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Rural School Nursing in Colorado: New Perspectives

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Rural School Nursing in Colorado: New Perspectives

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Submitted as Partial Fulfillment for the Doctor of Nursing Practice Degree

Regis University

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Abstract

Rural school nurses face the challenge of practicing nursing care in an environment that is not

built around health care. They are often the only person with health care knowledge in the

school, and therefore feel alone. There has been little research into the perceptions of school

nurses related to their experiences. To begin to fill this gap, a descriptive phenomenology dived

deeply into the lived experiences of nine rural school nurses. The nurse researcher conducted

face – to – face interviews with these nurses. One main question related to their experiences and

five sub-questions yielded a wide variety of responses and concerns which were then analyzed

by constant comparative analysis and coded into themes and subthemes. The revealed themes

included: *Children's Multiple Health Issues, Communication Challenges,* and *Unmet Students'*

Needs. The results revealed that these rural school nurses work with children who live in

extreme poverty and homeless conditions, with very few resources available. The children in

these schools have a plethora of acute, chronic, and rare health conditions and face many mental

health challenges. These rural school nurses also revealed challenges in communicating with

children, parents, and other health professionals, and that there are many unmet student needs

because of missing resources and lack of time.

Keywords: DNP Capstone Project, Poverty and Homelessness, Communication Challenges,

Unmet Students' Needs.

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I would not be here now if it weren't for each and every one of you.

In loving memory of Tommy.

Rural School Nursing in Colorado: New Perspectives
Executive Summary

Problem
Rural school nurses face unique challenges. They provide health services for students with a myriad of physical and mental health challenges and are sometimes large distances from local health care. They are often in the schools only a few hours per week and rely upon trained co-workers to care for the health issues in their absence. Changes in student population because of diverse families who have moved into the area seeking new farming opportunities have further increased these challenges. There is a need to better understand their perspectives and lived experiences with the purpose of supporting them in their vital roles to the health of our children.

Purpose:
The purpose of this study is to determine school nurses' perceptions of the experience of working with diverse children and families in rural southern Colorado. By increasing this understanding, there may be opportunities to better support these school nurses, which will in turn increase quality of student health.

Goal:
The goal of this study is to increase the awareness of the challenges rural school nurses face, and to leverage this awareness into better funding and support for these nurses. This will in turn translate into better care for the children who live in rural areas.

Objective:
To conduct in-depth interviews of school nurses to improve care for children and families in rural southern Colorado.

Plan:
The plan utilized a descriptive phenomenological study and analysis of interviews with nine rural school nurses.   The interviews consisted of one main question with five loosely structured sub-questions which were probed for depth and clarification, and demographic information. The findings were analyzed into themes and subthemes using constant comparative analysis.

Findings:
The important findings of the study of rural school nurse perspectives are that: 1) The children in rural schools face a wide array of health issues including physical, mental, and socioeconomic. 2) Rural school nurses face many communication challenges with parents, students, teachers, aides, social services and administrators. 3) Unmet student needs, from the nurses' perspectives, include resources e.g. money, services, and access to health care, time that the nurses are able to spend at their jobs, and the nurses' needs for further education and knowledge about their jobs.

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Rural school nurses face unique challenges. Rural school nurses are set apart from urban

school nurses in that rural schools are a "…distance from the nearest urban/urbanized area, and

having a student enrollment of approximately 6,500 students or fewer. Small rural districts are

those districts meeting these same criteria and having a student population of fewer than 1,000

students" (CDE, 2017; Hammond, 2013). Rural school nurses share essential responsibilities

with school nurses in urban areas that are essential to the health and wellbeing of the children in

their care (Bergren, 2013, NASN, 2017). These responsibilities include state mandated

immunization tracking, health screenings, oversight of students and staff with chronic and

special health needs, care of acute illness and injury, emergency preparedness, and educational

offerings within the schools (NASN, 2017; Ramos, Fullerton, Sapien, & Bauer-Creegan, 2014).

In rural areas, however, access to health care, healthy food, and other services is reduced thereby

placing students at an immediate disadvantage (Mills, Francis, & Bonner, 2007; Ramos, et al.,

2014, 2014; Rew, Arheart, Horner, Thompson, and Johnson, 2015). Likewise, these issues are

compounded when the children are among those typically underserved populations of Hispanic,

Black, members of the LGBTQ community, homeless, and poor (Canfield, 2014; Parasuraman,

and Shi, 2015; Peterson, Sheffer, Roth, Bennett, & Lloyd, 2010; Ramos, et al., 2014; Rew, et al.,

2015).

The state of Colorado has 500 school nurses (CDE, 2016). Of these, 154 school nurses

work in rural or small rural schools (Hammond, 2013). Major changes have occurred in rural

schools in southern Colorado. The population now includes more diverse children and families

with a variety of occupations (DOLA, 2015). By diverse, it is meant that the children moving

into the schools are not only of different ethnicity and socioeconomic status, but many are

coming from different areas of the country and are living different lifestyles than those children who are from long-established families. The new industries, particularly in solar energy (Avangrid, 2017) and farming (Alamosa, 2017; McGhee, 2015), are bringing diverse families into these rural areas. Many are poor and/or technically homeless with behavioral issues and health issues such as uncontrolled diabetes, asthma, obesity and lack of adequate nutrition, housing, and water (Clausson, Berg, & Janlov, 2015); Cornish, Askelson, & Golembiewski, 2016; Peterson, Scheffer, Long Roth, Bennett & Lloyd, 2010; Rew et al., 2015). Compounding this is a lack of available health services or transportation to health services in rural Colorado (Parasuraman & Shi, 2015). Distances can be as great as 80 miles to the nearest grocery stores or doctor's offices/pharmacies. Rural school nurses are on the front lines of health care for these children and families in rural areas but there is very little research about how they are meeting the health needs of this changing population (Ramos, et al., 2014). This study proposes to explore the experience of rural school nurses who work with diverse children and families in rural Colorado.

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Problem Recognition and Definition

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Statement of Purpose

The purpose of this study was to determine school nurses' perceptions of the experience of working with diverse children and families in rural Colorado. The outcome will support greater understanding of the issues facing school nurses that deal with changing demographics of students, and limited opportunities to impact health outcomes for the children they work with and their families. The study will inform other school nurses, school administrators and community members about issues of working with a diverse and changing population in the rural area.

Problem Statement

Rural counties in southern Colorado have always relied upon farming and ranching and a small amount of tourism for income. These counties have recently experienced an influx of diverse families that have been drawn to the area because of new farming opportunities. These families become identified through the school systems that serve their children's educational needs. Rural school nurses are seeing a variety of health problems from the children of these families. School administrators, teachers, and counselors attempt to deal with these changes and support school nurses in providing optimal care to children and families. In order to assess how to provide the best care and the students' needs, it is proposed to gain perceptions from school nurses on the front lines of care of diverse children and families in the rural area.

PICO

This study was an evidence-based practice (EBP) project in which the perceptions of school nurses were explored. It followed the PICO format for the research question. PICO stands for: Population of interest (P); Intervention or phenomenon of interest (I); Comparison (C); and Outcome (O) (Houser and Oman, 2011, p. 132). For the purposes of this study:

- **P** = Nurses

- **I** = working with diverse children and families in rural southern Colorado

- **C** = none

- **O** = perceive their experiences as a school nurse

Research Question:

"How do nurses (P) who work with diverse children and families in rural southern Colorado (I) perceive their experiences as a school nurse (O)?"

Project Scope, Significance, and Rationale

Project Scope: This was a quality improvement project focused on a specific issue related to demographic changes occurring in rural southern Colorado. The perceptions and lived experiences of the school nurses in rural southern Colorado were explored.

Significance: There is a lack of understanding about rural school nursing and the changing demographics in the rural area. This study increased awareness of the perceptions of the nurses who are working in rural schools to improve care for children and families.

Rationale: School nurses working in rural areas are on the front lines of working with diverse children and families and experience the issues related to care of this population. Better understanding of the experiences of these school nurses will help bring about changes to better serve children and families.

Theoretical Foundation

The conceptual framework which was applied to this project was Roy's Adaptation Model. Polit and Beck explain this theory as "humans are viewed as biopsychosocial adaptive systems who cope with environmental change through the process of adaptation" (2017, p. 147). By applying the key concepts of person, health, environment and nursing one can answer questions such as "who is the focus of nursing care"; "what is the target of nursing care"; "where is the nursing care needed", and "when is nursing care indicated?" According to Roy's model, a person is a bio-psycho-social being who is in constant interaction with a changing environment. This theory is appropriate for this project because it not only addresses individual coping and adaptation, but it also addresses family and community system abilities to adapt.

The *Framework for 21st Century School Nursing Practice* (NASN, 2016) is the ideal nursing framework for this project because it is the guiding framework for all of school nursing. The student is the center of the model and is thus the center of all school nursing care. The

purpose is to guide school nurses to support student health and academic success by ensuring a safe and healthy school environment. Through Care Coordination which includes case management, chronic disease management, direct care, education delegation, and interdisciplinary team participation, the nurse is able to impact the student's health. Leadership involves advocacy, policy development, being a lifelong learner, using technology, and enhancing professionalism to strengthen the learning environment for the students. Quality Improvement uses the concepts of Continuous Quality Improvement, documentation and data collection, evaluation, performance appraisals and research to ensure student safety and the use of most current practices. Community/Public Health refers to ensuring students access to care, cultural competency, evaluating and strengthening environmental health, utilizing the concepts of Healthy People 2020, population-based care and surveillance. All of these are tied together by the Standards of Practice for school nurses, which ensures clinical competence, provides clinical guidelines, provides a Code of Ethics, and recommends evidence-based practice.

Literature Selection

A search conducted on-line through CINAHL and Medline using the keywords "rural school nurs*" yielded 693 articles. By adding the Boolean modifier AND with "children", the number was brought down to 243 articles. Key words "diverse children and families" AND "rural health" yielded 26 articles. "Children and families" AND "rural" AND "school nurs*" yielded 22 articles. Because of the relatively low number of articles no further modifiers were used, although articles were chosen from only those published in the United States. Articles were selected from those that most pertained to the experiences and perceptions of rural school nurses who work with diverse children and families. The Regis research librarian, fellow nursing students and a nursing professor also suggested several articles that were considered.

Scope of Evidence

Utilizing Melnyk and Fineout-Overholt's Seven Tiered Levels of Evidence (Houser and

Oman, 2011, p. 141) the 23 chosen articles fell into the following categories:

Level II – evidence from a randomized control trial – 1

Level III – evidence from controlled trial without randomization – 1

Level IV – evidence from case-control and cohort studies – 13

Level V – evidence from a systematic review of literature – 1

Level VI – evidence from single qualitative study - 6

Level VII – evidence from expert opinion – 1.

Review of Evidence

Background of the Problem

The National Association of School Nurses (NASN) identifies school nursing as a

specialized branch of public health nursing that promotes and protects the health of school aged

children by bridging the gap between health care and education (NASN, 2017). It is their

position that "every school – aged child deserves a school nurse who is a graduate of a

baccalaureate degree program from an accredited college or university and licensed by that state

as a registered nurse" (NASN, 2007). However, the NASN 2007 report of a quantitative study of

school nurse availability across the nation states that only 41.3% of schools have a full time RN,

and that the national ratio of students to nurses is 1,151:1.

School nurses in the state of Colorado must be highly qualified and educated at the

baccalaureate level, and must hold a Special Service Providers license from the Colorado

Department of Education (CDE) to legally manage the health aspects of students who have an

Individualized Education Plan (CDE, 2010). In addition to students who have Individualized

Education Plans, some students require Individualized Health Plans. These plans translate acute and chronic condition physician orders into terms that can be carried out safely within the school environment (NASN, 2017). It is the nurse's job to create the plan from the physician orders and then train and delegate the student's care to the appropriate school personnel if the nurse will not be available to personally carry out the care plan. Jones (2011) stated that in rural areas where school districts are smaller than the 750:1 ratio nurses are often assigned to more than one school which may result in hundreds of miles of driving between schools per week. When school budgets get tight, school nurses are often among the first positions to be cut.

The area to be studied in southern Colorado is comprised of six counties (SLVAHEC, 2010). The entire area is considered to be frontier/rural, with three of the counties averaging less than six people per square mile (Public Health Partnership San Luis Valley, Colorado website, 2015). These counties contain fourteen school districts with a total student population in the 2015-16 school year of 7723 students from Kindergarten through 12th grade (CDE, 2016). Between these schools, there are 13 nurses. However, only seven (50%) of the school districts claim to have a CDE licensed school nurse available to the school for a full day when students are present (CDE, 2016). CDE (2016) also reports that five of the districts have no nurse at all, and two have nurses who are available only part-time.

Systematic Review of the Literature

Many articles have been written about the tasks and job responsibilities of school nurses. These apply regardless of the urban or rural location of the school. Compilation and tracking of immunization status is a common task. School nurses manage immunization records and must report to the state vaccination and exemption rates. This process involves reconciling parent reports with electronic immunization tracking systems. It falls to the school nurse to educate

parents, administration, teachers and students about the importance of vaccine coverage and enforcement of exemption rules when disease outbreaks occur (Peterson et al., 2012). Luthy, Thornton, Beckstrand, Macintosh, and Lakin, (2013) discuss the importance of immunization in the adults surrounding students at school and the school nurse's ability to affect this protection by offering vaccines to school workers. Vaccine clinics offered by school nurses have also proven effective when a disease outbreak has occurred, as in 2009 with the H1N1 outbreak (Cho, et al. 2012).

Health screenings are a primary function of school nurses. Vision, hearing, height, weight, and blood pressure (and in some states, scoliosis) are routine screenings done at intervals specified by individual states and by NASN (2017). Screenings for obesity (Stalter, Kaylor, Steinke, & Barker, 2011); and Type II Diabetes risks including obesity and Acanthosis Nigricans, particularly among Hispanic students (Peterson, et al., 2010), and (Kopping et al., 2012) are specific examples of the importance of this aspect of a school nurse's role.

Students with special needs often have health issues that require a nurse to supervise their care. Kruger, Toker, Radjenovic, Comeaux, and Macha (2009) discuss the importance of having a nurse readily available when students with high-acuity needs are at school or when the school has a large number of students with special needs. Hill and Hollis (2012) indicate that teachers feel their special needs students are much safer at school when a nurse is present on-site.

School nurses also play an important part of health education within schools. Rew, Arheart, Thompson, and Johnson, (2013); and again in 2015 (Rew, et al., 2015) did a longitudinal study that followed students through middle and high school, and evaluated changing health protection attitudes among the students studied. Commendador and Flood (2016) described how teaching students about health care skills can translate into better overall

understanding of health in the community. Yoder, Preston and Forti, (1997) discuss the importance of the school nurse to the school community in understanding HIV/AIDS. It is the nurse who has the health expertise to translate their knowledge of disease processes into terms the school personnel can understand.

Although often considered to be the prevue of school counselors and social workers, the mental health needs and protection needs of students often fall to the school nurse, especially in rural schools. School nurses often meet with students about sexual health issues. Haley, Puskar, Terhorst, Terry, and Charron-Prochownik, (2013) studied condom use among teenagers and the students understanding of birth control and sexually transmitted diseases. School nurses are also in position to identify, evaluate and report physical abuse and neglect and sexual trafficking of youth (Grace, Starck, Potenza, Kenney, and & Sheetz, 2012). Students trust their school nurses with issues of depression (Puskar, Grabiak, & Ren, 2011), homelessness and vulnerability (Villalba, 2011), and look to the nurse as a point of contact into the mental health system (Wilson & Usher, 2015).

Mills et al., (2007) addresses the challenges rural nurses face living and working in the same communities. They stress that understanding of the challenges of the area need to be held in context. With this considered, the economic base for region of concern is almost entirely composed of agriculture and tourism (SLVAHEC, 2010; Southern Colorado Guide, 2017). There is very little industry. The traditional cash crops have been potatoes, barley, wheat, alfalfa, and vegetable crops of spinach, lettuce, and carrots (Southern Colorado Guide, 2017). The farms that grow this produce are predominantly worked by seasonal and migrant farm workers (SLV Immigrant Resource Center, 2017) who are in the area from April through September only. This, combined with an abundance of inexpensive land for sale (McGhee,

2015) has caused an increase in the area's homeless population, as defined by the McKinney-Vento Education of Homeless Children and Youth Assistance Act. This states that homeless people are those "individuals who lack a fixed, regular and adequate nighttime residence" (State of Washington Office of Superintendent of Public Instruction, 2016, para. 2). The definition goes on to explain that this includes shared housing, trailers, campers, cars, tents, shelters, and migrant-type housing that otherwise fits the preceding criteria. The six-county area report for the 2014-15 school year indicates there are 434 homeless children, by this definition ("KIDS-Count," 2016), attending school in this region. In one district, McGhee (2015) reports that the school which normally has approximately 200 students grew by 28. Within this district, special class time has been carved out of the day to allow these students to shower, learn and perform oral hygiene, and access laundry facilities. School counselors and the school nurses have written for grant money to assist with providing food and basic health care access for these students (personal communication, L. Smith, October 30, 2015). CDE (2016) data shows that overall in two years, the school population for the SLV has grown by 195 students, 165 of which are technically homeless (84.6%). Some of this homelessness is linked to increasing sales of cheap land in counties that do not have building codes. Even though residents are "supposed" to put in septic and drill water wells, they do not or cannot afford it, and therefore live "off-the-grid" (Walker, 2017). Canfield (2014) and Ramos, et al. (2014) discuss the increase of behavioral issues and mental health among rural and highly mobile and homeless children. Ramos, et al. (2014) and Rew, et al (2015) highlight complications from uncontrolled diabetes, asthma, and obesity as being more common in rural children, partly due to lack of access to health care. Much of these rural areas are considered "food deserts" with inadequate access to fresh fruits and vegetables, running water, and healthier food options (Cornish, et al., 2016).

Buckley, et al., (2012) addresses issues specific to rural areas by discussing the need for increased funding for continuing education of school nurses in light of increased focus on preventive health. The need for better educational opportunities for rural school nurses is also addressed by Ramos, et al., (2014), who specifically support better on-line access to continuing education for rural school nurses; Gray, (2014), who recommends utilization of book studies for furthering education and networking; and Winkelstein, et al., (2009), stating that continuing education for school nurses in the arena of Asthma care translates into better Asthma control in the students. These issues become even more important when one considers some of the above listed challenges in providing care that rural school nurses face.

Project Plan and Evaluation

Market/Risk Analysis

Wang, et al., (2014) Discussed a project in Massachusetts which looked at the cost-benefit of school nurses. The numbers were based in the 2009-2010 school year and dollar amounts were adjusted for 2009. Program benefits were estimated by looking at the costs of medical procedures, lost teacher productivity when having to deal with ill children, and lost parent productivity when having to leave work to care for an ill child or administer a medication at school. When taking all the costs into account, it was learned that for every dollar spent, the benefit to society was $2.20.

Unfortunately, since school nurse positions are typically funded with education dollars, and when budget cuts occur, the school nurse position is likely the first to be reduced or cut, as most states still do not mandate a school nurse in every building.

Although on the surface, it would appear that cutting back on school nursing services might save the school money up front, the overall cost is great. If a school nurse becomes

dissatisfied with their job, due to lack of hours and/or competitive salary, lack of administrative

support, or lack of adequate continuing education and state support, the school district may be in

a difficult position. The law in Colorado states that every district must have a BSN prepared

nurse, however in the rural areas, the school salaries are not competitive with other health care

salaries, and therefore nurses are not drawn to schools as a career choice. When children have

not had adequate health care as children, they then require more health services as adults which

further drains the system

Project Strengths, Weaknesses, Opportunities, and Threats

This project had strengths. The study gave in-depth information about rural school

nursing that will benefit other nurses at local, state, and national levels. Information will be

shared with educators, other school nurses, school administrators, and community members.

Weaknesses of the doctoral project included the need to interview nurses at long

distances. There were large distances that required driving in remote areas to conduct the

interviews. The participants needed to be available for a one-hour long interview.

The opportunities from this project are many. The rural school nurses had the

opportunity to share their experiences which has the potential to improve the care of diverse

children and families. This information may support the need for increased resources to assist in

the care of children and families.

Possible threats to this study included the participants being uncomfortable to share their

feelings and experiences. There may have been less than the desired number of participants

willing to engage with the researcher.

Driving Forces/Restraining Forces

The driving forces for the project were support from the school nurses who work with this new diverse population, and school nurse mentors who work with the school nurses. School superintendents were in support of finding ways to better provide services to these students.

Restraining forces were that participants needed to dedicate the time to participate in the interviews, and school nurses' time is limited already. The strategies for addressing these restraining forces were to offer the opportunity to meet away from the school in order to limit interruptions and assuring efficiency of time.

Need, Resources, and Sustainability

The need of this capstone study was to understand the perceptions of rural school nurses as they deal with changing demographics and diverse populations. Study participants shared their challenges and viewpoints.

The resources required by this capstone project were the time of the researcher to interview, transcribe the interviews and code the resulting data for themes. The school nurses also had an expenditure of time. Fuel for travel between remote schools was needed. The personnel involved were the participants, researcher, transcriptionist, nurse mentor and capstone chair.

Sustainability of the doctoral project will be accomplished by providing the results of the study to the participating nurses, other rural school nurses, educators, school administrators and community members. Results will also be shared with school nurse advocates at the state level. Opportunities to share results through publication and conferences will be sought. The need for follow-up study will be analyzed. Policy and resource management changes based upon the study findings will contribute to the sustainability of the study.

Feasibility/Risks/Unintended Consequences

This study's feasibility was determined by the readiness of participation of the school nurses who were interviewed. As the principles of autonomy, beneficence and non-maleficence must be kept in mind, at all times, by researchers (Terry, 2015), subjects were given the ability to stop participating at any time without fear of consequence. The only anticipated risks in this qualitative study came from the time allotment for the interviews themselves, and the possibility of minor upset, given that lived experiences and emotions were discussed. Since this geographic area is isolated and self-contained by physical barriers, there may have been some anticipated fear by subjects that their comments could be identified and traced back to them. In order to assure the nurses of anonymity, there were no district identifiers utilized and any demographic data was only be displayed in aggregate form. The study itself was conducted by an interview following a loose script and then the gathering of follow-up information as evaluation of the results progressed. The project was an expedited approval through Regis University IRB.

Stakeholders and Project Team

The stakeholders for this capstone project were the school nurses who were interviewed, as well as all school nurses. Other stakeholders included the CASN and NASN organizations, and school administrations, the students and families. The project team consisted of the nurse researcher and capstone chair. The nurse mentor was a consultant.

Cost-Benefit Analysis

There were no identified costs to the school nurse participants beyond the time committed to face – to – face interviews. Costs to conduct the project included fuel expenditures for travel to remote schools for interviewing the school nurses. Interviews were recorded on a digital recording device and stored on computer files. There was a cost for transcription. Anticipated benefits of the study will come from the perceptions of the interviewed nurses and

understanding of their work. Another anticipated benefit will be from the feedback available to school administrators gleaned and presented in an unthreatening manner.

Mission and Vision

The mission of this project was to improve the nursing care of diverse children and families by school nurses in rural southern Colorado. The vision wss to increase understanding of the perceptions of rural school nurses who care for children and families through in-depth interviews.

Project/Outcome Objectives

The project timeline and outcome objectives were:

- IRB approval and permission from school administrators by August 20, 2017.

- Interviews of school nurses completed by December 31, 2017.

- Interview transcription and data analysis and coding done by March 31, 2018.

- Final Capstone Project presentation to committee April 30, 2018.

The project objective was to conduct in – depth interviews of school nurses to improve care for children and families in rural southern Colorado.

Logic Model

The logic model for this Capstone project showed resources/inputs, activities, outputs, short- and long- term outcomes, and impact (see Appendix B.). Resources/inputs included access to the school nurses as well the interview questions, and time to complete the interviews. Activities included the interviews, transcription, analysis and coding of results and the compilation of the results. Outputs included the emergence of common perceptions of rural school nurses and themes/subthemes. Short-term outcomes included plans for dissemination of the results to the school nurses and administrators locally and through conferences and

publication. Long-term outcomes included forecast improvement of resources into the schools for health programs. The forecast impact will be the increase of time for school nurses to positively impact student health.

Appropriate for Objectives and Research Design

Exploring perceptions of school nurses about their experiences required a qualitative research design. Phenomenological studies seek to garner the lived experiences of the subjects and to explore all the emotions and factors tied to their experiences (Terry, 2015). Matua and Van Der Wal (2015), explain that this approach allows the researcher to look for hidden meanings within the subject's stated experiences. In a descriptive phenomenological study the researcher has bracketed her biases and set them aside (Terry, 2015). This approach allowed the nurse researcher to avoid biasing the study.

Population Sampling Parameters

There were twelve rural school nurses drawn from the schools of the San Luis Valley. They were all offered the opportunity to participate. This was a purposive sample that had the following inclusion criteria: it was necessary for the rural school nurses to have worked at least two months in the school district where they were serving and that they were either ADN or BSN prepared RN's. They could be of any age or gender. It was also necessary that they speak and read English in order to be able to review the transcripts for accuracy and to give informed consent. In a descriptive phenomenological study using in-depth interviews, six to ten participants is an ideal sample size (Morse, 2000), until saturation is met. Recruitment of the study subjects entailed first gaining permission from the administrators of the schools to interview the nurses. To accomplish this, school administrators were first approached at a joint meeting and then individually. Each administrator provided a letter giving permission for the

researcher to contact the nurses. The nurses were then approached initially via e-mail, which

explained the full intent of the project, informed consent, and any inherent risks. They were then

contacted by phone to schedule interview times. Before the interviews, participants signed

informed consent forms for the interviews and audio recording.

Appropriateness of the Setting for the EBP Project

The interviews were conducted in the most convenient places for the participants which

included sites away from the workplace for four of the participants and at the school nurses'

place of work for five of the participants. The setting was private and appropriate for face-to-

face interviews.

EPB Design Methodology

This project utilized a descriptive phenomenological design. Terry (2015) discussed that

this type of study is best utilized when gleaning lived experiences of the subjects. It also

brackets the researchers' experiences and acknowledges them, but sets them aside so they do not

influence the subjects' responses or the interpretations of the responses. The researcher

interviewed the subjects related to their experiences of working as school nurses in rural areas.

Protection of Human Rights

Permission was gained from all school administrators before approaching the school

nurses for participation. The nurses were then approached initially via e-mail, which explained

the full intent of the project and any inherent risks, and then by phone to schedule interview

times. Agreement to schedule an interview constituted initial informed consent. As the

principles of autonomy, beneficence and non-maleficence must be kept in mind at all times by

researchers (Terry, 2015), subjects were allowed to withdraw from the study at any time for any

reason without fear of retribution. The only anticipated risks in this qualitative study came from

the time allotment for the interviews themselves, and the possibility of minor upset, given that

lived experiences and emotions were to be discussed. Since this geographic area is isolated and

self-contained by physical barriers, there may have been some anticipated fear by subjects that

their comments could be identified and traced back to them. In order to assure the nurses of

anonymity, there were no district identifiers utilized and any demographic data was only

displayed in aggregate form. The study itself was conducted by an interview following a script

and then gathering of follow-up information as evaluation of the results progressed. The DNP

researcher successfully completed the required modules of the CITI 'Human Research

Curriculum' as presented by Regis University on 2/17/17, record #22340408. IRB approval was

obtained from Regis University IRB.

Trustworthiness

Trustworthiness was addressed in this study through measures of credibility,

confirmability, and transferability. Curry, Nembhard, and Bradley (2009) describe these

concepts in the following way. Credibility can be seen as the extent to which the results explain

the question, how well those results agree with that which is already known, how well the

transcription agrees with the intent of the interviewee, and the extent to which other explanations

might be considered. Confirmability is the process of minimizing bias. An expert qualitative

researcher reviewed the research process and coding through a peer review process. For the

purposes of this study, the risk of researcher bias was minimized by the use of bracketing.

Transferability is the degree to which the results can be used in other similar settings and

expanded to other areas. A journal audit trail was utilized by the research team and reviewed for

items of note. Credibility was addressed through member checking which allowed the

interviewees to read their transcribed responses for accuracy. The results of this study are not

generalizable or transferable.

Data Collection and Study Protocol

Data was collected through face-to-face interviews and by asking open ended questions

in a semi-structured manner. Questions probed the nurses' perceptions of the students with

whom they work and the health challenges faced by these students and families. The school

nurse's experiences, typical activities, and challenges were explored. The data collection ended

when no new themes or ideas emerged. The interviews were transcribed after completion. The

transcriptions were read multiple times and thematic analyses were done – beginning with

coding and the development of themes which expressed the findings of the study.

Demographic data was collected related to the nurse and the school district by asking:

How many years have you been a nurse?

How many years have you been a school nurse?

How many schools do you serve and how long are you at each school?

What is your degree level of schooling? (ADN, BSN)

What professional organizations do you belong to?

The primary research question was:

What is the experience of working as a rural school nurse with diverse children and

families in your school district?

Sub-questions included:

Describe the children and families that you care for in your role as a school nurse?

Describe the types of health care issues you deal with?

Describe your activities as a school nurse in a typical day?

What are the most challenging parts of your role as a school nurse?

Responses were probed for detail.

Data Analysis

Analysis of the data was completed by transcription of recordings and read multiple times

by the researchers. The data was coded for themes using constant comparative analysis. Themes

and subthemes were reported using quotes from the participants.

Project Findings and Results

Demographics

The final sample for this study was comprised of nine school nurses in Southern rural

Colorado. Seven of the nurses were BSN prepare and one had a master's degree. There were

two ADN prepared nurses. Years working as a school nurse varied from two months to 37 years,

with the majority having worked two to three years in school nursing. Overall nursing

experience varied from three to 39 years, and all but two had current professional organization

memberships. The numbers of schools served by each nurse were as follows: three nurses

covered one school each, one nurse covered two schools, one nurse covered three schools, three

nurses covered four schools, and one nurse covered five schools. Three main themes with sub-

themes were revealed in the data. The themes include *Children's Multiple Health Issues,*

Communication Challenges, and *Student's Needs* and are presented with the themes in the order

they were revealed in the data.

Children's Multiple Health Issues.

A variety of children's health issues were at the forefront of what concerned school

nurses. The theme of *Children's Multiple Health Issues* included the three subthemes of *Nurses'*

Efforts to Help Children in Poverty, Children's' Physical Issues, and *Children's' Mental Issues.*

Nurses struggled to provide the best outcomes for children and schools they served.

Nurses' Efforts to Help Children in Poverty.

Nurses expressed how poverty affected children in their school districts. One stated: "I think we [the school district] are [dealing with] around the range of 40% poverty…so, we have a lot of kids with a lot of needs." Another stated: "I mean the economy is booming but not for these families." Another nurse corroborated this by saying: "...there's at least 30% of our kids here that still, deal with hunger issues and money issues and need extra resources..." and "We have 100% free and reduced lunch rate." The viewpoint of the participants was summed up as

> When children don't have their basic [needs]… shelter, food, water, those kinds of
>
> things… I think it makes learning incredibly difficult.

Homelessness particularly impacted the children's needs according to the participants. Children were described as lacking basic needs. A nurse described a student as "using a bucket for toilet facilities and then these kids show up at school covered in bed bugs." Others were aware of children who "actually sleeping in a tent," "some … sleep on whoever's couch," and "[they] live in a camper in the trailer park...so they are considered homeless." One nurse stated:

> We have some kids that are like poor, poor, poor, that don't have coats, you know. All of
>
> our kids get free lunch and breakfast... those are the kids that we see, that actually shower
>
> at school.

Other nurses reported problems with students' hygiene stating;

> ...we've literally had classes on how to shower. And that's, that's kind of sad in
>
> America" and "[we] have a lot of kids who shower at school because they don't
>
> have running water at home.

Children also were described coming "to school with no coats, … they don't have proper

clothing, [or] proper shoes." Another nurse described a "little girl that has a pair of boots

that I think are her sister's."

School nurses working with the children in these difficult circumstances became creative

in assisting the children. One stated

> … this one little girl, it took me an hour to get the knots out of her hair the first time I did
>
> her hair. So now she comes in every morning and I do her hair...I'm working on getting
>
> [her] a haircut because I don't know the last time she had a haircut. So, her hair is really
>
> frayed.

Other statements by the participants confirmed how nurses provided services to children at

school such as "doing their laundry." The nurse when on to say:

> I asked for a washer and dryer in my office so that I can wash clothes for the
>
> kids," …[the kids are] left to depend on the school to help them eat and shower
>
> and learn basic hygiene.

Nurses were even willing to contribute their own funds to assist families in care of

children in poverty. A nurse stated:

> A group of us got together and donated a bed to a family, then we went on a home visit
>
> [and found] they didn't even have a bed in the house.

Children's Multiple Physical Issues.

Many *Children's Physical Issues* were identified by the participants. This sub-theme

included typical childhood illnesses and injuries such as: "flu-like illnesses," "nausea, vomiting,

headache," "fractures," "impetigo and pinkeye," "concussions," "lice," "bedbugs," "coughs

[and] colds." The nurses also expressed that children had chronic illnesses. They reported having

to manage "asthma [and] asthma care plans," including helping children with "inhalers" and

dealing with parents who did not "...want to… divulge it or say that their child had asthma."

Other students had chronic illnesses such as diabetes. One nurse stated:

> I have one diabetic kid that's pretty out of control, so I see her quite a bit...She's the one
>
> that can't get to Children's, so we're trying to help her manage locally, and it's, it's been
>
> a struggle.

Other chronic illnesses that nurses managed included "migraines," "seizures," "spina bifida,"

"congenital issues," "severe hearing deficits," "morbid[ly]obese," "cerebral palsy," "partial

blindness," "thrombocytopenia," and "autism." Children were also noted to have a variety of

allergies to "foods," "peanuts," and "tree nuts," some were reported to have had "anaphylactic"

reactions.   School nurses also reported that they were responsible for students who required

"tube feedings" and to be "cath'd." Some students had "ADD [Attention Deficit Disorder" and

"ADHD [Attention Deficit Hyperactivity Disorder] and were given meds at school."

Rare childhood illnesses were also reported such as "propionic acidemia," and

"Hirschsprung's disease." Nurses cared for students with "hydrocephalus," "celiac disease," and

"incontinence issues at older ages [with]bathroom schedules."   One nurse reported a student

with "arthritis [who was] getting shots every day." Many health issues related directly back to

children living in impoverished conditions. A nurse reported "… a second grader [was taken]to

the ER for carbon monoxide poisoning because they [her family] were trying to heat their

camper with a gas heater and closed the windows."

Children's Mental Health Issues.

The sub-theme of *Children's Mental Health Issues* emerged from the nurses who stated

that they dealt with many diagnosed and undiagnosed children's mental issues. They shared that

there were students who had "diagnosed depression," "schizophrenia," and "bipolar disorder."

There were many students who had "behavior issues" and "a lot of anxiety." One nurse stated,

"… I say mental illness is an underdiagnosed problem in the schools." The nurses also described

some serious mental issues of the children that they faced. A nurse described a situation where

"[a student would] come into the office with either attention seeking suicide threats or real

suicidal behavior." There were reports of children being "totally neglected" both physically and

mentally. A nurse described:

> ...that [abuse] is a huge problem, and [it is not] just the kids that …..we have identified or
>
> that have come forward with stories of abuse, … [it] makes me think about all the kids
>
> that aren't saying anything.

Nurses reported that they were aware that students were going through difficult situations at

home. A nurse said: "I know a lot of them have some rough stuff going on at home and

sometimes they just need a break," and "they just lack really good coping skills." There were

reports of "divorce to homelessness to severe, you know, family issues." One nurse reported

serious family issues, including:

> …not only a lack of parenting, but like, …some serious mental illness involved
>
> too, and addiction, a lot of addiction, a lot of abuse, and just drug abuse and
>
> alcoholism, domestic violence, you know that come along with that.

Addictive behavior by parents was of concern to nurses. Not only were parental drug problems

evident but children were reportedly "coming to school smelling like pot." One nurse reported

that:

> Starting in fourth or fifth grade, [teachers say] they can't even start teaching their
>
> lessons until after noon when the pot wears off from the night before... but it's

hard to address [the issue with the students] because their parents are growing

[marijuana] and their parents are promoting it.

Communication Challenges.

Three sub-themes were identified under the category of *Communication Challenges*.

These included *Challenges Communicating with Students*, *Challenges Communicating with*

Parents, and *Challenges Communicating Inter-professionally*. The participants shared their

perspectives.

Challenges Communicating with Students.

The sub-theme of *Challenges Communicating with Students* was revealed by school

nurses who stated that they were expected to not only deal with physical health issues of

students, but they often took the role of counselors. Nurses were concerned that they were

expected to assess and make recommendations for children's major injuries and illnesses that

they did not feel trained or licensed to handle. A participant reported:

> You are kind of like this primary person in these kids' lives ... where you see
>
> everything. Like you're there for their emotional parts. You're there for their
>
> physical ailments... and... you're a counselor, you're a nurse, you're [a] friend,
>
> you're an educator.

Another nurse noted that "...kids come to me [for help] and their parents use me as their primary

care doctor..." One nurse stated that the school nurse's office is "...like a mini ER or mini

convenient care."

Challenges Communicating with Students also included that children often

expressed to the nurse that they were sick but were actually experiencing other issues

causing them to feel that way. One nurse described the nurse's office as "...a safe place

to unload things." Another stated, "I feel like the nurse's office is a place for kids when they are having a bad day or when they've got something else going on." A participant described her role in deciphering student communication,

"... the first thing [I see about my role] would be seeing, [and] triaging students that say they are sick. So, [my role] is just determining whether they're actually sick or not."

Challenges Communicating with Students also included that school nurses sometimes felt "stuck" trying to communicate about health issues and recommending solutions when the children did not have access to resources in their environment. This was revealed in the words of a nurse working with a child with diabetes,

"...so I'm working with her on diet, what's appropriate snacking and... it's hard because she has no fruits and vegetables in the home. You can only eat what mom buys, so if that's a bag of Tostitos, that's what you eat."

Challenges Communicating with Parents.

The sub-theme of *Communication Challenges with Parents* was revealed as the participants described difficulties communicating with parents. Although many parents were attentive when reached to by the nurses, there were a variety of parental life experiences that impacted communication. Some of the issues included children living with grandparents. One nurse said:

A lot of kids are staying with grandparents [and] that parents are out of the picture… I think a lot of it is ...drug related history for parents and so the grandparents are taking care of the kids.

Another issue affecting nurses' communication with parents was the parents' inability to

leave work to pick up a sick child. An example shared by one participant was:

> [The child has] a single dad and he's got four kids, [and he] works ...30 miles
>
> away and his daughter is diabetic. And he can't get her to her appointments so
>
> she's not getting really the full care she needs as a diabetic.

Parental situations that affected communication included that "both parents work, so if

the kid gets sick, it's a struggle to contact them and to have them leave work, because if

they leave work they lose pay." Another communication challenge had to do with

parents' cellphones not working or "they share a cellphone with a family member."

A nurse stated:

> Sometimes there's so much lack of parenting, [and] lack of education on the
>
> parents' part…and parents just aren't informed at all and they're just trying to get
>
> by themselves.

The issue of divorce also affected parenting. One nurse stated

> [There are] a lot of split homes too, parents are not together anymore, they're
>
> divorced so [the kids] go from one house to the other. Sometimes it's hard to
>
> keep up with, like, where they're at or their medication doesn't always follow
>
> where they need to go.

Participants stated they were constantly dealing with a mixture of responses from parents

contacted them about their children. Some parents responded quickly with concern but others

were slow to respond or would not return needed paper work to initiate care for their child. A

nurse noted: "We have a mixture, you know, of parents." One nurse stated

...it may take me a long time to just get that paperwork out of the parents...I just end up

having to make do and…sometimes that's really stressful because it technically puts my

license at risk and the liability of that but sometimes, you know, if it's between the child

actually carrying their inhaler and not having the paperwork, you know, you just try to do

what you can until you get it.

In some cases, the nurses were discouraged with the communication they had with parents. One

participant stated, "when I call I can expect that the parents are going to be like "No, we can't do

that." Parents were sometimes not responsive at all. A nurse recounted that:

I called ten times, could not get a hold of mom. I emailed four times. [I] finally

sent two letters to the house, and never got a response from mom, but the student

said that, 'My mom got your letter'.

Another nurse reported trying to contact the parents of a student who had a reaction to

tree nuts in a banana nut muffin by saying:

Nobody would answer, and we ended up having to call 911 and then the police

had to drive over to his house to get his family. They were just home but they just

weren't picking up the phone.

At the opposite end of the spectrum were the parents that hovered over their children

expecting to communicate with nurses about every issue. These "helicopter parents"

would come every recess and "check-out their children." A nurse described this behavior

as:

I'll have parents that I call, and they have, I don't know, [the child] has something

minor and they'll be 'oh, I'll be right there to pick them up.

Inter-professional Communication Challenges.

School nurses described their role in supervising, delegating and communicating with inter-professionals such as teachers, teachers aids, and secretaries. The sub-theme of *Inter-professional Communication Challenges* described what occurred in the nurses' daily routine. One nurse stated "… she [the teacher's aid] takes care of those problems when they arise and calls me. I am usually available by phone." Another nurse said "…our secretaries are all, very helpful and jump in to see kiddos when we're not here." Nurses and paraprofessionals worked together to care for children. A nurse said "because I'm not in every building all day, every school day, and so, you know, our secretaries, who are designated, … health aids…do a great job." Teaching paraprofessionals was described as an important part of the nurses' routine communication. A nurse noted:

> …I do a lot of, staff training as far as medication administration, emergency
>
> procedures like epi pen use and, emergency seizure medication, what to do in the
>
> event of a diabetic emergency, [and] those types of things.

A major communication challenge occurred when school nurses were not physically in the schools due to the responsibility of serving multiple schools and needing to maintain communication with staff while away. A nurse stated;

> …so I was gone …. which I'm regularly scheduled [to be] there on Tuesday
>
> mornings, and I was gone for about, a little over an hour. I get back to their
>
> school and they had had four, you know, major incidences happen, and so it's
>
> really stressful and I feel like I'm spread really thin.

Students' Unmet Needs.

The final theme of *Student's Unmet Needs* described what the nurses identified as missing resources needed to provide the best care for children. Two subthemes were revealed; *Missing Resources* and *Nurse's Need for Continuing Education.*

Missing Resources.

Children and families frequently needed resources that the nurses could not provide. One nurse described the feeling as "frustrating… [when you have] poor families…[with] a lot of social problems…and you don't really have anywhere to refer them." Another nurse stated:

> I've just had it, trying to get them [children] the medical help they need and the support
>
> they need but there's nothing in our community or our county that really, that I can really
>
> refer them to.

Some of the resources school nurses lacked were monetary and others were accessibility to services. These resources included "grants for playground equipment," "Medicaid reimbursement," and "[a] School Based Health Center." There were also struggles developing networking relationships with the local hospital and with a "… specialty clinic in Denver to do some outreach."

The resource of time spent with students was of particular concern to the nurses. Many of them spoke of not having sufficient time to complete their work in each school. There was a wide variation in the reported number of hours that nurses worked in each school. A common theme was "I cover four different schools and I rotate [to each school] one day a week." Another nurse reported that she was "…at the middle school for probably six hours per week." Another stated "[I am] in the district 20 to 25 hours per week." There was consensus by the nurses that time with students was an unmet need. One stated; "There is just so much to do and it's like

never enough time." Another participant stated: "I do think that the district would benefit from having a full-time nurse."

Nurses' Need for Continuing Education.

Nurses in the study felt that their lack of continuing education was an unmet need of children at the schools they served. They wanted more access to information that could address specific problems they experienced with children in the schools. One nurse expressed that "…there's always something to learn, and …the rules and regs are always changing." They spoke highly of educational resources such as "the school nurse forum" and the "school nurse mentoring program" as possible options for them to obtain additional knowledge. The subtheme of *Nurses' Need for Continuing Education* was summed up by one nurse that stated:

> I would like to see is, more support for [nurses in] rural areas as far as, …. like the workshops and things like that. I feel like everything is centered up north and you know it's difficult for us [in the rural area] to be able to get to these trainings …..[you the nurse] don't have somebody to fill in for you, it's hard to miss work, you know, plus the travel and weather and different things like that and I feel like, forever it's been a problem.

Discussion and Implications

This study revealed that one of the biggest factors facing the school nurses in the part of rural Southern Colorado where this study occurred is poverty. Poverty has been shown to be directly related to issues with behavior and mental health in children (Flouri and Midouhas, 2016). According to the most current data found related to average annual household income statewide, four of the eleven poorest counties in the state are located within this study area, reporting average incomes of \$31,321; \$32,395; \$33,393; and \$36,652 compared to the state

average of $63,909 (DataUSA, 2015).   The nurses reported how extreme poverty conditions and

homelessness effected the children at their schools and how many children have had to utilize the

schools' services to meet their basic needs of food, personal hygiene (including showering and

laundry), clothing and even obtaining access to basic health care. Nurses also reported assisting

children with getting their haircut for hygienic purposes and even assisting a family to have a

bed. Closely associated with this type of assistance are reports out of the United Kingdom of a

campaign by school nurses to provide sanitary supplies to young women in their schools who

cannot afford them (Astrup, 2017).

     The school nurses in this study reported a wide variety of acute and chronic physical

health issues. The nurses also reported that some of the children have more rare conditions and

conditions which need follow up from medical providers that are not available locally. They

discussed the difficulties in obtaining proper care for children whose parents don't have the

resources to get them to a local physician for acute care, let alone to an urban area for follow-up

care of a chronic condition. Cowell (2018) discusses that school nurses are on the front lines of

creating solutions in population health by providing case management and utilizing electronic

health records to standardize and streamline communication between the health care provider,

the children/family, and the school.

     Also of great concern to the school nurses, were mental health concerns among their

students. The effects of extreme poverty as well as abuse (physical, emotional, and neglect)

were blamed for many of the mental health issues the nurses reported seeing. Parental choices of

divorce, and homelessness, as well as lifestyle wherein they are "romanticizing living in a tent,

off the grid" and many times with issues of addiction adversely affect the children's abilities to

function in school and socially. This is corroborated by Melchior and Waerden (2016) who discuss the effects of parental mental health on children's mental health.

The school nurses reported challenges with communicating with students in that the students often report symptoms but don't know if they qualify as illness. School nurses also often find themselves being expected to function in the role of counselors and primary care providers. They report being a safe person with whom students can discuss private issues. Baker, Anderson, and Johnson (2016) elaborate on the role of school nurses in care coordination. They stress the role of the school nurse as a case manager, but also highlight the ideas presented by the nurses in this study, that school nurses provide a quasi-medical home for students.

Challenges with communicating with parents also were reported. School nurses indicated that parents would sometimes "just not answer" when called about a student issue or would have the inability to respond to school nurses' requests because of work-related issues or lack of transportation. Divorced parents would often not be equally invested in the care of the children, also interfering with communication. There were also reports of helicopter parents who were hyper-vigilant regarding issues arising at school. Do, Stenhammar, Edlund and Westerling (2017) discussed the importance of parental communication with students regarding healthy behaviors. The school nurses in this study reported feeling that when parents are not responsive to their (the nurse's) concerns, they are probably not providing much guidance at home related to healthy behaviors.

School nurses also reported communication challenges with other professionals in the school environment. Many of these challenges related to delegation of tasks and meeting students' needs when the nurse is not physically in the building all day. There were reports of frustration and sometimes delayed care when the nurse is not fully available. Lineberry,

Whitney and Noland (2017) discussed concerns regarding new legislation aimed at expanding

delegation even in the face of recommendations for a school nurse in every building. This

highlights the very real concerns expressed by the school nurses in this study.

The school nurses in this study voiced that because of the lack of resources and time to be

in the school every day, student outcomes may have suffered. This belief is supported by

Maughan (2018) who indicates that although NASN recommends that each school have a full-

time nurse with a bachelor's degree in nursing, only 33.7% of school districts have policies in

place requiring a full-time nurse, and only 18.1% of districts require a part-time nurse. This

article also indicates that schools in the Northeast of the United States are more likely to have a

full-time nurse in the schools, whereas schools in the West are more likely to have a nurse

covering multiple schools, or no school nurse at all.

The school nurses in this study reported the need for continuing education that would be

accessible to them given they are located remotely from urban areas. Many voiced that more

access to e-learning would be an effective option. Sinclair, Kable, Levett-Jones, and Booth

(2016) indicated that internet-based learning can be as effective as in-person trainings.

Limitations, Recommendations, Implications for Change

Limitations

The limitations of this study were that the sample size was small and homogeneous. The

participants were drawn from a limited geographic area.

Recommendations and Implications for Change

Based upon the findings of this study, there are many recommendations for consideration.

Given that the primary concerns of the nurses in this study are related to poverty, it is

recommended that school nurses assist families in finding resources to aid them. As most

schools now have interactive websites, it is recommended that the school nurse utilizes a specific

section of the website that can then contain listings of community resources specific to that

community/area such as food banks, utility assistance programs, service organizations which can

help with medical/vision/hearing/dental access and costs, and church organizations. These lists

should also be available for school nurses to hand out to students and parents who may not have

internet access and should be translated in to Spanish. Schools, law enforcement, and

community resources should be brought together in a non-judgmental and educational platform

to help parents improve their health choices and decrease poverty and homelessness.

Addressing the plethora of physical and mental health conditions which are faced by

students and their families, school nurses can include on the school's websites the location and

access of all health clinics, hospitals, dental and mental health organizations/clinics in the local

area. There can also be guidance for families in applying for Medicaid, Food Stamps, CHP+,

and information related to programs through local clinics for migrant and indigent health care.

Nurses can also have this information available to hand out to those without computer access.

As school nurses are often seen as a safe person with whom to visit or to access during

stressful times, it is recommended that schools have a designated "safe space" within access to

the school nurse, where students can spend a few quiet minutes in order to cope with their lives.

It can also be an area where an ill child can await parental pick-up or a child with a migraine can

recover before returning to class. Specific training related to case management and care

coordination would be beneficial to the school nurses as this is a large component of their jobs,

as well. School nurses should have ready access to other health professionals, including primary

care providers, in their communities to assist with triaging health issues and for ease of referral.

Regarding communication challenges with parents, school administration with the guidance of the school nurses should stress the importance to parents of having access to working phone numbers and emergency contacts. A clause can be inserted in annual registration information which gives school personnel permission to access health care for children at a local clinic or emergency room if the parent is not available. Creative means for inclusion of parents with their children at school through during- and after-school activities will increase parental involvement and investment.

In the results of this study, school nurses reported the willingness of other school personnel to cover for the nurse by being trained and delegated nursing tasks when the school nurse is not available. However, the trained judgement of the nurse cannot be delegated to untrained personnel. Therefore, it is recommended that every school have a full-time school nurse as recommended by the National Association of School Nurses. This recommendation ties into the findings related to missing resources and the fact that nurses do not have the time to properly care for their students when they are only in the buildings a few hours per week.

School nurses also voiced the need for more access to continuing education and networking. It is recommended that all school nurses are paid to attend the School Nurse Orientation program which is available to new school nurses through the Colorado Department of Education, join the school nurse list-serv, and attend the annual CASN conference. Memberships in the national and state school nurse associations should be recompensed, and there should be a means for local educational offerings conducted through Zoom or other internet-based platforms so that the nurses do not have to be away from their districts. It is also recommended that the school nurses of the area organize for mutual support and resource access.

Conclusion

Rural school nurses face unique challenges. This study probed the perceptions of school nurses in a rural southern Colorado area. The study revealed many concerns related to extreme poverty and homelessness, multiple physical and mental health issues of the children served, and unmet student needs. Recommendations were made related to increasing availability of access to health care providers and continuing education, reducing effects of poverty and homelessness, and for providing a school nurse in each school in accordance with the recommendation of NASN.

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Appendices

Appendix A. Systematic Review of the Literature (Example only)

|	Rew, L., Arheart, K. L., Horner, S. D., Thompson, S., and Johnson, K. E. (2015). Gender and ethnic differences in health - Promoting behaviors of rural adolescents. *Journal of School Nursing, 31*(3), 219 – 232. doi: 10.1177/1059840514541855	Rew, L., Arheart, K. L., Thompson, S., & Johnson, K. (2013). Predictors of adolescents' health-promoting behaviors guided by primary socialization theory. *Journal For Specialists In Pediatric Nursing, 18*(4), 277-288. doi:10.1111/jspn
Author/Year	Rew, Arheart, Horner, Thompson, and Johnson (2015) (Rew, Arheart, Horner, Thompson, and Johnson, 2015) Rew, Arheart, Horner, et al., (2015) subsequently	Rew, Arheart, Thompson, & Johnson (2013) (Rew, Arheart, Thompson, & Johnson, 2013) Rew, Arheart, Thompson, et al., (2013) subsequently
Database/Keywords	CINAHL Complete/health- wellness, high school, cultural issues, exercise, nutrition	CINAHL Complete, Keywords – Adolescence, Health Behaviors, Health Promotion, Parental Monitoring, Primary Socialization, Religiosity
Research Design	Cohort sequential longitudinal design	Cohort sequential, Longitudinal design,
Level of Evidence	Level IV – Cohort Study	Level IV – Cohort study
Study Aim/Purpose	1) Compare how adolescents vary in the ways they promote their health according to gender and ethnic background, and 2) Explore the same adolescents and how their attitudes and practices changed as they moved through high school	To see if there is an influence of parents and parenting style in addition to peers on the development of health promoting behaviors for adolescents.
Population/Sample size Criteria/Power	4 cohorts of students recruited over 2 years in grades 4 – 6, followed thru grade 8, then recruited again in grade 9 and followed for 4 years/initial sample size of 1294 9th graders with 878 retained through grade 12 (68% retention rate over the 4 years)/no specific discussion of criteria or power found	1081 rural adolescents, mean age 17=/- 0.7, 43.5% Male, 44% Hispanic. Collected annually over 3 years and once from the parents
Methods/Study Appraisal Synthesis Methods	Adolescent Lifestyle Questionnaire (ALQ), and demographic questionnaire consisting of age, sex, race and ethnicity/4 subscales from ALQ used were nutrition, physical activity, safety and stress management (3 other subscales were discarded as not pertaining to health promotion), 23 items used Likert-type scales with 6=always and 1=never/ high total scores corresponded to greater engagement with health promoting behaviors	Measured change over time. Students were enrolled in the study in their freshman year of high school and then were involved in data collection their junior and senior years. Parents answered a questionnaire when the students enrolled their freshman year.
Primary Outcome Measures/Results	Mean (M) +/-standard deviation(SD) used for demographic data by year and cohort within year, M +/- SD plus Cronbach's alpha reliability coefficient computed for ALQ questions for each year and cohort within year, p<0.05 considered statistically significant/Cohort ranges .88-.91 for	Mean, standard deviation, and Chronbach's alpha were calculated using SMS version 9.3. Generalized linear models were computed, then least squares regression was used for some data. Results presented in tabular form, Each adolescent health behavior item was regressed on

	nutrition, .88-.92 for physical activity, .73-.86 for safety, .59-.71for stress management	parental monitoring and styles. Parental monitoring was a significant predictor for behaviors, with .13 correlation for physical activity to .26 for safety behaviors. All other aspects were calculated with some positive and some negative correlations. Peer connectedness showed significant predictive values except in the area of safety. Religious commitment was shown to have a positive impact as well.
Conclusions/Implications	There are some significant differences between gender and ethnic adolescents that might affect future health behaviors, health promoting behaviors tend to decrease over time/ Implications for school nurses include policy making and education aimed at encouraging adolescents to continue healthy behaviors as they get older, also influence on physical activity and nutrition in the school setting	Findings show that parenting and religious commitment have a positive impact on health promoting behaviors of adolescents. Nurses can encourage positive parental relationships with their teenagers and promote these interactions. Further study could be undertaken to test nursing interventions based on primary socialization theory. Family centered interventions in parish settings may have a great impact as well.
Strengths/Limitations	Strengths – power of sample size, large ethnic minority participation and longitudinal design/Limitations - Sample drawn from one area of Central Texas so cannot be generalized to adolescents over US. All data was gathered by self-report so may have self-report bias. Mobility of population contributed to decline of population sample size	Localized central Texas area, with growing Hispanic population, so may not be generalizable. Strong data and analysis showing good correlation. Incomplete data was excluded from analysis.
Funding Source	Grants from National Institutes of Health, National Institute of Child Health and Human Development, and National Institute of Nursing Research	National Institutes of Health,
Comments	Interesting if it could be replicated for homeless youth	Good data and strong results, strong implications for school nurses.

Appendix B. Logic Model

Resources/Inputs	Activities	Outputs	Short- and Long- Term Outcomes	Impact
In order to accomplish the set of activities we needed the following:	In order to address our problem, we accomplished the following activities:	We expected that once accomplished these activities would produce the following evidence of service delivery:	We expect that if accomplished these activities will lead to the following changes in 1 – 3 years, then 4 – 6 years:	We expect that if accomplished these activities will lead to the following changes in 7 – 10 years.
-Access to rural school nurses -Interview questions -Time to complete interviews	-Interview the rural school nurses -Transcription of the interviews -Analysis and coding of results -Compilation of results	-Emergence of clear patterns of common perceptions of rural school nurses -Emergence of common concerns and challenges of the school nurses	SHORT -Sharing of research results with the participants and other school nurses, school administrators, educators, and community members -Publication of results -Presentation of results at conferences LONG -Increased resources in the schools for health programs	-Increase of time for school nurses to positively impact students health through educational offerings to students and families

Appendix C. Conceptual Diagrams

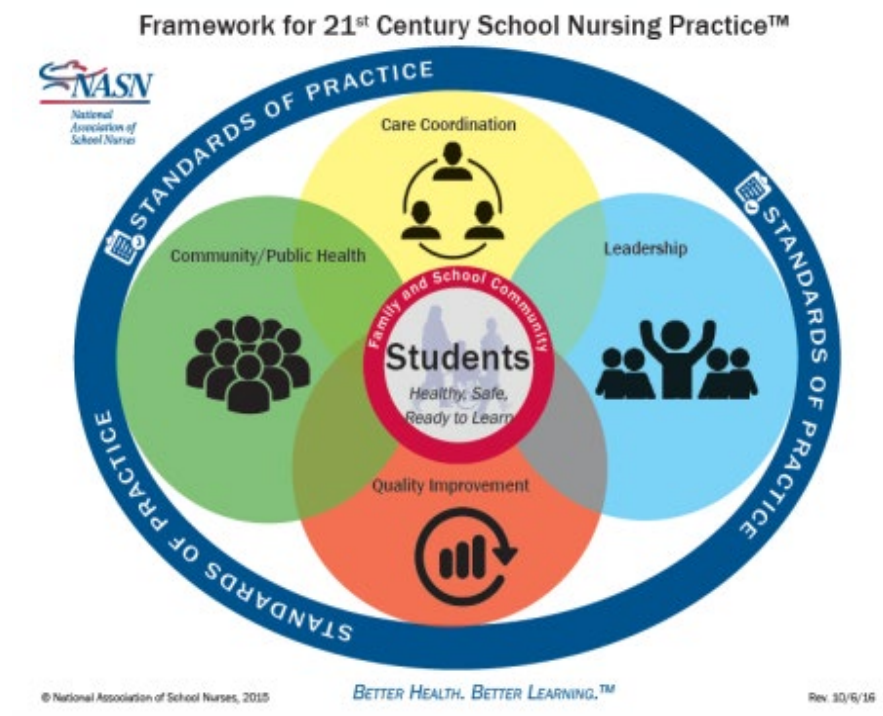1. **Calista Roy's Adaptation Model**
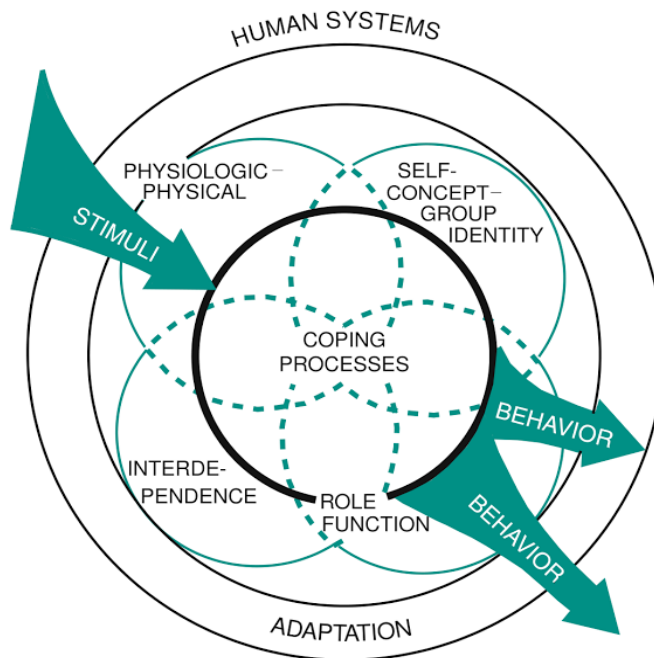
- **Key concepts**

    - Person – "who is the focus of nursing care"

    - Health – "what is the target of nursing care"

    - Environment – where is the nursing care needed

    - Nursing – "when is nursing care indicated"

(Polit and Beck, 2017, p. 147)

2. Framework for 21st Century School Nursing Practice

Framework for 21st Century School Nursing Practice™

- Key Concepts

    - The student is at the center of care – healthy, safe, and ready to learn

    - Care Coordination – Case management

    - Leadership – Advocacy

    - Quality Improvement – CQI, Data collection

    - Community/Public Health – Access to care, Environmental Health

(NASN, 2016)

Appendix D. Research Questions

How many years have you been a nurse?

How many years have you been a school nurse?

How many schools do you serve and how long are you at each school?

What is your degree level of schooling? (ADN, BSN)

What professional organizations do you belong to?

The primary research question was:

What is the experience of working as a rural school nurse with diverse children and

families in your school district?

Sub-questions included:

Describe the children and families that you care for in your role as a school nurse?

Describe the types of health care issues you deal with?

Describe your activities as a school nurse in a typical day?

What are the most challenging parts of your role as a school nurse?

Appendix E. Timeline

- **May 20, 2017 –** PICO identified

- **July 17, 2017 –** defend proposal

- **August 31, 2017 –** site approval letter signed

- **September 30, 2017 –** submit to Regis IRB

- **December 13, 2017 –** project began/ identified participants/ informed consent

- **January 15, 2018–** completed data collection

- **March 31, 2018 –** analysis of data complete, derived themes

- **April 27, 2018 –** present and defend final project

Appendix F. Budget and Resources

1. **Budget**

Items	Cost	Cost to Replicate
Interview :9 nurses x $25.00 (1 hr)	$0.00	$220.00
Gas Cost	$50.00	$50.00
Digital Recorder	$75.00	$75.00
Transcription	$700.00	$0.00
Researcher time	$0.00	$1000.00
Analysis Software NVivo	$0.00	$700.00
Total	$825.00	$2045.00

2. **Resources**

Personnel:

- Researcher
- Transcriptionist
- Participants
- Nurse Mentor
- Capstone chair

Time:

- For the interviews
- For transcription and coding

Equipment:

- Digital audio recorder
- Computer

Other Resources:

- Fuel for travel

Appendix G. IRB Approval Letter

Please note that Regis University Human Subjects IRB has published the following Board

Document on IRBNet:

Project Title: [1131355-3] Rural School Nursing in Colorado: New Perspectives

Principal Investigator: Alice Burch, MSN-Ed, RN

Submission Type: Amendment/Modification

Date Submitted: October 13, 2017

Document Type: Approval Letter

Document Description: Approval Letter

Publish Date: November 21, 2017

Should you have any questions you may contact Alan Stark at astark@regis.edu.

Thank you,

The IRBNet Support Team

Appendix H. CITI Training Certificate

COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI PROGRAM)
COMPLETION REPORT - PART 1 OF 2
COURSEWORK REQUIREMENTS*

* NOTE: Scores on this Requirements Report reflect quiz completions at the time all requirements for the course were met. See list below for details. See separate Transcript Report for more recent quiz scores, including those on optional (supplemental) course elements.

- **Name:** Alice Burch (ID: 6172512)
- **Institution Affiliation:** Regis University (ID: 745)
- **Institution Email:** aburch002@regis.edu
- **Institution Unit:** Nursing

- **Curriculum Group:** Human Research
- **Course Learner Group:** Social Behavioral Research Investigators and Key Personnel
- **Stage:** Stage 1 - Basic Course

- **Record ID:** 22340408
- **Completion Date:** 17-Feb-2017
- **Expiration Date:** 17-Feb-2020
- **Minimum Passing:** 80
- **Reported Score*:** 96

REQUIRED AND ELECTIVE MODULES ONLY	DATE COMPLETED	SCORE
Belmont Report and CITI Course Introduction (ID: 1127)	15-Feb-2017	3/3 (100%)
History and Ethical Principles - SBE (ID: 490)	16-Feb-2017	5/5 (100%)
The Federal Regulations - SBE (ID: 502)	17-Feb-2017	5/5 (100%)
Assessing Risk - SBE (ID: 503)	17-Feb-2017	5/5 (100%)
Informed Consent - SBE (ID: 504)	17-Feb-2017	5/5 (100%)
Privacy and Confidentiality - SBE (ID: 505)	17-Feb-2017	4/5 (80%)

For this Report to be valid, the learner identified above must have had a valid affiliation with the CITI Program subscribing institution identified above or have been a paid Independent Learner.

Verify at: www.citiprogram.org/verify/?k36de95e7-6ae9-4789-a3a5-88d7f701cce2-22340408

Collaborative Institutional Training Initiative (CITI Program)
Email: support@citiprogram.org
Phone: 888-529-5929
Web: https://www.citiprogram.org

Appendix I. Agency Letters of Support

Alamosa Public Schools
"Committed to Excellence!"

August 09, 2017

Letter of Agreement

Regis University Institutional Review Board (IRB):

I am familiar with DNP Student: Alice Burch and her research project entitled *Rural School Nursing in Colorado: New Perspectives*. I understand the research project will entail Ms. Burch's interaction with the Alamosa RE-11J School District Nursing Department that will include interviews to derive data for the qualitative research project.

I understand the research project will be conducted within sound ethical principles, District staff involvement is strictly voluntary, and research data/sources will remain confidential as per the proposal.

On behalf of the Alamosa RE-11J School District, I invite Ms. Alice Burch to introduce her research project to the District Nurse(s) and upon either/both of their approval to participate; said research project may be conducted within our school district.

Respectfully,

Robert A. Alejo
Superintendent
ralejo@alamosa.k12.co.us

cc: Ms. Alice Burch, DNP Student
        Mrs. Kristi Hillis, Nurse: Alamosa School District
        Ms. Liz Vigil, Nurse: Alamosa School District

Sargent School District RE-33J
7090 North Road 2 East
Monte Vista, CO 81144
Telephone: 719 852-4023 Fax. 719 852-9090
Web Site: sargent.k12.co.us

Letter of Agreement

9/18/17

To Regis University Institutional Review Board (IRB):

I am familiar with Alice Burch's research project entitled Rural School Nursing in Colorado: New Perspectives. I understand the various schools of the San Luis Valley involvement to be allowing the school nurses to be interviewed for a qualitative research project.

I understand that this research will be carried out following sound ethical principles and that participant involvement in this research project is strictly voluntary and provides confidentiality of research data, as described in the proposal.

Therefore, as a representative of Sargent School District I agree that Alice Burch's research project may be conducted at our agency/institution.

Sincerely,

Greg Slover

Superintendent

Sargent School District

CENTER CONSOLIDATED SCHOOL DISTRICT 26JT

550 S.Sylvester Ave Center Colorado 81125   719.754.3442 Fax 719.754.3952
http://www.center.k12.co.us   email: ccsd@center.k12.co.us

Letter of Agreement

8/13/17

To Regis University Institutional Review Board (IRB):

I am familiar with Alice Burch's research project entitled Rural School Nursing in Colorado: New Perspectives. I understand that various schools of the San Luis Valley will be involved, including the Center Consolidated School District, allowing the school nurses to be interviewed for a qualitative research project.

I understand that this research will be carried out following sound ethical principles and that participant involvement in this research project is strictly voluntary and provides confidentiality of research data, as described in the proposal.

Therefore, as a representative of the Center Consolidated School District, I agree that Alice Burch's research project may be conducted at our agency/institution.

Sincerely,

Chris Vance
Superintendent
Center Consolidated School District
cvance@center.k12.co.us
719.754.3442

DEL NORTE SCHOOL DISTRICT C-7

(719) 657-4040
Fax (719) 657-2546

DN

770 11th St. • P.O. Box 159 • Del Norte, Colorado 81132-0159

Letter of Agreement

September 18, 2017

Regis University Institutional Review Board (IRB):

I am familiar with Alice Burch's research project entitled Rural School Nursing in Colorado: New Perspectives. I understand the various schools of the San Luis Valley involvement to be allowing the school nurses to be interviewed for a qualitative research project.

I understand that this research will be carried out following sound ethical principles and that participant involvement in this research project is strictly voluntary and provides confidentiality of research data, as described in the proposal.

Therefore, as a representative of the schools of the San Luis Valley I agree that Alice Burch's research project may be conducted at our agency/institution.

Cordially,

Chris Burr
Superintendent

Sanford Public School
755 Second Street
PO Box 39, Sanford, CO 81151
719-274-5167
FAX: 719-274-5830

University Institutional Review Board (IRB):

I am familiar with Alice Burch's research project entitled Rural School Nursing in Colorado: New Perspectives. I understand the various schools of the San Luis Valley involvement to be allowing the school nurses to be interviewed for a qualitative research project.

I understand that this research will be carried out following sound ethical principles and that participant involvement in this research project is strictly voluntary and provides confidentiality of research data, as described in the proposal.

Therefore, as a representative of the schools of the San Luis Valley I agree that Alice Burch's research project may be conducted at our agency/institution.

Sincerely,

Kevin C. Edgar
Superintendent
Sanford School District 6J

Mountain Valley School Re-1

Letter of Agreement

August 8, 2017

To Regis University Institutional Review Board (IRB):

I am familiar with Alice Burch's research project entitled Rural School Nursing in Colorado: New Perspectives. I understand the various schools of the San Luis Valley involvement to be allowing the school nurses to be interviewed for a qualitative research project.

I understand that this research will be carried out following sound ethical principles and that participant involvement in this research project is strictly voluntary and provides confidentiality of research data, as described in the proposal.

Therefore, as a representative of the schools of the San Luis Valley I agree that Alice Burch's research project may be conducted at our agency/institution.

Sincerely,

Travis Garoutte
Superintendent

MONTE VISTA SCHOOL DISTRICT

Inspiring the Pursuit of Excellence, *One Student at a Time!*

August 8, 2017

To Regis University Institutional Review Board (IRB):

I am familiar with Alice Burch's research project entitled Rural School Nursing in Colorado: New Perspectives. I understand the various schools of the San Luis Valley involvement to be allowing the school nurses to be interviewed for a qualitative research project.

I understand that this research will be carried out following sound ethical principles and that participant involvement in this research project is strictly voluntary and provides confidentiality of research data, as described in the proposal.

Therefore, as a representative of the schools of the San Luis Valley I agree that Alice Burch's research project may be conducted at our agency/institution.

Sincerely,

Robert A. Webb
Superintendent

North Conejos School District RE 1 - J

	OFFICE OF	
P.O. Box 72		Phone (719) 274-5174
La Jara, CO 81140		Fax (719) 274-5621
www.northconejos.com	**SUPERINTENDENT**	

September 14, 2017

To Whom It May Concern:

Alice M. Burch MSN, RN, has requested to be able to gather data and specifically inquire about the processes and protocols utilized in the North Conejos School District, as a doctoral candidate needing specific bodies of evidence and facts. She has complete permission to seek that data and interview, collaborate or inquire among staff that can provide her assistance in that pursuit.

We welcome Alice, and will support her endeavor.

Respectfully,

Curt Wilson