WHY SOME STATES HAVE MORE SCHOOL NURSES THAN OTHERS: A COMPARATIVE ANALYSIS

by

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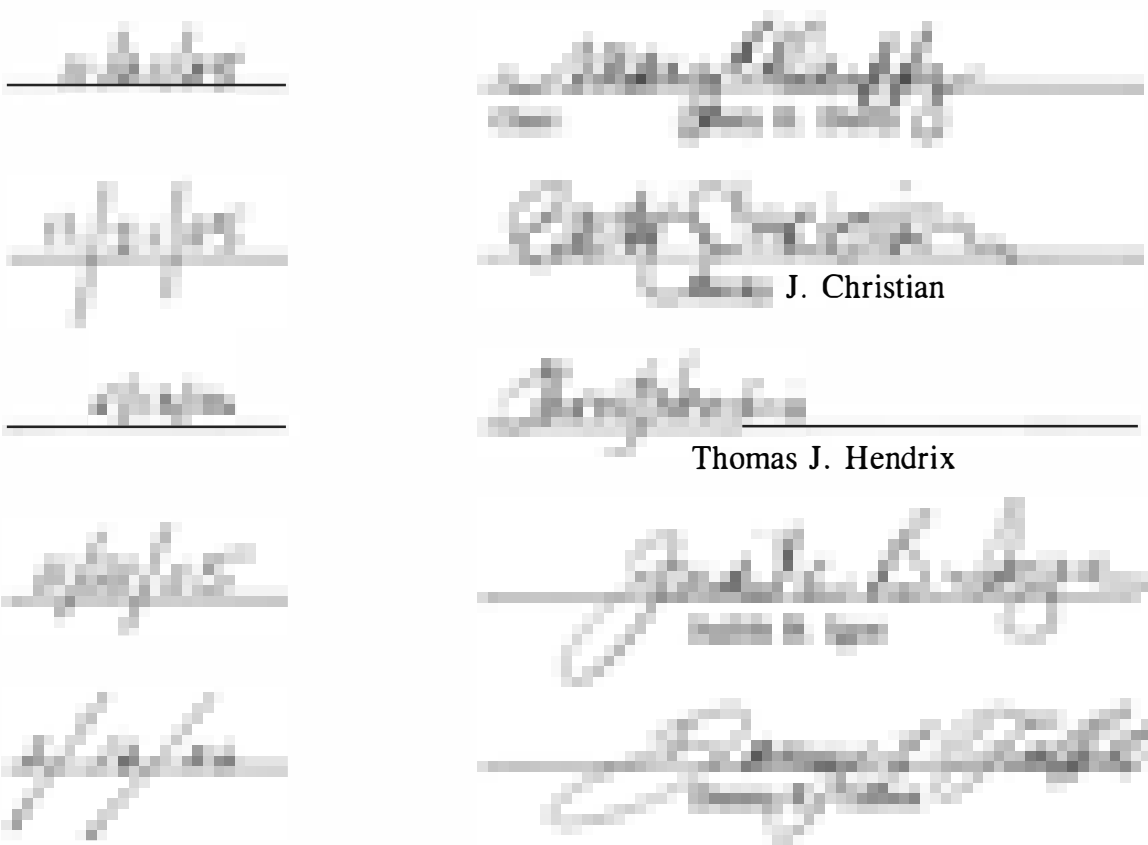
This dissertation has been read by each member of the following supervisory committee and by majority vote has been found to be satisfactory.



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ABSTRACT

Only 13 states are in compliance with the national recommendation of 1 school nurse for every 750 students. The purposes of this investigation were to (a) determine if/how state laws mandating school nurses or school health services/activities influence state school nurse ratios and (b) identify other social, political, and cultural factors that influence school nurse-to-student ratios.

This study consisted of quantitative and qualitative components. First, an analysis of secondary data was conducted to identify the relationship between state school nurse ratios and various factors identified in the literature. Data were collected from established databases from the 50 states and the District of Columbia. Data were analyzed using correlation statistics (Kendall's tau).

Second, 30 qualitative telephone interviews were conducted in 11 states throughout the country. The participating states included Alabama, California, Connecticut, Delaware, Iowa, Massachusetts, Missouri, Montana, New Hampshire, Tennessee, and Utah. Content analysis was performed to identify factors influencing school nurse-to-student ratios. Qualitative comparative analysis (QCA) was then conducted to identify the unique factors influencing school nurse-to-student ratios.

No relationship was found among states with laws mandating school nursing or other health services and school nurse-to-student ratios. Results showed a

statistically significant relationship between school nurse-to-student ratios and the amount of funds spent per pupil for education and the amount of funds spent for educational student services. Interviews identified several other influential factors, including the strategy used to identify the need for more school nurses; the value placed on school nurses; local support and buy-in by the community, education, and parents regarding school nurses; fear of litigation; and dynamic leadership. Barriers to school nursing include funding, misunderstanding of the role of the school nurse, and philosophical opposition to school nursing. Cultural and geographic influences were also noted.

Ongoing investigation is needed to identify the degree to which other factors affect school nurse-to-student ratios. In addition, a systematic approach to data collection at the state and local levels needs to be implemented. This information will help school nurse advocates develop and prepare future political actions.

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ACKNOWLEDGMENTS

Thanks are given to friends and family for their understanding when I needed "alone time" to complete this endeavor. Thanks are also given to committee members for their support, especially their encouragement during the rough times. Finally, special thanks are given to Judie Goldstein and Eldon Brinley for believing I could do it; my only wish is that they could have been here to see the final product.

1. INTRODUCTION

School nurses are a vital part of the educational team. The Centers for Disease Control and Prevention, National Center for Health Statistics (2003) estimates nearly one third of children in the United States have some type of chronic health condition, and the number is on the rise. Yet nearly three quarters of the states do not meet the national recommendation set forth by *Healthy People 2010* of 1 school nurse for every 750 students (Centers for Disease Control and Prevention, 2001; U.S. Department of Health and Human Services, 2000). Recently, much effort has focused on passing state legislation mandating states to comply with set school nurse ratios or increasing school nurse funding (Apa-Hall, 2002; Buckminster, 1998; Hunter, 2001). However, few studies could be found that investigate the influence of laws or other factors that contribute to national recommendation. The purposes of this investigation were to (a) determine if/how state laws mandating school nurses or school health services/activities influence state school nurse ratios and (b) identify other social, political, and cultural factors that influence school nurse-to-student ratios.

1.1 Current State of Children's Health

One of the most important roles of a school nurse is to meet the health needs of children while they are in school. The 2000 State and Local Integrated Telephone Survey, conducted by the U.S. Department of Health and Human

Services' Maternal and Child Health Bureau and the National Center for Health Statistics, estimated that 30% of children have a chronic health condition, with an estimated 13% of them being "children with special health care needs" (Centers for Disease Control and Prevention, National Center for Health Statistics, 2003, n.p.). Statistics indicate that chronic conditions are disproportionately prevalent in racial minority populations (Jackson-Allen & Vessey, 2004).

Section 504 of the Rehabilitation Act of 1973 and the Individuals with Disabilities Education Improvement Act of 2004 (or IDEA, which grew out of the Education of All Handicapped Children Act of 1975) mandate equal educational opportunities for all students, including children with complex medical conditions. These children with special health-care needs often require medical procedures such as clean intermittent catheterization or even suctioning to be done during the school day. School nurses have the training and licensure to perform such tasks. In addition, technological advances have saved children who, just a few years ago, would not have lived to enter school. Many of these children continue to have physical side effects from their traumatic births and also require health treatments during the school day.

Furthermore, there has been an increase in chronic conditions such as asthma and diabetes. Approximately 13% of children under the age of 18 suffer from asthma, the most common childhood condition (Dey & Bloom, 2005). Although reports indicate that morbidity and mortality because of asthma have stabilized in the past few years, the American Lung Association (2003) estimates

that asthma accounts for more than 14 million lost school days each year. Asthmatic children often require medications and other treatments during the school day. Type 1 diabetes is the most common metabolic disorder of childhood, affecting approximately 176,500 children in the United States under the age of 20, with approximately 13,000 children being newly diagnosed each year (National Diabetes Education Program, 2006). With the increase in child obesity rates, the number of children diagnosed with type 2 diabetes continues to rise. One report estimates a 45% increase in adolescents with type 2 diabetes over the past 15 years (Pinhas-Hamiel & Zeitler, 2005). With either type of diabetes, control of diet and physical activity are critical, including the time when the child is in school.

Although these chronic conditions affect many children in America, unintentional injuries are still the primary cause of death and disability among school-aged children. Each year, 1 in 14 students sustains an injury that temporarily disables him or her or requires medical attention while at school (SAFE KIDS Worldwide, 2005). Quick response and expert care by a school nurse are needed to evaluate the level of injury sustained by the child. In Utah, 911 emergency telephone service is called daily from a public school because of an injury (Utah Department of Health, 2000). Medical costs for school-related injuries to children under 14 are approximately $3.4 billion annually (SAFE KIDS Worldwide).

A majority of child deaths are due to head trauma (Tilford et al., 2001; Youngblut et al., 2000). Head trauma is also one of the most common injuries in

schoolyards. Head traumas account for approximately 600,000 emergency room visits annually. Although a majority of head traumas are considered minor, it is estimated that 29,000 children will sustain permanent neurological symptoms and another 7,000 will die from their injuries (Schutzman & Greenes, 2001).

As children mature, risk-taking behaviors present additional health concerns. Researchers estimate that 70% of adolescent morbidity and mortality are due to the following six risk-taking behaviors: (a) unintentional and intentional injuries, (b) drug and alcohol abuse, (c) sexual activity, (d) tobacco and substance use, (e) inadequate physical activity, and (f) poor dietary habits (National Academy of Sciences, 1998). These behaviors can lead to problems during adulthood. Results of the 2003 Youth Risk Behavioral Survey indicate that nearly half of adolescents have had sexual intercourse in their lifetime (47%), smoked a cigarette ever in their lifetime (58%), or drank alcohol in the past month (45%) (National Center for Chronic Disease Prevention and Health Promotion, 2004a). In addition, approximately three quarters of adolescents do not eat at least five fruits and vegetables a day (78%) or get proper exercise (75%). These rates have slightly decreased or remained the same when compared with data from the 2001 survey (National Center for Chronic Disease Prevention and Health Promotion, 2004b). School nurses can play a key role in guiding adolescents. Teaching appropriate health behavior to students has proven effective in thwarting some risky behaviors (Connell, Turner, & Mason, 1985; Hawkins & Catalano, 1990; Kolbe, 1985; Perry & Toole, 2000; Wainright, Thomas, & Jones, 2000).

In addition to physical health concerns, social, emotional, and mental health issues affect school-aged children. These issues are often reflected in violent and antisocial behaviors (National Institute of Mental Health, 2000; U.S. Department of Health and Human Services, 1998). Statistics show a steady increase in the number of children affected by mental health issues or addictive behavior over the past 20 years (U.S. Department of Health and Human Services, 1999). The incidence of mental health concerns increases with age. Pullen, Modrin-McCarthy, and Graf (2000) estimated that 2% of school-age children have mental health disorders, and 33% to 48% of adolescents have self-reported symptoms. In 2002, the third and fifth leading causes of death for children ages 5 to 14 were suicide and homicide, and they were the second and third leading causes of death for teens ages 15 to 19 years (Anderson & Smith, 2005). It is alarming that suicide rates among children ages 5 to 12 have more than doubled in the last 20 years (Horowitz & Marchetti, 2004).

Poverty is another social trend affecting children's health. In 2003, the percentage of Americans living in poverty increased from 11.7% to 12.5% (Dey & Bloom, 2005). Younger children, under the age of 6, are particularly vulnerable, with an estimated 18.2% living in poverty. Again, the percentages of racial minorities living in poverty are even greater, with an estimated 25% of children being Hispanic and African American (ChildStats.gov, 2002).

Poverty has been linked to a family's and an individual's health and well-being (Park, Turnbull, & Turnbull, 2002). In 2003, 7.1 million or 10% of U.S.

children did not have health insurance (Dey & Bloom, 2005). Close to 2 million children did not receive medical care because their families could not afford it, and another 3 million children's care was delayed because of the cost of treatment (Dey & Bloom). School nurses are often the only health-care provider children see (Green, 2004). Nurses are a resource to help families obtain the primary care and insurance they need.

In 1990, *Code Blue: Uniting for Healthier Youth* summarized these statistics and trends by stating that "for the first time in recorded history, the adolescent population is less healthy than its parents were at the same age" (National Commission on the Role of School and Community in Improving Adolescent Health, 1990, p. 9). Dryfoos (1994) estimated that one child in four (approximately 10 million) is at risk of school failure because of physical, social, or emotional health. Schools are the natural place to address health issues not only because of the captive audience but also because of the impact health has on education success or failure. School health services such as school nursing, school-based clinics, telehealth clinics, and school-linked clinics have been found to be an effective and cost-effective solution to these pressing issues (Center for Health and Health Care in Schools, 2004; Young & Ireson, 2003). For this reason, they continue to increase in number each year. For example, school-based health centers have increased 650% since 1990, when only 200 centers existed (Center for Health and Health Care in Schools, 2003).

Despite the need for student health services, only 13 states report school nurse-to-student ratios of 1:750, which is in accordance with the national recommendation by the National Association of School Nurses and the American Nurses Association; these recommendations were eventually integrated into the objectives of *Healthy People 2010* (Igoe, 1995; National Association of School Nurses, 2003; U.S. Department of Health and Human Services, 2000). Alabama has the highest ratio with 1 nurse for every 11,500 students; Utah has the second to highest ratio with 1 nurse for every 6,000 students (C. Green, personal communication, June 2, 2005; M. Holloway, personal communication, April 21, 2005). Various groups, including the National Association of School Nurses, have advocated for more nurses in the schools. Their efforts include ensuring that each state has a school nurse consultant, preferably housed in the Department of Education, and passing state laws mandating school health services and school nurse staffing. However, these efforts have not always been successful because of various oppositional forces. A literature review indicates that barriers to school health services include the lack of funding and educational commitment (Broussard, 2002; Lynagh, Knight, Schofield, & Paras, 1999; Lytle, Ward, Nader, Pedersen, & Williston, 2003). In addition, underlying beliefs regarding the philosophy of education have influenced school health policy (Sullivan & Bogden, 1993; Winnail & Bartee, 2002). In other words, a community's culture, beliefs, and values influence school health policy. Political science theorists have long studied the influence of culture, ethnicity, and values on the formation and fortitude of

politics; however, the influence of politics and culture regarding school nursing has not been investigated.

1.2 Purpose of the Study

The purposes of this investigation were to (a) determine if/how state laws mandating school nurses or school health services/activities influence state school nurse ratios and (b) identify other social, political, and cultural factors that influence school nurse-to-student ratios. In addition, the study identified other factors that contribute to school nurse-to-student ratios. The research questions were as follows:

1. How does the existence of state legislation for mandated school health services and specific school nurse staffing ratios influence the school nurse-to-student ratios?
2. What are the key factors related to policy development and implementation that facilitate or hinder school nurse-to-student ratios?
3. What are the underlying beliefs and values of the community that affect policies relating to school nurse-to-student ratios?

1.3 Study Design and Analysis

The current investigation was a descriptive study with a sociological design at the state level. The goal of a sociological research design is to better understand social processes and patterned behaviors, including the identification of values and

attitudes of individual persons and society as a whole (Vidich & Lyman, 2000). The present study included both quantitative and qualitative components. Approval for the study was obtained from the Institutional Review Board at the University of Utah (see Appendix A).

The quantitative data portion included secondary data from various sources, consisting of data from 50 states and the District of Columbia. The study used six sources of data. These sources were entered into the SPSS program (SPSS, Inc., 2001) to determine correlational relationships between school nurse-to-student ratios and several independent variables that were selected based upon a review of the literature. The data sources include the Centers for Disease Control and Prevention's (2001) *School Health Policies and Programs Study*, the National Association of School Nurses' (2004) survey confirmed by state school nurse consultants, the *National Journal's* ("How They Measured Up," 2004) political ideology report, the U.S. Department of Education (Hill & Johnson, 2005), and the U.S. Census Bureau (2000a, 2000b). Because of abnormal distribution and the nature of the data, state ratio data were collapsed into ordinal data and analyzed using Kendall's tau correlation coefficient.

The qualitative portion of the study took a deeper look at 11 states by conducting one-on-one telephone interviews of key informants (see Appendix A). Participating states were selected according to the following criteria: (a) school nurse-to-student ratios (best ranked and worst ranked), (b) states with school nurse consultants (and some without), (c) states that have laws mandating school nursing

(and those that do not), (d) political ideology (both conservative and liberal according to the *National Journal* scoring) ("How They Measured Up," 2004), (e) socioeconomic level (high and low), and (f) population density (high and low). Representation from various geographic regions of the country (east, south, west, and midwest) was considered when identifying possible participants. Participating states also had to have a statewide mechanism for collecting data regarding school nursing. The participating states included Alabama, California, Connecticut, Delaware, Iowa, Massachusetts, Missouri, Montana, New Hampshire, Tennessee, and Utah.

In each state, two to four interviews were conducted, depending on the amount of detail and different perspectives provided by the participants. Thirty interviews were carried out in the 11 states. Participants included (a) school nurse consultants (present and former), (b) government employees from state departments of health and education, (c) legislators (present and former), and (d) other school nurse/health leaders. Participants were selected for their knowledge and involvement in school health policy in their state.

Interviews were transcribed verbatim. Content analysis was conducted using the method outlined by Miles and Huberman (1994). As the data were reviewed, they were divided into smaller units or codes, beginning with factors identified in past studies. These common themes were further analyzed using qualitative comparative analysis (QCA) to try and determine the key factors that influence school nurse ratios.

The concept of comparative analysis has been in existence for years, especially in the fields of political science and sociology. However, it was not until the early 1980s that QCA was developed by Charles Ragin (Griffin & Ragin, 1994; Ragin, 1987, 1989; Ragin, Mayer, & Drass, 1984). As a social scientist, Ragin, along with others from his profession, struggled to compare variables derived from qualitative case studies and then to reduce the data to unique factors. Ragin used Boolean algebra to develop QCA (Ragin, 1987).

The purpose of QCA is to identify the minimum combination of unique factors necessary for the outcome to occur (Hearkreader & Imersheim, 1999). Using the principles of Boolean algebra, QCA isolates factors that are common to the cases with the desired outcome, in this case, school nurse-to-student ratios. QCA allows for multiple causes and uses logical deduction to eliminate irrelevant factors, and it also differentiates which factors are unique. QCA transforms variables identified through qualitative research into dichotomous variables (i.e., yes or no or 1 and 0). The rationale for each state's score was recorded. Boolean logic is used to minimize or combine variables and then to reduce data until unique or prime implicants are identified. Further minimization is done until the factors are identified.

QCA has many advantages. First, it allows for multiple causes and takes a holistic approach to causation, whereas statistical analysis looks only at each variable or a single case (Ragin, 1987, 1989; Ragin et al., 1984; Sandelowski, 1997). To look at multiple causes using mathematical or statistical expression, a

large and often impractical sample size would be needed in order to account for the appropriate degrees of freedom (Amenta & Poulsen, 1994). To obtain the large sample size would also impede an in-depth investigation. In addition, QCA investigates the event in the context of the situation and creates meaningful dialogue between ideas and evidence (Griffin & Ragin, 1994; Ragin, 1987; Ragin et al.). QCA also allows a look at deviant cases, which helps provide a richer text of information (Ragin, 1989). Finally, qualitative data give a more in-depth or textured look at the problem while still providing an empirical analysis of the data (Ragin et al.). Studies analyzed with both QCA and statistical analysis show similar outcomes, but QCA provides a more in-depth and precise look at the causal factors (Amenta & Poulsen; Ragin, 1989; Ragin et al.).

Disadvantages to using QCA do exist. First, QCA is insensitive to the frequency of occurrences. Thus, a single occurrence is given the same weight as multiple occurrences (Blake & Adolino, 2001; Chan, 2003). Because of the smaller sample size, QCA results are also susceptible to one or two deviant cases, which can skew results. The small sample size also presents the possibility that not all causes have been accounted for in the presented cases. In other words, unobserved cases may contain other causal factors (Ragin, 1987). Finally, QCA does not provide estimates of magnitude or statistical significance (Chan; Ragin).

Even with the disadvantages, QCA has been used successfully in various social science studies. QCA is a viable option when comparing qualitative data. Examples of studies using QCA include (a) comparing the causes of peace from

war (Chan, 2003), (b) identifying health-care involvement (Hearkreader & Imersheim, 1999), (c) identifying causes for implementing national health insurance (Blake & Adolino, 2001), and (d) assessing discrimination (Ragin et al., 1984). In this instance, QCA was used to help identify key factors that have the most influence on school nurse ratios.

1.4 Study Rigor

In any type of study, it is important to build mechanisms that will increase the validity and reliability of the study (Meier & Pugh, 1986). Before data collection even began, I recorded and "bracketed" personal biases or preconceived notions so as to be aware of their existence and in an attempt not to let them influence the study (Vidich & Lyman, 2000). Because of my experience and work with the Utah State Legislature and personal feelings regarding school nursing and school health issues, it was important to try and identify personal feelings before data collection and to bracket my feelings so as not to bias the collection, analysis, and interpretation of the study.

Four areas of trustworthiness that were applied when conducting this study include (a) credibility, (b) transferability, (c) dependability, and (d) conformability (Guba & Lincoln, 1989; Holloway & Wheeler, 1996; Meier & Pugh, 1986; Munhall, 2001). Credibility was achieved when research methods and techniques ensured that participants' responses were described accurately. Data were transcribed word-for-word from written documents and from transcribed interviews. Throughout the analysis, I kept notes, thus providing a chain of

evidence. Data triangulation, prolonged involvement, and participant review of their responses for accuracy increased the credibility of the study.

Transferability is the ability to generalize conclusions or findings to the general public (Holloway & Wheeler, 1996). Critics argue that qualitative studies cannot be generalized because other explanations may be missing or not represented in the selected units studied (Meier & Pugh, 1986). However, according to Sharp (1998), a second type of generalization exists that is based on theoretical generalizations. Theoretical generalizations allow for a theory or an idea to be developed, which can then be tested in future studies (Foster, Gomm, & Hammersley, 2000; Gilgun, 1994). The purpose of this study was to describe and identify factors that influence the school nurse-to-student ratios. Little research has been conducted in this area; therefore, the present investigation serves as a beginning point for future studies.

The final two criteria to build study rigor are (a) dependability and (b) conformability. Dependability allows an outside person to follow the process and procedures used in the study. All transcripts were kept, along with a detailed description of the processes followed, so that an external audit could occur. Confirmability affirms that the conclusions and recommendations identified by the investigator are supported by the data. Copious notes, transcripts and original records, and a decision trail were kept throughout the investigation. An outside researcher also reviewed the raw data, coding and reduction procedures, and generated themes and conclusions to ensure that logical decision making occurred.

1.5 Limitations of the Study

One of the biggest limitations was the quality of data from the various states. Each state collected information differently and presented data differently. Many states also did not like a single number to represent the school nurse-to-student ratios in their state; rather a range of ratios was considered more accurate. For example, a state may have a state ratio well below the national average but still have areas in the state where no school nurses are hired in the schools. To further strengthen the study, the data ratios were collapsed into groups to better reflect state ranges. These ratio data did not affect outcomes of the qualitative portion of the study.

The greatest weakness of qualitative studies is the concern of "generalizability" because of a small sample size. However, Guba and Lincoln (1989) argued that traditional criteria for judging validity and reliability may not be appropriate for qualitative research. Terms such as *trustworthiness*, *credibility*, and *transferability* have replaced these traditional terms (Denzin & Lincoln, 2000; Guba & Lincoln). Thus, as long as measures were taken as outlined earlier, the study generated information that could be used by school health advocates across the nation. Another concern of a qualitative study is that alternative explanations may exist that are not evident in the states sampled for the study. States were selected, in part, because of access to reliable state data.

1.6 Significance to Nursing

This study is significant for all nurses. One of the roles of a nurse is as a client advocate. Each nurse has the responsibility to stand up for the rights of patients and to advocate in their behalf (Kozier, Erb, Berman, & Burke, 2000). A nurse's license is a contract with the state to uphold the health of all people at both the individual and population levels. Health care is often regulated and controlled through policy and government regulations. For example, Utah's Children's Health Insurance Program, which provides health insurance to children who would not otherwise have insurance, is a federal law, implemented by state governments. The current nursing shortage has reinforced the need for nurses to become politically involved. Nursing efforts such as educating and lobbying policymakers and community leaders have led to increased funding for nurses and change both at the federal and state levels (American Nurses Association, 2004).

School nurses also have the responsibility to advocate for their "patients." The National Association of School Nurses' standards of school nursing practices states that one of the roles of the school nurse is to advocate for health issues by influencing local, state, and national public health policies and regulations (National Association of School Nurses, 2003). Advocacy is particularly important because the clients of a school nurse are children who do not have voices and power of their own. They truly rely on their advocates. School nurses need to be politically active because they are a minority group in their work environment. Their supervisors are often educators who do not understand the role of a school

nurse. They must be their own advocates.

Much has been said about the need for school nurses to step forward and become more involved in shaping the policies that affect them (Apa-Hall, 2002; Billy et al., 2000; Igoe, 1995, 2000; National Association of School Nurses, 2003; Oda, 1991, 1992; Salmon, 1994; Schumacher, 2002; Wolfe, 2002). In 1994, the National Advisory Council on Nurse Education and Practice recognized the need for school nurses to become leaders in their communities as advocates for the health and welfare of children (U.S. Department of Health and Human Services, n.d.). This council advises the secretary of Health Resources and Service Administration in the U.S. Department of Health and Human Services and Congress on issues related to programs affecting the Division of Nursing in the U.S. Department of Health and Human Services. The council emphasized the need for school nurses to become part of community coalitions and other committees that influence policy (U.S. Department of Health and Human Services).

The National Nursing Coalition for School Health was formed in 1996 to interface with both public and private organizations where they intersect on school health issues. The coalition is made up of the following organizations: (a) American Nurses Association; (b) American School Health Association; (c) American Public Health Association; (d) Public Health Nursing Division, National Association of Pediatric Nurse Associations; (e) National Association of School Nurses; and (f) National Association of State School Nurses Consultants (Hootman, 2002). In 1999, the National Nursing Coalition for School Health

identified eight issues pertinent for the advancement and growth of school nursing; two of these issues specifically address political activity. The first issue stresses the importance of defining and advancing the role of the school nurse. These activities include the education of others on the role of the school nurse (Brainerd, 1998). The second issue emphasizes the importance of informing policymakers about current school health nursing services, including establishing a campaign and defining a message to share with policymakers. In order to develop a campaign, school nurses must understand the political process and how to become a part of it.

1.7 School Nursing and the Political Process

Ripley (1995) identified four steps in the political process, including (a) policy agenda setting, (b) policy formulation, (c) program implementation, and (d) policy evaluation. In the first step, problems are identified and brought to policymakers' attention. If school nurses understood the culture and beliefs of policymakers, they could personalize their messages and build on common understandings. Not only can these actions educate policymakers regarding nursing issues, but they may also help establish relationships of trust with their legislators. The relationships can be the beginning for nurses to build "iron triangles" with key legislators and their state departments of health and education. Iron triangles have long been known in political circles as a means whereby interest groups are able to politically forward their issues (Mason, Leavitt, & Chafee, 2002). During policy formation, these relationships may encourage legislators to ask for the nurse's expertise in the drafting of new legislation regarding school nursing. Nurses may

also find opportunities to include school nursing in current legislation. Demonstrating knowledge of the issues and political process will increase their credibility. Nurses may then be called upon as reliable experts to work with both the state department of health and the federal department of education in implementing new laws. Finally, school nurses are in a perfect position to participate in the evaluation of policies regarding school nurse services and to begin the political process over again.

A more clear comprehension of the political process and the factors that influence the policies and rules regarding school nursing and school health will help guide future school nurse activities. A better understanding of opposition to such policies is also significant. Differences in opinion will always exist, but misunderstandings and misconceptions of school health issues can be addressed. In addition, understanding different perspectives of a situation helps school nurses' and other advocates' approaches to a situation. How a problem is defined influences how it is handled. By changing the definition or approach of a problem, it is possible to focus or broaden options under review (Ham, 1991). As school nurses are better able to understand the issues and concerns surrounding school health, not only can they provide more information that is appropriate to political leaders but they may also become local leaders themselves.

Finally, the current study will help fill a lack in research regarding social and political factors that influence school nursing. Although much has been written anecdotally and surmised from studies regarding school-based clinics, little

research has been conducted regarding factors that influence school nursing policy (Institute of Medicine, 1997). Knowing what impacts school nursing will help all school nurses and their advocates prioritize their efforts. Using an evidence-based approach, school nurses can use their time more effectively in advocating for the health and welfare of the nation's children.

1.8 Assumptions

The purposes of this investigation were to (a) determine if/how state laws mandating school nurses or school health services/activities influence state school nurse ratios and (b) identify other social, political, and cultural factors that influence school nurse-to-student ratios. This inquiry was not to investigate the effectiveness of school health and school nursing. Thus, two key assumptions of this study were identified from the outset. The first assumption was that school health programs are successful in affecting the health and well-being of students and other school staff who utilize the services. Numerous studies have assessed the positive impact of school nursing on student educational outcomes and learning (Allen, 2003; Ferson, Fitzsimmons, Christie, & Woollett, 1995; Maughan, 2003; Rice & Pollard, 1998; Stock, Larter, Kieckehefer, Thronson, & Maire, 2002).

The second assumption was that some health and education theorists and researchers believe a link exists between health and education. In other words, a child's health affects his or her ability to learn and develop. Numerous articles and studies support this assumption (Baker, 1994; Institute of Medicine, 1997; Marx, Wooley, & Northrop, 1998; Oda, 1991; Texas Department of Health, 1996).

Various educational and political leaders such as the National Governor's Association (2004), National Education Association (n.d.), American Federation of Teachers (1999), National Association of State School Boards of Education (n.d.), and National Council of State Legislators (2002) have also acknowledged the link between health and education. In 1994, the U.S. Department of Health and Human Services and the U.S. Department of Education issued a joint statement and goals indicating the important link between health and education (Institute of Medicine, 1997). Appendix B details studies that link students' physical and mental health with their educational achievement.

1.9 Summary

The purpose of this study was to investigate the influence of policies mandating the presence of school nurses and to identify other factors that influence school nurse staffing. The findings of the study help fill a gap in the research. No relationship was found among states with laws mandating school nursing or other health services and school nurse-to-student ratios. Results showed a significant relationship between school nurse-to-student ratios and the amount of funds spent per pupil for student services. Interviews identified several other influential factors, including the (a) strategy used to identify the need for more school nurses, (b) value placed on school nurses, (c) local support and "buy-in" by the community, (d) education and parents regarding school nurses, (e) fear of litigation, and (f) dynamic leadership. Barriers to school nursing include funding, misunderstanding the role of the school nurse, and having philosophical opposition

to school nursing. Cultural and geographic influences were also noted.

School-age children continue to suffer from numerous chronic conditions, including asthma and diabetes. In addition, many children continue to live in poverty. Another social factor includes violence, which can negatively affect health. Each of these factors affects a child's ability to perform academically. Health and education are interconnected. Thus, school nurses are important members of the educational team. However, many schools lack sufficient access to a school nurse. The purposes of this investigation were to (a) determine if/how state laws mandating school nurses or school health services/activities influence state school nurse ratios and (b) identify other social, political, and cultural factors that influence school nurse-to-student ratios.

Section 2 provides a literature review regarding barriers to school health services. Sections 3, 4, and 5 discuss the results of the study. Section 3 reports on the quantitative data analysis, answers Research Question 1 (*How does the existence of state legislation for mandated school health services and specific school nurse staffing ratios influence the school nurse-to-student ratios?*), and focuses on the results of the secondary analysis of the study. Section 4 answers Research Question 2 (*What are the key factors related to policy development and implementation that facilitate or hinder school nurse-to-student ratios?*). The results of QCA analysis supported the qualitative results but did not identify one or two key factors. The results did not contribute anything new. Because of limitations and space constraints, the QCA results are not included in Section 4 but can be

found in Appendix C. Section 4 also discusses Research Question 3 (*What are the underlying beliefs and values of the community that affect policies relating to school nurse-to-student ratios?*). Section 5 expands on how philosophical beliefs must be recognized and included in political strategies. These last two chapters discuss the results of the qualitative interviews conducted.

The current study is only the beginning. It is hoped that this study will serve as a springboard for many other studies directed at better understanding the relationship between a society's culture and values and policies related to school health. In order to conduct future studies effectively, better and more accurate data must be collected at the local, state, and national levels. Future studies should include information from more states and look more in-depth at each state at the local district level. These studies should include the perspectives of other interested parties such as educational personnel, parents, and so on.

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2. WHAT SCHOOL NURSES CAN LEARN FROM SCHOOL GUIDANCE COUNSELORS: A LITERATURE REVIEW

2.1 Abstract

School nurse and school guidance programs have existed in the United States since the 1900s. Although these support services struggle to find their place in education, school guidance programs (particularly school counselors) have achieved greater success in reaching the recommended ratio of counselors to students. The purpose of this paper is to compare the historical development of policy related to school nursing and school guidance programs (including school counselors and, at times, school psychologists) in order to identify possible factors that have contributed to successful implementation of school guidance programs. Significant factors ascertained from this review include federal and state policies, infrastructure inclusion, and academic standards. School guidance programs are recognized by education because of vocational counseling, whereas school nurses struggle to find such acceptance. Finally, school counselors and school psychologists require certification and a graduate level of education, whereas the National Association of School Nurses recommends school nurses have a baccalaureate degree and certification. School nurses can glean valuable insight from this review. They must learn to be more visible and politically active. School

nurses must overcome professional internal disagreements regarding education. If school nurses are to be seen as vital team members who are experts in their field, they must have the appropriate education and expertise as other support specialists.

2.2 Background

Dryfoos[1] estimates that one child in four (approximately 10 million) is at risk of school failure due to physical, social, or emotional health. Schools are forced to contend with much more than just teaching reading, writing, and arithmetic. Support services such as school health and guidance programs help address these "other" issues. School health services include school physicians, school dentists, and other health service providers but primarily school nurses. School guidance programs include school counseling and other mental health workers, and sometimes this program includes school psychologists.

Although these professions have distinct differences, much of their history and responsibilities in the schools overlap. School nurses and guidance counselors face similar problems. Both are primarily funded by education dollars and are dependent on the social and political factors that influence communities where they reside. However, school guidance programs have been integrated more successfully into the education environment than school nurses or psychologists. The purpose of this paper is to compare the historical development of policy related to school nursing and school guidance programs in order to identify possible factors that have contributed to successful implementation of school guidance policy. School guidance programs can include counselors and psychologists; throughout this

paper, distinction will be made only when guidance does not apply to both.

2.3 Historical Development of School Nursing and School Guidance Programs

School nursing and school guidance programs originated around 1900 because of a movement for compulsory schooling and the influx of immigrants living in overcrowded and dirty tenements in major cities.[2,3] The increased student enrollment led to concerns to segregate children with physical and mental "deficits" from average students and also separate "exceptional" children, which introduced the need for school psychologists.[3(p.27)] The growing population also intensified the spread of various communicable diseases.[2] When the students, diagnosed with communicable diseases, did not return to school in a timely manner, public health nurses were contracted to work with the families and schools to facilitate the return of healthy children. In the first month of the school nursing program, 98% of children previously excluded from school for medical reasons were readmitted.[2(p.56)] Later, with the advent of antibiotics, the school nurses' focus was redirected to include other infectious and chronic disease prevention. Today, the role of school nurses continues to expand as social morbidities and new technological advances influence the health of school children.

School counseling's evolution also commenced because of the social and economic conditions of the time, yet its focus was originally based on vocational guidance. The economic circumstances of the era forced students to enter the workforce early, often unprepared for the demands of labor.[4] Because the purpose

of school was to prepare students to join the workforce, it seemed like a logical place to offer employment counseling. During the 1920s, the counseling role developed to include educational guidance, which switched the focus from vocation to the individual and personal education needs of the students. During this time, the "mental hygiene" movement began. By the 1930s, the clinical or mental health component of counseling was incorporated as part of guidance.[4] Carl Roger's book *Counseling and Psychotherapy* further influenced school counseling and psychology by increasing interest in psychotherapeutic methods in the schools.[4] Over time, other social factors influenced school guidance programs such as substance abuse, violence, and "at-risk populations."[3(p.23),5]

2.4 Similarities

School guidance programs and school nurses have positively impacted the educational environment. Research supports the theory that students from schools with a comprehensive guidance program see a positive school environment, earn higher grades, take more advanced classes, and are better prepared for the future than students from schools without these programs.[6,7] In addition, studies show a positive impact on school attendance, self-concept, and classroom behavior by the presence of a school counselor.[8] School nurses have also demonstrated a positive impact on student educational outcomes and learning.[9]

Other similarities are seen between school nursing and school guidance programs. Both groups struggle to fit into two worlds: (a) their specific professions (nursing, psychology/counseling) and (b) the world of education. Each feels

isolated from their own profession because they work in an environment dominated by the education world and yet their educational coworkers are confused and often misunderstand the role of school guidance and school nurses.[8,10,11,12] School guidance counselors and school nurses see themselves as central to the importance of academic success, but their education counterparts see them as providing only peripheral support.[12] Finally, the changing social and political factors of the day influence educators' expectations of school nurses and guidance. These changes include societal trends such as increased poverty, violence, and students with disabilities.[3(p.56),12] These changes also include budgetary crises. When funding for education is tight or insufficient, "nonacademic programs" such as school nursing and school guidance programs are the first programs to be cut from the budget.[13]

2.5 Current State of Programs

The School Health Policies and Programs Study, a national study conducted by the Centers for Disease Control and Prevention, indicates that more than 70% of schools have a part-time or full-time guidance counselor and that 66% of schools have a part-time or full-time school psychologist.[14] The School Health Policies and Programs Study also reports that nearly 77% of schools have a part-time or full-time school nurse. However, only one half of the schools have the nationally recommended 1:750 school nurse-to-student ratios. The School Health Policies and Programs Study includes registered nurses and licensed practical nurses, whereas the national recommendation includes registered nurses only.[15,16]

A recent report indicates that most states have ratios ranging from 1 counselor for 300 students to 1 counselor for 800 students and 1 psychologist for 532 to 5,300 students.[17,18] Although these ratios are above the recommended ratio of the American School Counselors Association of 1 counselor to every 250 students and the National Association of School Psychologists' recommendation of 1 psychologist for every 1,000 students, they are still much better than the ratio of school nurse-to-students.[18,19] School nurse-to-student ratios range from 1 nurse for 300 students to 1 nurse for 11,500 students.[20] Thus, all groups struggle to provide sufficient services in the school setting, but school guidance programs, particularly counselors, have better success. Looking at the political history of these groups will shed light on the differences.

2.6 Political Differences

The first major legislation to affect school nursing and school psychology was passed in the late 1950s, whereas policy to impact school counseling began in the 1940s. The Vocational Act of 1946 was the first and most important law to impact the role of school counseling.[4,11] This act provided funding and support for counselors in their role with vocational activities. Although much of education is decided at the state and local levels, three key federal laws have affected both school nursing and school guidance to different degrees. These laws include (a) the National Defense Education Act of 1958,[21] (b) the Elementary and Secondary Education Act of 1965,[22] and (c) the Rehabilitation Act of 1973[23] and the Education of All Handicapped Children Act of 1975.[24]

2.6.1 National Defense Education Act of 1958

The purpose of the National Defense Education Act of 1958 was to place more emphasis on mathematics and science in response to the Russian launch of Sputnik and a feeling that Americans were "losing" to the Russians.[21] Although the act emphasized mathematics, science, and foreign languages, it also provided funding for school counselors to identify "mathematically talented" students and encouraged their development.[4,5,21] Money was appropriated for all school personnel to further their education and to increase all programs and employees who would support improving educational outcomes. This funding allowed for the hiring of more school nurses, counselors, and psychologists; thus, the number of these support services increased during this time period.[11,25]

2.6.2 Elementary and Secondary Education Act of 1965

In 1964, the Civil Rights Act passed. Equal opportunity was an important issue of the time and greatly influenced the passage of the Elementary and Secondary Act of 1965, which was also known as Title I.[22] This act ensured that children received equal opportunities in school regardless of their race, ethnicity, religion, or gender, and it impacted health and nutritional services nationwide. Whereas the National Education Defense Act of 1958 appropriated money to all schools, the Civil Rights Act focused specifically on the schools in lower socioeconomic areas. School counselors were seen as the vehicle to ensure that school environments were welcoming to different "types" of people and to ensure all children were given equal opportunity. To ensure counselors understood and

carried out this role, the act also mandated a specialty certification for school counselors.[11]

At the time, it was noted that children from lower socioeconomic environments lacked many of the basic services, including health services, when compared with children living in higher socioeconomic status.[22] A provision in this act authorized school administrators to use funds to employ school nurses to address these health problems, thus, an influx of more school nurses. Unfortunately, many of these diploma-prepared nurses had experience working in hospitals but lacked experience or education in public health nursing or school nursing. These nurses focused on acute problems rather than health promotion and disease prevention.[25] Without proper education and lacking guidance, each nurse performed the duties of a school nurse differently. Many waited in their offices for major first aid crises, but they did little regarding health promotion and interacted minimally with educational faculty and staff. The lack of visibility led to further confusion of the role of the school nurse throughout the 1970s and into the 1980s.[25] The confusion compiled with economic difficulties in the 1980s led to the elimination of many school nurses in order to balance budgets.[25]

2.6.3 Rehabilitation Act of 1973 and Education of All Handicapped Children Act of 1975

The civil rights movement of the 1960s expanded into the 1970s to include children with disabilities. Section 504 of the Rehabilitation Act of 1973 prohibited discrimination on the basis of a disability and indicated that "reasonable

accommodation" must be made to allow disabled students the right to an education.[23] The Education of All Handicapped Children Act, better known as the Individuals with Disabilities Act, passed in 1975, declared all students, regardless of disability, have a right to free and appropriate education.[24] The law included several types of services and personnel, including school psychologists and counselors who were to become a part of each child's individual education plan team. The purpose of the individual education plan team was to ensure students' needs were being met. Although "medical services" were included, school nurses, nursing, or health services were not included.

The role education should play in providing auxiliary services beyond the basics of education was unclear. Many believed that the Individuals with Disabilities Education Improvement Act required only education to allow disabled students to attend school but did not require other services. The view of the role of school psychologists was narrowed, as much of their time was spent testing students for special education rather than providing psychological services.[3(p.55)] Two U.S. Supreme Court rulings over the next 20 years, *Irving Independent School District v. Tatro* (1984) (hereafter referred to as *Tatro*) and *Cedar Rapids v. Garrett* (1999) (hereafter referred to as *Cedar Rapids*), clarified nursing's role in special education. The ruling of *Tatro* broadened the understanding of the Individuals with Disabilities Education Improvement Act to include disabled students with access to needed medical services.[26] The *Cedar Rapids* ruling indicated that requiring full-time nursing services was within the Individuals with

Disabilities Education Improvement Act's definition of related services. Thus, school districts were required to provide and pay for nursing services.[26(p.55)]

However, the inclusion of the school nurse as a member of the individual education plan team continued to be unclear to many educators.[26(p.56)] This struggle continued until 2004 when, after much lobbying by the National Association of School Nurses and the American Nurses Association, school nurses were included in the reauthorization of the Individuals with Disabilities Education Improvement Act of 2004 (P.L. 108-446). However, it is too early to assess the impact this act will have on the inclusion of school nurses on the individual education plan teams.

2.6.4 Other Legislation

During the educational reform movement of the late 1980s and 1990s, school counseling continued to receive support from federal initiatives such as the Carl D. Perkins Vocational Education Act of 1984 (P.L. 98-524), the Carl D. Perkins Vocational Education and Applied Technology Education Act Amendments of 1990 (P.L. 101-392), and the Carl D. Perkins Vocational-Technical Education Act Amendments of 1998 (P.L. 105-332).[4] These acts changed the approach of school guidance programs by focusing on the vocational aspects of the counselor's role. The School-to-Work Opportunities Act of 1994 (P.L. 103-239) and the Elementary School Counseling Demonstration Act of 1995 (part of the reauthorization of the Elementary and Secondary School Act) further emphasized the need for specialty programs in mental health and violence prevention in the schools, helping to increase focus on school guidance programs.[5]

School guidance counselors successfully continue national- and state-level efforts to further define and mandate their role in the schools. For example, the National Conference of State Legislatures and the American Association for Counseling and Development collaborated on a report advocating comprehensive school counseling programs in the elementary schools.[12] In contrast, although the National Association of School Nurses in conjunction with the American Nurses Association has written *Standards of Practice* to help guide school nurses' practice, no national government agency has become involved in the process. Similar standards have been developed by the National Association of School Psychologists for school psychologists. No national government involvement may be because much of education is decided at state and local levels. Local school nurses have worked with state governmental partners to establish such guidelines and requirements. This tactic has proven more successful in some states than in others because educational responsibilities are done at the state level, and different states have different philosophies regarding what should be included in education and the role of government in local matters.

Other federal programs also impact school guidance programs. The U.S Department of Education offers grants to local school districts for millions of dollars to improve school counseling at both the elementary and high school ages. The Office of Civil Rights advocates for school counselors because of an inequality in minority students dropping out of high school and not attending college. They believe that counselors can target their efforts toward minority groups to help them

graduate and to further their education.[27] Funding for mental health services is also available through the Substance Abuse and Mental Health Services Administration.

The No Child Left Behind Act of 2001 allowed funding to be used for support services, specifically indicating school nursing as an appropriate use of funding. Lobbying efforts led by Congresswoman Carolyn McCarthy of New York, a former school nurse, supported by the American Nurses Association and the National Association of School Nurses, were critical in getting school nursing included in this legislation.[28] No other federal legislation specifically funds school nursing, although funding sources such as special education and Medicaid funds can be used for school nursing.[20(p.8)]

2.7 Differing Educational Requirements

Legislation inclusion is not the only difference between school guidance programs and school nurses. Guidance counselors and school nurses also have distinctive educational requirements. School counseling was the first to require a specialty certification program in each state.[8] School counselors and psychologists graduate from certification programs offered through institutions of higher education (often times in colleges of education) and must be nationally accredited.[18] They must also be licensed through their department of education.

In contrast, no national educational or certification requirements exist for school nursing. State certification is left to the discretion of each state. More than one half (60.8%) of the states require school nurses to be certified or licensed in school nursing and earn continuing education credits.[15(p.302)] Fifty-one percent of the

states require specific educational requirements for newly hired nurses. Although a national certification for school nursing exists and approximately 2,500 school nurses nationally are certified, many state departments of education do not recognize this credential.[29] Qualification for the national certification is a bachelor's degree or higher education. Without standard certification, much confusion exists with regard to what is the role of the school nurse, even among school nursing. This type of confusion causes nurses to be cut when budgets are tight.

2.8 Lessons for School Nurses

School nurses can learn a lot from studying the political and social histories of other school support personnel. Furthermore, school nurses must find their "niche" or link within education. Counseling has remained strong throughout the years because educators see it as a critical component for student success. This perception may be due, in large part, to the vocational and educational counseling role of school guidance programs, which are viewed as part of education. (At times, legislative mandates are positive for school psychologists if they are included, but other times they are seen separately from guidance.) School nurses must link their activities to educational outcomes and show educators that school nurses are integral to students' academic success. School nurses need to change the way they report data regarding their activities to their educational counterparts.[9(p.170)] Great strides have been made in helping educators understand what school nurses do; yet, in many cases, educators continue to struggle to

understand the role of the nurse in the school setting. Until school nurses learn to talk the "education talk" and become part of the world of education, they will be at a great disadvantage as a profession. School nurses have the responsibility to bridge this gap by becoming more visible, being more proactive, and finding ways to show what they do and how it impacts education. Research linking school nursing actions to improvement in educational outcomes is critical but greatly lacking.[9] School nurses need to become more proactive and become critical members of education so that educators understand funding school nursing is an investment that will help all students and so that school nurses are not simply overlooked or seen as an "extra."

School nurses must become politically active! A main factor that has influenced guidance counselors' success was the inclusion of school counseling in numerous federally funded initiatives. Mandates regarding the role of guidance counselors decreased confusion among the counselors themselves; however, it should be cautioned that legislation narrowed educational expectations of school psychologists to focus on testing/assessment, forgetting the therapeutic counseling and research roles of a school psychologist.[3(p.49),11] The confusion exists in education and among school nurses themselves. Although standards exist, mandates would assist everyone in understanding the contribution school nurses make to education. More importantly, these acts acknowledge the presence and need for guidance counselors. Much has been said about the need for school nurses to step forward and become more astute and involved in the shaping of policies that affect

them.[13] School nurses must overcome their political naivete and become more involved at the local, state, and national levels. They must advocate for their profession and for the needs of the children.[13]

States must also look at certification programs or other educational opportunities for nurses if they are to succeed in the school setting. In the world of academia, educational achievement is respected. School counselors and psychologists require graduate-level degrees.[16] Certification through education provides an additional outlet of visibility and connection between guidance counselors and schools, as well as a distinction of experts in their field. The National Association of School Nurses recommends that school nurses be licensed, registered nurses, with a minimal preparation of a baccalaureate degree.[30] Entry-level teachers must have at least a baccalaureate degree, and entry-level support staff need at least this level as well. Starting in the baccalaureate program, nurses are educated about community health nursing, but not all school nurses have baccalaureate degrees. Educational requirements are a sensitive subject for many nurses with associate or diploma degrees; however, it is the reality of the world in which they work. Associate degree and vocational programs focus on clinical skills appropriate to hospital nursing. Nurses working in schools need additional training found only in baccalaureate nursing programs. Graduate-level education helps school counselors and psychologists have the knowledge needed to conduct research, which provides empirical support of their effectiveness.[3(p.131),11] School nurses continue to struggle in this area as well. Further education will not only

help educators see nurses as their equal, but it may also help empower nurses to perform more research and be an equal.

2.9 Conclusion

Much can be gleaned from the differing political histories of school guidance programs and school nurses. School guidance programs and school nurses have similar historical beginnings and still face some of the same struggles. However, they have met different levels of success. From the beginning, school guidance counselors were accepted as a needed addition to education. School guidance programs also gained power through legislation. Certification of guidance counselors and psychologists increased their validity and assisted them in gaining inclusion in the departments of education at the state and local levels. On the other hand, school nursing continues to fight for representation at the federal, state, and local levels of education. School nurses must concentrate their efforts in being recognized by education. Recognition is accomplished through increased educational training/certification, research, and professional communication with education. School nurses must also explore legislative options that will help support and promote school nurses. The future of school nurses is in their hands.

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3. MONEY, NOT LAWS, INFLUENCES SCHOOL NURSE RATIOS

3.1 Abstract

School nurses are a vital part of the educational team. Despite the importance of school nurses, their numbers are insufficient in many schools. The purpose of this study was to conduct a secondary data analysis to identify contextual factors, particularly laws mandating school nursing or school health services or activities, which may influence school nurse-to-student ratios. Kendall's tau (τ) and multiple regression, using variables identified in the literature, were performed to determine relationships between school nurse ratios and the identified variables. Money was the only factor found to influence school nurse-to-student ratios. A limitation to the study was the lack of data at local, state, and national levels. Further data collection is needed of other factors identified in the literature that influence school nurse-to-student ratios. Once key factors are identified, school nurses can more effectively focus their efforts to obtain the additional nurses needed in the schools.

3.2 Background

School nurses are a vital part of the educational team. The Rehabilitation Act of 1973 and Individuals with Disabilities Education Improvement Act of 2004 (or IDEA, which grew out of the Education of All Handicapped Children Act of

1975) mandate equal educational opportunities for all students, including those with complex medical conditions. The Centers for Disease Control and Prevention National Center for Health Statistics (2003) estimated that nearly one third of children currently have a chronic health condition and that number is rising. In addition, children face societal dilemmas such as poverty or violence, which can negatively impact health. All of these factors affect a child's ability to perform academically. Schools are the natural place to address health issues, not only because of the captive audience but also because of the impact health has on academic success or failure (McCarthy, Lindgren, Mengeling, Tsalikian, & Engvall, 2002; Swingle, 1997). Despite the importance of school nurses, their numbers are insufficient in many schools. Recently, much effort has focused on passing legislation mandating states to comply with set school nurse ratios and increasing school nurse funding (Apa-Hall, 2002; Buckminster, 1998; Spilker, 1999). Yet little research has been conducted to determine the impact these laws and policies have on school nurse-to-student ratios. The purpose of this study was to conduct an analysis of secondary data to identify factors, particularly laws mandating school nursing or school health services or activities, which may influence school nurse-to-student ratios.

3.3 Literature Review

Numerous studies have supported the positive impact of school nursing on student educational outcomes and learning (Allen, 2003; Ferson, Fitzsimmons, Christie, & Woollett, 1995; Maughan, 2003; Rice & Pollard, 1998; Stock, Larter,

Kieckehefer, Thronson, & Maire, 2002; Telljohann, Dake, & Price, 2004). With the increased media attention to school-based shootings and violence, it is important to note that some studies have associated school health programs with decreased violence (DeSocio & Hootman, 2004; Eggert, Thompson, Randell, & Pike, 2002; Houck & Perri, 2002). Houck and Perri found the school nurse ratio significantly decreased the absenteeism of students by decreasing their anxiety, stress, and other factors that affect students' problem-solving skills. School nurses are important members of the educational team in helping students both in learning and health outcomes.

According to the U.S. Department of Health and Human Services, Division of Nursing, more than 33,000 nurses work in public elementary and secondary schools in the United States (Centers for Disease Control and Prevention, 2001). State school nurse-to-student ratios range from Vermont's 1 nurse for 294 students to 1 nurse for 11,500 students in Alabama (National Association of School Nurses, 2004a [with verbal confirmation from state school nurse consultants]). School nurse-to-student ratios for each state and for states with laws mandating school nursing are found in Table 3.1. Only 13 states reported school nurse-to-student ratios in accordance with the national recommendation of 1 nurse for 750 regular education students set by the National Association of School Nurses and the American Nurses Association, and supported by *Healthy People 2010* (Igoe, 1995; National Association of School Nurses, 2004a, 2004b; U.S. Department of Health and Human Services, 2000). This national recommendation was not derived from

Table 3.1

School Nurse-to-Student Average Ratios by State: 1994 and 2004

State	1994 ratio nurse:student	Rank	2004 public student population	2004 ratio nurse:student	Rank	Change in ratio	State mandate
Alabama[a]	1:5,315	45	737,294	1:11,500	50	-	1:2,000
Alaska	1:701	6	134,358	1:634	9	-	
Arizona	1:970	13	922,180	1:1,025	25	+	
Arkansas[a]	1:1,210	17	449,805	1:750	14	-	1:1,000
California	1:1,815	31	6,248,610	1:2,292	45	+	
Colorado	1:1,619	26	742,145	1:1,613	37	=	
Connecticut[a]	1:517	3	570,228	1:500	3	=	1:district
Delaware[a]	1:657	5	115,555	1:465	2	-	1:40 unit
District of Columbia[a]	NA	--	75,392	1:538	5	NA	1:750
Florida	1:3,187	40	2,500,478	1:2,600	47	-	
Georgia	1:8,800	46	1,470,634	1:1,287	31	-	
Hawaii	NA	--	--	NA	--	NA	
Idaho	1:1,761	30	246,521	1:2,548	46	+	
Illinois	1:1,709	29	2,071,391	1:2,146	44	+	
Indiana[a]	1:1,617	25	996,133	1:1,107	27	-	
Iowa	1:924	12	485,932	1:944	21	=	

Table 3.1 (*continued*)

State	1994 ratio nurse:student	Rank	2004 public student population	2004 ratio nurse:student	Rank	Change in ratio	State mandate
Kansas	1:822	8	470,205	1:623	8	-	
Kentucky	1:1,522	23	654,363	1:1,362	32	-	
Louisiana[a]	1:2,820	39	731,328	1:1,741	40	-	1:1,500
Maine[a]	1:568	4	205,586	1:1,100	26	+	1:district
Maryland	1:1,667	28	860,640	1:951	22	-	
Massachusetts[a]	1:990	14	973,140	1:650	11	-	1:650
Michigan	1:4,115	43	1,730,668	1:2,000	42	-	
Minnesota[a]	1:1,650	27	851,384	1:1,419	35	-	1:district > 1,000
Mississippi	1:3,190	41	493,507	1:1,509	36	-	
Missouri	1:1,135	16	909,792	1:713	13	-	
Montana	1:2,055	33	151,947	1:1,400	33	-	
Nebraska	1:915	11	285,095	1:983	23	+	
Nevada[a]	1:2,455	38	356,814	1:1,279	30	-	No ratio specified
New Hampshire	1:486	2	206,847	1:500	4	=	
New Jersey[a]	1:1,239	18	1,341,656	1:639	10	-	1:district
New Mexico	1:837	9	320,260	1:782	15	-	
New York	1:851	10	2,872,132	1:942	20	+	

Table 3.1 (*continued*)

State	1994 ratio nurse:student	Rank	2004 public student population	2004 ratio nurse:student	Rank	Change in ratio	State mandate
North Carolina	1:2,339	36	1,315,363	1:1,897	41	-	
North Dakota	NA	--	106,047	1:4,717	48	NA	
Ohio	1:2,306	35	1,830,985	1:1,745	43	-	
Oklahoma	1:3,563	42	622,139	1:920	19	-	
Oregon	1:2,110	34	551,480	1:1,718	39	-	
Pennsylvania[a]	1:1,108	15	1,821,627	1:879	18	-	1:1,500
Rhode Island[a]	1:1,288	20	158,046	1:585	6	-	No ratio specified
South Carolina	NA	--	691,078	1:1,111	28	NA	
South Dakota	1:1,568	24	127,542	1:850	16	-	
Tennessee[a]	1:10,814	47	925,030	1:1,125	29	-	1:3,000
Texas	1:1,260	19	4,163,447	1:696	12	-	
Utah	1:4,317	44	484,677	1:6,022	49	+	
Vermont[a]	1:441	1	101,179	1:294	1	-	1:500
Virginia	1:1,934	32	1,163,091	1:876	17	-	
Washington	1:2,434	37	1,009,200	1:1,009	24	-	
West Virginia[a]	1:1,511	22	282,885	1:1,400	34	-	1:1,500
Wisconsin	1:1,399	21	879,361	1:1,653	38	+	

Table 3.1 (*continued*)

State	1994 ratio nurse:student	Rank	2004 public student population	2004 ratio nurse:student	Rank	Change in ratio	State mandate
Wyoming	1:773	7	88,128	1:608	7	-	

*State law, policy, or guideline mandating the school nurse-to-student ratio. NASSNC = National Association of State School Nurse Consultants (American Federation of Teachers, 1999; Green, 2004; National Association of School Nurses, 1994, 2004a).

Note. It should be noted that although 2004 data were confirmed by school nurse consultants, 1994 data were not because of the time elapsed and change in personnel 1994 data ranks up to 47 (since 4 states did not report data). (-) decrease in ratio 1994-2004; (+) increase in ratio 1994-2004; (=) remained about the same 1994-2004.

data or evidence but based on professional experience and anecdotal data. However, because of the length of its existence, it is the accepted national recommendation.

Looking at the top five states with the best school nurse-to-student ratios, New Hampshire is the only state that does not have a law mandating school nursing (American Federation of Teachers, 1999; C. Green, personal communication, June 2, 2005; National Association of School Nurses, 2004a). The states with the worst ratios—Alabama (1:11,500), Utah (1:6,022), and North Dakota (1:4,717)—have ratios more than twice the figures of the next worst states—Florida (1:2,895), District of Columbia (1:2,600), and Idaho (1:2,548). Of these states, Alabama and the District of Columbia have laws or policies mandating school nursing. Alabama's law is a 20-year plan to gradually decrease the school nurse-to-student ratios; thus, its current ratio is in compliance with its law (Alabama § 16-22-16). Of the 15 states that do have policies regarding school nurse staffing ratios, 8 laws stipulate a specific school nurse-to-student ratio that ranges from 1 school nurse for 500 students to 1 nurse for 11,500 students. Connecticut, Delaware, Maine, Nevada, New Jersey, and Rhode Island mandate a school nurse per district or facility but do not indicate specific ratios (National Association of School Nurses, 2004a; Conn. § 169-10-212; Delaware § 14-1310; Maine § 20A-223-6403-A; Nevada § 391.305, § 391.208; New Jersey § 6A-16; and Rhode Island § 16-21-08).

The ratio trends are encouraging. Many states have reduced the school nurse-to-student ratios over the past 10 years. These reductions are especially heartening since passage of federal legislation such as the No Child Left Behind has placed more emphasis on end-of-level testing and scores (U.S. Department of Education, 2001). Of particular interest is Tennessee, which decreased its school nurse-to-student ratios from 1 nurse for 10,000 in 1994 to 1 nurse for 1,125 in 2004 (National Association of School Nurses, 1994, 2004a). This decrease was influenced by a law that mandated a ratio of 1 school nurse for 3,000 students (Rose, Detch, & Morgan, 1999; Tennessee § 49-3-359-c-1). The law was passed because of the efforts of key legislators, the governor's strong initiative on education, and fervent lobbying by nursing and education groups. Interestingly, Tennessee does not have a state school nurse consultant (K. Nye, personal communication, April 19, 2004).

State school nurse consultants are seen as leaders in developing and advocating for school nursing policy (National Association of School Nurses, 2004c). For this reason, the National Association of School Nurses has also identified obtaining a state school nurse consultant, preferably one in each of the state departments of education and departments of health, as one of its priorities. It is believed that a state school nurse consultant would guide school nurse policy, but to date, no studies have identified the influence of the state school nurse consultant (National Association of School Nurses).

3.4 Factors Influencing School Nursing and School Health

Many factors influence the implementation of school nurse staffing and other school health factors. Because there are few studies about the relationship between health policy and school nursing, other sources of school health program information (mental health workers, school-based health clinics, health education, and comprehensive school health) are included in this literature review as well. Results of the literature review are found in Table 3.2. Insufficient funding was a common thread for all school health services (Broussard, 2002; Lear, 2002). Local acceptance and understanding of the role of school health personnel are key to sufficient funding (Broussard; Sheetz & Blum, 1998; Whiston, 2002). Ethnicity and local ownership were the only factors that influenced other school health services but not school nursing ratios (Lindley & Reininger, 2001; Lindley et al., 1998).

Various organizational factors such as community beliefs influence school health services (Morone, Kilbreth, & Langwell, 2001; Tetuan & Akagi, 2004). Political ideology and the role of education were strong common themes among other school health services and are further explained. Community protest by the conservative population was identified as the key deterrent to many school-based health services (Rienzo, Button, & Wald, 2000). Legal actions and political correctness also put added pressures on school health education programs. Schools tend to scale down or restrict topics covered in order to maintain this conservative political correctness (Petosa, 1988; Sofalvi, 2000). In addition, other studies have

Table 3.2

Factors Identified by Opponents and Proponents of School Health Services

Factor	Program	Support references
	Demographic factors	
Ethnicity	Reproductive services, homosexuality	Lindley & Reininger (2001); Lindley, Reininger, & Saunders (2001)
Education level of community	Health services	Billy et al. (2000)
Socioeconomic status of community	Sex education, health services	Billy et al. (2000); Rienzo et al. (2000)
Religiosity	Reproductive services, sex education, nursing	Lindley & Reininger (2001); Lindley et al. (2001); Lindley et al. (1998)
Ideology of thought (liberal as compared to conservative)	Reproductive services, sex education, school-based health centers, school mental health workers	Galland & Gupta (1999); Lindley & Reininger (2001); Lindley et al. (2001); Lindley et al. (1998); Morone et al. (2001); Oberteuffer (2001); Rienzo et al. (2000); Schlitt, Rickett, Montgomery, & Lear (1994)
Role of education does not include health	Health/sex education, nursing, school-based health centers	Denman (1994); D'Onofrio (1989); Sullivan & Bogden (1993); Winnail & Bartee (2002)
	Organizational factors	
Policy or laws	Nursing, education, school-based health centers	Billy et al. (2000); Burström et al. (1995); Denman (1994); Morone et al. (2001); Tepper (2002); Tetuan & Akagi (2004); World Health Organization (1997)

Table 3.2 (*continued*)

Factor	Program	Support references
Educational priority (and lack thereof), supportive school climate	Health education, nursing, school-based health centers	Bond, Glover, Godfrey, Butler, & Patton (2001); Broussard (2002); Butler (1993); Deschesnes, Martin, & Hill (2003); Lynagh, Knight, Schofield, & Paras (1999); Lytle, Ward, Nader, Pedersen, & Willistron (2003); McBride & Midford (1999); Parcel et al. (2003); Pateman, Grunbaum, & Kann (1999); Rienzo et al. (2000); World Health Organization (1996, 1997)
Insufficient funding	Health education, school-based health centers, nursing	Broussard (2002); Cotton et al. (2000); Elders (1993); Henegan & Malakoff (1997); Lear (2002); Lynagh et al. (1999); Lytle et al. (2003); Schlitt (1991); Swart & Reddy (1999)
Lack of understanding	Nursing, school-based health centers, school mental health workers, sex education	Ballenski & Schalk (1979); Elders (1993); Goodwin & Keefe (1984); Henegan & Malakoff (1997); Lindley et al. (1998); Miller & Hopp (1988); Sheetz & Blum (1998); Whiston (2002)
Local ownership, community involvement, collaboration, parent involvement	Health/sex education, school-based health centers	Broering (1991); Lavin, Shapiro, & Weill (1992); Lindley et al. (1998); McBride & Midford (1999); Pateman et al. (1999); Schlitt et al. (1994); World Health Organization (1996, 1997)
Demand for services	School-based health centers, health services	Billy et al. (2000); Morone et al. (2001)

indicated that more liberal thinkers supported school health services. Liberal thinkers tend to belong to the Democratic Party, and conservatives, not usually supportive of school health services, are affiliated with the Republican Party (Lindley et al., 2001; Lindley et al., 1998).

These identified factors were examined in community-level studies. No research could be found that investigated the link between state school nurse-to-student ratios and the identified factors. The purpose of this study was to determine if state laws and other identified factors influence state school nurse ratios. The research questions of this study were as follows: (a) Do state laws mandating school nurses or health services/activities influence school nurse-to-student ratios? and (b) What other factors influence school nurse-to-student ratios?

3.5 Study Methods

The unit of analysis for this study was the individual state, which included the 50 states and the District of Columbia. The study examined six public-use sources of data: (a) School Health Policies and Programs Study, (b) National Association of School Nurses, (c) National Association of State School Nurse Consultants, (d) the *National Journal* ("How They Measured Up," 2004), (e) National Center for Educational Statistics (Hill & Johnson, 2005), and (f) U.S. Census Bureau (2000a, 2000b).

The dependent variable, school nurse-to-student ratios, was obtained from numbers provided by the National Association of School Nurses and confirmed by the National Association of State School Nurse Consultants. During the data

collection process, it became apparent that ratios were determined in a variety of ways. Close to half of the states do not have a systematic reporting program to collect data from all districts (or schools). Data are collected through surveys or use other methods to estimate results. Furthermore, many states do not measure school nurse staffing as a ratio; other measurements such as 1 nurse per building are used instead. Other states prefer using a range of ratios to represent school nursing. These inconsistencies made confirmation of state ratios with state school nurse consultants or other school nurse leaders difficult.

The independent variables identified through the literature include (a) mandated school health services (School Health Policies and Programs Study), (b) mandated specific school health issues such as immunization or screening requirements (School Health Policies and Programs Study), (c) the presence of a state school nurse consultant (National Association of State School Nurse Consultant), (d) the amount of funding per pupil unit for education and school support services (U.S Department of Education) (Hill & Johnson, 2005), (e) population density of the states (U.S. Census Bureau), (f) state ethnicity (U.S. Census Bureau), (g) families with children under 18 years of age (U.S. Census Bureau), (h) socioeconomic level of individual states (U.S. Census Bureau), and (i) state political ideology ("How They Measured Up," 2004).

All of the data were extracted directly from the sources, except for political ideology, which was calculated. The *National Journal* ("How They Measured Up," 2004) rates the adherence of conservative principles by state congress members

using a rating system developed in 1981. These votes are combined in an index, and members are then ranked from *most liberal* to *most conservative* ("How They Measured Up," 2004). The rankings of each congress member were added, an average score was calculated, and a composite ranking score was developed for each state. This score was used to represent political ideology in the study; the higher the score, the more liberal the state.

Several variables identified in the literature as possibly impacting school nurse-to-student ratios are not systematically collected. These variables include the (a) level of understanding of the role of the school nurse; (b) educational, parental, and community commitment and involvement with school nurses; and (c) philosophical beliefs of the role of health in education (Billy et al., 2000; Lindley et al., 2001; Lindley et al., 1998). For this reason, these variables were not included in this study.

3.6 Data Analysis

Data were gathered and entered into the SPSS program (SPSS, Inc., 2001) and correlation analysis was conducted. To ensure data met the assumption of correlations (i.e., normal distribution, linear relationship, and homoscedasticity), frequency tests and scatterplots were conducted first. These results showed that school nurse-to-student ratios were not normally distributed but were negatively skewed. This distribution violates the assumptions of the Pearson *r* test. In addition, as mentioned earlier, guidance obtained from many states indicated that a specific ratio did not represent school nursing in their state; a range of ratios was a

more appropriate representation of state school nursing staffing. Thus, states were grouped into eight categories by ratio. The states were grouped according to natural breaks in ratios and using the national recommendation (1:750) as a break point. These groups include the following: (a) less than 1:500, (b) 1:501 to 1:650, (c) 1:651 to 1:750, (d) 1:751 to 1:1,000, (e) 1:1,001 to 1:1,500, (f) 1:1,501 to 1:2,000, (g) 1:2,001 to 1:3,000, and (h) 1:3,001. Because of the ordinal-level data, Kendall's tau (τ) was conducted to determine relationships. Multiple regression was performed to determine if statistically significant variables, when considered together, provided additional explanation of school nurse-to-student ratios.

3.7 Results

No statistically significant relationship was found between state school nurse-to-student ratios and the existence of state legislation mandating school health services. An inverse correlation was found between funding per pupil unit and school nurse ratios (general funding, τ = -.341; and support services funding, τ = -.302). In other words, the greater the funding per pupil unit, the lower the school nurse-to-student ratios. Funding per pupil unit and support services per pupil unit correlated with (a) state political ideology (per pupil unit funding, τ = .365, p < .01; support services funding, τ = .352, p < .01); (b) state population density (per pupil unit funding, τ = .352, p < .01; support services funding, τ = .318, p < .01); and (c) state per capita income (per pupil unit funding, τ = .460, p < .01; support services funding, τ = .494, p < .01). Funding per pupil unit was inversely related to percentage of children under 18 years of age (τ = -.258, p <

.01). Results can be found in Table 3.3.

A significant relationship was found between laws and state political ideology ($\tau = .269$, $p < .05$) and population density ($\tau = .256$, $p < .05$). An inverse relationship was found between laws mandating school nursing and percentage of children in a family under 18 years old ($\tau = -.323$, $p < .01$). Multiple regression indicated that combining these variables did not significantly increase the relationship with school nurse ratios ($F(6,43) = 3.85$, $p = .004$) and accounted for 34.9% of the variance as compared with funding alone ($F(1,48) = 24.87$, $p = .001$), which accounted for 34.1% of the variance. None of the additional variables contributed significantly to the analysis. Results of the multiple regression are found in Table 3.4.

Although no relationship was found between the presence of school nurse consultants and school nurse ratios, statistically significant correlations were found (a) between consultants and schools providing immunizations on-site ($\tau = .393$, $p < .05$.); (b) individual student suicide prevention activities ($\tau = .319$, $p < .05$); and (c) presence of a local coordinator of school health services ($\tau = .332$, $p < .05$). An inverse relationship was found between school nurse consultants and Medicaid billing ($\tau = -.398$, $p < .05$). No relationship was found between the presence of a school nurse consultant and various state-reporting requirements such as reporting of school-based injuries, Medicaid billing, or medication administration, which are often school nursing responsibilities. Results of this analysis are found in Table 3.5.

Table 3.3

Correlation Analysis of State School Nurse-to-Student Ratios

	Ratio (τ)	Law (τ)	Funding per pupil unit (τ)	Support services funding per pupil unit (τ)	Political ideology (τ)
Law mandating school nurse ratio	-.158	1.0	-.341**	.147	.269*
Mandated school health services	.089	-.294*	.104	.140	-.037
Mandated vision screenings	.063	-.274	-.213	-.251*	-.138
Mandated hearing screenings	.063	-.183	-.219	-.260*	-.113
Mandated scoliosis screenings	.110	-.446**	-.213	-.110	-.182
School nurse consultant	.082	.000	.035	-.089	-.033
Funding per pupil unit	-.341**	.248*	1.00	.764*	.374**
Support services (funding per pupil unit)	-.302**	.147	.771**	1.00	.370**
State political ideology	-.156	.269*	.374**	.370**	1.00
Per capita income	-.173	.098	.465**	.474**	.250*
Family with children under 18	.152	-.330**	-.258**	-.179	-.323**
State ethnicity	-.016	.122	.099	.005	-.038
Population density	-.056	.256*	.362**	.322**	.295*

*$p < .05$. **$p < .01$.

Table 3.4

Regression Analysis and Partial Correlation of Factors Influencing School Nurse-to-Student Ratios

	Beta	Standard error	R^2	Partial correlation
Final model			.341	
Funding per pupil unit	-.001*	.000		
Model 2			.349	
(Constant)	10.481	2.30		
Funding per pupil unit	-.001*	.000		
Support services funding per pupil unit	-.0001	.001		.005
State political ideology	.006	.018		.050
Per capita income	-.00002	.000		.008
Law mandating school nurse ratio	-.364	.596		-.070
Population density	.001	.002		.043

*$p < .05$.

Table 3.5

Correlation Analysis of State School Nurse Consultants

	State school nurse consultant (τ)
State ratio	.082
Immunizations provided	.393*
Individual suicide prevention	.319*
Medicaid billing	-.398*
Local coordinator of school health	.332*
School health services quality evaluation	.115
Injury report submitted to state	.216
Individual sexually transmitted disease counseling	.266
School nurse part of individualized education program	.091
School nurse part of individualized health-care plan	-.108

*$p < .05$.

**$p < .001$.

3.8 Discussion

Money was the only factor found to influence school nurse-to-student ratios. States that spent more money for education and student support services had smaller school nurse-to-student ratios. However, these correlations are still considered a small relationship (Hinkle, Wiersma, & Jurs, 1998). This finding is not surprising and is expected because school nursing is mostly funded through education dollars (National Association of School Nurses, 2004a). Because funding

is critical for school nurse ratios, sources outside education may be helpful in financially supporting school nurses. Other categorical funding can be used to finance school nurses such as (a) Title I and special education funding, (b) Maternal and Child Health block grant funds, (c) federal participation programs such as Medicaid and the Child Health Insurance Program, (d) third-party payers, (e) private foundations, (f) community partnerships, and (g) grants from organizations concerned with children (Costante, 2001; National Association of School Nurses, 2004a).

No other factors identified in the literature, however, were found to influence school nurse-to-student ratios, including laws (Billy et al., 2000; Lindley & Reininger, 2001; Morone et al., 2001). The results imply that political ideology and various characteristics such as per capita income influence how education and, thus, school nursing are funded. Political ideology also influences laws regarding school nursing. Studies have shown that more liberal ideologies tend to support school health services and that more conservative ideologies do not (Lindley et al., 2001; Lindley et al., 1998; Rienzo et al., 2000). However, results from the multiple regression imply that these factors account for only 34% of the variance. Thus, other factors may have a greater impact on school nurse staffing.

These other factors may include variables that could not be included in this analysis because they are not systematically collected. These variables include (a) local ownership, philosophical beliefs regarding education, and level of understanding of the role of the school nurse by educators, parents, and the

community; (b) community support for school health programs; and (c) decision makers who know the problem (Billy et al., 2000; Lindley et al., 2001; Lindley et al., 1998). Further study is needed to identify how much these factors impact school nursing and if additional factors such as the influence of beliefs regarding the role of government also influence school health services.

Reading the state laws may help explain why no relationship existed between laws and school nurse-to-student ratios. Laws mandating school nursing ratios vary greatly in their writing and influence. For example, some laws mandate large ratios: The law in Alabama is written to decrease school nurse ratios over a period of 20 years (Alabama § 16-22-16). Alabama's current recommendation is being followed at 1 nurse for 11,500 students. This law was revised from its original form because of issues regarding the funding source of the law. Other states' laws were vague, leaving much room for interpretation. In other states, the law was not enforced, or the penalty for breaking the law was minimal. In Pennsylvania, where ratio waivers are allowed, the penalty for not following the mandated 1 school nurse for every 1,500 students is less costly than employing the school nurse (Anonymous, personal communication, July 3, 2005). Thus, some districts choose paying the fine rather than hiring a nurse. Laws may impact school nurse ratios but only if written clearly (leaving little room for interpretation), are enforceable, and include an appropriate funding source that does not fluctuate.

It is difficult to explain why no relationship was found between school nurse ratios and other laws mandating school health services. Perhaps many

decisions are made at a district or school level. A majority of states mandate some type of school health services or activities such as vision screenings or school entrance immunizations no matter what the ratio (National Association of School Nurses, 2004a). Other services mandating the reporting of injuries were not significant perhaps because other school personnel could complete these tasks as well as school nurses. Thus, these services, which are often conducted by school nurses but could be done by other school personnel, do not necessarily impact the school nurse staffing.

These services could also be an area that school nurses could emphasize more and show why it is important for a licensed professional to carry out these activities in a coordinated fashion rather than allowing others to perform various components. Further investigation could help identify trends that school nurses could investigate and possibly improve, thus preventing future problems. If school nurses could show why they are important, it would increase the demand for them, which has been identified as a factor positively influencing school health services (Billy et al., 2000; Morone et al., 2001).

3.9 School Nurse Consultants

Results of the study indicate that no relationship exists between the presence of a state school nurse consultant and school nurse staffing ratios. The National Association of School Nurses believes that state consultants are an important resource for school nurses. The National Association of School Nurses also believes that state consultants are able to keep up-to-date regarding various

activities statewide that local school nurses cannot perform (National Association of School Nurses, 2004c). School nurse consultants represent school nursing at the state level to help clarify the role of the school nurse, as well as misunderstandings regarding licensure and other issues (National Association of School Nurses). Although school nurse consultants may not directly influence school nurse-to-student ratios, the presence of a consultant does impact various nursing activities such as providing immunizations and suicide prevention outreach. No literature could be found to support or refute these findings. Future studies to better understand the influence of a state school nurse consultant would be beneficial, especially for states fighting to hire a state consultant. It is unclear why the presence of a state school nurse consultant decreases the chances of schools billing for Medicaid services. One explanation is that school nurses do not bill for services in all states. More investigation needs to be done to understand this phenomenon as well.

3.10 Data Availability

The greatest limitation to this study was the availability of data from states. As mentioned earlier, many factors identified in the literature are not systematically collected and, therefore, could not be included in this study. Variables such as philosophical beliefs, educator and community understanding, and parent support may be difficult to collect systematically but could be investigated by qualitative interviews. However, a systematic data collection of school nurse staffing would ensure more confidence in the results of this study, as

well as provide additional information that would be helpful in better understanding the factors that influence school nurse-to-student ratios. In other words, all states should collect information in the same manner with regard to school nurse staffing, school nurse activities, and student health education concerns. Until standardized data are systematically collected in all states, more in-depth analysis cannot be done. It is these empirical data that school nurses need to show their impact on educational and health outcomes (Wolfe, 2002). Data collected by school nurses are critical in shaping evidence-based practice (Hootman, 2002). State school nurse consultants could play a key role in this data collection at the state level. However, not all states currently have the capacity and support to develop a system.

One of the greatest barriers to collecting data is lack of cooperation from local school nurses and districts (various school nurse consultants, personal communications, June 2005). Numerous states indicated that they had a poor return rate of data from school nurses or that often the data returned were "guesstimates." Local school nurses have access to an incredible amount of data, much of which they should already be documenting as part of the *Standards of Practice* (National Association of School Nurses, 2005a). Accurate and prompt reporting of data is part of this vocation. Many software programs have been developed to assist school nurses with this process (Murphy, 2005; Vessey, 2002). The cost of these programs may be prohibitory for some. Other solutions such as working with district computer programmers must be found to assist school nurses in collecting data.

This problem is not just at the local or state levels. The problem must be addressed at a national level. Data collection should be a top priority for the National Association of School Nurses and begins with how school nursing is measured. Validity and reliability of a study depend upon accurate data. Although every effort was made to ensure accurate data by confirming the National Association of School Nurses numbers with state school nurse consultants, the reliability of the school nurse-to-student ratios data was difficult to confirm. During the confirmation process, many numbers changed dramatically. Different answers were given by different persons. Changing how questions are worded to ensure that appropriate data are obtained and confirming answers with state data could solve this problem.

It was also discovered that many states do not measure school nursing in the same way. Many of the states with better ratios disliked using ratios as a measurement. They believed it did not reflect their state's needs accurately. For example, some states with ratios better than the national recommendation still had various districts without school nurses. Rural areas may have smaller ratios, but nothing accounted for the long distances that must be traveled to visit all the students. In addition, the national recommendation is not based on data or evidence. It may be prudent for national experts, including the National Association of School Nurses and the National Association of State School Nurse Consultants, to review and possibly revise how school nursing is measured and what constitutes an adequate level of school nursing coverage. Ratios may not be

the best measurement; caseload and acuity may be better alternatives.

Another concern is a systematic data collection process that could be used at the local, state, and national levels. Additional data would have enriched this study and provided more insight into factors influencing school nursing. States that successfully collect and utilize data could be used as a model for a national database (various school nurse consultants, personal communications, June 2005). One approach could be to collaborate with the Division of Nursing at the U.S. Department of Health and Human Services. A nationwide nursing survey is already conducted by the Division of Nursing every 4 years. Currently, however, the sampling procedure does not contain adequate responses for state-level data regarding school nursing (Spratley, Johnson, Sochulski, Fritz, & Spencer, 2000). The mechanism is in place.

An alternative possibility is to collect data through the U.S. Department of Education. School nurses work in the domains of health and education. Many states with the most complete reporting mechanism currently collect information through education reports. One advantage of collecting information through education is that it is an "outside source," involving more than just school nurses, which would add validity and power to the results. Some states that collect data through education acknowledge that nurses employed through other agencies such as local health departments are not always included in the data (various school nurse consultants, personal communications, June 2005). Thus, if education became the source of data, provisions would be needed to ensure accounting of all

school nurses. The National Association of School Nurses' priority is to employ a school nurse consultant at the U.S. Department of Education (National Association of School Nurses, 2005b). Oversight of national data collection by the school nurse consultant in the U.S. Department of Education may be another possibility.

3.11 Conclusion

Money influences state school nurse-to-student ratios. No other factors were found to have a significant impact with school nurse staffing. Although state laws may help some states improve their school nurse-to-student ratios, their existence is not a guarantee of success. For state laws to be successful, special attention must be given to include an appropriate funding source and proper enforcement of the law. It is critical that accurate data be collected at the local, state, and national levels for future studies. Further data are needed to identify other factors that more potently influence school nurse-to-student ratios in the states. The literature suggests that these variables may include philosophical beliefs, educator and community support, and an understanding of school nurses. For school nurses to effectively focus their efforts to increase their numbers and thus address the health of the nation's children, they must know the key factors that influence their existence.

3.12 References

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4. UNITED WE STAND: FACTORS INFLUENCING SCHOOL NURSE-TO-STUDENT RATIOS

4.1 Abstract

This qualitative study investigated social and political factors that influence school nurse-to-student ratios. Thirty persons from 11 states participated in taped telephone interviews. Content analysis identified common themes. Positive factors that influence school nursing policy include the approach taken to effect change, the value placed upon school nurses, local support (from both educators and parents) and community buy-in, fear of litigation, and dynamic leadership. Barriers to school nursing include lack of funding and misunderstanding of the role of the school nurse. Philosophical beliefs and state geography were "swing" factors that influenced school nursing positively or negatively. The information was used to create a theoretical model to visibly illustrate influences on school nurse staffing. This study and the subsequent model reinforce the need for school nurses to be visible advocates for their role. Although there is not one magic ingredient to guarantee more school nurses, there is much school nurses can do.

4.2 Background

Why do some states have better school nurse-to-student ratios than others? How do "those eastern states" do it? What is the magic ingredient for getting more school nurses? These unanswered questions linger in the minds of many. Much has

been speculated, yet little research has been conducted to identify the factors that influence school nurse-to-student ratios.

Numerous studies have assessed the positive impact of school nursing on student educational outcomes and learning (Allen, 2003; Maughan, 2003). Yet only 13 states report school nurse-to-student ratios in accordance with the national recommendation of 1 nurse for 750 regular education students set by the National Association of School Nurses and the American Nurses Association, and supported by *Healthy People 2010* (Igoe, 1995; National Association of School Nurses, 2003, 2004a; U.S. Department of Health and Human Services, 2000). Yet the data are encouraging. Many states have reduced the school nurse-to-student ratios over the past 10 years. However, a majority of states continue to be out of compliance with national recommendations. The purpose of this study was to identify social and political factors that make it more or less likely for states to have recommended ratios of school nurse staffing.

4.3 Factors Influencing School Nursing and School Health Services

The literature suggests various factors that influence school nurse staffing, but most are anecdotal. Few studies could be found that investigated factors that influence school nurse ratios. Those studies include state policies, decision makers who see the problem, and support of the programs by the people (Billy et al., 2000). Federal legislation such as Section 504 of the Rehabilitation Act of 1973 and Public Law 94-142 and its successive amendments has been beneficial as well

(Harrison, Faircloth, & Yaryan, 1995). Loranger and Fox (2003) found 83% of parents supported having school health services. Cramer and Iverson (1999) found that 96% of parents supported funding school health services.

Several barriers to school nursing have also been identified. The Office of School Health at the University of Colorado Health Sciences Center conducted national surveys in 1984 and 1994. The study found that barriers to school nursing policy included limited funding, an inadequate number of nurses, and inadequate facilities for school health (Davis, Fryer, White, & Igoe, 1995). Funding for school nursing is an historical concern that continues to impede obtaining more school nurses (Cotton et al., 2000; Davis et al.; Henegan & Malakoff, 1997; Tetuan & Akagi, 2004; Woodfill, 1986). Tetuan and Akagi reported that when the budget is tight, districts eliminate school nursing positions. Cotton and colleagues found the areas in the greatest need were also the areas with greatest financial constraints.

Confusion about the role of school nurses is another barrier (Chayer, Dilworth, & Swanson, 1945; Cotton et al., 2000; Eidens, 1963; Miller & Hopp, 1988; Thomas, 1976; Woodfill, 1986). Poor interpersonal relationships and communication skills between school nurses and educators contribute to this problem. It is difficult to justify to educators the need for more school nurses if educators believe school nurses just pass out Band-Aids and check head lice. In addition, school nurses disagree on how their time should be spent. One study investigating how school nurses use their time indicated that the current perception

of student health needs and their current activities do not agree (Cotton et al.). In other words, nurses do not spend their time addressing the needs they perceived to be the most crucial. If school nurses cannot agree on their roles in the school, it is little wonder that other school personnel and parents have conflicting views of the role of the school nurse (Ballenski & Schalk, 1979; Goodwin & Keefe, 1984; Miller & Hopp).

People's values and beliefs with regard to health and education were identified both as a barrier and a facilitator to school nursing. Those who accept health as an essential part of education believe a school health service is an "educational experience leading its beneficiaries into self-sufficient, intelligent behavior" (Oberteuffer, 2001, p. 375). However, school nursing may not fit the social and political philosophies of some people. For example, some view school health services as a form of socialized medicine encouraging people to be dependent on the government (Oberteuffer). Others believe that school health services overstep a parent's right and responsibility to provide physician care (Wilson, 2001). In addition, school nurses are often thought to be main supporters of sexual and reproductive health education in the schools (Lindley, Reininger, & Saunders, 2001).

Although the literature has identified various factors that influence school nursing, little current research on the subject has been conducted to identify key factors that influence school nursing policy. According to Mason, Leavitt, and Chafee (2002, p. 8) "policy" is defined as the principles that govern action

targeted towards a particular end. In this study, the "end" is the state school nurse-to-student ratios. The purpose of this study was to investigate the "principles that govern action," including factors that influence passage of the laws, policies, and supply of school nurses in public schools. The research questions were defined as follows: (a) What are the key factors related to policy development and implementation that facilitate or hinder school nurse-to-student ratios? and (b) What are the underlying beliefs and values of the community that affect policies relating to school nurse-to-student ratios?

4.4 Methods

This descriptive, qualitative study analyzed data at the state level. Participating states were purposefully selected to ensure broad representation across the nation. Because the purpose of the study was to look at factors that influence school nurse ratios, states with the lowest and highest school nurse-to-student ratios were identified, along with states whose ratio had changed dramatically in the past 10 years. Other state characteristics wanted in the sample were then used to narrow the selection of the participating states. These factors included states with laws mandating and not mandating school nursing, states with differing political ideology (both conservative and liberal), states with varying socioeconomic levels and population density, and states with and without a school nurse consultant. Representation from various geographic regions of the country (east, south, west, and midwest) was also considered when identifying possible participants. States also had to collect data with regard to school nursing in that state. The 11

participating states included Alabama, California, Connecticut, Delaware, Iowa, Massachusetts, Missouri, Montana, New Hampshire, Tennessee, and Utah.

State school nurse consultants were the primary key informants for the interviews. One of the roles of the state school nurse consultant is to be a resource for the state with regard to school nursing and school health issues (National Association of School Nurses, 2004b). For states that did not have a school nurse consultant, contact was made at the department of education or department of health with the person who oversees health services or coordinates school health. If the school nurse consultant had been in his or her position fewer than 2 years, the former school nurse consultant was identified and interviewed to ensure appropriate knowledge and history of the state's school health policy.

Other key informants from each state were purposely selected using a snowball technique, with input from the state school nurse consultant. The number of other key informants who participated in the study was determined by different perspectives and experiences offered by each participant. Criterion for the other consultants included someone who could add a more in-depth description of public school nursing policy for that state. These other informants included the legislative sponsor of a school health bill, a lobbyist, or a school nurse advocate involved with the political process.

Because of distance constraints, all interviews were conducted by telephone. The guides (key informant guide and secondary informant guide) for the telephone interviews were constructed and pilot tested following proven methods (Crist &

Tanner, 2003; Dillman, 1978, 2000; Sorrell & Redmond, 1995). Minimal changes with regard to wording were made. The major suggestion from these reviewers was to give study participants the questions ahead of time so they had additional time to think about their answers. Thus, participants were given the questions before the interview.

4.5 Data Analysis

All interviews were transcribed word-for-word, and participants had the opportunity to review their own transcripts. NVIVO software was used to help manage the data. Qualitative data collected from in-depth interviews were analyzed using the method outlined by Miles and Huberman (1994). Initial coding was conducted using factors identified in the literature and organized by each question. After responses to each question were coded, several more reviews of the data were conducted to identify common themes or patterns in the data. Several matrixes were developed to facilitate further analysis of the data. Similarities and differences were compared between geographic region and school nurse-to-student ratios to determine further patterns. States with "low" school nurse-to-student ratios were those whose ratios were in compliance with the national recommendation of 1 nurse for 750 students. In contrast, "high" states had ratios out of compliance with the national recommendations. Comparisons were also made among states whose ratios were high, whose ratios have dramatically improved, or whose ratios were in compliance with the national recommendation. In addition, further analysis was conducted to compare participants who were

employed by the health department with those employed in education and to compare participants with school nursing background and those without. Any differences were reviewed carefully and, if needed, follow-up with the state participants was conducted until differences could be explained.

To increase the validity and reliability of the study, my personal biases or preconceived notions were recorded and "bracketed" before the investigation began so as not to influence the study (Janesick, 2000). Copious notes, all transcripts and original records, and a decision trail were kept throughout the investigation. An outside researcher reviewed the notes and interpretations to ensure dependability of the results.

4.6 Results

Several states did not qualify to participate in the study because they did not systematically collect data. Thirty interviews were conducted with participants from the 11 states from all regions of the country. Participants were highly educated, with 77% having graduate degrees in nursing and other fields. Years in their current position ranged from less than 1 year to more than 20 years. Interestingly, those with less than 3 years in their position had previous experience in school health policy in other capacities. Table 4.1 provides more detailed demographics of the participants. Six persons (16%) from various states and holding various positions never responded to the request to participate. A majority of participants were school nurses, former school nurses, or health-care professionals. Responses of school nurses and nonschool nurses supported each other. No major

Table 4.1

Demographics of Study Participants

Demographics	Study participants (N = 30)	
	n	%
Professional position		
School nurse consultant (current or former)	11	37.0
Legislator (current or former)	5	17.0
Other state employee	5	17.0
School nurse/health professional	9	30.0
Years of experience in current position		
< 5 years	9	30.0
5 to 9 years	11	37.0
10 to 15 years	6	20.0
> 16 years	4	13.0
Professional background		
School nurse	15	50.0
Nurse or health professional	10	33.0
Educator	2	7.0
Other	3	10.0
Highest level of education		
Associate degree/diploma	1	3.0
Baccalaureate degree	6	20.0
Master's degree in nursing	7	23.0
Master's degree in other than nursing	8	27.0
Postmaster's degree	8	27.0

discrepancies were identified (see Table 4.2). Direct quotes from the participants are italicized in the manuscript.

Several factors that influenced school nursing were identified in the study. Key themes are displayed in Table 4.3, along with illustrative participant quotes. Other quotes are also found in the text. Each of these factors is described in more detail below. Overall, states with low ratios tended to have several more positive factors than states with high ratios. States with the higher school nurse-to-student ratios tended to have the most barriers.

4.6.1 Positive Factors

The framework or approach taken to get more school nurses was quite different between states with a low ratio as compared with states with a high ratio. Many of the states with low ratios did not focus on the need for more school nurses. Rather, the focus was on societal changes such as an increased number of medically fragile children. This change in tactic helped parents, teachers, advisory boards, and other decision makers to see school nurses as an asset to the community. In fact, grassroots efforts by parents and teachers, not school nurses' actions, were identified as a significant factor for getting more school nurses. Others' efforts did not mean school nurses did nothing. School nurses continued to be advocates, but they approached problems in a different light. They collected and presented data regarding children's health trends and their own activities, identifying the needs. The school nurses went out of their way to talk to teachers, superintendents, and legislators about school health issues. School nurses worked

Table 4.2

Characteristics of Participating States

State	2004 ratio (school nurse-to-student)	Political ideology rank and party	Geographic region	School nurse consultant	School nurse law	Per capita income, 1999	Person per square mile	% of children < 18 years old
Connecticut	1:426	43 (D)	East	X-E	X	$28,766	702.9	25.7
New Hampshire	1:422	13 (R)	East	X-E		$23,844	137.8	25.0
Massachusetts	1:650	89.3 (D)	East	X-H	X	$25,952	809.8	23.6
Delaware	1:465	62.3 (D)	East	X-E	X	$23,305	401.1	24.8
California	1:2,292	62.1 (D)	West	X-E		$22,711	217.2	27.3
Tennessee	1:1,743	19 (R)	South		X	$19,393	138.0	24.6
Iowa	1:901	23 (D)	Midwest	X-E		$19,674	52.4	25.1
Montana	1:1,400	10 (R)	West			$17,151	6.2	25.5
Missouri	1:713	39.7 (R)	Midwest	X-E		$19,936	81.2	25.5
Utah	1:6,022	2 (R)	West	X-H		$18,185	27.2	32.2
Alabama	1:11,500	26.6 (R)	South	X-E	X	$18,189	87.6	25.3

Note. Political ideology: D = Democratic Party and R = Republican Party as determined by 2004 presidential election outcomes. The higher the political ideology ranking, the more liberal the ideology. School nurse consultant: E = consultant in department of education, H = consultant in department of health (American Federation of Teachers, 1999; C. Green, personal communication, June 2, 2005; "How They Measured Up," 2004; Leip, 2003; National Association of School Nurses, 2004a; National Governors Association, 2004; U.S. Census Bureau, 2000a, 2000b).

Table 4.3

Results of Qualitative Analysis

Factors influencing school nurse staffing	Supporting participants' quote
	Positive factors
Framework	*"Let the needs of children drive the provision of professionals, nurses. . . . I think anything [else] that you do, even just talking about more, nurses without actually attacking the problem of our children, . . . then people see it as self-serving."*
School nurse visibility	*"They're on the radio, they get newspaper articles out, which builds into the whole thing why the community knows who the school nurse is, and appreciates and values what she or he is doing."*
Valued in community	*"[School nurses] are kind of like mom and apple pie. . . . Everybody loves the school nurse. . . . They . . . have kind of woven themselves into the fabric of . . . education."*
Local buy-in of educators	*"[Educators'] eyes would kind of open and say, 'We really do need this,' and so the ones that could afford it started doing a little bit more than even what the state required."*
Parent support	*"If parents push for something, [they win]. They attend school board meetings and push for retaining the school nurse, when it might be up on the chopping block. I've heard of that happening a lot."*
Liability	*"Schools would not dare to not have a school nurse these days."*
Dynamic leader	*"She's a very strong leader, a real advocate for school nurses. So she is very smart and savvy. . . . She is involved."*
	Barrier factors
Funding	*"Money—that's always the biggest barrier."*
Role confusion by school nurses	*"If [school nurses] can't agree among themselves what they should be doing, how can we convince others why they are needed?"*
Misunderstanding the role of the school nurse	*"There's still a large number of administrators, and nurses themselves, who define their role really narrowly."*
	"They [educators] just don't know what school nurses do, they don't see them enough, . . . so they don't realize that they're the one licensed in the schools . . . to follow physician orders."
	"They think that school nurses pass out condoms, promote sexual activity, and perform abortions on the secretary's desks."

Table 4.3 (*continued*)

Factors influencing school nurse staffing	Supporting participants' quote
	Swing factors
Philosophical beliefs	*"[The state is] pretty politically/religiously . . . conservative. Two years ago, there were rocks thrown at the legislative office building when elected representatives were discussing a [change in taxes]."*
	"[The people of this state] tend to be focused on families and may not like outsiders (public school system, school nurses, etc.) dictat[ing] what their children learn. Some . . . may feel that whatever their children learn, they as parents want to be the ones to teach them. . . . They might also just think everyone has a family and the family is the best way to get things done. They . . . overlook the fact that there are a large number of families who are not traditional (i.e., single parents, grandparents raising kids), and there is a growing minority and refugee population that is overlooked."
	"We believe that every child has a right to an education. . . . We [also] believe in a high standard of health care for all—even though we do not have universal health insurance—we almost have it for children."
Geographical characteristics	*"When it only takes 2 hours to drive from one end of the state to the other, it makes it possible for everyone to participate in politics. Everyone can get involved."*
	"Rural areas tend to have far less available health-care options for families and/or those options are very far away. So some folks say they need school nurses even more because that may be the ONLY source of health care for a child. Other folks think urban areas with more inner-city problems need the additional funding."
Regional beliefs	*"We are very much a bible-belt state. And . . . in some areas there may be a concern that school nurses equate to birth control and sex education, which may not be the same as what the parents want to be. Whether that's right or wrong, . . . accurate or inaccurate, that still is—we're talking perception."*
	"People are responsible for their own, and they'll pull themselves up out of the mud if they need to, by their own bootstraps, . . . so there isn't the huge encouragement."

hard to show their value to others.

When local teachers, principals, and parents understand and value what a school nurse can do, they are very supportive. Several participants indicated parents would not let schools cut nurses even when budget cuts were needed. In addition, a system at the local district level was identified as a critical factor in support and buy-in. Teachers often "put pressure" on the principals to hire more school nurses. Then, *"It was the principals that [sic] were hollering, 'How [are we] going to run a school without the nurse being there?'"* In turn, principals put pressure on the superintendents and local school boards for sufficient funding to have school nurses. A critical balance had to be maintained because *"superintendents [and school boards] don't like to be told what to do."* Yet they are very powerful and do make many funding decisions.

Another factor influencing school nursing, mostly from states with low ratios, was an underlying "threat" of a lawsuit. School nurses were *"just needed"* to carry out various activities such as catheterizations and medication administration. In contrast, participants from states with high ratios did not see the fear of litigation as a contributing factor. Instead, the fear that something bad had to happen before school nurses would be hired prevailed. *"Parents would fight for these issues, but until someone has been desperately injured or killed, it [won't] make an impact."*

A dynamic leader also influences school nurse policy. The leader could be a school nurse, a legislator, or a concerned citizen. When a state has such a leader

who is "politically savvy" and not afraid to take risks, changes happen quickly. These leaders not only create change but they empower those around them as well. *"Leadership from the top sort of invigorates everybody else to do it."*

4.6.2 Barrier Factors

Funding was identified by nearly everyone as a barrier to school nursing. States with school nurse ratios in compliance with the national recommendation often times indicated funding was the only barrier they saw to getting more school nurses. Universally, individual state budgets seemed to always be in crisis. In only one state were legislators identified as barriers to policy change. Most cited funding as the reason laws were not passed. Interestingly, however, one participant, for more than 10 years, has been tracking the amount of funds spent in education and the amount spent specifically for school nursing. Although the state is in an economic crisis and the amount of money per student for overall education has remained the same or gone down during this time period, the amount of funds per pupil for school nursing services continues to rise. *"School nurses are now being seen as valuable team members."* School nurses save the district funding in other areas because they prevent problems from occurring.

Participants from all areas of the country, both in low- and high-ratio states, believed that the role of the school nurse is misunderstood by many, particularly school nurses themselves. The level of misunderstanding tended to occur in states with ratios much higher than the national recommendation. This confusion created division among school nurses both from inside and outside the profession. Many

states provide education and in-services for their school nurses. States that have some type of orientation or local certification program for their nurses tend to have less trouble with role confusion. These programs not only teach about the role of the school nurse but also provide a forum to teach leadership and other important skills school nurses need to be effective and proactive.

In addition to school nurses, all participants believed that educators do not understand the role of the school nurse. Participants often felt that educators thought a school nurse just *"passed out Band-Aids and ice."* Therefore, they could understand why educators do not want to spend money on a *"Band-Aid lady."* Educators' misunderstandings were a particular problem for states with high school nurse-to-student ratios because nurses were not as visible; thus, their role was less understood. Moreover, many educators do not understand nursing licensure, delegation, and liability. In-services and continued communication with educators seem to remedy the problem. Once educators have worked with school nurses and come to understand what school nurses do, they did everything possible to retain the school nurse. It was difficult to get educators to that point. States with higher ratios tend to have fewer educators who have worked with school nurses; thus, more educators are unfamiliar with the role and license of school nurses.

Although the interview question was intended to denote public school teachers and leaders, many participants indicated that university nursing programs contributed to the problem because nursing educators do not understand the role of the school nurse either. In addition, current school nursing issues were not taught

to nursing students, thus causing problems when new graduates were hired. Furthermore, in many university education classes, nothing is discussed with regard to school nursing. Thus, much of this role confusion is due to a lack of communication within the nursing profession itself. Participants from all of the states emphasized the need to be proactive and keep open the lines of communication between school nurses and other school and university personnel. *"I do an enormous amount of teaching at the local colleges of education and colleges of nursing about school health and try to indoctrinate undergraduates, and graduates, about the role of school nurses."*

States with low school nurse-to-student ratios indicated that most parents and community members know school nurses exist. They may not completely understand what school nurses do, but they knew *"they [school nurses] were needed."* States where the ratios are not as high indicated only parents who have a child with special health-care needs knew school nurses existed and their role in the school. However, even these parents did not always support school nursing. One participant related how parents of medically fragile students support legislation that excludes school nurses from their children's care. The parents' negative experiences with school nurses and what they perceived as a lack of professional wisdom regarding procedures were key factors in passing the legislation. *"The parents [were] saying, 'This isn't right . . . for a nurse to be [included]; they don't even know what they're doing.'"*

4.6.3 Swing Factors

People's belief system influences school nurse ratios, sometimes positively but most often negatively. When beliefs center on universal health care, a culture of acceptance is created for school nursing. However, beliefs were more often seen as a barrier to school nursing policy. First is the fear of or opposition to a specific school nursing activity such as education about abortion or birth control. The second form of opposition is a philosophical opposition to the idea of school nurses. Many times the opposition is identified more as an underlying current or belief, not resistance from a particular person or group. Various regional differences are evident. For example, in the Rocky Mountain states, the "bootstrap mentality" is prevalent, and school nursing is seen as government intervention that takes away the rights of families. Areas in the bible-belt and the more conservative areas identify religious opposition (birth control and abortion) as a barrier to school nursing.

Geographic characteristics also influence school nursing policy. Smaller states may be more homogeneous in their thinking because everyone can be involved. Larger, more diverse states may have conflicting needs in diverse parts of the state, which is especially true in states with rural and urban populations. *"Rural areas tend to have less financial resources to go around, especially for things like health care."* On the other hand, other participants believed that rural areas had an advantage for obtaining and retaining school nurses. Everyone knew the school nurse; she was their neighbor; thus, they would fight to keep her. One

participant told of a small rural area that has had a school nurse for years because several years ago a physician sat on the local school board. He convinced everyone of the need to have a school nurse. They hired a school nurse and have kept her ever since.

4.7 Discussion

No single key factor exists that governs staffing of school nurses; rather, it is a complexity of factors. Many factors identified in this study (including the approach to the problem, local support, and buy-in; fear of litigation; funding; and misunderstanding the role of the school nurse) are consistent with the literature (Billy et al., 2000; Cotton et al., 2000; Harrison et al., 1995). In addition, two new factors (the value placed on school nursing and the influence of a dynamic leader) were identified as influencing school nursing. Although not previously acknowledged specifically for school nursing, these factors are supported in the literature as important components of change (Kouzes & Posner, 1993). Although Oberteuffer (2001) commented that philosophical beliefs influence school nursing, the current study expanded on how culture can influence school nursing (both positively and negatively) and identified geographical differences. These findings also indicate that one size does not fit all. Each nurse must assess his or her own situation and then plan according to the setting (Leininger & McFarland, 2002).

One of the main differences between states with low as compared with high ratios was the sheer number of factors influencing school nursing policy. A new approach for improving school nurse-to-student ratios may be to strengthen positive

factors such as local buy-in and support that influence school nurse staffing. Focusing on these areas will also decrease some of the misunderstandings or barriers to school nursing. These issues are at opposite ends of the same problem. School nurses must accentuate the positive and not dwell on the negative. As these findings suggest, a more proactive approach includes targeting the needs of the children rather than targeting the need for more school nurses. School nurses must also take every opportunity to be visible, often going the extra mile. For example, the school nurse could staff the first-aid booth at school functions or present to students at school career day. Sitting in the nurse's office is not an option!

Funding was the only barrier experienced by all. Much of school nursing is funded by education dollars, which are mostly state and local dollars (National Association of School Nurses, 2004a), with the amount varying by state (Hill & Johnson, 2005). Yet it seems all states struggle to find sufficient funding for many education activities, including school nursing (Institute of Medicine, 1997). These findings are encouraging. For example, one participant noted that although educational funding remained the same or decreased, funding for school nursing has continued to grow over the past 10 years. Thus, if schools see the value and need for school nurses, they will find the way to fund them. In addition, many school nurse advocates have found creative ways to solve the problem through other funding sources such as private foundations, community partnerships, and other public and private grants (Costante, 2001; Institute of Medicine; National Association of School Nurses).

However, for change to occur, nurses must first look within their own profession. According to the implementation theory of organizational change, before successful implementation of change can occur, problems that impede the change as well as successful techniques must be diagnosed or identified. These problems may include structural, social, or interpersonal problems (Porras & Robertson, 1987). School nurses may not realize how role confusion within the profession influences their potential for success. The adage "united we stand, divided we fall" holds true. School nurses need to be a unified group by being united as to their role and purpose. Concentrated efforts for formal or informal education opportunities are critical. State orientation and certification programs help school nurses understand their role (Gregory & Marcontel, 2000). Research has shown school nurses who participate in continuing education have more confidence in their skills and knowledge (Bullock, Libbus, Lewis, & Gayer, 2002). To assist this process, many of the credentialing programs are offered online (Miller & Rector, 2002). Linking with university programs will also create partnerships that will ensure future generations of school nurses are taught accurate information regarding the role of the school nurse. Although contact must be done at a local level, the issue is national. The National Association of School Nurses could provide valuable assistance in developing guidelines to follow when approaching institutions of higher education to ensure that standards of school nursing are taught both in class and clinical settings.

Another key component of role confusion is the varying backgrounds of those who become school nurses. The National Association of School Nurses (2002) recommended that school nurses be licensed, registered nurses, with minimal preparation of a baccalaureate degree. Associate degree and vocational programs focus on clinical skills of the hospital. School nurses need the additional education found in at least the baccalaureate program with regard to community health nursing and leadership. Further education through credentialing, certifying, or becoming a school nurse practitioner has also been found to be beneficial (Brindis et al., 1998; Costante, 2002).

Creative solutions can help alleviate some of the stresses caused by geography. School nurses should take advantage of advanced technology such as e-mail, telecommunication options, or regional activities within a state (Bynum, Cranford, Irwin, & Denny, 2002). These outreach efforts may help nurses in outlying areas feel more supported, keeping them current and involved in school health issues. Diverse regions within a state may need different strategies that will address their unique needs.

Finally, it was surprising that some states did not qualify for the study because they lacked data about school nursing in their state. Yet through data at the local and state levels, many states have been able to demonstrate their worth and impact on educational outcomes. Local nurses should be presenting data to local school boards and other decision makers (Schumacher, 2002). Future studies are needed to learn about educators' perspectives on what educational outcomes are

most impacted by school nurses. This information could then direct school nurses in the development of a systematic data collection mechanism.

The greatest weakness of qualitative studies is the concern of generalizability due to a small sample size. However, Guba and Lincoln (1989) argued that traditional criteria for judging validity and reliability may not be appropriate for qualitative research. Thus, because bracketing was done before the study, and copious notes and an outside review of the findings were conducted, these findings can be used by school health advocates across the nation. Another concern of a qualitative study is that alternative explanations may exist that are not evident in the states sampled for the study. Key informants tended to identify other school nurses, indicating they did not really work with those outside nursing. Perspectives from those not of the nursing profession would have provided a more complete understanding of the state's circumstances.

4.8 Conclusion

School nurses must understand the many factors that influence school nurse staffing. School nurses must also assess their situations to determine their particular needs. In this assessment, it is important that school nurses account for community beliefs and geographical factors. For change to occur, however, school nurses must begin with themselves. Too much confusion exists within the profession, which is a major barrier for change. Education and certification can help school nurses understand their role. To ensure continued school nursing presence, accurate data at the local, state, and national levels must be kept and used to illustrate the impact

school nurses have on educational outcomes. School nurses must be visible and active in their schools. School nurses must remember that each school nurse can make a difference.

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5. CULTURALLY COMPETENT NURSING ACTIONS: ESSENTIAL FOR POLITICAL SUCCESS

5.1 Abstract

The influence of personal and cultural values is present in many political science and economic theories. In order to change state or institutional policy, nurses must understand and include cultural beliefs and values of that society as part of their strategy. Nurses are familiar with the idea of culturally competent care as it applies to individual patients or particular ethnic groups. However, these same principles need to be applied to the political realm. Failure to assess and understand the influence of culture in political decision making impedes the effectiveness of nursing advocacy. Using school health services as an example, the purpose of this paper is to explore how Leininger's[1] theory of culturally competent care and her modalities of action can be used as a guide for nurses to account for policymakers' beliefs and values when developing political strategies.

5.2 Background

Florence Nightingale once said, "I think one's feelings waste themselves in words; they ought all to be distilled into actions which bring results."[2] Nightingale encouraged nurses to fight for change just as she did. Many of the changes Nightingale was able to accomplish were because of her knowledge of the health and political system of her time. Political activity has continued to be an important

standard of nursing.[3] However, much of the written text focuses on the political process or the steps as to how policy is created. Missing from the literature is the acknowledgment of cultural beliefs and values of legislatures and other policymakers.

Richmond and Kotelchuck[4] identified three factors essential for changing public health policy: (a) knowledge base, (b) political will, and (c) social strategy. First, those involved in the process need to have knowledge of the subject. Second, those involved in the process need to disseminate the information to the community and policymakers. Third, a plan or social strategy should be developed to address the particular cause. For social strategy to be developed, nurses must realize the influence culture and local beliefs have on policies. Although it is beneficial to study other states' or organizations' successful strategies, simply duplicating these strategies in one's own situation may not work. To change state or institutional policy, nurses must understand and include as part of their strategy the cultural beliefs and values of that society's decision makers. They must expand the idea of culturally competent care beyond individual patients and into the political realm.

5.3 Leininger's Transcultural Model

"Culturally competent care" has been an integral part of nursing since the 1950s when Dr. Madeleine Leininger coined the phrase.[4] Although there are various definitions of culture, the basic premise is that culture refers to shared values and beliefs that influence thoughts, actions, and decisions.[5] Cultural care refers to the need to understand "human-care differences and similarities of beliefs,

values, and patterned lifeways of culture" in order to provide appropriate care.[1(p.5)] Nurses must be aware that cultures different from their own exist and appropriately assess for others' cultural beliefs and values. If nurses fail to do this, their cultural bias will have a negative impact on care because they may be unable to see another's side of a situation.

Although the theory was intended to be generalized for individual care of patients, Leininger indicated that culture extended beyond ethnicity or race and includes the culture of a profession, workplace, and community. Leininger's sunrise model, which is used to help explain her cultural care theory, identifies several major stimuli of culture, including religious, philosophical, social, cultural, and political influences.[1] Nurses who do not understand differing beliefs and values of decision makers cannot adequately develop an appropriate social strategy or approach to change a problem. Failure to assess and understand the influence of culture in political decision making impedes the effectiveness of nursing advocacy. Nurses must understand that research has shown the influence of culture on politics and economics.

5.4 History of Political Culture

The influence of personal and cultural beliefs and values is present in many political science and economic theories. Theories with regard to political culture grew out of Weber's Protestant Ethic Theory (1904-1905) and were further developed in the 1960s.[6] These theories are described in the work of Almond and Coleman[7] and Almond and Verba.[8] Weber's basic premise was that certain cultural

factors influence economic growth and business success. He noted areas with a higher concentration of Protestants, in both Europe and the United States, tended to have more economic growth.[6] He hypothesized that values emphasized in Protestant religions such as a strong work ethic influenced the[9,10,11] work considered the most influential and comprehensive in explaining how dominant or predominant subcultures within a state impact state policy. Elazar identified three subcultures: (a) moralistic, (b) traditionalist, and (c) individualistic. Moralistic subcultures view government as a way to improve the common good and public welfare.[10] New England, the upper midwest, and the west coast were seen as moralistic subcultures. People from a traditionalistic subculture believe that the government's role is to maintain the status quo and that the elite gain their status from family ties of social standing.[10] The southern states were seen as a traditionalist culture. Individualistic subcultures emphasize "democratic order" where government is seen to do what the people desire.[10] They are seen as more middle ground with regard to social issues.[10] The mid-Atlantic, central/midwestern, and western states are considered individualistic.

Other scholars have expanded upon the idea of geographic cultures. For example, Sharkansky[12] developed the Elazar-Sharkansky scale to measure the extent of subcultures present in a particular area. Lieske[13] divided the United States into 10 subcultures based on the backgrounds and beliefs of people who settled in various regions of the country. For example, portions of Minnesota, North Dakota, and Wisconsin, with a large Scandinavian ancestry, were labeled a "Nordia"

subculture. Garreau[14] divided North America into nine "nations." Areas were grouped according to regional likeness. He classified the Great Lakes region as "The Foundry" because of its industrial nature but declining resources. Thomas[15] studied the political culture of the western United States and described it as political individualism and conservatism. He observed that many of the west's settlers came to escape governmental interventions and to be able to "do their own thing." This mentality continues to exist and is part of a "bootstrap" mentality of independence and self-sufficiency.

In recent times, however, some scholars have speculated an enmeshment of cultural thought across the United States. Technologic advances increase cross-country and world travel, bringing more immigrants into the country and more migration of people within the country.[16] Areas that were once populated by familial generations are now comprised of a more assorted population. This diversity, some believe, may have diluted the geographic subcultures of the past and blurred the boundaries of segregated societies.

In contrast, other political scholars call attention to national presidential election trends that show a polarization of political parties.[17] They believe that beliefs and values are still strong throughout the United States. Blue states are getting "bluer" and red states are getting "redder." Yet a closer look at the states reveals that polarization may not be as widespread as it appears. In the 2000 election, the midwestern states that had traditionally been Democratic blue changed to Republican red.[17] These states are traditionally swing states, changing with the

issues of the time. Furthermore, although political parties and their leaders may have become more polarized, research has shown that ideology across the nation has not changed. In reality, much of the population does not get involved in most politics, allowing for those with extreme views (in either direction) to gain political power and the media's attention.[17]

Recent studies support the continued existence of cultural regionalism's impact on politics.[18] Hero[19] classified states by ethnic composition into three regions that matched closely to Elazar's regions. Moralistic states tended to be predominantly White and had a higher voting turnout than other states. Individualistic states had more diversity, and traditionalistic states were bifurcated. Hero and Tolbert[20] found that more homogeneous states were less likely to include provisions for minority groups in their state policies. However, states with higher minority diversity had lower Medicaid spending. Social scientists have identified a "culture of honor" in the south and west where it is thought proper for men to defend themselves and their honor. This belief influenced laws that were more lenient regarding gun control.[21]

Religion can also influence cultural beliefs and, thus, influence political decisions.[22] From the beginning of humanity, religion has guided the moral precepts of a community.[23] These moral beliefs are the foundation to community values. Religion has been so intertwined in some areas that it is seen as an integral part of national, state, or local pride,[24] which continues today. For example, a recent focus has been on the Catholic church regarding "public catholicism."

Devout Catholics are counseled to follow the teachings of their faith in all aspects of their lives.[25] These teachings include voting for programs that provide help to others in need or voting against programs that go against church teachings such as birth control and abortion.

Along with religious differences, geography also influences culture and politics. One of the main geographical influences on politics is urban versus rural areas. Differences in politics between urban and rural areas have long been investigated and recorded.[26] Much of the difference is because of differing living conditions and priorities. Studies investigating voting records have shown that urban areas tended to vote Democratic, whereas rural areas voted Republican.[26] This traditionally conservative view has impacted rural schools, which are more likely to avoid topics that may cause controversy than their urban counterparts.[27]

5.5 Applying Leininger's Theory to the Political Process

After acknowledging and assessing for the culture of politics, there are several strategies that nurses can use to address philosophical beliefs and values. Leininger's theory of culturally competent care also includes three modalities of decision making that can help guide culturally competent nurse-client relationships.[4] The crux of these approaches can also assist nurses in developing a social strategy that will influence political change. These modalities include the following: (a) cultural care preservation or maintenance, (b) cultural care accommodation or negotiation, and (c) cultural care repatterning or restructuring.[4]

Each action is explained below and examples of how nurses can use each action as a guide for political change are provided. School health services, particularly school nursing, is used in the examples because it is impacted by state and local educational health policies, and as Oberteuffer[28] comments, school nursing may not fit the social and political philosophies of some people.

5.5.1 Cultural Care Preservation or Maintenance

Cultural care preservation or maintenance refers to professional actions that enable patients to retain their meaningful beliefs and values.[4] In an individual care setting, cultural care preservation would include allowing a patient's "spiritual healer" (e.g., bishop and shaman) to be present. Cultural care preservation also means refraining from "doing for" but allowing patients to be part of the decision-making process. For nurses working in the political process, cultural care preservation includes acknowledging differences and building on common beliefs. Philosophical views against school nursing exist. Some view school health services as a form of socialized medicine encouraging people to be dependent on the government. Other opponents believe school health services overstep a parent's right and responsibility to provide physician care.[29] Barnett[30] interviewed opponents to school health services who believed such services were a ploy of the government to brainwash children away from their families and to take away parental control. Others simply believe "health" is not essential to the mission of education.

The beliefs of others directly impact the approach school nurse advocates must take. Similar beliefs make it easier because there is a common understanding.

If there is a strong belief that children should have access to health, school nurse advocates can build upon this value by illustrating how school nurses may provide students their only access to health care. However, if philosophical beliefs differ, no quantity of talking or arguing will change underlying beliefs. It would be inappropriate to assume that one could change such views or ignore these beliefs. Acknowledging their existence is critical for school nurse advocates. Next, advocates must build upon any common beliefs that may exist. This common ground could be something as general as the health and safety of children. A common belief is a beginning point where no one feels that their values or beliefs are being threatened. For example, a local town called a meeting to discuss the community concern regarding teen pregnancy. Everyone from Planned Parenthood to religious leaders attended the meeting. Although they could not agree on all strategies, the group could agree that children 9 to 14 years of age should not be having sexual intercourse.[31] Thus, the group began on this common belief, allowing everyone to maintain and respect other differing values; the program was successful because of the community's and decision-makers' support.

5.5.2 Accommodation or Negotiation

The second modality refers to professional actions that enable people of one culture to adapt to or negotiate with others a meaningful and compatible outcome.[4] For example, encouraging patients to try something new or allowing them time to pray or worship in their own way accommodates their beliefs. For nurses in the political arena, this means taking "baby steps" to arrive at change. For example, if

decision makers will not support funding sufficient for school nurses to help the state come into compliance with national guidelines, then nurses could advocate for a pilot project to test the new initiative. This approach is called *incrementalism*, which is a common practice in the political process.[32]

School nursing began as a pilot program in New York because of increased absentee rates and inadequacy of the current school health programs. Lillian Wald suggested that public health nurses work with the families and schools to facilitate the return of healthy children to school.[33] The school board agreed to support the experiment for one month. Lina Rogers began working with the teachers and students' families to decrease truancy. Rogers was so successful that after the one-month probationary time, the school board contracted for an additional 12 nurses.[34] Health department statistics indicated that with the advent of school nurses 98% of children previously excluded from school for medical reasons are now admitted.[34] During the first year of the program, the number of students excluded from school decreased from 10,567 in October 1902 to only 1,101 in September 1903. Over the next few years, other cities and states began hiring nurses to work in the schools.[35]

A more contemporary example of negotiating can be found in the history of school-based health clinics. The first school-based health clinics were established in the late 1960s and early 1970s.[36] School-based health clinics seemed to be an answer to the increased number of students who lacked health insurance and access to medical care and the increased number of students who practice risky health behaviors. A large increase in school-based health clinics occurred in the 1980s

because of funding provided by the Robert Wood Johnson Foundation for adolescent pregnancy.[36] However, much opposition developed to having clinics in high schools because opponents believed the clinics would be passing out condoms and providing sex education without parents' consent.[37] Supporters of school-based clinics worked with these concerned groups and the local decision makers; it was decided to open more clinics in elementary schools where sex education and birth control were not great concerns. In 2002, school-based health centers have grown throughout the nation, with the current number of school-based health clinics at approximately 1,500 in 43 states and the District of Columbia.[38] These centers can be found in elementary schools (37%), middle schools (18%), and high schools (36%).[38]

A key component for nurse advocates in this modality is not to lose sight of the vision or ultimate goal. Nurses need to realize that there may be more than one way to arrive at the objective. For example, if a law requiring more school nurses is not progressing, school nurses could advocate for tightening other laws such as school nurse certification/education requirements or mandating certain procedures. School nurses could investigate alternative funding streams such as grants. Nurses must be willing to listen to others' ideas and then think them through before saying no; they must be team players. However, being a team player does not mean lowering one's standards or making short-sighted, quick decisions that will temporarily fix the problem but cause additional problems in the future. Listening to another's idea means only being open to detours from the path originally

planned. The key is not to quit.

5.5.3 Repatterning or Restructuring

The third modality identified by Leininger is cultural repatterning or restructuring, which means reordering, changing, or modifying beliefs for a new outcome.[4] For example, repatterning includes helping clients understand possible consequences of combining Western medicine and Oriental herbs or explaining how microbes are passed from one person to another. Repatterning also includes changing preconceived judgments and attitudes. The key to this action is education!

Many do not understand what the responsibility of a school nurse entails. Traditional views of school nursing include checking head lice and handing out Band-Aids or ice.[39] If such views are the belief of policymakers, it is understandable why they may hesitate to fund these activities. Thus, it is critical that nurses assess the situation to ensure they understand the beliefs of decision makers. Findings from a recent qualitative study investigating factors that influence state school nurse ratios provide additional insight into restructuring and repatterning. Thirty participants from 11 states were interviewed to determine social and political factors that influence school nurse staffing. Data were analyzed to find common themes. Further explanation of the study method can be found in other published articles.[39] Direct quotes of participants in this study are italicized in the text.

School nurses are often thought to be main supporters or educators of sexual and reproductive health education in the schools. Opponents believe *"that*

school nurses pass out condoms, promote sexual activity, and perform abortions on the secretary's desks." In essence, school nursing and health have become synonymous with sexual activity. Often correlated to moral issues are the religious practices of a people. In particular, conservative organizations such as the Christian Coalition, National Right to Life Movement, and local church groups of various denominations have been strong opponents of school health services (school-based health clinics) and health education, particularly with regard to reproductive health.[40]

Sometimes in these situations relationships of trust can be built and misunderstandings dissolved. *"One very conservative legislator knew and trusted me because I had worked with him for years. I went up to him and explained these fears were unfounded. It was a matter of trust."* Another participant recounted a story of a school nurse who saw a flyer displayed at her church calling for the opposition of more school nurses in the area. *"She was appalled and ripped the flyer down."* Despite these oppositional efforts, a school nurse was hired in that area, and through education and outreach efforts, a trust was built. *"Now they wouldn't think of getting rid of her! They know what she can do!"* Communication and building trust often resolve the issue.

Nurses do not need to wait for a crisis to contact decision makers. For example, school nurses can offer to work on other health-related matters, stay proactive, be visible, and help parents and school administrators understand the role of the school nurse. Being proactive means getting to know those running for

office, voting for legislators who support nursing issues, and encouraging others to vote. Visibility also means finding ways to disseminate evidence with regard to the impact of school nursing as it becomes available and taking opportunities to talk to other stakeholders such as parent-and-teacher associations, principals, teachers, nursing students, and even fellow nurses with regard to the responsibilities and activities of a school nurse. Nurses must be doers!

5.6 Conclusion

Culture influences policymaking. Nurses must assess and include cultural beliefs and values in their social and political strategies. Although it is difficult to "change" a person's cultural beliefs, it is critical that nurses realize that values exist not only for individualized care but for population-based care and policy advocacy. Understanding what others believe will help nurses in the appropriate action steps such as building on common beliefs, negotiating change slowly, and building relationships of trust. As in individual patient care, nurses must remember that in politics one size (or strategy) does not fit all.

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APPENDIX A

CONSENT FORM AND INTERVIEW GUIDES

Consent Form

Background

You are being invited to take part in a research study. Before you decide, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully. Ask us if there is anything that is not clear or if you would like more information. Take time to decide whether or not you volunteer to take part in this research study.

The purpose of this investigation is to determine how state-level policies regarding school nurses and school health services impact school nursing services. This study will also examine other factors that contribute to school nursing services in the public school setting.

Study Procedure

Your expected time in this study will be 1 hour. If you agree to participate in this study, you will be asked to participate in a tape-recorded telephone interview that will take approximately 40 minutes and you may be contacted by the researcher some time after the interview in order to clarify any of your responses. Finally, the researcher will type the entire interview word-for-word and will offer you a chance to review your responses to ensure nothing is misunderstood or misstated. The interview will consist of questions regarding your experience with state-level school nursing policy, and the social and political factors that positively or negatively influence the school nurse-to-student ratios in your state. You may request a copy of the interview guide in advance of the initial telephone interview if this would be helpful in your decision.

Risks

The risks of this study are minimal, if any.

Benefits

There is no direct benefit to you for your participation. However, we hope that the information from this study will increase understanding of current school nursing policy and influence future school nursing policies.

Alternative Procedures

The only alternative to participation is not to participate.

Confidentiality

Your data will be kept confidential. However, if you disclose actual or suspected abuse, neglect, or exploitation of a child or a disabled or elderly adult, the researcher or any member of the study staff must, and will, report this to Child Protective Services (CPS), Adult Protective Services (APS), or the nearest law enforcement agency.

All other information will be kept confidential by keeping the information collected in a locked, secure drawer. In addition, a coding system will be used for each participant. In other words, your name or other personal identifiers will not be connected to the information you provide in the interview. A code of letters and numbers will be used instead. The list of codes and names will be kept in a secured, locked area, separate from the other data. Information from this study will be presented only in aggregate form.

Person to Contact

If you have any questions regarding this study, please call the researcher, Erin Maughan, at (801)517-3526 or e-mail her at erindel1@yahoo.com.

Institutional Review Board

If you have questions regarding your rights as a research subject, or if problems arise that you do not feel you can discuss with the investigator, please contact the Institutional Review Board Office at (801)581-3655.

Voluntary Participation

It is up to you to decide whether or not to take part in this study. If you do decide to take part, you will be asked to sign this consent form. If you decide to take part, you are still free to withdraw at any time and without giving a reason. This will not affect the relationship you have with the investigator or staff.

Unforeseeable Risks

There may be risks that we do not anticipate. However, every effort will be made to minimize any risks.

Costs to Subjects and Compensation

There is no cost to participate in this study nor is there any compensation.

Consent

By signing this consent form, I confirm that I have read and understood the information and have had the opportunity to ask questions. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving reason and without cost. I understand that I will be given a copy of this consent form. I voluntarily agree to take part in this study.

_____
Printed Name of Participant

_____ _____
Signature of Participant Date

_____
Printed Name of Researcher or Staff

_____ _____
Signature of Researcher or Staff Date

Semistructured Interview Guide: Key Informant/
School Nurse Consultant

The purpose of this interview is to gather information to better understand the factors that influence school nurse staffing ratios in your state. The interview should take approximately 40 minutes. You are welcome to decline to answer particular questions or to end the interview at any time. Your answers will be kept strictly confidential; only an aggregate of the results will be used in the final report.

May I have your permission to tape-record this interview to ensure nothing is missed.

I would like to ask some questions regarding your state's school nurse-to-student ratios.

1. _____ [consultant's state] 2004-2005 school nurse-to-student ratio was _____.
   a. According to the statistics, this ratio has remained stable since _____ [number of years]. Is this correct? Why does it remain the same?
      Or [depending on the state being interviewed]
      Statistics indicate a distinct change in the school nurse-to-student ratio in _____ [year of change]. Did any special event influence the change? If so, what was it?
   b. Do you believe there is a difference in school nurse-to-student ratios in rural areas of your state versus the metropolitan/urban areas? (Why or why not?)
   c. Are there any specific laws in your state (or in local districts) regarding school nurse ratios? School health services or activities? What year was it legislated? (If so, describe.)
   d. Is there a school nurse certification program in your state? Is it mandated for employment?
   e. Who employs school nurses in your state (local school districts or health departments)?

2. Which legislators do you believe have taken a personal interest in school nursing legislation?

3. What social or political factors do you believe positively influence the school nurse-to-student ratios?
   a. Are there particular groups who show support (parents, health care, religious, National Education Association, or other union groups)?
   b. Is there a difference in the level of support in the rural or urban areas of your state?

4. What social or political factors do you believe were barriers, or negatively influenced, the school nurse-to-student ratio?
    a. Which group showed opposition (parents, health care, religious, National Education Association, or other union groups)?
    b. Is there a difference in the level of support in the rural or urban areas of your state?

The next set of questions asks about the organizational structure and characteristics of your state.

5. How is school nursing funded in your state (by health department, education, state funds, grants, etc.)?
    a. What other sources fund school nursing as well (by health department, education, state funds, grants, etc.)?
        i. What percentage of school nursing comes from these other funding sources?
        ii. What is the difference in rural versus urban areas of your state?

6. Some states focus education on the traditional "3Rs" of education and others include more of the social/welfare needs of the children. In your opinion, what does your state do?
    a. Explain your answer with examples.
    b. Are there any specific groups or circumstances that drive educational health in your state (migrants, AIDs, or religious groups)?

7. Describe the organizational structure between the state and local departments of health and education. (Does the state oversee it or is it locally autonomous?)

8. What is the role of government in your state regarding welfare/health?
    a. Does the state support social programs enough to fund them?
        i. If yes, is the funding adequate?
        ii. Is it equitably distributed?
    b. Are there any specific interest groups that drive funding for social programs in your area? Are there any groups that hinder the drive for social programs in your area?

9. What is the role and responsibilities of school nurses in your state?
    a. Do you believe that people value school nursing in your state?
        i. Is there a difference between rural and urban areas?

10. In your experience, have you noticed any confusion of the role and functions of the school nurse by the following groups? For each one, if confusion exists, describe any efforts to educate the group and by whom?
    a. The school nurse?
    b. Other nurses?
    c. Educators?
    d. Policy makers/legislators?
    e. Children?
    f. Community?

    (What is the difference in rates of rural groups versus urban groups?)

11. Given what you said earlier, describe the role that local school nurses have played in either retaining or increasing the number of school nurses. (Probe: Is your state or regional organization active?)

12. What is the level of understanding of the role of school nursing by parents in the community?
    a. What level of support do parents have for school nurses?
    b. Is the level enough to fund school nursing?
    c. Is there a difference in understanding in rural versus urban areas? Is there a difference in level of support in rural versus urban areas?

13. What level of support do educators have for school nurses?
    a. Is the level enough to fund school nursing?
    b. Is there a difference in rural versus urban areas?

14. Describe the role that the following governmental agencies have taken regarding school nursing such as being actively involved in the development of policies, guidelines, suggestions, etc.
    a. Department of Health
    b. Department of Education

15. Where do most school nursing policies/procedures originate? (Probe: Legislation, state health department, state education department, local level)

16. Does your state practice under a coordinated school health module?
    a. If yes, who oversees this program?
        i. Do you know who funds it?
    b. If no program exists, why?

17. Do you have any words of advice for other states regarding factors that influence school nurse-to-student ratios?

18. Is there anything not mentioned that you would like to add?

Demographic Information

a. Who is your employer?

b. What is your position?

c. How long have you worked in your position?

d. What is your professional preparation (nurse, educator, etc.)? Did you work as a school nurse? (How long?)

e. What is your highest level of education (BS, MS, etc.)?

f. Do you have an e-mail address [to clarify any items and for participant's review])?

Can you think of another person in your state who would be able to offer additional or further information regarding school nurse ratios? (Please include his or her contact information below; phone and e-mail if possible).

a. Legislator who sponsored bills?

b. Person who has a long-term involvement with school nursing?

c. Anyone who is opposed to school nursing?

Semistructured Interview Guide: Second Informant

The purpose of this interview is to obtain data to better understand the factors that influence school nurse staffing ratios in your state. The interview should take approximately 30 to 40 minutes. You are welcome to decline to answer particular questions or to end the interview at any time. Your answers will be kept strictly confidential; only an aggregate of the results will be used in the final report.

May I have your permission to tape-record the interview at this time to ensure that nothing is missed.

I would like to ask some questions regarding your interest in school nursing.

1. How did you get involved with school nursing policy? (Probe: Personal interest, part of job description, constituents, others in legislature)

2. How would you rank school nursing in your legislative/job priorities?

3. Would you say you are familiar with the role of the school nurse? School health issues?
   a. What would you say are the main role and responsibilities of school nurses in your state?
   b. What is your main source of information?

4. In your opinion, what social and political factors positively influence the school nurse-to-student ratio?
   a. Are there any particular groups who show support (lobbyists, parents, health care, religious groups, etc.)?
   b. Is it the timing of the issue?
   c. Are there any historical influences? (such as Columbine)?
   d. Are there compromising issues?

5. Have local school nurses played a role in identifying the need for changes in school nurse ratios?

6. In your opinion, what social and political factors might be barriers or have negatively influenced the school nurse-to-student ratio?
   a. Are there any particular groups who show opposition (lobbyists, parents, health care, religious groups, etc.)?
   b. Is it the timing of the issue?
   c. Are there any historical influences?
   d. Have there been other issues where school nurses were used as a compromise?
   e. Is it due to confusion as to the role of the school nurse?

7. What level of support do legislators have for school nurses?
   a. What do you think about the level of funding for school nurses?
   b. If not sufficient, what do you think has to change in order to improve the school nurse-to-student ratios?

8. How are school nurse ratios influenced by legislative mandates?
   a. Are local policies more influential?

9. Do you believe there is a difference in school nurse staffing ratios between rural and urban/metropolitan areas in your state? Why or why not?

10. Do you believe more school nurses are needed in your state? Why or why not?

The next set of questions asks about the organizational structure and characteristics of your state. (An asterisk [*] denotes ask as appropriate to experience of informant and answers given above.)

*11. Some states focus education on the traditional "3Rs" of education and others include more of the social/welfare needs of the children. What does your state do?
   a. Explain your answer with examples.
   b. Are there any specific groups or circumstances that drive educational health in your state (such as migrants, AIDs, or religious groups).

*12. What is the role of government regarding welfare/health?
   a. Does the state support social programs enough to fund it?

*13. Do you have any words of advice for other states regarding factors that influence school nurse-to-student ratios?

14. Is there anything that you would like to add?

Demographic Information

a. What is your position in the legislature?

b. How long have you been in this position?

c. Before becoming a legislator, what was your professional background?

d. Do you have an e-mail address that I may contact you to clarify any items?

If not a state legislator:

a. Who is your employer?

b. What is your position?

c. How long have you worked in your position?

d. What is your professional preparation (nurse, educator, etc.)? Did you work as a school nurse? (How long?)

e. What is your highest level of education (BS, MS, etc.)?

f. Do you have an e-mail address (to clarify any items, and for participant's review)?

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*Can you think of another person in your state who would be able to offer additional or further information regarding school nurse ratios? (Please include their contact information below, phone and e-mail if possible.)

a. Legislator who sponsored bills?

b. Person who has a long-term involvement with school nursing?

c. Anyone who is opposed to school nursing?

APPENDIX B

LINK BETWEEN HEALTH AND EDUCATION

Table B.1

Studies Linking Health and Education

Study outcome	Reference
Student achievement affected by illness and health	Anderson, Bailey, Cooper, Palmer, and West (1983) Brown, Grubb, Wicker, and O'Tuel (1985) Bussing, Halfon, Benjamin, and Wells (1995) Chinn (1973) Fowler, Johnson, and Atkinson (1985) Gath, Smith, and Baum (1980) Holmes, Dunlap, Chen, and Cornwell (1992) Kovacs, Goldston, and Iyengar (1992) Lavin, Shapiro, and Weill (1992) Lewis and Lewis (1989) Maier, Arrighi, Morray, Llewllyn, and Redding (1998) McCarthy, Lindgren, Mengeling, Tsalikian, and Engvall (2002) Newacheck and Halfon (1998)
Student achievement and absenteeism because of illness	Diette et al. (2000) Rice and Pollard (1998) Spee-van der Wekke, Meulmeester, Radder, and Verloove-Vanhorick (1998) Wolfe (1985)
Nutritional deficit decreases the ability to learn	Carnegie Foundation for the Advancement of Teaching (1988) Center on Hunger, Poverty and Nutrition Policy (1995) Hinton, Heimindinger, and Foerster (1990) Spencer, Atav, and Johnston (2001)
Physical fitness increases the ability to learn and concentrate	Council of Chief State School Officers (1991) Harris-Dawson (1992) Swingle (1997) Wineberg (1988)
Mental health problems negatively impact school achievement	Bagwell, Molina, Pelham, and Hoza (2001) Boyce et al. (2002) Eggert, Thompson, Randell, and Pike (2002) Lipschitz, Rasmusson, Anyan, Cromwell, and Southwick (2000) McClellan, Breiger, McCurry, and Hlastala (2003) Roderick et al. (1997) Woodward and Fergusson (2001)

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APPENDIX C

QUALITATIVE COMPARATIVE ANALYSIS

Each factor identified in the content analysis was considered as the variables for QCA. These variables were structured into dichotomous variables to indicate the presence or absence of the factor. A value of 1 indicates a presence of the factor, and a value of 0 indicates an absence of the variable. A truth table (see Table C.1) was constructed to provide a visual display of all combinations of the independent variable or outcome. A row was designated for each participating state. Using QCA software, the factors were minimized to prime implicants and

Table C.1

Truth Table of Factors Influencing School Nurse-to-Student Ratios

	Factors											
States	A	B	C	D	E	F	G	H	I	J	K	L
1	0	0	1	0	1	1	1	1	1	1	1	1
2	0	0	0	0	1	0	1	1	1	1	1	1
3	0	0	0	1	0	1	1	1	1	1	1	1
4	0	0	0	1	0	1	1	1	1	1	1	1
5	1	0	0	1	1	1	1	1	0	1	1	0
6	0	1	1	1	1	0	1	1	1	0	1	1
7	0	1	1	1	1	0	1	1	1	1	1	0
8	1	1	1	0	0	0	0	0	1	1	0	0
9	1	0	0	1	1	1	1	1	1	1	1	1
10	1	1	1	0	0	0	0	0	0	0	0	0
11	1	1	1	0	1	0	0	0	0	0	0	0

Note. A = funding, B = school nurse confusion, C = educator confusion, D = leader, E = grassroots, F = certification, G = value school nursing, H = legal fears, I = per pupil funding, J = support services funding, K = team player, L = ratio.

were then written as a Boolean equation (see Table C.2). Table C.3 illustrates the final equation. The results indicate that no single factor is unique or most influential in influencing school nurse-to-student ratios.

At first, these results seem disappointing; however, Table C.1 helps to visualize the factors that seem to predominate in states where "low" ratios exist. These factors include valuing school nursing, legal fears, per pupil funding, and team player. Funding is a greater issue in states with high ratios, along with misunderstanding the role of the school nurse. Grassroot efforts, dynamic leadership, and certification appear to be influential factors but not as critical as other factors. These results support the findings in Section 4.

Table C.2

Prime Implicants Table of Factors Influencing School Nurse-to-Student Ratios

Prime implicants	Primitive expressions				
A	0	0	0	0	1
B	1	0	0	0	0
C	1	0	0	1	0
D	1	0	1	1	0
E	1	1	0	1	1
F	0	0	1	1	1
G	1	1	1	1	1
H	1	1	1	1	1
I	1	1	1	1	1
J	0	1	1	1	1
K	1	1	1	1	1
ABCDEFGHIJK					
10011111111					*
00101111111				*	
01111011101	*				
00010111111			*		
00001011111		*			

Table C.3

Results of Qualitative Comparative Analysis of Factors Influencing School Nurse-to-Student Ratios

AbcDEFGHIJK + abCdEFGHIJK + aBCDEfGHIjK + abcDeFGHIJK + abcdEfGHIJK = Y

This equation can also be written as:

FUNDING, school nurse confusion, Educator confusion, LEADER, GRASSROOTS, CERTIFICATION, VALUE SCHOOL NURSING, LEGAL FEARS, PER PUPIL FUNDING, SUPPORT SERVICES FUNDING, TEAM PLAYER +

funding, school nurse confusion, EDUCATOR CONFUSION, leader, GRASSROOTS, CERTIFICATION, VALUE SCHOOL NURSING, LEGAL FEARS, PER PUPIL FUNDING, SUPPORT SERVICES FUNDING, TEAM PLAYER +

funding, SCHOOL NURSE CONFUSION, EDUCATOR CONFUSION, LEADER, GRASSROOTS, Certification, VALUE SCHOOL NURSING, LEGAL FEARS, PER PUPIL FUNDING, Support services funding, TEAM PLAYER +

funding, school nurse confusion, Educator confusion, LEADER, Grassroots, CERTIFICATION, VALUE SCHOOL NURSING, LEGAL FEARS, PER PUPIL FUNDING, SUPPORT SERVICES FUNDING, TEAM PLAYER +

funding, school nurse confusion, Educator confusion, leader, GRASSROOTS, Certification, VALUE SCHOOL NURSING, LEGAL FEARS, PER PUPIL FUNDING, SUPPORT SERVICES FUNDING, TEAM PLAYER

= Good Ratio