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Perceived Confidence Levels of NC School Nurses with Emergency Preparedness

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Perceived Confidence Levels of NC School Nurses with Emergency Preparedness

by

Gina Mace Greene

A thesis submitted to the faculty of
Gardner-Webb University School of Nursing
in partial fulfillment of the requirements for the
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Abstract

School nurses have a critical role in a school setting during an emergency. In many situations, they are the first and only health responders on the scene. School nurses must be confident in their knowledge and skills to implement in many different types of emergencies. This study presents the results of the perceived competence levels of NC School Nurses with emergency preparedness. An anonymous survey showed results that more school nurses are more confident with medical emergencies and least confident with pandemic and bioterrorism related emergencies. Some types of emergencies may only pose a low threat of incidence in a NC school, however, school districts, administrators, school nurses, and local health departments have a responsibility in collaborating together to develop an emergency plan of school nurse responsibilities in all types of emergencies.

Keywords: school nurses, emergency, trauma, seizures, natural disasters, violence, pandemic, bioterrorism

Acknowledgments

For my husband: Thank you for always being my ultimate supporter and for your many sacrifices to help me to succeed. I love you always.

For my dad: I finally did it, Dad. I hope you I'm making you proud in heaven.

For my mom: Thank you for the life you have given me and for helping me be the woman I am today.

For my children: No matter how hard, always work hard for your dreams.

For Dr. Arnold: Thank you for encouraging me to continue my education even when I wanted to quit. Your motivation and encouragement have been a blessing.

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CHAPTER I

Introduction

Each day approximately 60 million students attend school with the expectation of staying safe and healthy. School nurses in public, charter, and private sectors play a critical role in this responsibility through emergency preparedness. School nurses are often the first health care responders on a scene and are responsible for identifying and managing emergent situations before Emergency Medical Services (EMS) arrive (Tuck et al., 2014). The National Association of School Nurses (NASN) states, “that the registered professional school nurse provides expertise in school health and is a vital member of the school team who collaborates with community agencies to develop comprehensive emergency response procedures (Tuck et al., 2014, para. 1). Due to this enormous responsibility, it is critical for school nurses to be confident in their knowledge and skills in emergency situations.

Significance

The nation’s 60 million school-aged children spend many of their daily waking hours at school. Currently, there is no national database that reports all pediatric injuries that occur in the school setting (Elgie et al., 2005). Data from Utah between 1992-1996, reported that 17.4% of injuries at school were serious enough for treatment in the emergency department (Elgie et al., 2005).

School nurses play a critical part in handling emergent situations; however, most school nurses do not have advanced training beyond Basic Life Support (BLS) (Elgie et al., 2005). Basic Life Support does not include training on school-based emergencies. In one study, 23% of school nurses reported to having advanced training beyond BLS such

as Pediatric Advanced Life Support (PALS) or Emergency Nurse Pediatric Course (ENPC) (Elgie et al., 2005). Registered nurses who are BLS certified may not be prepared to lead if an emergent situation arises. In order for school nurses to be leaders when an emergency arises, they must first obtain the knowledge and then practice the information learned (Elgie et al., 2005). Common school emergencies school nurses may be required to handle include: asthma, diabetes, allergies, seizures, cardiac arrest, school violence, and natural disasters.

School Nurse Preparedness

School nurses have to be prepared for any emergency that arises in the school setting. In order for school nurses to be leaders, “the school nurse must first acquire the knowledge and then implement this information” (Elgie et al., 2010, p. 369). The National Association of School Nurses (NASN), the Illinois Emergency Medical Services for Children (IEMS-C), and the New Mexico Emergency Medical Services for Children (NMEMS-C) are three organizations in the United States that sponsor education opportunities for emergency preparedness for school nurses (Elgie et al., 2010).

Asthma in Schools

Currently, there are 6.1 million children under 18 years old, who are diagnosed with asthma. There were over 3.2 million documented asthma attacks in 2017 in children under 18 years old (Centers for Disease Control and Prevention [CDC], 2019). A study in New Mexico reported that all school nurses reported having students with asthma in their schools. Twelve percent of those school nurses reported having more than 50 asthma-related nurse visits per month. In the same study, 67% of school nurses called for Emergency Medical Services for at least one child yearly (Elgie et al., 2005). Asthma-

related deaths in children are rare; however, the death rate increases with age. The number of asthma-related death in children under age 15 in 2016 was 169 children (American Lung Association, 2018).

Diabetes in Schools

Diabetes is a chronic disease that has the potential to become a life-threatening emergency. School nurses have to be competent with the disease and how to respond when diabetes becomes emergent (Allen et al., 2012). Students with Type 1 Diabetes require close monitoring of their blood glucose. A diabetic student could become unresponsive if they receive too much insulin or exercise too strenuously. The school nurse would be responsible for injection of Glucagon or have a plan in place so that other school staff members know the action plan if the nurse is not present (Allen et al., 2012).

Allergies in Schools

Allergies affect millions of Americans and is the sixth leading cause of chronic disease. Allergies can heavily affect children's activities; limiting children to 40% of activities. Allergies can include food allergies, which can be found in 8% of children younger than seven years old (Allen et al., 2012). Each year, approximately 100 Americans die each year from anaphylaxis, most of them being children (Allen et al., 2012).

Seizures in Schools

Seizures are unpredictable. It is estimated that at least 67% of emergency calls occur during the school year, with 16% of calls being related to seizures (O'Dell et al., 2007). School nurses have to be knowledgeable on the etiology, risk factors, and prognosis of epilepsy to effectively develop and implement an emergency plan. The

treatment plan may include delegation and training of other staff members for instances that the school nurse is not present (O'Dell et al., 2007).

Cardiac Arrest in Schools

In the 2008-2009 school year, there were 7.5 million sport seasons for student athletes in high school. Physical screening is required for student-athletes; however, it is not possible to identify all student athletes that are at risk for Sudden Cardiac Arrest (SCA) (Toresdahl et al., 2013).

Immediate defibrillation of an AED has been identified as the best treatment of SCA. A report illustrated a 64% survival rate after SCA with the immediate use of AED in student-athletes (Toresdahl et al., 2013). Preparation for SCA however goes beyond immediate access to AED. Emergent response should start with an emergency action plan (EAP), collaborating with local EMS, and planning a communication system to activate emergency services (Toresdahl et al., 2013). The School Nurse was one of the most commonly trained staff in AED use at 72.7%. (Toresdahl et al., 2013).

Violence in Schools

Violence in schools is becoming more prevalent and school nurses are seeing more effects. Homicide was the fourth leading cause of death among school children; however, not all deaths occurred during school (King, 2014). School nurses are one of the first to identify and mediate violent situations in school children. School nurses have the special position to be trusted by students because they are not administration or teachers.

From July 2015 - June 2016, 38 students were reported to have violent deaths at school. This can be further categorized to 37 homicides, one suicide, and one death by

intervention (National Center for Education Statistics [NCES], n.d.) About 4% of students, ages 12-18 reported that they felt unsafe during school in 2017. However, 10% of public high school teachers reported having threats of injury while at school by their students (NCES, n.d.).

Natural Disasters in Schools

Each year, natural disasters cause 90,000 deaths. Natural disasters are occurring more frequently with a steady rise within the last 40 years (Rush et al., 2014). The most vulnerable group for natural disasters is the children. Schools are a huge part of a community. In the event of a natural disaster, returning back to school may be recognized as a sign of strength and hope for the community (Rush et al., 2014). Some schools are also used to support large groups of children and their families after a disaster. Because of the increase in frequency of natural disasters, school health-based professionals have to be prepared to plan and lead during a natural disaster (Rush et al., 2014).

Purpose

The purpose of this study was to determine the confidence level of school nurses in North Carolina (NC) in emergency preparedness.

Research Question

This research study addressed the following question:

- What is the confidence level of North Carolina school nurses with emergency preparedness?

Theoretical Framework

To understand the many differences of experienced nurses to beginner nurses, Benner (1982) applied the Dreyfus Model of Acquisition to a nursing study. The Dreyfus Model of Acquisition categorizes proficiency of a skill into five levels of proficiency: novice, advanced beginner, competent, proficient, and expert. The Dreyfus Model includes factors such as nurse education and nurse experience. It also includes basis for clinical knowledge and career progression (Benner, 1982).

Novice nurses are nurses with no experience with the clinical situation. Their proficiency is based on the education and objective attributes. Novices have to discern the rules in a clinical situation since they do not have any experience (Benner, 1982). Advanced beginner nurses have the ability to perform limitedly in clinical situations. Advanced beginners have enough experience to be able to determine situational components called aspects. The Dreyfus model defines aspects as “overall, global characteristics that that require prior experience in actual situations for recognition” (Benner, 1982, p. 403). Advanced beginners need support in prioritizing in clinical situations. Competent nurses are nurses who have been nurses for two to three years. These nurses are confident in their skills and in many clinical situations. However, competent nurses do not have the speed and flexibility as proficient nurses (Benner, 1982). Proficient nurses are capable of modifying plans in clinical situations. Proficient nurses are best taught through case studies (Benner, 1982). The last level of proficiency is at the expert level. Expert nurses no longer rely on rules to help understand the clinical situation. The amount of experience of an expert nurse allows the nurse to understand the clinical situation without wasting a lot of time and resources. Analytical tools are helpful

to expert nurses to help determine when clinical situations do not occur as planned (Benner, 1982).

Summary

School nurses play an important role in emergency situations. Students and employees in the school setting rely on the expertise of the school nurse when health emergencies arise. In most instances, school nurses are the only health care professionals in the school setting. Nurses have to be confident and knowledgeable in their skills during any type of emergency. Whether it is an anaphylactic emergency, asthma, seizures, violence, or natural disaster, school nurses have to be educated and prepared to manage an emergency care plan.

CHAPTER II

Literature Review

A literature review was conducted by searching a variety of databases and search engines. These databases included Science Direct, Cumulative Index to Nursing and Allied Health Literature (CINAHL), and the search engine Google. Key vocabulary used for the literature review included school nurse and emergency preparedness, emergency preparedness in schools, school nurse and asthma, school nurse and epilepsy, school nurse and diabetes, and school nurse and violence.

Literature Related to Problem Statement

School Nurses and Medical-Related Emergencies

Allen et al. (2012) surveyed 2,049 school nurses about their disease process knowledge, school policies regarding student life-threatening diseases, and any emergent experiences they have had at school during work using an electronic survey. The participants self-perceived knowledge of having a good understanding of diseases such as asthma, anaphylaxis, and diabetes were at 99.2%, 98.0%, 95.7%, respectively (Allen et al., 2012). The actual percentage correct on the knowledge test were 96.3% for asthma, 80.3% on anaphylaxis, and 95.7% on diabetes. The combined test score for knowledge on all three subjects was 90.8% (Allen et al., 2012). The study also provided information regarding experiences with chronic life-threatening diseases within the school setting. Information included a mean number of 24.44 asthma attacks within the school year, 0.87 anaphylaxis emergent events, and 25.90 hypoglycemic emergent events (Allen et al., 2012). Regarding school policies on allowing students to carry emergency medications: 88% allowed students to carry rescue inhalers, 70% allowed students to

carry epinephrine autoinjectors, and 42.5% allowed students to carry glucagon. The school nurses also felt they were well trained in proper technique for all devices with 99% for rescue inhaler, 99% for EpiPen auto injection, and 90% for glucagon (Allen et al., 2012). The results of this survey illustrated that school nurses were knowledgeable in the three disease processes discussed.

Powers et al. (2007), completed a two-month review of food plan evaluations. Attendees of a health conference in Illinois were invited to participate. Items in the evaluation included whether or not schools had a food allergy plan and if the participant was a school nurse. The participants also had to include a copy of a blank food allergy plan with their response. Of the 250 participants, 38% returned the surveys. Ninety-eight percent of the participants stated having students with food allergies in their schools. Only 15% of the 60 blank samples of food plans were identical to the current Food Allergy and Anaphylaxis Network (FAAN) plan, 35% were previous versions, and 50% were not based on the FAAN plan (Powers et al., 2007). Plans that are not consistent with FAAN plan can be missing critical emergency actions and information. For example, plans that were not based on the FAAN plan did not indicate a child's asthma history. This is critical information to include because children with asthma have a higher rate of having an anaphylaxis reaction (Powers et al., 2007). Some food allergy plans did not indicate that throat, lung, and heart symptoms were life-threatening. All personnel regardless of health care background, should be able to read the plan effectively and identify potential life-threatening events (Powers et al., 2007).

In August 2004, a study in a large Southeast Texas public school system was conducted to identify the confidence level of local school nurses. The purpose of the

study was to determine the areas that need additional training and education (Ugalde et al., 2017). The survey was a two-part questionnaire sent via email to 275 school nurses in Southeast Texas. Part one of the questionnaire obtained information on the school nurse and school characteristics. Questions were also asked regarding the school nurses' preparedness in emergencies and the number of times EMS or 911 was called in the previous year (Ugalde et al., 2017). Part two of the questionnaire included 10 medical emergency scenarios. The survey determined the school nurses' confidence levels in managing the emergency and also to determine the availability of emergency equipment for the scenario (Ugalde et al., 2017). The study determined that 67% of local school nurses had activated EMS greater than 10 times during the school year. This is compared to 68% nationally. Overall, the study concluded that most local school nurses in Southeast Texas met guidelines by the American Academy of Pediatrics (AAP) Committee on School Health, AAP, American Heart Association, and National Association of School Nurses, for managing potential emergencies in the school setting. School nurse confidence levels is necessary for some emergencies and will require additional emergency preparedness and education (Ugalde et al., 2017).

A training program by the Epilepsy Foundation and NASN was created to educate school nurses to manage a student with epilepsy. Before and after questionnaires were provided to help obtain the confidence levels of the school nurses (Austin et al., 2010). Results from the pre-training surveys concluded that nurses had a moderate level of confidence regarding the management of seizures in students. School nurses were most confident about the recognition of seizures and the least confident in finding social support for students with epilepsy (Austin et al., 2010). The post-training survey results

illustrated an increase in the level of confidence in school nurses. After the training, school nurses were most confident with knowing when to call emergency services and least confident in identifying partial seizures (Austin et al., 2010). The survey illustrated that by attending the training, school nurses achieved a higher level of confidence in managing students with epilepsy and also increased their knowledge and delivery of care for students with epilepsy (Austin et al., 2010).

School Nurses and Natural Disaster Emergencies

The second largest public school district, Los Angeles Unified School District (LAUSD), had approximately 500 school nurses to serve approximately 650,000 enrolled students. A free-standing Level I Pediatric Trauma Center and the local school district, collaborated to help provide an earthquake simulation training for school nurses, teachers, and staff (Burke et al., 2015). Using data from previous earthquakes, 40 simulated pediatric patients were created. All pediatric patients' scenarios included a medical history, vitals, chief complaint, and physical findings. This type of disaster training opportunity helps school nurses to gain more practice, knowledge, and skills, but it may not increase the school nurses' confidence in responding to a disaster (Burke et al., 2015).

School Nurses and Violent-Related Emergencies

A study by Ramos et al. (2013) described adolescent behavioral emergencies that are managed by school nurses. The anonymous paper survey was mailed to all New Mexico school nurses who were listed in the 2008-2009 New Mexico Department of Health school nurse directory. The study had a 71.7% response rate (Ramos et al., 2013). School nurses who participated indicated they provided emergency management during

the previous school year for: violence at school at 65.2%, bullying at 54.0%, substance abuse at 55.3%, and alcohol abuse at 44.7% (Ramos et al., 2013). The survey indicated that 15.3% of respondents had activated EMS for substance abuse within the previous year. Suicide in secondary schools was also the second most common reason for activating EMS at 12.5% (Ramos et al., 2013). This study illustrated that New Mexico school nurses were exposed to many behavioral health emergencies in the school setting. Almost 80% of the participants identified school violence as an important part of continuing education. However, only 40% stated they received continuing education on this topic within the previous five years (Ramos et al., 2013).

School Nurses and Pandemic Preparedness

Rebmann et al. (2014) used an online survey to determine school nurses' overall school pandemic preparedness. Participants included 1,997 school nurses from 26 states. The survey consisted of a total of 26 questions that included demographics and questions on school disaster preparedness, school pandemic preparedness, a school plan to dispense in an emergency, personal protective equipment in school, existence to mandatory policy on vaccination, and access and cost of influenza vaccinations. The results of the online survey showed 73.7% of the participants reported having the influenza vaccine during the 2010-2011 flu season. Only 2.2% of the participants reported having a mandatory influenza policy in their school district (Rebmann et al., 2015). The maximum pandemic score in the survey was 11. The school pandemic scores ranged from 0 to 10, with an average score of 4.3. The study illustrated there is room for improvement in United States schools' disaster management plans. The schools more prepared with disaster and pandemic preparedness were more likely to have a lead nurse or school nurse involved in

school disaster planning. The National School Nurses Association recommends that school nurses are involved in the disaster planning activities. However, the study illustrated that school nurses would be comfortable if they received more education and training before they fill the role (Rebmann et al., 2015).

School Nurses and Bioterrorism Preparedness

Evers and Puzniak (2005) surveyed school nurses who attended meetings and conferences on Bioterrorism/Emergency Preparedness for School Nurses. School nurses who participated were questioned on existence of current emergency plans. Of the respondents, 78.9% stated their school had an emergency plan. Of the respondents, 62.4% rated their current school as somewhat prepared; 6.2% rated their school as very prepared (Evers & Puzniak, 2005). Many of the participants obtain their information from the Centers for Disease Control and Prevention (CDC) website. School nurses who participated in the survey were also assessed for their current knowledge of bioterrorism. Of the participants, 55.7% gave the appropriate response when asked questions regarding signs and symptoms of inhaled anthrax and influenza illnesses (Evers & Puzniak, 2005). The results of the study showed that participants perceived forms of biological, chemical, or nuclear threat was low. Therefore, training and education may not perceive it to be necessary (Evers & Puzniak, 2005).

A survey was distributed to all 307 school districts of Arkansas in 2003. The results of the survey illustrated that 51.3% school districts did not have a written plan to prevent acts of terrorism or mass casualty. Most school districts however did have plans in case of a mass casualty event (Graham et al., 2005).

Another study done by Rebmann et al. (2015) also did an online survey asking the school nurses in Missouri regarding their current disaster and bio event preparedness. The study included 133 school nurses with only a 33.6% response rate. A written school disaster plan (88.7%) and the availability of alerting parents were two of the most reported components of disaster planning. Schools in the study reported having less than half of the measured indicators for preparedness. To conclude, the study illustrated that Missouri schools are not prepared if a biological emergency may occur (Rebmann et al., 2015).

Strengths and Limitations of Literature

Much of the literature exists about school nurses and the need for emergency preparedness. The scholarly articles not only discuss preparedness but also discuss the many situations that the school nurse needs to be prepared for. Limitations of the literature include no research articles within smaller and more rural communities.

CHAPTER III

Methodology

This chapter describes the research design for this study. The setting, sample of subjects, instruments, data collection, and data analysis are explained. Lastly, the protection of human subjects of the study is explained.

Research Design

The research design for this study was a descriptive design with the use of an anonymous online survey.

Setting

The setting of the study was in the workplaces of school nurses in North Carolina. There were more than 1,200 school nurses who provided care; 55% of the school nurses were employed by local school districts, and the other school nurses were employed by the local health departments (NC Health and Human Services, 2014). School nurses were federally recommended to have a ratio of one nurse per 750 students. However, North Carolina school nurses serve with a one: 1,177 nurses to student ratio (NC Health and Human Services, 2014). Most school nurses were the only healthcare provider in the building. School nurses were responsible for all school health services and can coordinate school health programs (NC Health and Human Services, 2014). School nurses serve in public, private, religious, and charter settings (NC Health and Human Services, 2014).

Sample

The sample for this research study was a compilation of all North Carolina School Nurses who were members of the School Nurse Association of North Carolina. The roles of members ranged from school nurse to regional and state school nurse consultants.

Currently, the North Carolina School Nurses Association forum has 496 members who were eligible to serve as potential participants in this research study. Members of the forum were also members of the National Association of School Nurses organization (NASN). All members of the SNANC online forum could post discussion posts for other North Carolina school nurses to respond (NASN, 2014).

Protection of Human Subjects

Approval from the Institutional Review Board (IRB) for Exempt Review at the University was obtained for the research study. No approval was required for the online forum. Consent was included in the discussion forum (Appendix A). Completion of the survey was implied consent from the participants. Minimal risks were involved as the survey is anonymous. Participants completing the survey had the option to respond or skip an item if item questions were too sensitive.

Instruments

Participants were asked to complete the Perceived Competence of North Carolina School Nurses in Emergency Preparedness (Appendix B). Permission to use the survey was obtained (Appendix C). The Perceived Competence Scale (PCS) (Appendix D) was a four-item questionnaire that measured participants' competence about a particular concept. The questions were designed to be tailored to the concept being studied. For this study, the PCS was tailored to assess the competence level of school nurses related to medical, natural disaster, violence-related, pandemic, and bioterrorism emergencies in a school setting. Questions were based on a Likert Scale with scores ranging from 1 to 7, with 1 indicating "Not at all true" in their emergency preparedness confidence level and 7 indicating "Very true". The validity and reliability of the PCS was different for each

study because the tool was tailored to a specific concept; however, the author reported that in many studies the alpha measure for internal measures was above 0.8 (Self Determination Theory, 2019). The tool was scored by averaging each participant's score. It was assumed that the higher the score, the higher the participants perceived level of competence.

Data Collection

Data was collected by using the School Nurses Association of North Carolina online community forum. An introductory discussion post (Appendix E) included information on the research study and participation instructions. Participants were given one week to complete the Perceived Competence of North Carolina School Nurses in Emergency Preparedness scale via an online survey link.

Data for the research study was collected by the researcher. The results were compiled from the online Survey Monkey link. Responses from the research study were anonymous and compiled by the researcher. The results were downloaded and stored in the researcher's computer.

Data Analysis

Descriptive statistics were used to analyze data in Microsoft excel.

CHAPTER IV

Results

The following chapter contains the results of a descriptive design study to determine the confidence level of North Carolina (NC) school nurses with emergency preparedness. The Perceived Competence Scale (PCS) was reproduced and tailored to the current concept being studied. Also, included in the chapter are bar graphs to present the data.

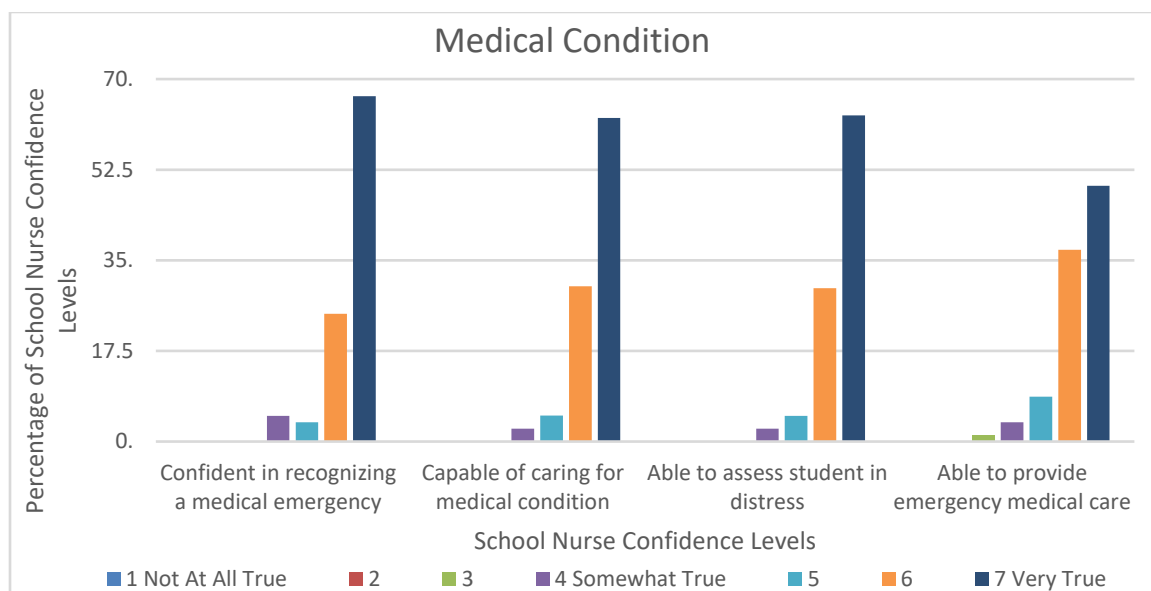
Sample

There were 496 NC School Nurses provided with a link for the Perceived Competence Scale survey delivered via Survey Monkey. Data was collected over one week. Eighty-one NC School Nurses replied for a 16.3% response rate. School nurses varied from public, private, and charter school settings but was not specified during the survey.

Major Findings

Medical Emergency

School nurses were asked four questions about medical emergencies. The majority of school nurses reported Very True in their ability to recognize a medical emergency (66.47 %, n = 54), whereas 4.94% (n = 4) reported Somewhat True. The majority of school nurses reported Very True in regards to their ability to care for a student with an acute or chronic medical condition (62.5%, n = 50), whereas 2.5% (n = 2) reported Somewhat True. Approximately 49.38% (n = 40) school nurses, reported Very True in being able to provide emergency medical care to a student, whereas 4.93% (n = 4) reported Somewhat True or lower. Results are displayed in Figure 1.

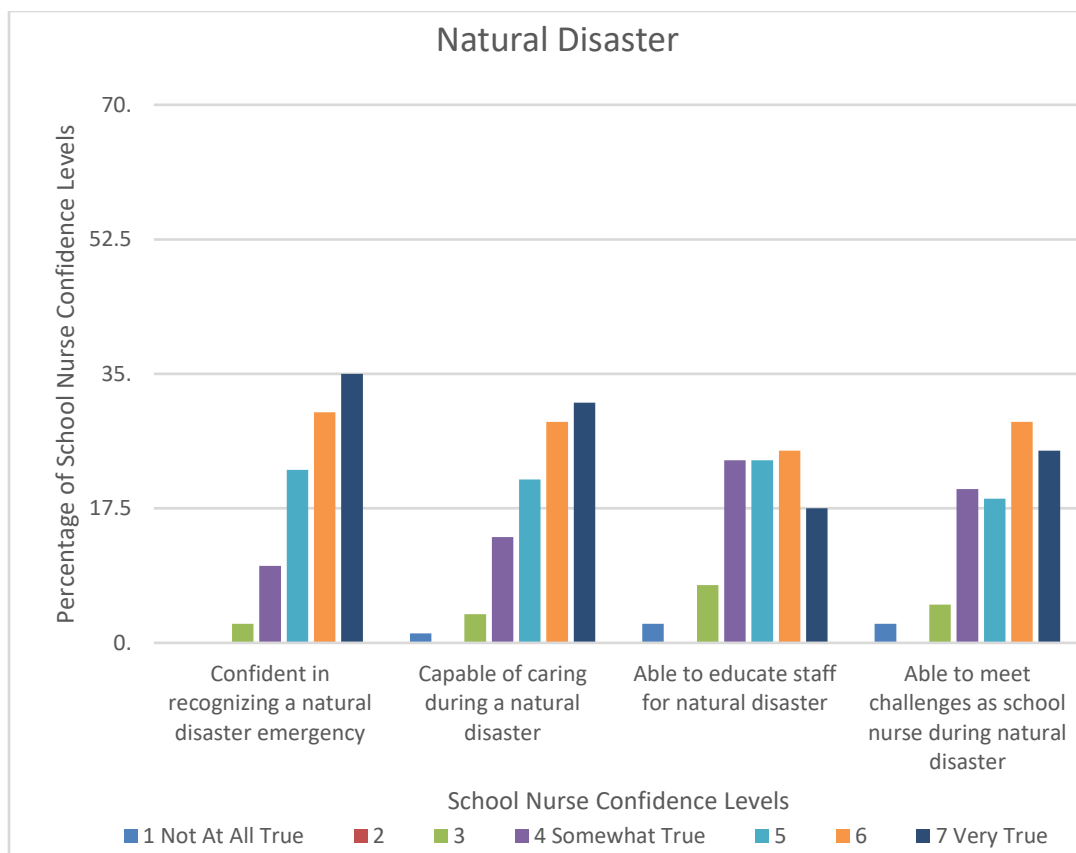
Figure 1*School Nurse Responses to Medical Related Emergencies***Natural Disaster**

School nurses were asked four questions about natural disaster related to emergencies. For these questions, the majority of school nurses reported Very True in their ability to recognize a natural disaster (35%, n=28), whereas 12.5% (n=10) reported Somewhat True or lower. The majority of school nurses reported Very True in regards to their capability in caring for a student during a natural disaster (31.25%, n = 25), whereas 18.75% (n = 15) reported Somewhat True or lower. Some school nurses reported Very True (17.5%, n=14) in their ability to educate staff in preparation for a natural disaster. However, the majority of school nurses reported Somewhat True or lower (33.75%, n = 27). School nurses also reported Very True in being able to meet the challenge of knowing their role as a school nurse in the event of a natural disaster (25%, n=20),

whereas 27.5% (n = 22) reported Somewhat True or lower. Results are displayed in Figure 2.

Figure 2

School Nurse Responses to Natural Disaster Related Emergencies



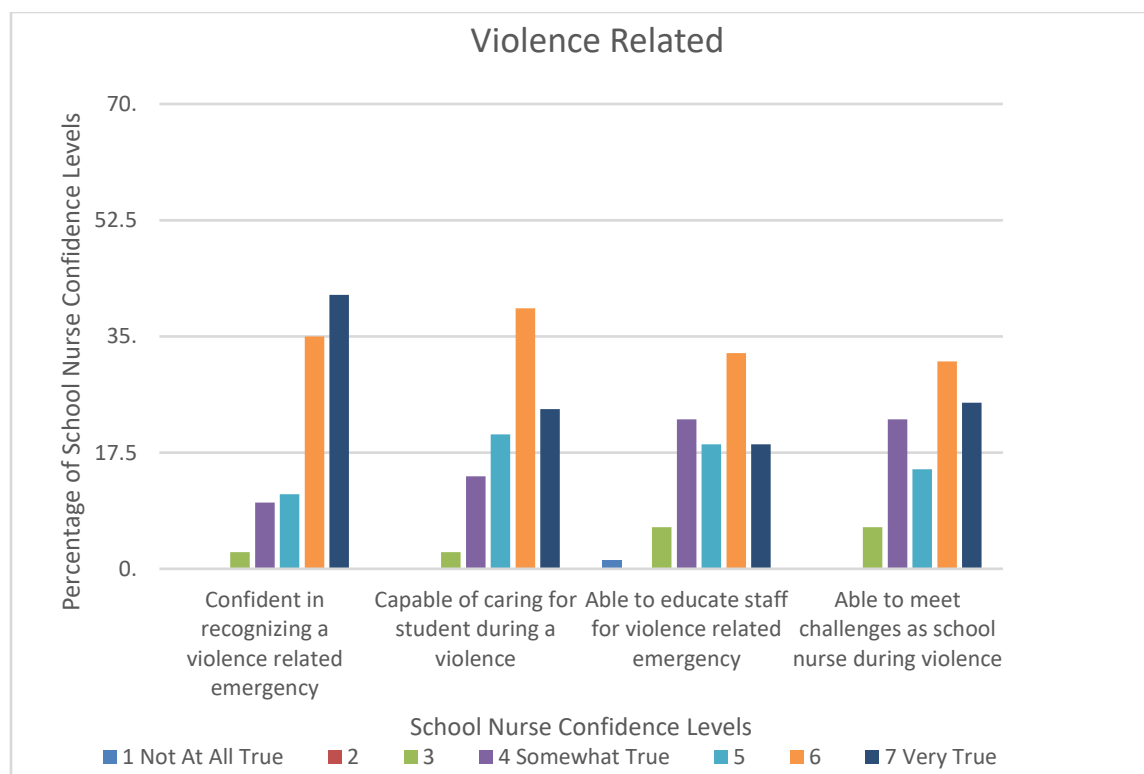
Violence Related Emergency

School nurses were asked four questions about violence related emergencies. The majority of school nurses reported Very True in their ability to recognize a violence related emergency (41.25%, n=33), whereas 12.5% (n=10) reported Somewhat True or lower. Some school nurses reported Very True in regards to their capability in caring for

a student during violence (24.05%, n = 19), whereas 16.45% (n = 13) reported Somewhat True or lower. Only some school nurses reported Very True (18.75%, n=15) in their ability to educate staff in preparation for a violence related emergency. However, the majority of school nurses reported Somewhat True or lower (30%, n = 24). School nurses also reported Very True in being able to meet the challenge of knowing their role as a school nurse in the event of a violence related emergency (25%, n=20), whereas 28.75% (n = 23) reported Somewhat True or lower. Results are displayed in Figure 3.

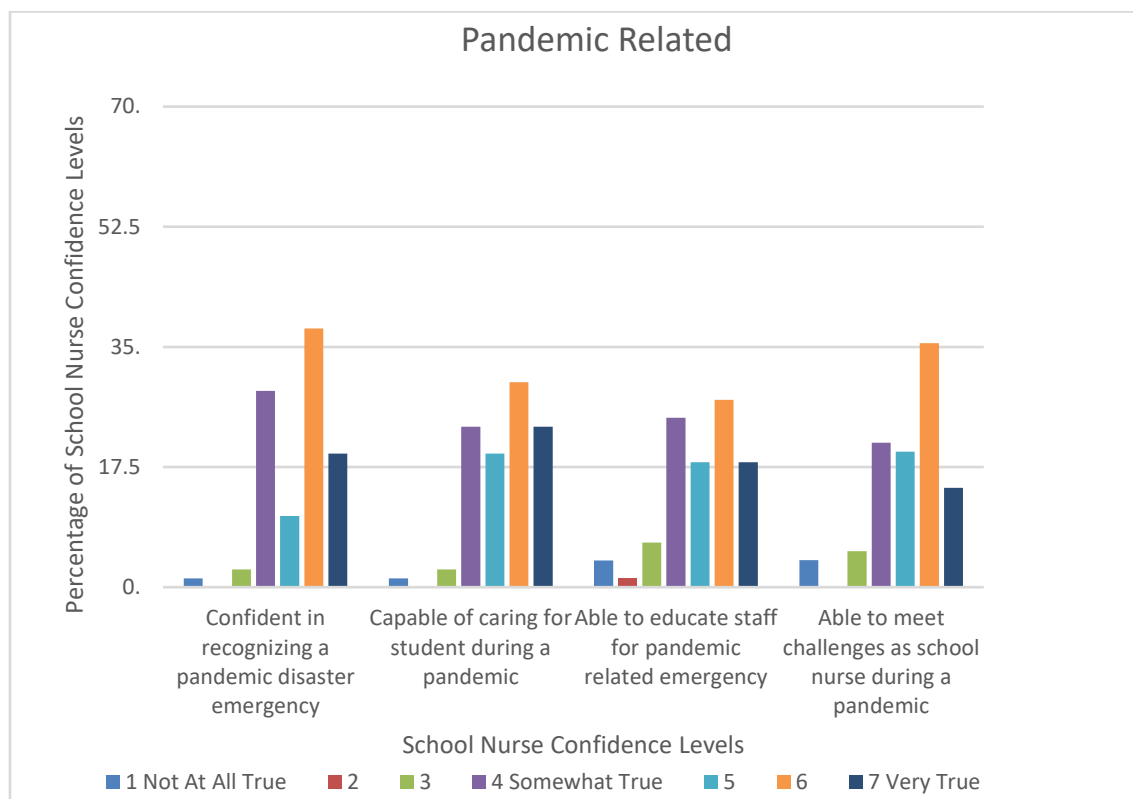
Figure 3

School Nurse Responses to Violence Related Emergencies



Pandemic Related Emergency

School nurses were asked four questions about pandemic related emergencies. Some school nurses reported Very True in their ability to recognize a pandemic related emergency (19.48%, n=15), whereas the majority, 32.47% (n=25) reported Somewhat True or lower. Some school nurses reported Very True in regards to their capability in caring for a student during a pandemic (23.38%, n = 18), whereas 27.28% (n = 21) reported Somewhat True or lower. Only some school nurses reported Very True (18.18%, n=14) in their ability to educate staff in preparation for a pandemic related emergency. However, school nurses reported Somewhat true or lower at 36.37% (n = 28). The school nurses also reported Very True in being able to meet the challenge of knowing their role as a school nurse in the event of a pandemic related emergency (14.47%, n=11), whereas 30.26% (n = 23) reported Somewhat True or lower. Results are displayed in Figure 4.

Figure 4*School Nurse Responses to Pandemic Related Emergencies***Bioterrorism Related Emergency**

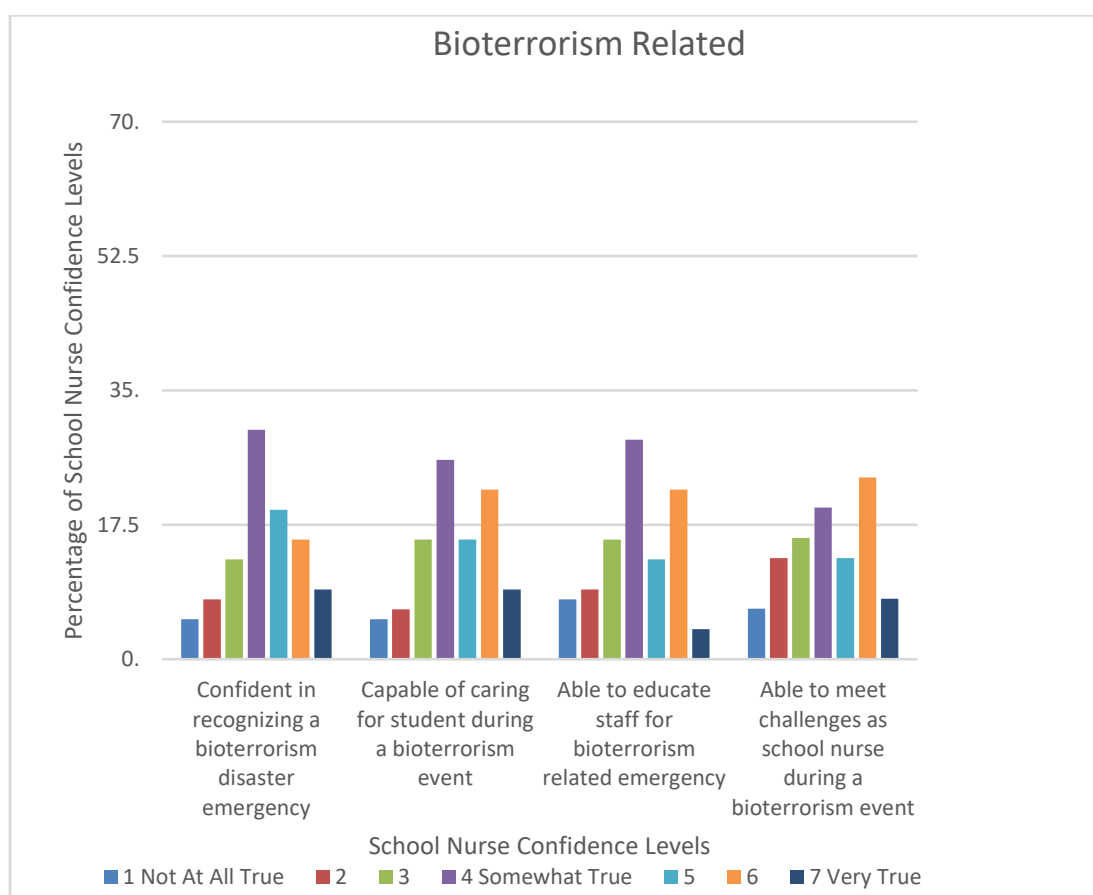
School nurses were asked four questions about bioterrorism related emergencies.

Only 9.09% (n=7) school nurses reported Very True in their ability to recognize a Bioterrorism related emergency, whereas the majority, 55.84% (n=43) reported Somewhat True or lower. Only 9.09% (n=7) school nurses reported Very True in regards to their capability in caring for a student during a Bioterrorism event, whereas 53.23% (n = 46) reported Somewhat True or lower. Very little school nurses reported Very True

(3.90%, n=3) in their ability to educate staff in preparation for a Bioterrorism related emergency. However, school nurses reported Somewhat true or lower at 61.03% (n = 47). Some school nurses reported Very True in being able to meet the challenge of knowing their role as a school nurse in the event of a Bioterrorism related emergency (7.89%, n=6), whereas 55.27% (n = 42) reported Somewhat True or lower. Results are displayed in Figure 5.

Figure 5

School Nurse Responses to Bioterrorism Related Emergencies

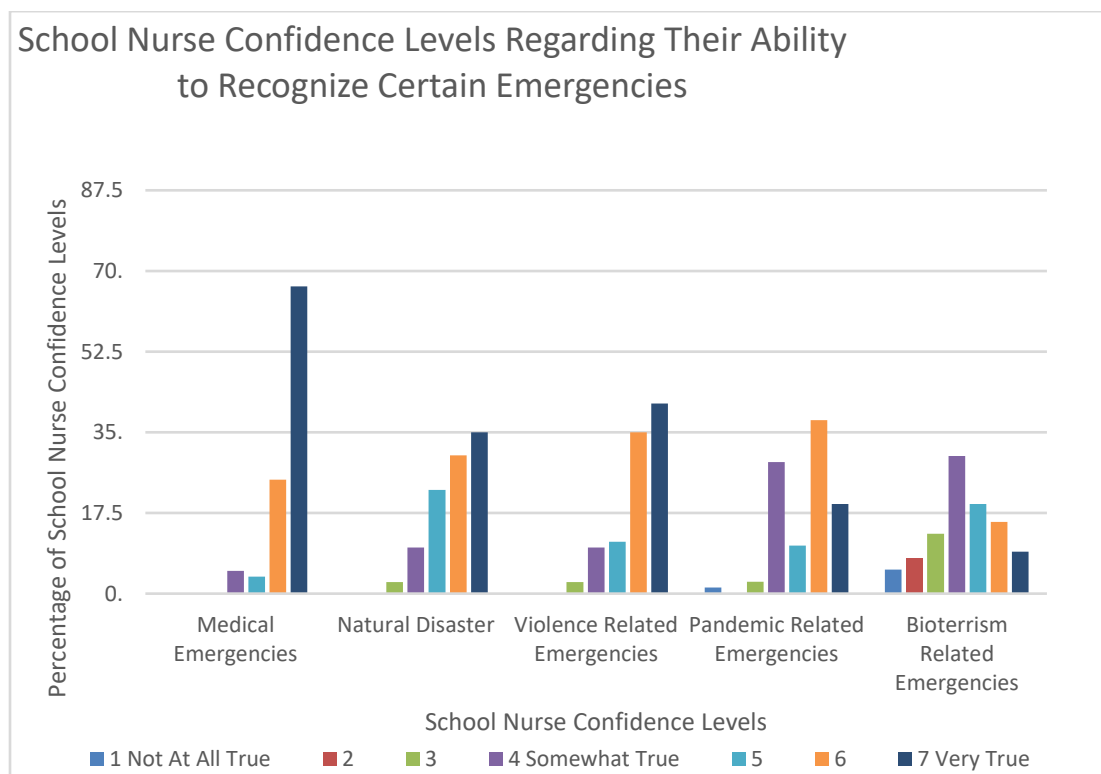


All Types of Emergencies

Question one on all five types of emergencies is represented in Figure 6. Most of the school nurses reported Very True to feeling confident in recognizing a medical emergency (66.67%, n=54). Most of the school nurses also reported Very True in recognizing a natural disaster emergency (35.00%, n=28). The majority of the school nurses also reported Very True in recognizing a violence-related emergency (41.25%, n=33). Some of the school nurses reported Very True in recognizing a pandemic emergency (19.48%, n=15). Lastly, 9.09% (n=7) of school nurses reported Very True to recognizing a bioterrorism emergency.

Figure 6

School Nurse Responses to Ability to Recognize Various Emergencies



CHAPTER V

Discussion

The purpose of this research was to determine the confidence levels of North Carolina (NC) School Nurses with Emergency Preparedness. This chapter includes the discussion of the major findings of confidence levels of NC School nurses during a: (a) medical emergency, (b) natural disaster, (c) violence related emergency, (d) pandemic emergency, and (e) bioterrorism emergency. The chapter concludes with limitations of the study, implications for nursing, recommendations, and a brief summary.

Implication of Findings

Medical Emergency

The results of this study were consistent with the results of previous literature regarding school nurses and their knowledge of medical related emergencies. Allen et. al. (2012), reported that 95% and higher of school nurses were confident with their knowledge of asthma, anaphylaxis, and diabetes. This study reported that most NC school nurses had the highest level of confidence (62.5%, n = 50) in their ability to identify, assess, and provide care during a medical emergency. This is likely because school nurses are responsible for providing teachers and staff with emergency care plans for a student with a medical diagnosis. School nurses are exposed to chronic and acute medical conditions daily. As stated previously, school nurses see an average of 24.44 asthma attacks within the school year, 0.87 anaphylaxis emergent events, and 25.90 hypoglycemic emergent events (Allen et. al., 2012). Only 2.5%, (n=2) of school nurses reported Somewhat True in their confidence levels of caring for a student with a medical

emergency. These school nurses are most likely new nurses who have not been exposed to many medical emergencies in the school setting.

Natural Disaster

As stated in the literature, natural disasters are increasing and cause up to 90,000 deaths per year (Rush et al., 2014). School staff and the school nurse have to be leaders during a natural disaster. The results of this study reported that 31.25%, (n=25) of school nurses stated Very True regarding their confidence levels in caring for a student during a natural disaster. School nurses who answered Very True could be nurses who live in areas that have frequent natural disasters, therefore, feel more prepared due to more exposure. However, school nurses who answered Very True could also include nurses who live in areas that do not have natural disasters, therefore, feel confident that a natural disaster will not happen.

Violence Related Emergency

Previous literature reviews reported that school nurses provided emergency management during the previous school year for: violence at school at 65.2%, bullying at 54.0%, substance abuse at 55.3%, and alcohol abuse at 44.7% (Ramos et al., 2013). The results of this study reported 24.05%, (n=19) school nurses stated Very True regarding their confidence level to care for a student during a violence related emergency. This result was lower than the two previous emergencies discussed above. Many factors can determine confidence level of a school nurse during a violence related emergency. School nurses may feel unable to care for a student because the situation is too dangerous. Some school nurses may not have the equipment available to treat a major trauma. Some school nurses may not know their role in the event of a violence related

emergency. The study's results confirmed that only 25%, (n=20) of school nurses stated Very True regarding their confidence level in knowing their role in a violence related emergency.

Pandemic Related Emergency

The results would align with the previous literature. A study by Rebmann et al. (2015) concluded that schools need improvement regarding emergency preparedness during a pandemic. Schools with a higher score of preparedness most likely had a lead nurse or a nurse involved with disaster planning. The study's results indicated that only 23.38%, (n=18) stated Very True in their capabilities in caring for a student during a pandemic. Many factors can determine confidence level of a school nurse during a pandemic emergency. Lack of training was most likely the biggest challenge. School nurses cannot be confident with caring for a student if they do not know the right policies and procedures to implement during an emergency. Another factor that can determine confidence levels could be school nurses in small rural communities may lack access to the right tools and resources.

Bioterrorism Related Emergency

Evers and Puzniak (2005) concluded that only 6.2% of school nurses rated their school as very prepared for a bioterrorism. In the same study, 55.7% gave appropriate responses when asked questions about signs and symptoms of certain biological and chemical threats (Evers & Puzniak, 2005). The results of this study were consistent with the previous literature. Only 9.09% (n=7) school nurses reported Very True in their ability to recognize a bioterrorism emergency. The study also reported that only 9.09% (n=7) of school nurses chose Very True in regards to their ability in caring a student

during a bioterrorism emergency. The results showed that school nurses are not confident of their nursing skills during a bioterrorism event. If bioterrorism is perceived as a low threat, especially in rural areas, then education and training may not be a priority. School nurses who provided care in schools with a higher threat of bioterrorism may also not be confident in their ability to provide care during an event because of the lack of resources.

Application to Theoretical Framework

Chapter I included a discussion of the Dreyfus Model of Acquisition to a nursing study. The results of the study and how it relates to the model will be discussed. Benner (1982) discussed the five levels of proficiency: (a) novice, (b) advanced beginner, (c) competent, (d) proficient, and (e) expert. Nurse education and nurse experience are factors in the Dreyfus Model. The results for school nurse confidence levels during a medical emergency would align with the competent to proficient level of proficiency in the model. Competent nurses are confident in their skills during many clinical situations (Benner, 1982). School nurses with many years of experience may also be proficient in that they are confident and capable of modifying plans and interventions in clinical situations. The results for school nurse confidence levels during a natural disaster and violence related emergencies would align with the advanced beginners' proficiency level in the Dreyfus Model. School nurses may not be exposed to natural disasters or violent related emergencies frequently, however, they are able to take care of students based on their clinical experience. Lastly, the results for pandemic and bioterrorism emergencies would align with the novice nurse proficiency level in the Dreyfus Model. The school nurses in the study had little to no threat of a pandemic or bioterrorism emergency.

Therefore, their proficiency level was based solely on the education they received and not based on clinical experience.

Limitations

Use of a descriptive design was the best research design for this study. However, a qualitative design with open-ended questions could have offered more understanding of the school nurse responses. A limitation to this study included the lack of demographics for each participant. A knowledge of the participants, age, gender, years of nursing experience, years of school nurse experience, type of school and community setting, and region of NC would have given more insight for the results. Another limitation to the study was the lack of response. Only 81 school nurses replied out of 496 possible school nurses. More responses would provide a more accurate representation of perceived confidence levels.

Implications for Nursing

The results of the study implied that further training was needed for most NC school nurses during a pandemic and bioterrorism emergency. Only 23.38% (n=18) and 9.09% (n=7) school nurses stated Very True regarding their confidence levels during a pandemic and bioterrorism emergency, respectively. These results could indicate that pandemic and bioterrorism was a low threat to NC school nurses and may not be a priority subject to be educated on.

North Carolina school nurses may be confident during medical emergencies but fall short with other types of emergencies. The results of this study should suggest to school districts state-wide that more training is needed. Each year, training should be mandatory for all school nurses to understand their role as a school nurse during all types

emergencies: (a) medical, (b) natural, (c) violence related, (d) pandemic, and (e) bioterrorism. School districts, school nurses, and local health departments must collaborate together so that a disaster plan can be implemented in case of an emergency.

Recommendations

For future research, including demographics would provide information on the type of school setting, community, and location. These could then be compared with the results to determine if it played a factor in perceived confidence levels during all emergencies with the exemption of medical emergencies. Demographics would also allow the researcher to compare years of nursing experience with their perceived confidence levels.

Additionally, a knowledge-based test of medical emergencies would help to support the study and provide more information on the correlations between confidence levels and knowledge-based levels.

Conclusion

Most of a child's waking hours are spent in a school setting. There are 60 million school aged children in the United States (Elgie et al., 2005). School nurses are often the first to respond in a school setting during an emergency. They are often the only health care providers in the building. Most school nurses do not have training beyond Basic Life Support (Elgie et al., 2005). In order for school nurses to be leaders during an emergency, education and training must be a priority. A school nurse can encounter many types of emergencies throughout the school day: (a) medical, (b) natural disaster, (c) violence related, (d) pandemic, and (e) bioterrorism related. The results of the survey suggested that most school nurses are more confident in their ability to identify care for a

student with a medical emergency. The results also suggested that pandemic and bioterrorism were two emergencies that school nurses felt the least confident.

The participants in the study were nationally certified school nurses in North Carolina. They were professional and competent nurses. The results suggested most school nurses are confident during medical related emergencies. This was most likely due to the fact that school nurses are exposed to students with chronic and acute medical conditions frequently. School nurses identified and provided medical care and educated staff regarding medical conditions and included emergency care plans if needed.

The results also suggested that school nurses were least confident during pandemic and bioterrorism emergencies. North Carolina nurses have a low threat of pandemic and bioterrorism emergencies. However, even with the low threat, school nurses must be prepared and educated. School nurses are entrusted with children's lives during the school day. School districts, school nurses, and the local health departments have a responsibility to collaborate and implement a disaster plan for all emergent situations.

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Appendix A

Perceived Competence School Nurse Survey

Tool modified for this study:

1	2	3	4	5	6
7					
Not at all true		Somewhat true			Very true

Perceived Competence for Medical-Condition Related Emergencies

1. I feel confident in my ability to recognize a medical emergency.
2. I feel capable of caring for a student with an acute/chronic medical condition.
3. I am able to assess a student in distress with an acute/chronic medical condition
4. I am able to meet the challenge of providing emergency medical care to a student.

Perceived Competence for Natural Disaster Emergencies

1. I feel confident in my ability to recognize a natural disaster emergency.
2. I feel capable of caring for a student during a natural disaster.
3. I am able to educate staff about emergency procedures in preparation for a natural disaster emergency.
4. I am able to meet the challenge of knowing my role as a school nurse in the event of a natural disaster emergency.

Perceived Competence for Violence Related Emergencies

1. I feel confident in my ability to recognize a violence related emergency.
2. I feel capable of caring for a student during a violence related emergency.
3. I am able to educate staff about emergency procedures in preparation for a violence related emergency.
4. I am able to meet the challenge of knowing my role as a school nurse in the event of a violence related emergency.

Perceived Competence for Pandemic Related Emergencies

1. I feel confident in my ability to recognize a pandemic related emergency.
2. I feel capable of caring for a student during a pandemic related emergency.
3. I am able to educate staff about emergency procedures in preparation for a pandemic related emergency.
4. I am able to meet the challenge of knowing my role as a school nurse in the event of a pandemic related emergency.

Perceived Competence for Bioterrorism Related Emergencies

1. I feel confident in my ability to recognize a bioterrorism related emergency.
2. I feel capable of caring for a student during a bioterrorism related emergency.
3. I am able to educate staff about emergency procedures in preparation for a

bioterrorism related emergency.

4. I am able to meet the challenge of knowing my role as a school nurse in the event of a bioterrorism related emergency.

Appendix B

Informed Consent

Title of Study

Perceived Competence Levels of North Carolina School Nurses on Emergency Preparedness

Researcher

Gina Greene, BSN, RN, NCSN - Graduate Student, Hunt School of Nursing, Gardner-Webb University

Purpose

The purpose of this research is to determine the perceived competence levels of North Carolina (NC) school nurses regarding emergency preparedness during a.) Medical-Related Emergencies, b.) Violence-Related Emergencies, c.) Natural Disaster Emergencies, d.) Pandemic-Related Emergencies, and e.) Bio-terrorism Related Emergencies.

Procedure

If you are currently working as a school nurse in North Carolina, you are being asked to complete the Perceived Competence School Nurse Survey. If you are not currently working as a school nurse in North Carolina, please disregard this survey.

The survey consists of 20 questions, with four specific questions related to each of the following categories a.) Medical-Related Emergencies, b.) Violence-Related Emergencies, c.) Natural Disaster Emergencies, d.) Pandemic-Related Emergencies, and e.) Bio-terrorism Related Emergencies. Questions are based on a 7-point Likert scale with answer choices ranging from “not true at all” to “very true.”

Time Required

It is anticipated that the study will require about 10 minutes of your time.

Voluntary Participation

Participation in this study is voluntary. You have the right to refuse to answer any question(s) for any reason without penalty. If you choose to not participate in the study, please close the survey link and the link to this discussion forum. Once the survey has been submitted it cannot be retracted since all answers are submitted anonymously.

Confidentiality

The information that you give in the study will be handled confidentially. Your data will be anonymous which means that your name will not be collected or linked to the data. The collected data and results will be retained by the Hunt School of Nursing for three years after completion of the study and then destroyed.

Risks

There are no anticipated risks in this study.

Benefits

There are no direct benefits associated with participation in this study. The study may help us to understand the perceived competence levels of school nurses in North Carolina in emergency preparedness. The information may help school nurses to better identify if they need more emergency preparedness education and training. The Institutional Review Board at Gardner-Webb University has determined that participation in this study poses minimal risk to participants.

Payment

You will receive no payment for participating in the study.

Right to Withdraw From the Study

You have the right to withdraw from the study at any time without penalty. If you do not wish to participate, you may close the survey and the link to this discussion forum.

How to Withdraw From the Study

If you want to withdraw from the study, stop the survey, exit the site, and delete the email. There is no penalty for withdrawing.

If you have questions about the study, contact the following individuals.

Gina Greene, BSN, RN, NCSN
Hunt School of Nursing
Gardner-Webb University
Boiling Springs, NC 28017
828-289-7201
ggreene2@gardner-webb.edu

Dr. Tracy Arnold
Hunt School of Nursing
Gardner-Webb University
Boiling Springs, NC 28017
704-406-4359
tarnold@gardner-webb.edu

If the research design of the study necessitates that its full scope is not explained prior to participation, it will be explained to you after completion of the study. If you have concerns about your rights or how you are being treated, or if you have questions, want more information, or have suggestions, please contact the IRB Institutional Administrator listed below.

Dr. Sydney K. Brown
IRB Institutional Administrator
Gardner-Webb University
Boiling Springs, NC 28017
Telephone: 704-406-3019
Email: skbrown@gardner-webb.edu

Voluntary Consent by Participant

I have read the information in this consent form and fully understand the contents of this document. I have had a chance to ask any questions concerning this study and they have been answered for me. By submitting this survey, I am voluntarily agreeing to participate in this study.

Permission to Post Survey Link on Discussion Forum

From: "Karen Kerley via National Association of School Nurses" <Mail@ConnectedCommunity.org>
Date: June 7, 2019 at 8:50:41 AM EDT
To: greenegina@gmail.com
Subject: RE: Permission to post links for surveys for Masters Program
Reply-To: kkerley@iss.k12.nc.us

The following message has been sent to you in response to your Discussion message

Message From: Karen Kerley

Hi Gina,

I think it is fine to post links for a survey. My only thinking is you might not get great results during the summer, unless you can get it on soon.

Karen Kerley RN, BSN, NCSN
Lead Nurse
Iredell-Statesville Schools
NASN Director - North Carolina

Original Message:
Sent: 06-06-2019 12:07
From: Gina Greene
Subject: Permission to post links for surveys for Masters Program

To whom it may concern,

I am in the process of finishing my Masters Thesis. Do I need special permission to post a link to a survey on this forum?? If so, can someone please guide me to the right person to contact.

Thank you so much.

Appendix D

Perceived Competence Scale

Tool in original state:

1	2	3	4	5	6	7
Not at all true		Somewhat true				Very true

1. I feel confident in my ability to ...
2. I now feel capable of ...
3. I am able to ...
4. I feel able to meet the challenge of ...

Appendix E

Announcement for Research Study

Dear NC School Nurse,

My name is Gina Greene and I am a MSN student at Gardner-Webb University. For my thesis, I am completing a research study on the Perceived Competence Levels of North Carolina School Nurses on Emergency Preparedness. If you have a moment, please take a moment to review the informed consent information below and then click on the survey link to complete the survey.

<Insert Informed Consent>

<Insert Survey Monkey Link>

Sincerely,
Gina Greene, BSN, RN, NCSN
Gardner-Webb University
Masters Student