposite sides of the river, but the doctor could no longer do that since Homeland Security removed the bridge. This happened in a number of small, border communities. The distance is now too

far for the doctor to go many miles downriver to the Port to cross, and then travel the same number of miles back upriver to treat his patient, before returning the same way he came, the total round trip for that doctor would be approximately 240 miles, instead of a few yards across the formerly existing small footbridge. This man and his grown daughters were enthusiastic about the care the Community Paramedics would be able to provide. He understands what telemedicine is and hopes the EMS department will soon have that equipment. EMS 1 said:

I hope this program happens here. It'll be a great opportunity to have it in this community due to the distance to other cities. This program will help a lot of communities. There's so many small communities a distance away from any healthcare. Some people use the ambulance for their primary healthcare, we stay busy with calls like that. So I think our service needs to provide more.

Resident 1 said:

In this community due to the distance to get health services, I think it will be a great idea to have a program like this to get immediate treatment in any situation that we have . . . What I think just by our community being so far from anything, it will be a great idea to have this program, and I think the community will support the program.

EMS 2 said: "I think that would be good in this community. We get many calls daily from residents needing non-emergent care or simply a welfare check." Resident 3 was interested in both the possibility of a training program including the local residents, and the possibility of adding telemedicine to the tools in the hands of the EMS staff. He

had a great idea to have a street fair when a simulation training truck comes to town, and include some health screening. On the subject of emergency training, Resident 3 said:

I think the people here, not just EMS people, will be interested in getting in hands-on training. I believe that if you get the word out and it was explained so they really knew what the training was about, yes, I think people would be interested. I think you can sell the idea of circuit riding training. Yes, I picture you could add on a barbecue and have a street fair is a great idea.

EMS 2 said: “EMS department using telemedicine? I don’t know about that. Some of the elderly residents down here won’t like the technology – they will want the doctor to be there in person. It could be helpful, though.”

This is one area where there was a discrepancy between the opinions of residents and EMS staff. Resident 3, an older resident whose son had been born with a heart defect and required years of monitoring and trips to [Community K], particularly liked the possibility of the EMS staff having telemedicine equipment and uplinks to both PCPs and specialists. Resident 3 said:

With everything that plugs into a computer and connects satellites and I can see the doctor on the screen, and hear the heart rate, listen to it, that would be helpful for me or my son. It would be helpful to know it is available for him or for other people because that at the very least, if there is something in addition the paramedics can do than what they normally have done, if they just knew what to do.

Clearly, the residents in this community are ready to adopt this program. Any hesitancy by EMS personnel was in the form of concern for costs and distance to training.

Theme 4: Force Field Analysis

Code: Driving forces. Among the driving and restraining forces for adoption of the CP program in this community were the following things listed in the force field analysis diagram illustrated in Figure 12.

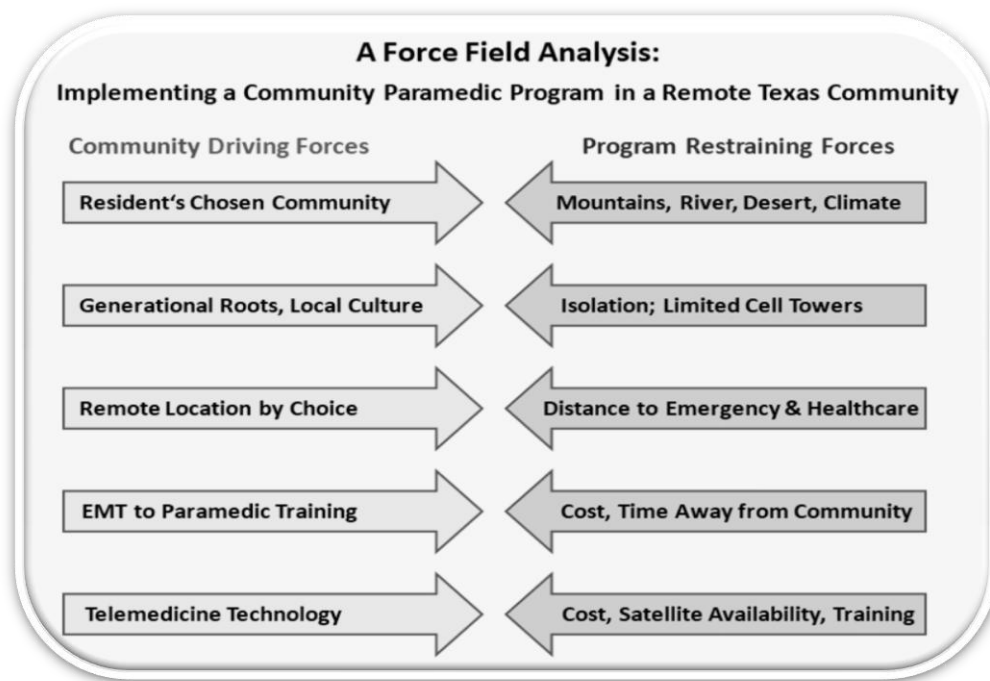


Figure 12. Diagram of a force field analysis of Community A.

I cited a coded quotation by Resident 4 previously in the Community Efficacy section, subsection “Distance”, and again here in the coding node “Driving Forces”. Situations such as the one that happened the day the woman from Mexico had a major stroke in the parking lot downtown in this community are clear driving forces toward adopting change. EMS 1 identified another driving force when he said:

I think from here all the way to places like [Community C], the so-called illegals are protected. You can get healthcare if there is an emergency, so they’ll call the ambulance and be transported to [Community D], which keeps [Community A] from having an available unit for as much as 16 hours in order for a who child is

running a fever. They do that because they are afraid of being turned in to immigration authorities. . . Eventually what they're doing has a bad effect on emergencies and healthcare in the community. There is definitely an effect on the community. Mothers who need prenatal care are another example.

Resident 3, whose son had a heart defect, said:

I think there's a lot of things that can't wait for an EMS to arrive and then travel at least an hour and a half or 2 hours, for somebody to actually get some kind of intervention, or even just regular check-in on them at home, and make sure everything is okay, and not get worse, especially if you have something that has to be monitored closely. How do you do that if you can't get going up and down the road?

Resident 2 said: "It [distance] affects the elderly, they don't seek the care that they should for conditions of blood pressure not being monitored adequately to keep them well with a heart condition, rather than wait till after the transported crisis."

Resident 1 said: "We have no ER, for instance. If I get injured, for me to get to the ER is gonna take an hour and 30 minutes." Resident 4 said: "If paramedics also help with proactive health screening and teaching, it will work. It is a headache for parents to leave work to take kids out of school and travel somewhere to see a doctor." Resident 5 said:

It will work in this area if it's an emergency thing, emergency program, and if they help with health screening and teaching. There is a lot of diabetes here, and a lot of amputations. A lot of diabetics know little about their health and how to prevent amputations and blindness. Right now, there's very few in Community A

who can do checkups all the time. There are 5 or 6 residents in [this community] who have had a diabetic amputation. Diabetes detection here is slow.

Resident 5 framed those remarks in the context of this community needing a hospital. He told me he does not want the new CP program to be a replacement for a future hospital. EMS 2 said:

The trouble with those patients is that the need is so great. We take the man's vital signs and check him all over. We listen to their lungs – things that the heart monitor in telehealth [remote heart monitoring only] cannot do. Mostly what they need is a paramedic check-in, in addition to the monitoring program they are on.

Resident 3, quoted earlier, said:

I haven't been in an emergency room or used paramedics, but my family has. My youngest son had to be flown up to Community K by air ambulance. He was apparently born with a heart problem and he has a doctor in Community K that he has to go see. He's worn heart monitors countless times.

The driving forces for the adoption of the CP program are clear and strong throughout the community.

Code: Restraining forces. Not surprisingly, among the restraining forces in this community are funding for training and higher salaries for paramedics. Several news articles said that the EMS services in [Community A] were struggling for adequate funding. Another news story stated “[Community A] continues to be a topic after funding for their Emergency Medical Services are limited.” This is not surprising given the remoteness of this small, border community with a limited economy. Another news article said:

The EMS department said they don't have enough crews. They have one crew and the second one they cannot staff. They have an exemption for one EMT to go on the extra ambulance with a fireman driving right now but that's not ideal if you got a major accident. So the city pays six EMTs.

All three EMS staff members interviewed confirmed this shortage of funding. EMS 2 said:

I think the most important thing is how is it going to get funded, and how is going to be equipped? What type of equipment will we have to assist a lot of training, especially in Community A where we have only one paramedic in the ambulance? We have one advanced paramedic and the rest of us are basic EMTs or ECAs, so I think it will take a lot of training for us to be helpful on this program. We have an advanced paramedic who is a retired Army paramedic. So in Community A, we have one paramedic, one intermediate, and the rest are basics and ECAs. We go to the county line on the southeast and to Community C on the northwest along the River, a distance of about 100 miles from one end to the other. We only have one crew on duty at a time, though we have two ambulances.

EMS 3 said:

My biggest issue is the high call volume. We run to [Community C] for labor calls that are not always an emergency. It takes us out of service for at least 8 hours, which leaves the city uncovered. This would be an area where this program would be especially valuable! It's just not safe

delivering [babies] in the back of an ambulance and they wait so long to call that it is always possible that we will deliver the baby on the road.

EMS 1 said:

I think it [restraining force] will be training - the distance to school for all training. I think we need more training to be more prepared to be able to collaborate and help with any program. This would help our EMS service and then to take this program and assist, but the challenge in [Community A] is the training and funding.

It was clear that the problems facing this community if they decide to adopt the CP program include distance to paramedic training programs, costs of training, cost of training equipment, and both the cost and training involved to implement use of telemedicine equipment. One other problem mentioned by EMS 2 was the level of pay for the EMS staff for each member after achieving paramedic status.

Summary

In Chapter 4, I discussed the process of data collection done in Community A, the various participants, and the community. I designed the interview questions to elicit information about the assets, deficits, strengths, weaknesses, and current healthcare delivery processes in a remote border community that could provide guidance to the community in their consideration whether to accept or reject implementation of the Australian Community Paramedic program. The questions also explored how these factors affect the likelihood of successful adaptation and implementation of the Community Paramedic program in this remote Texas-Mexico border community. The original plan was to form three bounded groups of five members each: five residents, five

EMS staff members, and five physicians. While five residents were readily available, only three EMS staff members participated due to busy schedules, and no physicians. As I reviewed all the data, including news articles, social media, and my field notes, I realized that I had a third bounded group that consisted of the greater community. Four residents approached me in the community and gave me information that I included in my field notes.

In the coding process, I initially coded the interview transcripts according to a simple interpretation of what the interviewee was saying; the result was a long list of codes describing the conceptual theory; these initial codes needed organization. In a second round of coding, I grouped the codes under the following themes: (a) conceptual framework: rurality and place, (b) theoretical foundation: community efficacy, (c) theoretical foundation: diffusion of innovations, and (d) theoretical foundation: force field analysis. News articles and social media posts were included in the initial round of coding. In the final step, each subset of codes was reviewed again, and some coded material was coded again.

Triangulation was intrinsic to the study as I designed it with three bounded groups; I maintained this basic structure with the substitution of the greater community as a bounded group that replaced the physicians group. With only one exception, there was no variance between the three groups. The single exception was that one EMS staffer's comments indicated hesitance about how well older residents of the community would accept use of telemedicine. In contrast, all residents, mostly older people, were excited at the possibility of the EMS staff having the telemedicine equipment for uplink to remotely located physicians; they saw it on TV and understood how telemedicine works. Findings

indicate a high level of community self-efficacy and a strong desire among participants for the establishment of a CP program to increase health services and access. The probability of establishing an effective CP program based on the Australian model is high based on study findings.

The codes organized under the theme of Rurality and Place included culture, distance, healthcare access, the best things about living here, and the worst things about living here. Through the coded data the culture and character of the community was clearly described. Residents choose to live in this remotely located community, and have adapted to the inconveniences. Some EMS staff members travel long distances to work in the community. One response in particular was colorful when the resident said rattlesnakes were preferable to the traffic in cities. The problems related to access to healthcare were strongly related to distances required for travel to see a provider, or for the EMS staff to transport to hospitals.

The codes organized under the theme of Theoretical Foundation: Community Efficacy included adaptability to change, helpful community, and the stability of the community. Several EMS members and residents indicated ways in which they adapt to changes within the community. This multicultural community is primarily Mexican-American with a strong ethic of helpfulness within the community. Several interviewees compared the local Mexican-American culture to Asian cultures that take care of elderly family members, and reach out to help people in the community as needed. The stability of the community was illustrated by most participants as they recounted their long generational family histories in the community. A common theme was “It’s the land.” The stability of the community, the long-term relationships, and ethic of helpfulness

indicate a community with a strong community efficacy, a quality that will lend strength to adoption of the innovative Community Paramedic program.

The codes organized under the theme of Theoretical Foundation: diffusion of innovations included the desire to adopt the innovative Community Paramedic program, groups in the community, positive communications within the community, and negative communications within the community. Even the two negative comments offered represent communications. Several local groups were mentioned in the interviews, including churches, veterans groups, and Native American clans. Groups are an important factor in the diffusion of information, organizing, and supporting the EMS department through a difficult change. Throughout the community people told me that they want to open “An eight-bed hospital” there; this appeared to be a very high priority across all three bounded groups.

The codes organized under the theme of Theoretical Foundation: Force Field Analysis included driving forces and restraining forces. Clearly, the primary driving forces to implement the CP program in this community included the needs of the community members for improved access to healthcare, the distances to healthcare, the over-extended EMS staff, and the need and desire for residents throughout the wider community to participate in training with the EMS staff. Several residents said they wanted training so they can help people as needed. The restraining forces were equally predictable: the costs of training and equipment and distance to training. One additional problem emerged from the interviews, the need for increased pay levels for EMS staff as they achieve Paramedic status. In Chapter 5, I will discuss the interpretations of the

findings, the limitations of this study, recommendations, and implications for social change.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

Maldistribution of healthcare professionals presents the necessity for an assessment of the potential success of a program to improve access to a higher level of emergency and primary care in a remotely located Texas-Mexico border community that is both an HPSA and an MUA. A highly successful CP program emerged organically in rural and remote areas of Australia. A pilot CP program that began in New Mexico in 1992, however, did not succeed. The primary reason identified for the failure of that program was lack of oversight; a number of other issues that also contributed to that failure, notably the poor ethical behavior and judgment of the CP members. The characteristics of the community where the failed pilot program in New Mexico occurred stand out in contrast with the communities in Australia. Based on the single study published on that program, it is unclear the extent to which that community's inherent characteristics, as described by the definitions of place and rurality in this study, contributed to that failure. The contrast between the Australian communities and Red River, New Mexico, formed the basis for the research questions in this study. Did the difference in community characteristics have an effect on the success or failure of a CP program?

The purpose of this formative qualitative bounded case study was to explore the likelihood of success if a remote community in Texas chose to assess, then possibly adopt and implement, the CP program developed in Australia. I used a formative qualitative bounded case study to identify and assess the strengths, deficits, weaknesses, attitudes, perspectives, needs, culture, and the driving and restraining forces in a remote, rural

community in Texas on the Texas-Mexico border. My hypothesis was that a community that demonstrates characteristics of strong individual and community efficacy is more likely to be successful in implementing and supporting a sustainable CP program. I conducted this study in advance of implementation of a CP program in an HPSA and MUA in this remote Texas border community.

I used three bounded groups consisting of five residents, three EMS staff, and the greater community. All resident respondents, EMS respondents, and four casually encountered residents were consistent in their observations that the community needs a way to improve access to healthcare and a higher level of EMS skills. All respondents, with the exception of one EMS respondent, thought access to telemedicine equipment was important, and they supported it. That one dissenting respondent thought the elderly residents would not like using telemedicine equipment, preferring to see a physician in person. After two selected respondents first brought up the subject of telemedicine capabilities, I asked all subsequent respondents what they thought. With the exception of the single EMS respondent, all respondents and the four individuals who casually offered their opinions would welcome telemedicine technology in the community. With the exception of a single resident, all resident respondents were elderly.

All respondents and the four casually encountered residents volunteered that they hope to open a hospital there in Community A. It was evident that members of this community were looking seriously into the possibility of building a hospital prior to my arrival in the community for this study. The evidence from this study shows that this community is likely to successfully implement and adapt the Australian CP program. All participants saw a connection between their CPs and the eventual opening of a new

hospital; they said they thought the combination would strengthen both. The evidence also shows that the community will need funding from sources outside the community.

The residents of this community are supportive of their community adopting the CP program developed in Australia. They have a sense of ownership of their EMS staff members and want to support and assist them as much as possible.

Two important findings not included in the original interview questions emerged from the study of this remote Texas border community. The first was the strong need for education and training of the EMS staff with ongoing frequent training through the use of high-fidelity simulation equipment; residents also desired inclusion in first responder simulation training. Residents are well aware of the problems with the remote area, distances, and staffing limitations of their EMS department; they expressed a strong desire to help in emergencies until EMS staff arrive. All respondents and news stories noted the lack of funds to accomplish the necessary training. One resident suggested that a circuit-riding mobile simulation training truck could park downtown and be at the center of a street fair so everyone could participate in first responder training. He suggested the street fair could include health screening, barbecue, and enchiladas. The second finding was the universal desire of all I encountered in the community to build a hospital in this small remote community. The residents reflected the inherent efficacy of the community and their engagement in helping in the adoption of this program and the building of a hospital.

Interpretation of the Findings

This study extends the knowledge found in the peer-reviewed literature by adding the first published study of a remote community in advance of implementing the CP

program. In Chapter 2, I discussed the peer-reviewed literature published by the Australian research team and the study of the reported failed pilot CP program in Red River, New Mexico. There were no reports of CP program failures in the Australian literature. The findings of this study indicate major differences between the remote Texas border community studied here and the New Mexico community.

While the primary reasons for the New Mexico program failure included lack of government oversight and the poor ethics of the lead paramedic in the community, other community characteristics and the design of the program may bear responsibility as well. The difference between the two communities—the border community in this study and Red River—may lie in the characteristics of rurality and place as defined in the conceptual framework of this study. The location, population density, cultures, population attributes, efficacy, health problems, behaviors, local economic strength and concerns, community history, relationships, and resource assets and shortages combine to form the context of each unique rural community (Cummins et al., 2007; Winterton et al., 2014). The remote Texas border community in this study is a stable community of long-term residents with deep generational roots in the community, and that portion of the Texas-Mexico border on both sides of the river forms the boundary between the United States and Mexico. There was evidence of strong individual and community efficacy in the remote Texas border community. Strong individual and group efficacy, strong efficacy resilience, adaptability, strong family units, strong communications, overlapping groups in the community, and a strong sense of community program ownership emerged from this study. These characteristics may increase the likelihood of this community establishing a successful, sustainable CP program.

In contrast, the New Mexico community was a transient community in a remote resort area. That community had a population of 600–800 residents, but swelled to a population of 10,000 seasonally; the average length of residency was 6 to 8 years (Hauswald et al., 2005). In that setting, the following characteristics that may be essential for a new program such as the CP program to launch successfully were absent: (a) the diffusion of innovations process built on local communications, (b) community efficacy, and (c) it was a transient community, not a stable and cohesive community with deep generational roots. A similar formative bounded case study as this one, if conducted today in Red River, might yield a completely different community profile and force field analysis by comparison with the remote border community in this study. The results of that study, if performed, might indicate that a CP program designed differently for Red River needs specific tailoring to that community; it would also require direct supervision.

Limitations of the Study

This study sought to fill a gap in the research literature by conducting the initial formative study of a remote community in advance of implementation of the CP program in that community. This is a single site study, and therefore the results of this study are not generalizable to other communities. Although the results are not generalizable, the study model can be replicated in other communities; each rural or remote community is unique and will have their own unique study results. No other studies are available for comparison of methodology or results. Additional limitations include: (a) small sample size recruited by purposive sampling in a single community limited generalizability of the results; (b) my time limitations in the field due to distance and costs; (c) my significant disabilities and a serious injury prevented subsequent trips to the field; (d) my family

history in the same region may be a source of bias that affects trustworthiness and validity; (e) my family name, associated historically with a nearby ranch, was recognized in the community; (f) qualitative data analysis is subjective; (g) transcriptions were done digitally from recordings that were approximately 15% flawed; and, (h) although I was the only coder for this dissertation study, I was also the interviewer, and I understood the participants in their own settings; this enriched my understanding of the interviewees and the data.

Recommendations

I believe this study indicates the community characteristics that may enable the successful implementation of a sustainable CP program. This community must make their own decision whether the adoption of the Community Paramedic program, similar to the program as developed in Australia, is a good choice for their community. They need to explore avenues of funding assistance. The residents of the community want to be included in the process of adoption and adaptation of such a program, and in some training so they can help people until the EMS team arrives.

In a subsequent study, the effects of the characteristics identified in this study should be tracked for their effects on the program implementation process; this could further validate this study. It will be important to conduct future research follow-up studies to measure the effects of the CP program after implementation in Texas and other locations, documenting both the outcomes and modifications adopted by each community. A follow-up study could be qualitative, with some numerical data collected; if the numerical data collected is sufficient for statistical analysis, a mixed methods study could be conducted. If this community adopts a CP program, the process and progress of

their adoption cycle and resulting program sustainability would make an interesting and important study.

Validation of this research model must occur with further studies in different locations in the future. There are many commonalities among rural and remote communities in Texas; yet each community maintains their uniqueness and culture. The theoretical foundation of this present study, combined with the conceptual framework utilized, adds a formative research model to the current research knowledge base; this study could be replicated in future qualitative studies related to healthcare in rural and remote regions.

The topic of building a community hospital in the study community was not part of this study. However, every person with whom I had a conversation volunteered information about the community's hope for "an eight-bed hospital." Some residents understood that developing the CP program would be a first step toward starting a hospital, with the role of the CP staff members being essential to, and enhancing, the hospital services. None of the residents said they thought the CP program was simply a stop-gap program replacing a hospital. The CP program and the hospital would form a complete system for the community.

If the community persists in wanting to open a local hospital as I think they should, I recommend a formative research study to assess the actual size of the need, hence the size of the hospital. The "eight beds" described by all I encountered in the community may not be adequate. No one offered a rationale for the number of beds as eight. A formative study must consider the potential number of people from the community, surrounding areas, oil fields, ranches, average number of tourists injured in

the rugged local and national parks, international commercial traffic, and the people who live across the river in Mexico who are likely to use that hospital. A policy for payment will be necessary for those who cross the river from Mexico to use the hospital for non-emergencies. A study must also consider the location of the hospital, plans for staffing the hospital through use of staffing agencies, the use of telemedicine technology embedded throughout the hospital, and acute care remote monitoring company contracts.

Implications for Social Change

Improved access to quality healthcare and local emergency care upgraded to Level 1 emergency care in the field in a remote community is a form of positive social change at the individual, family, local, and regional levels. This should result in the improvement of the overall health of this community by enabling the paramedics to address minor health issues before they become major issues. Another function a CP could potentially assist in is the development of community wellness programs and health screening services.

Individual efficacy/self-efficacy is the foundation of community or group efficacy. Efficacy resilience among individuals and groups is essential to adopting sustainable innovations. In this study, I theorized that deep familial roots in the community are a major component of how individual efficacy developed. The participants in this current study are local residents purposively selected for interviews, the EMS personnel of this frontier Texas border community, and the greater community in a medically underserved community where there is no resident PCP. Efficacy, both self-efficacy and community or group efficacy, are important elements of healthy communities. Individuals with strong self-efficacy who are also community oriented are

inclined to hold a mutually dependent self-concept within the community (Ng & Lucianetti, 2016). Stability of the community, based on the generational roots of a number of community members, seems to support a strong self-efficacy.

Albert Bandura based SCT on the shared nature of personal, interpersonal, and social factors that include intellectual, emotional, genetic, interactive, and environmental elements (Bandura, 2000). Each of these factors influences the other elements, is bidirectional in nature, and affects the function of organizations (Scannell & Gifford, 2017). Individuals must possess a strong drive towards and belief in their own personal agency if their actions are to contribute to creative changes in a group, organization, or community (Bandura, 2001; Ng & Lucianetti, 2016; May et al., 2014). This is the foundation for group and community agency, inventive activities, and transformational leadership; it is also the foundation for positive, effective social change.

The strength of family units, deep generational roots in the community, and strong individual efficacy reinforces communications and community efficacy. The various settings within the community in which family members engage increases the ways in which individual efficacy strengthens and where learning takes place through observation of others. New residents of the community in this study seem to be included as members of the community to the degree they want to be part of the community. The exchange of information about an innovation occurs through social networks such as family members, friends, members of groups or communities. An important element of my assessment of the community in this study is a profile of communications within that community.

Any assessment of the potential of positive social change must start within individual communities. No two communities are the same; they are defined by the true

meaning of rurality and place, including the location, population density, cultures, population attributes, health problems, behaviors, local economic strength and concerns, community history, relationships, and resource assets and shortages combine to form the context of each unique rural community (Cummins et al., 2007; Winterton et al., 2014). Positive social change cannot occur in the vacuum of communities as defined by what they are not, rather than through the lens of rurality and place. It is possible that the planners of the CP pilot program in New Mexico simply used the traditional definition of rural and remote communities' perceived deficits. The lack of knowledge about the community of Red River, New Mexico possibly compounded the lack of adequate supervision of the CP pilot program. A pilot program implies a formative iterative process, yet it is evident that is not what occurred. Problems in the adoption of a program that potentially lead to new social change may arise from failing to understand the local community makeup and culture.

The exchange of information about an innovation occurs through social networks such as family members, friends, members of groups or communities, and those who serve communities from afar. As quoted previously, Everett Rogers (2003) wrote, "When new ideas are invented, diffused, and adopted or rejected, leading to certain consequences, social change occurs" (Rogers, 2003, pp. 431-432). For the CP program to be implemented in this remote border community, financial and logistical assistance will be necessary from state and federal governmental agencies such as the Texas Department of State Health Services, Office of Border Health; Texas Division of Emergency Management; Homeland Security; and the Federal Emergency Management Agency (FEMA).

The necessary involvement of state and federal agencies is, in itself, a form of diffusion of an innovation. It has the potential for increasing the diffusion of the CP program and the associated positive social change that has the potential to improve health and emergency care for rural and remote communities, and ultimately, the well-being of the communities and their residents. It carries the potential for wider diffusion of the Community Paramedic program, thereby expanding the scope of the social change beyond a single community.

The design of this formative case study is adoptable for future research in other communities as they consider adoption of a similar CP program, or any other program where community characteristics are important to the design and success of any program or change under consideration. The possibility of social change resulting from this study may extend to the wider policy and governmental levels.

Conclusion

The data in this study indicates that this community has a strong community efficacy, it is adaptable and capable; this is in apparent contrast with the City of Red River, New Mexico, where a pilot CP program failed, as documented in Chapter 2 (Hauswald et al., 2005). There is no intention to imply that the comparison of these two communities through this assessment for the potential of success and sustainability of a CP program means that a CP program could never succeed in a community similar to the City of Red River. A different approach to the design of a program in a transient community is appropriate; adequate oversight of all CP programs is essential. There is no guarantee that the community in this study, or any other community, will successfully adopt a sustainable CP program. My evaluation of the data for this particular remotely

located community on the Texas-Mexico border indicates this community may do well to adopt a program similar to the one that has been so successful in rural and remote Australian communities.

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