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PUBLIC SCHOOL NURSE TO STUDENT RATIOS: DOES IT AFFECT STUDENT
ABSENTEEISM?

By

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Submitted to the Faculty of the Graduate College of
Arkansas Tech University
in partial fulfillment of the requirements
for the degree of
MASTER OF SCIENCE IN NURSING
Public School Nurse to Student Ratios: Does it Affect Student Absenteeism?
May 2022

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Abstract

PUBLIC SCHOOL NURSE TO STUDENT RATIOS: DOES IT AFFECT ABSENTEEISM?

The demands for adequate nursing workloads in public schools have increased with special needs children in Arkansas. School nurses are a necessary component of student academic achievement and physical well-being. The purpose of this study is to examine the effects that nurse-to-student ratios have on absenteeism by providing a convenience sample questionnaire to Arkansas K-12 public school superintendents. The questionnaire has examined the relationship between school nurse ratios and school absentee numbers. A four-question survey was sent out to 233 Arkansas K-12 public schools using a QuestionPro survey. Superintendents were asked about their school district numbers for the 2020-2021 school year. Forty-seven (36.1%) out of 233 respondents partially completed the survey. Of the 47 respondents, 17 (7.2%) completed the survey. Seven (5.5%) provided information about their absentee rates in the 17 completed surveys. Out of the seven schools, the absentee rate was 2.9% to 51%. Data from each school district was examined for special needs children for the 2020-2021 school year and was found to have a 2%-18% rate. This study also examined the relationship of nursing ratios to school district numbers for the 2020-2021 school year. Out of the 13 schools that completed the survey, 61% of the schools did not have adequate nursing workloads at the 1:400 nursing ratio.

Implications for this study were that the schools assessed have higher absentee rates and higher needed nursing ratios for the 2020-2021 school year. The schools that were found to have higher absentee numbers were the schools that require higher nurse-to-student

1:400 ratios. A recommendation for greater sampling numbers and the need for a more in-depth study of special needs children were examined.

Keywords: disease management, school nurse workload, chronic school absenteeism, efficacy of school nursing activities, teacher and nurse collaboration, mental health promotion.

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Chapter I: Introduction

Children must achieve regular attendance to acquire optimal learning skills that are essential for life functioning. School nurses have a tremendous job in monitoring the health and well-being of students within the school system. School nurses provide the vital needs of special needs students and allow them to remain in school when they would otherwise be absent due to disease or illness.

Statement of Problem

Arkansas school systems have a higher than national average special needs population at 38% compared to the national average of 25% (2019 School Health Annual Report, 2019). Special needs children require increased health care needs and school nurses are there to provide that care. Children that would otherwise stay at home, could attend public school due to the efforts of school nurses. Arkansas public school districts should examine their need to provide adequate nurse-to-student ratios to decrease absenteeism in their school districts.

Need for Study

Substantial data supporting the need for school nurses in public school districts have demonstrated the contribution that school nurses have had to special needs children. Specific health conditions such as asthma, diabetes, and food allergies cause higher absentee rates and affect academic performance (Darnell, 2019). Data published in U.S. News & World Report (2016) reported that 50% of the nation's schools had a full-time nurse (Camera, 2016). If school nurses are absent in public schools, unlicensed school personnel without professional training provide health services to special needs children. Parents of special needs children report they feel confident sending their child to school

and believe that a nurse trained to take care of their child would aid in-school activity and safety (Stefanowicz, 2018). If school absenteeism is caused by chronic illness, school district administration should include clear expectations about school attendance and care coordination with school personnel (Jacobsen, 2016).

. School health services promote positive mental health outcomes and reduce suicide or self-destructive activities among school-age children. Students with positive mental health outcomes have better academic results (Best, 2020). Without the efficacy of care from school nurses, many students would be absent due to mental health difficulties. School nursing activities involve managing chronic conditions, psychosocial support, and providing education to teachers and parents throughout the child`s attendance (Yoder, 2021).

The American Academy of Pediatrics (AAP) defines “special needs children as any physical, developmental, mental, sensory, behavioral, cognitive, or emotional impairment or limiting condition that requires medical management, health care intervention, and/or use of special services or programs” (American Academy of Pediatrics, 2020, p. 19). Many students in Arkansas schools suffer from these disease conditions. Managing these diseases could involve treatments, administering medications, or administering any implementation applicable, while the child remains in school.

School nurses promote increased school attendance by managing chronic conditions and by coordinating care within the school system (Jacobsen, 2016). Chronic absenteeism in the United States varies from 5%-50% (Allen, 2018).-Missed School days would equal 15 days a year (The Robert Wood Johnson Foundation, 2016). School nurses

are a necessary part of any student`s physical well-being and provide a safe ground for children attending public school. Children must achieve regular attendance to acquire optimal learning skills that are essential for life functioning. School nurses provide the vital needs of special needs students and allow them to remain in school when they would otherwise be absent.

School health is where education and health intersect, addressing students' primary and complex needs and promoting academic achievement. Providing an adequate nursing workload could mean that all students are provided health services even though they may have special needs. School nurse workload was defined by the National Association of School Nursing in 2015 by their position statement *Staffing for Safe Care*. Many public schools in Arkansas do not meet the recommendation of a 1:750 nurse to student ratio (Dolatowski, 2015). The purpose of this study is to examine the effects that nurse-to-student ratios have on student absenteeism in K-12 public schools.

Assumptions

The investigator assumed that superintendents have a working knowledge of their school districts on attendance, registration, and numbers of nurses employed. Arkansas school superintendents were chosen as access to these numbers through Arkansas State monitoring in electronic digital resources, such as Arkansas Public School Computer Network (APSCN). A second assumption by the investigator was that superintendents would report their district data accurately

Research Question

Do higher nurse-to-student ratios decrease absenteeism rates in Arkansas K-12 public schools?

Limitations

School district student absentee data for the school year 2020-2021 was an optional response for each superintendent. Participation in this survey was voluntary and subject to refusal from each superintendent. The expected participation rate was 30% of the 233 superintendents in Arkansas K-12 public schools. Although the expected participation rate was 30%, the response rate was very low, with only 3% of superintendents completing the questionnaire.

Accurate assessment of nurse-to-student ratios remains limited due to the unknown number of special needs children in each school district. Acuity rates in Arkansas school districts were not identified because school nursing staff were not included in this study.

Definition of Terms

Chronic school absenteeism refers to students who are chronically absent from school or miss at least 15 days in the school calendar year (U.S. Department of Education, 2015).

Disease management refers to school nurses managing chronic disease conditions such as asthma, diabetes, seizure disorder, or other conditions defined by the American Academy of Pediatrics (AAP, 2020).

Efficacy of school nursing activities refers to promoting health and disease prevention.

Increased school nurse workload refers to workloads greater than 750 students to one nurse or a 1:750 ratio.

Mental health promotion is coordinating the mental health needs of students with other school counseling entities.

Teacher and nurse collaboration is defined as partnering nurse, parent, and student to organize a working plan of care for each child.

Summary

Through the work of Arkansas school nurses, students can experience positive academic achievement through decreasing absenteeism in K-12 schools. This study examines school nurse-to-student ratios and what effects it has on school absenteeism in Arkansas public K-12 schools. By examining school absentee numbers as compared to the number of nurses employed, we can make a logical conclusion about nursing efficacy. Establishing the rights for children with disabilities to attend public schools has increased the demand for the growing numbers of school nurses in Arkansas public school systems. Creating a one size to fit all workload is deficient in filling students' increasingly complex health needs. School nursing services must be determined at student acuity levels sufficient to meet the needs of school populations.

Chapter II: Literature Review

Advocating for more school nurses within the educational setting presents unique challenges in changing the common perceptions of school nursing. Funding variances can link health and educational outcomes, such as absentee rates and monetary benefits. Children with complex health care needs have greater chronic illness than most school-aged children and could have higher absentee rates (Emerson, 2016). According to The National Association of School Nurses, schools should meet the guidance of one school nurse for 225 chronically ill children to give adequate care in public schools (Dolatowski, 2015).

The national average of chronic illness in K-12 public school students is 25%. Arkansas has a higher chronic student illness rate of 38% in K-12 public schools. In a school health report in 2018 Arkansas schools had 2,209,421 students returned to class, with 204,633 sent home with the help of school nurses (2019 School Nurse Health Report, 2019). Greater numbers of students were returned to class with help from school nurses. Many students who would have otherwise been sent home were returned to classrooms with school nurse case management assistance. The purpose of this literature review is to examine the effects of nurse-to-student ratios on absenteeism in K-12 public schools. Databases used in this literature review included-Google Scholar, CINAHL, Medline, PubMed, and Psych Info. Other web-based reviews were accessed on the Arkansas Department of Health, the American Academy of Pediatrics, and the Department of Education. Data-based research terms were school nursing, school absenteeism, and chronic student health conditions. Search criteria included peer-reviewed articles within the last five years.

Conceptual Framework

A conceptual model of Jean Watson`s Caring theory (1997) was used to compare relationships between the need for an increased nursing presence in public schools and the holistic health of students within the school system.

Jean Watson refers to the human being as a valued person to be cared for, respected, nurtured, and assisted in a general philosophical view. Health is defined as a high level of overall physical, mental, and social functioning, a general adaptive maintenance level of daily functioning, and the absence of illness or the presence of efforts leading to the absence of illness such as school nurse efficacy efforts in K-12 public schools (Petiprin, 2020). School nurses strive to attain the highest level of student physical health, and Watson`s theory focuses on health promotion as well as the treatment of disease. Watson defines nursing as a human science of persons and human health-illness experiences that are mediated by professional and ethical human transactions (Petiprin, 2020).

Watson`s model uses a hierarchy of needs that begins with lower-order biological needs for food, fluids, and elimination, and progresses to higher achievement, affiliation, and self-actualization. Viewing the student holistically while at the same time attending to the hierarchical ordering of needs helps the student understand his achievement and self-actualization. The presence of school nurses in public schools benefits the holistic needs of students and families and is a necessary part of their academic experience.

Impact on Kentucky Schools

A state-wide survey examining the relationship between school absenteeism and school nurse presence in Kentucky public school systems was conducted in 2013

(Darnell, et.al., 2019). A descriptive cross-sectional survey was analyzed from 230 Kentucky public high schools. Data among school personnel and secondary data from open-access electronic databases were examined. School personnel data contained employment status, nurse presence, and daily activity. Electronic databases included absentee rates, ACT scores, gender, ethnicity, and youth incarceration. Full-time nurses were described as more than 37 hours per week. Among the schools surveyed, 42% had a full-time nurse, 37% had a part-time nurse, and 20% did not have a nurse working at all.

Secondary data revealed that schools having a full-time nurse present each day had a lower absentee rate (6.3%) than those with a part-time or no nurse at their school (6.98%). Schools with a full-time nurse had higher graduation rates (83.1%) and higher ACT scores (19.1%). School nurse presence in K-12 public schools is vital to student outcomes such as absenteeism and graduation rates.

Limitations included limiting the study over an extended period. Data should be followed up longitudinally and with other age groups such as elementary children. Lastly, the study did not address the educational levels of the school nurse participants. Nurses were not categorized into academic levels such as registered nursing and licensed practical nursing. The correlation study should integrate other school nurse education levels into the study (Darnell, 2018).

This study left other unanswered questions, such as do the schools with full-time nurses have them because they are wealthier school systems? This factor could affect the quality of teachers, availability of social workers and counselors, and nurse-to-student ratios resulting in more significant academic outcomes and lower absentee rates.

Absenteeism and School Nurse Ratios

A 2015-2016 analysis of North Carolina school systems examined the impact of school-nurse-to-student ratios on health and educational outcomes (Best, et.al., 2021). North Carolina school districts (n=115) were surveyed to determine school nurses' impact on absences, grades, and self-management of students with asthma and diabetes. Linear modeling with descriptive statistical data was analyzed using ratios associated with health services such as asthma and diabetes care management. In the North Carolina districts, 10,0187 students received asthma services and 3832 students received services for diabetes. The higher ratios of 1:1179 in 2011 to 1:1086 in 2016 corresponded with reduced absences ($p=.05$), improved grades ($p=.05$), and student management of their disease conditions. Decreased nurse-to-student ratios are linked to reduced absenteeism in North Carolina school districts (Best et al., 2021).

School Nursing, Absenteeism, and Graduation Rates

Another study examined how primary school variables such as student disabilities and school nurse-to-student ratios were relevant in predicting high school attendance and graduation rates (Yoder, et.al., 2021). In Philadelphia, school districts of 80,000 students living in poverty were examined to evaluate student absentees (Gottfried, 2014). This study has examined the necessity of school nursing to support students living in poverty and how it affects their educational state. The researchers conducted a longitudinal study in sizeable administrative databases from several northwestern (or Philadelphia) school districts. Fifth-grade records (n=7,818) and ninth grade records (n=4,775). The results of the Pearson bivariate matrix were significant to determine that school nurses who had a lower workload in many schools decreased the number of absences and early dismissal

from school and resulted in higher graduation rates. Limited resources such as poverty and lower school nurse presence in public school districts affect student attendance and increase school district absenteeism. One limitation of this study was that the data was collected for administrative purposes, thus limiting the availability of variables for this study (Yoder, 2021).

Chronic Student Absenteeism and the Critical Role of Nurses

Missing school due to chronic conditions such as asthma and diabetes can be a problem in most school systems. Five million students across the United States are chronically ill and miss 10% of school time throughout the year. School attendance rates can be a measurement of school performance and may negatively affect funding. Chronic absenteeism is defined as a student missing more than 18 days in a school year.

A study of the Munson Healthcare Program for public and charter schools in Michigan revealed that schools without nurses did not have improved attendance levels in most cases (Jacobsen, et.al., 2016). The Munson Hospital, located in Michigan's northern lower peninsula, initiated a program working with area schools to hire new nurses in schools with an inadequate number of nurses. The hospital worked closely with school administrators and area physicians to approve the program through hospital funding. School nurses implemented preventative health measures such as nutrition, health education, physical activity, case management, and community programs. After initiating the program in the years 2011-2014, absentee rates in Michigan schools dropped from 37% to 5%. There may have been other community programs and services that were not accounted for to contribute to reduced chronic absenteeism rates. Limitations of this study suggest it needs to be replicated in future studies (Jacobsen, 2016).

Parent Perspective of a School Nurse Caring for a Type 1 Diabetic

A literature review conducted in Poland examined the perspectives of patients and their parents regarding the school nurse's role in caring for students (Stefanowicz & Stefanowicz, 2018). Six databases were analyzed from January to May 2016 using keywords, type 1 diabetes, school-aged children, school nurses, and school environment.

Parents reported in 10 research studies and two literature review articles that school nurses provide continued support through blood glucose monitoring, insulin administration, and care management, and they positively impact improved metabolic control, safety at school, and continued school activity. A work by Amillategui et al. 2007 observed 320 schools containing an average of 22% employed nursing staff. Of the 320 schools surveyed, 70% of the parents within the schools believed that a licensed nurse should care for their type 1 diabetic children. The parents' confidence in the school nurses working within their school districts is attributed to the lower absentee rates tallied in their schools. To conclude, school nurses, increase the safety and confidence of parents with type 1 diabetic children and may contribute to the lower absentee rates in many public schools (Stefanowicz, 2017).

School Nurse-led Asthma Program and Absenteeism

Another study conducted in Hartford, Connecticut, during the 2015-2017 school years examined the Easy Breathing for School Program among fifteen public schools (Simoneau, et.al., 2020). The purpose was to evaluate the effectiveness of school nurses on care management for students who have asthma and how this reduced school absenteeism rates. The program consisted of an assessment of asthma, asthma control, asthma education, and medicine review. Twenty-eight nurses participated in the program

and received the training necessary for participation in the program. Out of the fifteen schools, 114 students were enrolled during the 2015-2016 school year, and 137 students were enrolled in the 2016-2017 school year. Students enrolled in the Easy Breathing for Schools Program experienced a 25% decrease in absenteeism compared to the nonprogram group (Simoneau, 2019).

Additionally, the students utilizing the Easy Breathing for Schools Program missed fewer school days than peers with asthma who did not. Limitations included not adjusting the variables for asthma severity or morbidity and being limited to elementary-aged children due to high schoolers' self-carrying inhalers at school.

The Impact of School Nursing on Academic Performance

The results from a study of school nurses in Turkey on academic performances highlight school nurses' critical role in children's educational lives (Kocoglu & Emiroglu, 2017). The purpose was to provide information about comprehensive school nursing services to 31 Turkish 4th-grade elementary students and study the effects on their absentee rates and academic performance.

The quasi-experimental study included data collected using the OMAHA System, Pediatric Quality of Life Inventory, and The Child Health Questionnaire. Information from The OMAHA System had knowledge of child environment, student health conditions, and student academic performance. The Pediatric Quality of Life Inventory assessed 23 items such as physical, social, and emotional functioning. Families were assessed using The Child Health Questionnaire, consisting of 50 articles on physical, social, behavioral difficulties, and bodily discomfort. A Planned intervention with 31 participants was explained to teachers on the criteria expected from the children. Nurses

were then instructed to initiate interventions, including health education and guidance, counseling, treatment and procedures, case management, and surveillance. Surveillance was a significant item (41%) in nursing intervention as it included monitoring disease systems, identifying health problems, and implementing a treatment regimen (Kocogle, 2017).

A relationship between the number of treatments and procedures from nursing interventions and decreased student absenteeism was determined. This study concluded that nursing services in Turkish elementary schools contributed to reduced absenteeism and academic success.

Academic Outcomes and School Nursing; An Integrative Review

A critique of the relationship between school nurse presence and various academic outcomes in educational environments was conducted in 2018 (Yoder, 2020). Nursing and Allied Health Literature, Psych Info, PubMed, Educational Resources Information, and Educational Reference Complete were accessed for data on this subject. Criteria for this quantitative design study included participants of ages 5-18 years, with and without school nurse presence, and using the academic outcome as a dependent variable. The search accessed 1,474 articles, and 16 were included in the integrative review. A Qualitative Assessment Tool for Quantitative Studies evaluated the articles to consider weak, moderate, and strong quality.

Studies in this review were largely experimental or quasi-experimental. The studies were grouped into categories: supervised nurse asthma therapy programs, interventional school nurse roles, case management, infection control and prevention, and nurse effects on missed class time. All articles evaluated using this criterion were found

to have reduced school absenteeism (some schools had 50% lower absentee numbers) and provided early prevention of disease through vaccine and medication administration. Of the evaluated studies, 13% found significant decreases in absenteeism and fewer dismissals from school.

Limitations of this study include not adequately addressing the definition of nurse to student ratios. School nurse workload was identified from numbers only and did not address school nurses' actual workload within public schools. School nurse-to-student ratios should be defined by including acuity levels, life circumstances, and the needs of students within their school districts. This literature review was limited by the articles on academic outcomes and did not specify improvement in student academic achievements.

School nurses were found in this study to be a critical part of the academic environment. The presence of school nurses in K-12 public schools demonstrates reduced absenteeism, case management of chronic illness, and disease prevention.

Recommendations were to add further studies on the impact of school nursing interventions and report data to governmental entities.

Literature Review Summary

Arkansas public schools should look at the effects higher nurse workload has on absentee rates. With a 38% chronic illness rate, new strides must be made to examine acuity levels within school districts and fine-tune nurse-to-student ratios (2019 School Health Report, 2019). The impact on absenteeism in K-12 public schools can be significant, as shown through several studies in this review. The added presence of school nurses in public schools had lower absentee rates in all schools, some as low as 5%.

Frequent school absenteeism has long-term effects on academic performance and most school district budgets.

Chapter III: Methodology

Research Design

The purpose of this research was to examine the relationship between nurse-to-student ratios and student absenteeism rates in K-12 public schools. A quantitative descriptive survey design was used to survey Arkansas Public K-12 school superintendents.

Setting/Population/Sample

A superintendent group of K-12 public schools was surveyed utilizing an online questionnaire with a paper copy given at a local superintendent's monthly meeting. Sixteen superintendents were invited to this monthly meeting. Prior approval was obtained from the cooperative manager.

A convenience sample of Arkansas superintendents was chosen because of their knowledge about the working conditions of school nurse-to-student ratios within their K-12 public schools. Superintendents have access to school district reports on registration numbers, employee numbers, and absentee rates. Therefore, this group was chosen to provide the necessary information about the relationship between school nurse-to-student ratios and absentee rates.

Arkansas Public K-12 school superintendent information was obtained using a Google search. "Arkansas public school superintendent" was initially submitted into the Google database. A "Superintendent Contact List by District" was retrieved through the Arkansas Department of Education website. A list was then saved containing each superintendent's name, address, telephone number, and email address and recovered from this public domain for future reference.

A written hard copy was provided to local superintendents at a monthly meeting at Ozark Unlimited Resources Cooperative in Harrison, Arkansas. The superintendents were instructed to complete the four-question anonymous questionnaire to the best of their ability. Paper copies were provided along with information about the upcoming email questionnaire.

Human Subjects

Human subjects' approval was granted by the Arkansas Tech University Institutional Review Board in November 2021 (see Appendix B). Participation in the online survey was voluntary and anonymous.

Instrumentation

This research study utilized a self-created questionnaire that the researcher developed based on nurse-to-student ratios and K-12 student absentee rates. Superintendents were given information about the research purpose and encouraged to participate anonymously within their entire school district. The first question asked, "How many students were registered at your school district in the 2020-2021 school year? (All campuses combined). The second question asked, "How many school nurses were employed at your school district during the 2020-2021 school year? (All campuses combined) The third question asked, "What were your school district's absentee numbers for the 2020-2021 school year? (All campuses combined) The fourth question asked, "How many special needs students were at your school district (All campuses combined) for the 2020-2021 school year? (Special need children are those children defined as requiring nursing care while at school or are in special education classes) The purpose of this study was to compare nurse-to-student ratios to student absentee rates in Arkansas

public schools. These questions are vital in the identification of Arkansas public school district employee numbers as it relates to student absentee numbers. The four questions were distributed using QuestionPro survey methods to the superintendent's e-mail.

Data Collection

Data was collected from the QuestionPro website. The Arkansas superintendents were sent an e-mail inviting them to participate in this research study. The superintendents were told that participation was voluntary and would remain anonymous throughout the survey. A beginning paragraph with an introduction of myself and a brief explanation of the research was presented. The survey cover letter stated that this was a questionnaire investigating the number of school nurses in Arkansas public schools and the relationship to student absentee rates. Out of the 233 questionnaires sent, 107 viewed the survey, 17 partially completed the survey (36.17%), and 7 completed the survey (3%). The average completion time for the survey was 8 minutes. The surveys were initially sent out on January 27, 2022. A reminder e-mail was sent out on January 31, 2022, to hopefully increase the rate of participation. Data collection ended on February 1, 2022.

Data Analysis

Data was collected and analyzed through the QuestionPro online survey site. Data were analyzed using descriptive statistics regarding the number of nurses employed in each district, number of nurses needed for a 1:400 nurse-to-student ratio, number of special needs children, and number of absences for school districts

Summary

This study, utilizing an investigator-created questionnaire, evaluated the nurse-to-student ratio in Arkansas K-12 schools and compared this data to student absentee rates. Information from this questionnaire was conducted between January 21, 2022, and February 1, 2022. Out of 233 questionnaires sent to Arkansas superintendents only 7 were completed with information about absentee numbers in each school.

Chapter IV: Results

Introduction

Routine school attendance is a necessary part of school districts to prepare our youth for academic achievement. Over 5 million students in the United States are chronically absent (Jacobsen, 2016). The problem of chronic absenteeism can be linked to increases in chronic health conditions in Arkansas schools. Arkansas has a 38% special needs student rate as opposed to the national average of 25% (Dolatowski, 2015). School nurses play a vital role in reducing chronic student absenteeism, permitting chronically ill youth to remain in school and achieve maximum learning potential. The purpose of this study was to examine the effects that nurse-to-student ratios had on student absentee numbers in Arkansas public school districts. Data collected from January 21, 2022, to February 1, 2022, revealed that Arkansas School districts require greater numbers of school nursing staff, although inadequate nurse-to-student ratios or absent students were not assessed.

Findings

The demographic section of this questionnaire consisted of K-12 grade school registration, the number of nurses employed within the school district, the number of special needs children, and the number of absentees in the 2020-2021 school year. Two hundred thirty-three questionnaires were sent to superintendents in Arkansas K-12 public school districts via their school email addresses with a link to the survey in QuestionPro (see Appendix A). Of the 233 questionnaires sent by email, 107 (45%) viewed the survey but did not complete it. Out of the 107 viewed questionnaires, forty-seven (36.1%) partially responded., and 17 (7.2%) completed the survey.

Arkansas nurses should be guided by acuity levels written in the National Association of School Nursing position statement, *Staffing for Safe Care*. Table 1 defines nursing to student ratios brought forth through the association. Table one examines staff nursing in Arkansas public schools according to the 1:400 nurse-to-student ratios. A 1:400 nurse-to-student ratio would be one nurse to 400 students that have uncomplicated physical or social-emotional health and only require occasional monitoring from biweekly to annually.

The first question asked in the questionnaire was, “How many students were registered in your school district in the 2020-2021 school year?” (All campuses combined). The second question asked, “How many school nurses were employed at your school district during the 2020-2021 school year?” (All campuses combined). Most school districts did not employ adequate nursing numbers for acuity levels exceeding 1:400 nurse to student ratios. Of the 17 completed responses, only 14 participants answered these questions. Absentee rates were calculated by multiplying the number of registered students in each school district by the number of absentees for 2020-2021. This number was then divided by the number of registered students in each school district multiplied by the attendance days in the 2020-2021 school year. The numerical equation would look like this: $(\text{number of registered} * \text{number of student absents}) / (\text{Number of registers} * \text{number of days in the year})$.

Table 1*Number of Registered Students Compared to Nurses Needed with Absentee Rates*

Number of registered students in each school district	Number of nurses employed	Numbers needed at 1:400	Percentage of absentee students for the 2020-2021 school year.
1700	4	4.25	10.7%
1006	3	2.5	Data not provided
2000	5	5	Data not provided
3300	4	8.25	26.93%
450	2	1.12	3.6%
285	1	.71	Data not provided
2872	5	7.18	3.7%
553	2	1.38	2.9%
872	1.5	2.1	Data not provided
885	2	2.21	4.9%
1730	4	4.32	51.4%
1800	4	4.5	Data not provided
432	1	1.08	Data not provided

Sixty-one percent of the 13 schools did not employ enough nurses at the 1:400 nurse to student ratio. It is notable to see that we are only looking at the 1:400 nurse to student ratio, the lowest amount of student acuity level necessary. Nearly all Arkansas schools with 400 students will have at least one special needs student. It would be infrequent for a school of 400 to not have at least one special needs student.

Many school districts have special needs children at varying acuity levels throughout their campuses. The fourth question on the questionnaire asked, “How many special needs students were at your school district (all campuses combined) for the 2020-2021 school year?” Special needs children are defined as requiring nursing care while at school or in special education classes. This does not necessarily mean each child is receiving nursing care in a special education class. There were no children identified for this table to be medically fragile. Acuity levels to determine the numbers of medically

fragile children were not assessed in this study. The average percentage rate for the nine campuses assessed was 8.6% for special needs students. There was a 2-18% special needs rate in each school district. Only nine schools provided data on the number of special needs children out of the 13 completed questionnaires.

Table 2

Number of Student Special Needs Children and Special Needs Children Rates

Number of students registered in each school district	Number of special needs children	Percentage in each school district
1700	202	11.88%
3300	396	12%
450	85	18%
285	6	2%
2872	426	14.8%
553	75	13.5%
885	159	17.9%
1800	5	1730
432	62	14.3%

The third question asked, “What were your school district’s absentee numbers for the 2020-2021 school year on all campuses combined?” Table three addresses this question.

Table 3

Number of Absences with Absentee Rates in Each District

Number of students registered in each school district	Number of absences for the year 2020-2021	The percentage for each school district
1700	1874	10.7%
3300	4714	26.93%
450	642.8	3.6%
2872	655	3.7%
553	523	2.9%
885	874	4.9%
1730	8996	51.4%

The first nurse-to-student ratio (1:400) is compared with the absentee rate in table six. The seven schools that gave information on their absentee numbers were compared.

Table 4

Number of Nurses Needed with Absentee Rates

Number of registered students	Number of nurses	Number of nurses needed at 1:400	Percentage of absentees for the 2020-2021 school year.
1700-4	4	4.25	10.7%
3300-4	4	8.25	26.93%
450-2	2	1.12	3.6%
2872-5	5	7.18	3.7%
553-2	2	1.38	2.9%
885-2	2	2.21	4.9%
1739-4	4	4.32	51.4%

The schools assessed have higher absentee rates and higher needed nursing ratios. The seven schools that were found to have higher absentee numbers were the schools that required higher nurse-to-student 1:400 ratios.

Summary

The purpose of this study was to compare nurse-to-student ratios and absentee rates. Although there was a small participation rate of only 7 superintendents (3%) that answered the questionnaire and gave their absentee numbers for their school district it was determined that the absentee rates ranged from 2.9%-51.4%. It is determined that the highest four rates in the study were schools that did not employ enough nurses at the 1:400 ratio. The small number of participants did not allow a full analysis of the completed data currently.

An examination of the number of school nurses employed as compared to student registration numbers revealed that there was a 61% deficiency rate at the 1:400 nurse-to-student ratio. These findings suggest that many Arkansas schools do not employ enough nurses to comply with chronic student disease conditions. Arkansas schools have a total special needs student rate of 38% and it would be logical to assess that many schools would not meet the 1:400 ratio or higher.

Chapter V: Conclusion

Summary

The determination of adequate school nursing staff is a complex process and must be determined on a school-by-school basis. One factor that plays into determining school nursing ratios is student acuity levels. Student acuity levels affect nurse-to-student ratios within school populations and help determine nursing staff adequacy within every school district. Many school districts do not consider student acuity levels when assessing nurse workloads. It is important that every school district examine its acuity levels to meet the needs of special needs students.

Student special needs conditions should be compared to nurse-to-student ratios with careful consideration in each school. A 1:750 nurse-to-student ratio should be considered when no health concerns are identified. A 1:400 nurse-to-student ratio would be considered if health concerns require an Individual Healthcare Plan (IHP), the student's physical or social-emotional condition is currently uncomplicated and predictable, or occasional monitoring varies from biweekly to annually. Examples of students with a 1:400 ratio would be students with non-acute asthma, attention deficit disorder, and anxiety disorder.

The purpose of this quantitative descriptive study was to assess the needs of Arkansas public K-12 schools districts on nurse-to-student ratios and how they compare to absentee rates. Although several attempts were made to retrieve greater numbers of participants it is apparent this study shows inadequate staffing of nurses in most Arkansas schools at 61%.

Discussion

Although the findings of this study could not conclude how nurse-to-student ratios affect absentee rates, the data reveals that greater numbers of licensed nurses are needed in Arkansas to meet the 1:400 nurse-to-student ratio. Nurses play a vital role in student health and contribute to academic success. Survey data obtained from Kentucky high school databases determined school nurses contributed to higher graduation rates, lower absenteeism ($p=.04\%$), and higher ACT scores (Darnell, 2019).

Chronic illness is a major cause of absenteeism in most school districts. Schools that have higher acuity levels are inadequately staffed and have higher absentee rates. The findings of this study suggest that Arkansas school districts need greater numbers of full-time nursing staff to care for the needs of their student population. North Carolina schools identified schools having lower nurse ratios and health services were associated with improved student outcomes including decreased absences ($p=.05$), improved grades ($p=.05$), and student self-management of their health condition ($p=.05$) (Best, 2021).

An attempt to identify chronic absenteeism in this research was made considering absentee numbers in each school district. School districts that had 26%-51% absentee rates could be considered as having a chronic absentee problem. Literature from Munson Hospital identified the need for school nurses in Michigan. public schools. After the hospital initiated a program that employed more nurses in public schools, absentee rates dropped from 37% to 5%. (Jacobsen, 2016).

Children with chronic conditions are categorized as special needs children in this study. They are defined in the questionnaire by any student needing nursing care while at school or in special education classes. Out of the 13 schools assessed in this study, we

found that there was a 2%-18% special needs student rate. Children can be identified by diseases such as asthma, diabetes, or any other disease condition. An Easy Breathing for Schools Program was conducted in Hartford, Connecticut. This study found school nurses aiding with the care management of students, had a significant decrease in the school's absentee rates (Simoneau, et.al., 2017).

School nurses are an intricate part of care management and family coordination. The efficacy of care from school nurses with student diabetes in Poland was considered an asset to schools and added parent confidence. The parent perception of the coordinated care from school nurses is contributed to the 36 school's lower absentee rates (Stefanowicz, 2019).

The empirical evidence from this literature has demonstrated that school nurses are effective in assisting students and families to address health concerns, reduce absenteeism, and provide children with an opportunity to reach their potential academically. An integrative review of these variables was conducted from 2002 to 2018 (Yoder, 2019).

This study attempted to identify the effects that school nursing ratios have on absentee rates. The literature review reveals that appropriate nurse-to-student ratios can reduce absenteeism in K-12 public schools.

Limitations

Many of the questions were partially answered in the QuestionPro survey. The superintendents only answered the questions sporadically and inconsistently throughout the questionnaire. This inconsistency could not allow for a complete assessment of all schools surveyed in the study.

The low response rate and the number of incomplete questionnaires limited the analysis. In each of the 17 school districts that participated, most were identified to need higher numbers of school nurses at the 1:400 ratio. Four of the seventeen completed surveys did not need greater numbers of nurses in their school districts. Although it was determined that higher numbers of nursing staff were required in most school districts, it was difficult to evaluate these ratios to the number of absentee rates with the limited sampling.

Recommendations

Recommendations for this thesis were to use different questioning that would require direct answers. Some superintendents commented in the comment section that it was unclear about the terms used in the questionnaire. One recommendation for future use of the survey is to employ forced-choice responses rather than fill in the blank. Superintendents are busy with other tasks in public schools and should be given a more efficient method of answering. Most superintendents completed the questionnaire in 5-20 minutes.

Another recommendation is to include school nurses in the sample as participants in the study. School nurses could help identify the acuity levels of each special needs student in their districts. School nurses should be given the questionnaire to complete questions on special needs children. A deeper evaluation of each school district's acuity levels should be obtained to gain a more detailed view of this information.

Conclusion

This research addressed the subject of school nurse-to-student ratios and their relation to absentee rates. As most schools need more significant numbers of school

nursing staff, chronic school absenteeism and how it relates to nurse-to-student ratios remains undefined in this thesis. A larger sample would have provided more meaningful data and conclusions for this study.

School nurses are a necessary component of each school district and are essential for the health and well-being of each special needs child. School nurses in North Carolina (n=115) were determined to have reduced absentee rates ($p=.05$) in districts that had lower nurse-to-student ratios (1:1175). In each literature article reviewed, it was evident that school nurses improve academic achievement, social, physical, and mental well-being, and lower absenteeism in public schools. Although it is clear that public K-12 school districts in Arkansas require increased school nurse staff, we can benefit from increased nurse staffing to decrease absentee rates.

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Appendix A

Questionnaire for Arkansas Public School Superintendents

Inquiry by

Laura Hobbs BSN, RN, Graduate Nursing Student

Arkansas Tech Fall 2021.

As part of my MSN research thesis at Arkansas Tech University, Russellville, AR., I am conducting a survey investigating the number of school nurses in Arkansas public schools and the relationship to student absentee rates. I would appreciate it if you could fill out this four-question survey. Any information obtained in connection with this study that can be identified with your school district will remain anonymous. Participation will be voluntary in this survey. You may withdraw at any time by not clicking submit on this questionnaire.

1. How many students were registered at your school district in the 2020-2021 school year? (all campuses combined)	
2. How many school nurses were employed at your school district during the 2020-2021 school year? (all campuses combined)	
3. What were your school district's absentee numbers for the 2020-2021 school year? (all campuses combined)	
4. How many special needs students were at your school district (all campuses combined) for the 2020-2021 school year? (Special need children are those children defined as requiring nursing care while at school or are in special education classes).	

Thank you for your participation in my thesis project. Again, any participation will be confidential, and participation is clearly voluntary.

Appendix B



OFFICE OF RESEARCH AND SPONSORED PROGRAMS

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November 9, 2021

To Whom It May Concern:

The Arkansas Tech University Institutional Review Board has approved the IRB application for Laura Hobbs' proposed research, entitled "Public School Nurse to Student Ratios: Does it Affect Student Absenteeism?" The Institutional Review Board used an expedited review procedure under 45 CFR 46.110 (7).

Please note that in the event that any of the parameters of the study change, the researcher may be required to submit an amended application.

Please proceed with your research. We wish you success with this endeavor.

Sincerely,

Rene Couture

Rene Couture, Ph.D.
Institutional Review Board
Arkansas Tech University