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Evidence Based Practice in School Nursing: A Study of School Nurses in Central and Eastern North Carolina

Lisa M. Barnes
Gardner-Webb University

Evidence Based Practice in School Nursing:

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by

Lisa M. Barnes

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Submitted by:	Approved by:
_____	_____
Lisa M. Barnes, BSN, NCSN, RN	Mary Alice Hodge PhD, RN
_____	_____
Date	Date

Abstract

The purpose of the study, Evidence Based Practice Use: A Study of School Nurses in Central and Eastern North Carolina, is to gain insight of the barriers and facilitators of evidence based research in the school setting. The unique and autonomous nature of school nursing makes evidence base practice and research utilization especially important to achieve optimal outcomes in this setting that is often isolated from other health care providers. A descriptive cross sectional survey design using the BARRIER scale was used in this quantitative study (Funk et al., 1991). Using the BARRIER scale by Sandra Funk, school nurses from Central and Eastern North Carolina public school systems (N=50) were asked to rate their barriers to research utilization. Roger's Diffusion of Innovation Theory (1995) was used as the theoretical framework to guide this study. The findings revealed that the perceived greatest barrier was insufficient time on the job to read research. According to the reported perceived level of awareness, perception of the importance, and current reported skill level, the data suggests the school nurses in the sample had reached Roger's Diffusion of Innovation theory's (1995) levels of awareness, persuasion, and decision, however characteristics of the organization (setting) is a reported barrier to implementation of research utilization.

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Chapter I

Introduction

Statement of Problem

The purpose of the study, Evidence Based Practice Use: A Study of School Nurses in Central and Eastern North Carolina is to gain insight of the barriers and facilitators of evidence based research in the school setting. Evidence based practice is essential to providing optimal nursing care. Patients have the right to receive a level of care that is based on the best evidence. The achievement of providing evidence based practice has become the focus and goal of the nursing profession (Gerrish et al., 2007).

Research has shown that there is a varying practice of registered nurses using findings from research in clinical practice (Bostrom, Ehrenberg, Gustavsson, & Wallin, 2009). School nursing is an area of nursing where evidence based practice is important, but little is known about the current use or needs of incorporating evidence based research to guide their practice. The unique and autonomous nature of school nursing makes evidence base practice and research utilization especially important to achieve optimal outcomes in this setting that is often isolated from other health care providers. The previous focus of evidence based practice has been concentrated in the efforts of implementation in primary and acute clinical settings, even though efforts are also greatly needed for school nurses in the school setting (Adams, 2009).

Background and Need

Evidence based practice (EBP) emerged from evidence based medicine concurrently as research utilization was developed through nursing (Adams & McCarthy, 2005). Evidence based medicine is “conscientious, explicit, and judicious use of current

best evidence in making decisions about the care of individual patients" (Sakett, Rosenberg, Gray, Haynes, & Richardson, 1996, p. 71). Practicing evidence based medicine means integrating clinical expertise with the best available researched clinical evidence (Sakett et al., 1996). Research utilization is the "process of reviewing and critiquing scientific research and using the findings to guide practice" (Adams & McCarthy, 2005, p.259). Research has shown that evidence based practice use has the potential to eliminate insufficient practices and can provide resources to improve nursing outcomes (Adams, 2009). The use of evidence based practice is important for school nurses to utilize in the school setting. Evidence has shown that the use of EBP can benefit students' health, reduce absenteeism, and improve educational outcomes (Adams, 2009).

Purpose of Study

The purpose of this study was to gain insight into the current, attitudes, skills, barriers, and facilitators of implementing EBP among school nurses. This study was performed to increase the understanding and awareness of the need to use EBP, provide data of the current facilitators to EBP use practices being utilized that guide school nurse's practice, and to identify barriers associated with research utilization in the school setting.

Significance

Evidence based practice is essential in the school setting. It is estimated that over a half a billion dollars per year is spent on medical follow-ups, treatments, and unnecessary exclusions from school for practices that do not follow EBP guidelines (Adams, 2009). School nurses are often the only health resource in the school systems.

School nurses are employed to be a reliable health resource that assist in reducing health related absenteeism and help students achieve the most optimal health environment possible at school. A school nurse that effectively uses EBP can have a great impact on both the staff and the student's lives. Chronic diseases and conditions are increasing in school age children and also play a role in the need for evidence-based practice in the school setting (Erickson, Splett, Mullett & Heiman, 2006). School systems are faced with the challenge of meeting the federal and state laws and regulations (Erickson et al., 2006). " The Individuals with Disabilities Act (IDEA) of 2004 and the Rehabilitation Act of 1973, Section 504, require districts to provide services and accommodations for students with chronic conditions" (Erickson et al., 2006, p. 311). Children are surviving and living with more chronic conditions due to the advancement of technology and medical care and therefore their health care needs at school are becoming more advanced (Erickson et al., 2006). Asthma is a common major chronic illness in school age children (Adams, 2009). Asthma, that is not adequately controlled, is found to cause over 14 million missed school days per year (Adams, 2009). School aged children with chronic illnesses need to have a medical resource and care, which is based on EBP, at school that will allow them to participate in the daily school activities to reach their academic goals.

Research Questions

This research study was proposed and designed to answer questions regarding EBP with the school nurses in this sample. Research questions to be answered in this study are: (a) What is the school nurses' current awareness of research? (b) What are the most reported facilitators and barriers to research utilization in the school setting? (c) What are the reported barriers of research resource information for school nurses to guide

their practice? (d) What is the school nurses' perception of the importance of using current research to guide their practice? (e) What are the reported skill level barriers reported to research utilization?

Hypotheses

Knowing the facilitators and barriers to research utilization in the school setting will allow insight into how school nurses can be supported in implementing EBP to guide their practice. School nurses that report being aware of research, perceive EBP as important, deny EBP skill level barriers, report limited barriers to current sources of information, and other barriers will report lower barriers and a higher level of facilitators to research utilization and EBP use to guide their practice. Furthermore, the demographic information of the participant's education level, years of experience as a registered nurse and school nurse, and district size of the schools served also has the potential to affect EBP use. This study will provide valuable information of EBP facilitators and barriers to research utilization and to identify the needs associated with implementing EBP in the school setting.

Definition of Terms

This proposed study seeks to gain understanding of the facilitators and barriers to evidence based practice use by exploring the perceived facilitators and barriers of school nurses and research utilization Defining and understanding what is being asked helped guide this research study in answering the desired research questions.

Evidence based practice. Evidence based practice is using the best available evidence from research, along with previous nursing experience and patient and family preferences to guide nursing practice (Adams & McCarthy, 2005).

Awareness of EBP. The nurse reports being aware of research as a barrier from no extent to great extent (Funk, Champagne, Wiese, & Tornquist, 1991)

Attitude toward the importance of EBP. Self-reported perception of the school nurse's value of research for practice, benefits of changing practice, benefits to self, documented need for practice change, and the willingness to change or try new ideas as a barrier to EBP reported from to no extent to great extent (Funk et al., 1991).

Current facilitators and barriers of research utilization. Self-reported factors by the school nurses that are facilitators and barriers to research utilization that are included by the school nurse and addressed on the BARRIERS scale statements from no extent to great extent (Funk et al., 1991).

Barriers of information sources. Research and Presentation of research barriers as presented on the BARRIERS scale that are reported as barriers from to no extent to great extent (Funk et al., 1991).

Skill level of EBP use. Self-reported perceived skill level of understanding research statistical analysis and being capable of evaluating the quality of research as a barrier of EBP use as reported from to no extent to great extent (Funk et al., 1991).

Theoretical framework. Rogers Diffusion of Innovation (1995) theory was chosen to guide this study on the current use and perceived needs of incorporating EBP with nurses in the school setting. Roger's Diffusion of Innovation theory states that diffusion of an innovation is implemented by a social system (e.g. school nurses) in the

five-step process of awareness, persuasion, decision, implementation, and evaluation (Adams, 2009). The autonomous and often isolated setting of school nursing practice suggests that these members of this social system may face this five-step diffusion process of this innovation change on their own (Adams, 2009). Roger's theory (1995) also states that communication with a person that has already adopted the innovation (e.g. having access of an advanced practice nurse who is knowledgeable) is an important factor of the adoption of the innovation (Lundbald, 2003). It is important to know the current stage of EBP diffusion in the school setting. Knowing the social system's (e.g. school nurses) demographics and researching the variables of the diffusion of EBP (e.g. the current reported facilitators to use, information sources, the perceived importance, the perceived skill level, perceived barriers and needs) use will provide insight on how to increase the diffusion of the innovation of EBP. Inquiring the social system's current knowledge, perception, facilitators and barriers to utilizing research will show the ability of achieving the steps of awareness, persuasion, and decisions. Assessing the self-reported skill level will also allow an understanding into the implementation and evaluation of the innovation of EBP with this social system.

ROGER'S THEORY OF INNOVATION (1995)

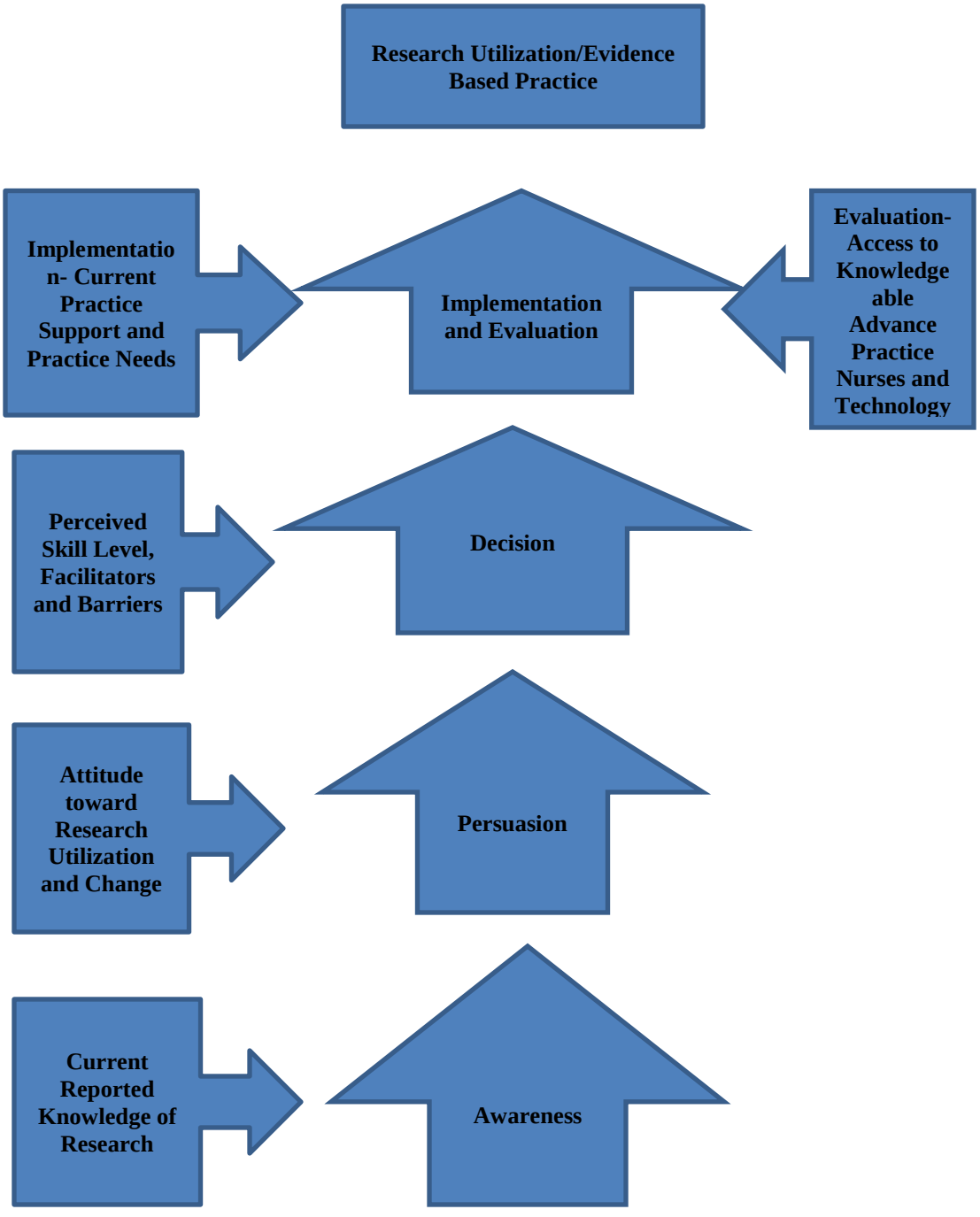

Figure 1. Rogers Theory of Innovation: Five diffusion elements.

Summary

Incorporating research utilization and evidence-based practice to guide nursing practice is essential in ensuring that patients receive optimal nursing care. The autonomous and often isolated setting of school nursing practice makes practicing evidence based nursing care especially important. Research has shown that the use of EBP can eliminate insufficient nursing practices and improve nursing outcomes (Adams, 2009). Roger's Diffusion of Innovation (1995) was described to guide this study to gain insight in the current use and perceived needs of incorporating EBP use with school nurses in the school setting. EBP in the school setting provides the student the care needed to obtain optimal health, reduce absenteeism, and allow students to reach their educational goals, while validating the nursing care that is given by the school nurse. This study will provide valuable information on the facilitators of school nurses EBP use guide their practice, and to identify the barriers associated with providing EBP in the school setting.

Chapter II

Review of Literature

Introduction

The use of evidence-based practice (EBP) has been determined to be essential to providing quality healthcare (Koehn & Lehman, 2007). Support, training, and leadership are important aspects in increasing EBP in nursing (Adams, 2009). It is important that nurses, such as school nurses, who often work independently in rural areas away from colleagues, use EBP to guide their practice (Adams, 2009). A literature review was preformed of fifteen studies to examine Registered Nurses' perception, use, and barriers to the use of evidence-based practice. The information obtained in this literature review will to help understand the current trends and barriers of incorporating evidence-based practice in nursing.

Literature Review

A descriptive cross-sectional survey study that used Roger's Diffusion of Innovation Theory conducted by Adams (2009) examined the use of evidence-based practice in school nursing. A descriptive cross-sectional survey was placed at the National School Nurse Conference registration desk. A convenience sample of 247 Registered Nurse School Nurses returned the survey that was used to for this study. Measurement of evidence-based practice was obtained by using the school nurse evidence-based practice survey. Adams (2009) reported that the results of the study showed that the recommended use of evidence-based practice was inconsistent. Although the participants reported they felt evidence-based practice was important and were willing to try new ideas, the respondents showed varying degrees of adherence to

recommended practice. The study findings showed the need for additional strategies that addressed the unique needs of school nurses. These results were reported to help develop strategies to increase the use of evidence-based practice in the school setting.

Koehn and Lehman (2007) investigated registered nurses perceptions, attitudes, knowledge, and skills of evidence-based practice use. A descriptive, cross sectional survey design that used a psychometrically validated measurement of evidence-based practice based on a Likert scale from 1-7 was used. A sample group of 422 nurses in a large Midwestern Urban Medical Center in the United States were given a clinical effectiveness and evidence-based practice questionnaire. The results found that the participants overall scored themselves as moderate on knowledge/skills and attitudes toward evidence-based practice, however an inconsistency was found that only 52% of the participants reported that they read or subscribed to a nursing journal. Koehn and Lehman (2007) reported that a reasonable conclusion would be that if the nurse was incorporating the best evidence in their practice, they would be reading or subscribing to a professional nursing journal. The findings of this study indicated that further research of developing an educational plan to assist nurses with the process of evidence-based practice and skills are needed. Koehn and Lehman (2007) also reported that the findings of the study also showed that a minimal variation of the study might indicate the need for a better instrument to be used in the research of use, knowledge/skills and attitudes towards evidence-based practice.

Significant Registered Nurse clinical differences of evidence-based practice use were found in the third study reviewed. A study by Bostrom et al. (2009) examined the problem of whether or not newly graduated nurses are actually applying evidence-based

practice in their practice. This study used 987 relatively newly graduated Swedish RNs from the nursing students that were enrolled in nursing programs in 2002. The participants were given a six-item questionnaire using a 4-point response that measured the respondent's extent of applying components of evidence-based practice. The results showed that 1/5 of the RN's were reported to formulate questions for seeking research-based knowledge and searching databases. Bostrom et al. (2009) reported that over 50% of the RN's were found to use other sources of information to identify relevant research knowledge and approximately one third of the RN's were found to appraise articles contents and participated in evaluating changing clinical practice. Great variations in the RNs accomplishment of the different components of evidence-based practice were found. These findings showed that the implementation of EBP is complex process and further research should focus on the components of evidence-base practice and the factors relating to education and organization.

Carlson and Plonczynski (2008) performed an analysis study of the use of the BARRIERS scale to identify the perceived barriers to research utilization, the extent of the nurses' perceived barriers to research utilization, and the most frequently cited barriers that have changed over the past 15 years. Cooper's (1989) guide for integrated literature reviews was used to guide this research study. A systematic search was conducted using MEDLINE, Dissertation Abstracts International (DAI) and Academic Abstracts that identified relevant nursing literature from the development of the BARRIERS scale in 1991-2006. Key words that were used in the search were BARRIERS scale, research utilization, and evidence-based practice. Studies were included if they were reported in English, used the entire BARRIERS scale, and reported

data on the responses of nurses separately from other categories of respondents. Forty-five studies met the inclusion criteria and were used in the analysis. The research results found that two studies suggested that interventions were successful in decreasing nurses' perceptions of barriers to using research in practice, but did not indicate an increase in the use of evidence-based practice. The results of this study also showed that no evidence was found that an identified barrier to nurse's use of research has influenced nursing practice; and the extent of the perceived barriers and the most frequently reported barriers cited by nurses has been consistent over time. The findings of this research analysis showed that using the BARRIERS scale to identify the nurse's research use barriers has not shown to increase research utilization.

A study by Gerrish et al. (2007) developed and tested a tool for assessing a range of factors influencing the development of evidence-based practice among clinical nurses. This study sought a need for a measurement tool that included a broader definition of evidence that incorporated other ways of knowing that forms nursing practice. The Development of Evidence-Based Practice (DEBP) tool was said to be different from the original barriers scale by changing to a more personal 'I' or 'my' to ensure that respondents reported on their own experience rather than by nurses in general. The tool included a range of factors that included different types of evidence used to guide practice, barriers to evidence-based practice, and needed skills for evidence-base practice. Two studies were conducted to measure the new broader based DEBP questionnaire. Study one's sample surveyed consisted of 598 nurses that worked at two hospitals in one strategic health authority in Northern England. All nurses at the two hospitals were offered to participate, except for two already participating in an evidence-based practice

survey. Study two consisted of 689 community nurses from a random sample of 1600 nurses in 12 primary care organizations in two strategic health authorities in Southern England and Northern England. Study two received a slightly expanded version of the questionnaire. An adequate sample of 1287 total was achieved in this study to test the tool. The study provided evidence of the validation of the DEBP questionnaire for investigating associated factors of evidence-based practice in nurses in England. The research findings showed that the development of new measuring tools for the range of factors in evidence-based practice was validated. The testing and development of the DEBP questionnaire suggested that this instrument is a valid and reliable method, although further testing is needed to establish its validity and reliability. This study showed the importance in providing a measuring tool that would reflect the experience of the sample group being studied.

A study's aim to explore the individual nurses' interpretation and understanding of evidence-based practice was conducted by Rolfe, Segrott, and Jordan (2008). A cross sectional survey, followed by semi-structured interview and focus group was offered to all qualified nurses in one UK National Health Service (NHS) Trust. The survey questions using a Likert-type scale, which allowed natural responses, avoided binary responses, and were based on, current literature relating to interpretations of evidence-based practice was used. The questionnaire was pre-tested, reviewed and revised before the study. The questionnaires were placed along with pre-paid envelopes to be sealed and returned. Limitations of the study were reported to be due to a poor response rate of 218 out of 2438. Although there was a poor response rate, the researchers reported that interesting information was obtained from the respondents. The results of the study

showed the participants did not respond to the message that evidence-based practice empowers individual practitioners to make informed judgments based on research. The respondents reported being influenced by national and local guidelines, their own experience, and the patient's preferences to guide their practice. The findings of this study indicated that practicing nurses do not always follow the guidelines of evidence-based practice and that nurse leaders need to synthesize the published research and experimental knowledge of evidence-based practice.

Using a descriptive cross sectional study, researchers Brown, Wickline, Ecoff, and Glaser (2008) conducted a study to describe nurses' practices, knowledge & attitudes relating to evidence based practice and relations to perceived barriers. A convenience sample of 458 nurses was drawn from all nurses from an academic medical center in California. Two questionnaires that were reported to be reliable and valid were used to explore respondents' practice, attitudes, knowledge, and perceived barriers associated with evidence-based practice use. The research study was measured by the BARRIERS to research utilization scale and the Evidence-Based Practice Questionnaire (EBPQ). The data analysis was conducted by SPSS. The results of the study showed that attitudes toward EBP obtained the highest mean score, followed by knowledge, then practice. Brown et al. (2008) found the strongest correlations for the EBPQ factors were found to be between the practice of EBP and knowledge. The higher the knowledge scores, the higher the practice score of EBP was found. A negative relationship was found between the research message & knowledge/skills. Attitudes to EBP were found to be more positive than their associated knowledge and implementation of EBP organization. Innovation was found to be the highest subscale of barriers. Organization barriers were

reported to be lack of time, lack of autonomy to change practice, and lack of support by staff . The findings of this study included that further research is needed to evaluate the ability of educating the interventions of EBP.

The aim of a study that was performed by Johansson, Fogelberg-Dahm, and Wadensten, (2010) was to describe evidence-based practice use among head nurses and to explore whether or not their number of years of duty was associated with their evidence-based practice activities. The study further evaluated the effects of education on evidence-based practice, as well as their perceived support from immediate supervisors. All head nurses (N =168) from two hospitals were asked to participate. Of the 168 that were asked to participate, 99 (59%) completed the survey. The research questions of this study included questions of, the head nurses attitudes toward evidence-based practice, the extent that the head nurses engaged in evidence-based practice, the extent that research utilization is promoted among staff members, the extent that the ward is involved in systematic development work, the number of years since their nursing degree or years as the head nurse associated with EBP, the effects of head nurses education that included a EBP course on the EBP activities, and what are the effects of the perceived support from their immediate supervisors on EBP. The web-based head nurses EBP Questionnaire (Evi Pra Q) that was specifically developed for this investigation and was inspired by the research utilization questionnaire (RUQ) was used. The Evi Pra Q was comprised of 26 items in which the majority of statements were to be responded to using an 11 point scale from

0 = strongly disagrees to 10 = agrees completely. The results were reported to show that the majority of head nurses expressed a positive attitude toward EBP, but disagreed that

they had time to read research reports. The majority of head nurses were also reported that they disagreed that it is possible to conduct research during working hours, however, they did report being engaged in the evaluation of care. Additional results include that six of the nurses reported never searching scientific databases, nine reported it being more than two years since performing a database search, three reported it being one to two years, twenty three reported it being in the past six to twelve months, and thirty-eight reported it being in the last six months that they performed a database search. The more experienced head nurses were found to have the greater possibilities of research utilization. The study also showed that having had involvement in an education that included scientific methodology reporting a supportive supervisor also was shown to positively affect EBP . Johansson (2010) concluded that research utilization and the development of EBP use are issues that are complex and require both organizational and educational efforts.

Oermann et al. (2007) stated that findings from research must find its way into clinical practice. Researchers, Oermann et al. (2007), preformed a research study to describe the available research in clinical nursing journals and evaluate the communication and practice knowledge of this research by analyzing research citations. A descriptive study of 20 randomly selected nursing journals was performed. A total of 768 articles and 18,901 citations were examined. The results determined that the knowledge used to develop the clinical publications came from both research and clinical practice sources. Oermann et al. (2007) further reported that the citation analysis confirmed the relationship between research and practice knowledge in nursing. The findings of this study showed that nursing journals are important in disseminating

research findings and the dissemination of the research allows the researchers to critique and replicate the research. This research study further showed that nurses need to be aware of current research to incorporate the use of EBP in their practice and research studies need to be in clinical nursing journals, online resources, and other ways that can provide easy access.

Brown et al. (2010) performed a study to determine the relationships between the perceived barriers of research use to the implementation of EBP use among hospital nurses and to further investigate the barriers as a predictor of EBP use. A cross sectional study was obtained by using both a computerized EBP questionnaire and the BARRIERS survey. The BARRIERS scale measured the nurses' perceived barriers to research utilization and this study was reported to be guided by Roger's Diffusion of Innovation Theory. A convenience sample (N =1301) of nurses from four Southern California hospitals was used. A hierarchical multiple regression analysis was performed for the three dependent variables of practice, attitude, and knowledge/skills of EBP along with BARRIERS subscales that were used as predictor variables. The correlational analysis results of the study showed that the perceived barriers of the sample group to research use predicted only 2-7, 2-4, and 4-5 % of practice attitude and knowledge/skills associated with evidence-based practice. The results concluded that barriers to research use had minimal influence over the EBP implementation for most of the hospital nurses in the sample. Brown et al. (2010) further concluded that the barriers to research that were measured on the BARRIERS scale had minimal influence on most of the hospitals nurses in the sample and may be due to research being far from their busy daily schedules in their hospital nursing practice; they may not have had strong opinions when answering

the survey; and the results may have been affected due to missing data and the no opinion option on the survey scale.

Veeraman (2007) performed a study on the use of research findings in nursing practice. The study's aim was to examine the extent in which research findings are used in nurse's practice and to identify barriers and highlight the strategies that facilitate the EBP process. A sample of ten nurses took part in this interview phase of the study. A literature review performed identified possible barriers to the nurse's research finding use as being lack of awareness, lack of knowledge of the research process, insufficient time to read and interpret research findings, and a shortage to colleagues with expertise to discuss the research findings.

The findings from the interviews performed showed that all of the participants stated they used research findings in their practices and gave examples but not all of the time (Veeraman, 2007). The extent to which research findings were used varied among the participants. The barriers listed from the interviews were that time was not allowed during work hours to go to the library or read research papers; they felt pressured at work, they were reported to be tired, and did not want to think about work when they were off work. Participants also stated that there should be allotted protected time at work for research, they had lack of knowledge on how to search and evaluate the research, there needs to be research education supplied and nearly all stated there were lack of resources. The strategies that were offered from the participants to facilitate research use was to have an effective leader, be provided research education, have access to research at work, and to also have the ability to share information with colleagues at work Veeraman (2007) concluded the study showed that clinical leaders should demonstrate a

commitment to research and to assure that the necessary resources, funds, and time were available for research utilization. However, with the current economic conditions, health care professionals may have to take it upon themselves to maintain and improve the professional skills.

An analysis of EBP research was performed by Mantzoukas (2008). A literature search of evidence-based practice, research evidence, evidence for practice, qualitative research, reflective practice, reflection and evidence was performed using the Cumulative Index for Nursing and Allied Health Literature (CINAHL), Medline and Ovid electronic databases. Randomized controlled trials (RCT) was promoted as the hierarchy of evidence, however it was found to have the potential to impede the use of most effective treatment due to practical, political, epistemological contradictions and limitations. Mantzoukas (2008) concluded that however evidence based practice or performing best practice was necessary in nursing, but the hierarchy of evidence (RCT) may hinder its implementation. Reflective practice and EBP have similar goals and to implement the best evidence in practice the hierarchy of evidence may need to be abandoned and reflection added as a core component of EBP. However, Mantzoukas (2008) points out that EBP is needed to prevent habitual practice and to provide a means to make effective clinical decisions and to affectively justify these decisions.

Thompson, Estabrooks, Scott-Findlay, Moore, and Wallin (2007) performed a systematic review that included eight thousand screened titles, three random controlled trials (RCT) and one controlled before and after study (CBA) of the research use of nurses. The review was conducted using the databases of Medline, CINAHL, Healthstar, Education Resource Information Center (ERIC), Cochran Central Register of Controlled

Trials and Psych Info. Thompson et al. (2007) further reported using grey literature, ancestry searching, key informants, and manual searching of journals. All of the studies reviewed were in English and the inclusion criteria of the studies were reported to be eligible if it was, a random controlled trial or a controlled before and after design, the authors evaluated interventions that were aimed at increasing research use or EBP, the participants in the study were nurses, and the outcomes of the study directly captured research use. Thompson et al. (2007) evaluated the RCT studies for the analysis of power, baseline measure, concealment of allocation, blinded or objective outcome assessments, protection against contamination, reliable outcomes, and follow up completeness. The CBA studies were assessed for items related to unit of analysis, power base line measure, the comparability of groups, whether the study was blinded or objective outcome assessment and the protection against contamination of studies follow up. Thompson et al. (2007) reported to find that the overall quality of the studies were low and before they could state the effectiveness of interventions that could increase research use in nursing practice, study designs and implementation will need to be improved. Thompson et al. (2007) further reports the need for studies to include primary outcomes to help determine the effectiveness of an intervention. The need to develop sufficient evidence that supports a relationship between interventions that are specific and research use, then it can be explored whether or not there is a relationship between effective research use interventions and behavioral changes in the nurses research utilization that influence patient outcomes. Thompson et al. (2007) concluded that there is still little known about how to increase nurses research and increasing research utilization in nurses will require methodical and conceptual advancement.

Reasons, strategies and the benefits of providing research and evidence-based (EBP) education to direct care nurses was described by Staffileno and Carlson (2010). The results of the direct care nurses that attended an institutional staff development to increase knowledge about research and best practices were evaluated. Staffileno and Carlson (2010) reported that the direct care nurses in the study expressed insufficient time, lack of education and a lack of mentoring from an Advanced Practice Nurse or Research Nurse with EBP research. EBP is essential with today's complex health care needs and higher health care costs, which mandates that nurses provide quality. The staff development program provided interactive sessions of the research process and concepts, brown-bag sessions, Journal clubs, and individual work with the direct care nurses. Staffileno and Carlson (2010) found that providing direct care nurses with additional education and support empowered them and allowed them to integrate research findings into their daily practice. The nurses who participated in the program were reported to have gained confidence and the desire to learn about EBP and research as well as demonstrate a higher level of critical thinking. Staffileno and Carlson (2010) further reported a transition of the direct care nurses from a traditional-based care to an evidence-based care that is recommended in today's standards of nursing practice.

Squires et al. (2011) performed a systematic review of 55 articles that assessed the professional nurses' use of research in their clinical practice. English and Scandinavian language studies were included. Of the 55 studies reviewed, 51 were cross sectional/survey studies and four were quasi-experimental studies. Squires et al. (2011) reported that the use of many different measures of research prevented them from performing a meta-analysis and the findings from the review were presented in a

narrative form. The review results of the 55 articles were reported to show that the extent in which nurses reported to use research in their clinical practice was moderately high. However, caution must be taken when interpreting the findings due to different instruments and concept utilization of research being used. The limitations of this study were reported to be deliberately omitting "evidence-based practice" and "decision making" from the search, due to evidence-based practice referring to a range of sources of evidence in addition to researched evidence that included patient preference, clinician expertise, and resources. Research use was referred to be specifically the use of research in practice. The finding of moderately high use in this study may not have been found if the omitted search studies from the terms "evidence-based practice" and "decision making" were included.

Summary

The literature review of these 15 research studies used a variety of nursing backgrounds and experience. Different research tools and methods were also found to be used to study the current use, knowledge, attitudes, and perceived barriers to evidence-based practice. The literature review showed that inconsistencies were found in the use of evidence-based practice. One research study was found to examine the use of evidence-based practice nationally in school nursing. A gap in the literature showed a need to examine the use, barriers, and needs of independent nurses, such as school nurses, of incorporating evidence-based research to guide their practice. This literature review confirms the need for research studies of the current trends and unique needs of school nurses incorporating evidence-based practice in the school setting.

Chapter III

Methodology

This chapter will describe the research design, survey instrument, sample population, and process that were used to conduct the research. The purpose of this study was to address the current perception, awareness, facilitators, resource information barriers, and skills, of providing EBP in the school setting. School Nurses work isolated from their peers and are often the only healthcare resource available in the school setting. Little is often known about the practices and needs of the School Nurses in other school systems due to the isolated environment of this specialty. Providing current evidence-based practice (EBP) is an essential need for the school nurse to ensure that optimal health care is given. The results of this study can provide valuable information on the facilitators of school nurses EBP use guide their practice, and identified barriers associated with providing EBP in the school setting.

Research Design

A descriptive cross-sectional survey design using the BARRIER scale was used in this quantitative study (Funk et al., 1991). According to Burns and Grove (2009), cross-sectional designs are used to examine a sample "in various stages of development, trends, patterns, and changes simultaneously with the intent to describe changes in the phenomenon across stages" (p. 241). Descriptive research provides an accurate look into the characteristics of a group and the sample population's perception (Burns & Grove, 2009). Moving through stages is a process that progresses and selecting subjects that are at different stages in the evidence based practice use process can provide information about the process as a whole (Burns & Grove, 2009). This research design allowed this

researcher to affectively examine the facilitators and barriers to progress the different innovation of evidence based practice use among the sample of school nurses. Permission to use the BARRIERS scale was obtained by signing and returning the permission form provided online by Sandra Funk, PhD. Funk et al.'s (1991) BARRIER scale included a 29 item scale measuring research utilization where responses are rated from 1-5 (1-to no extent, 2- to little extent, 3- to moderate extent, 4- to great extent, and 5- no opinion), as well as six additional open ended questions on barriers and facilitators to research utilization.

Context

Prior to conducting the survey interviews, permission was obtained from the Internal Review Board (IRB) for Gardner-Webb University. This study took place in one county school system in addition to a sample of available school nurses from other surrounding county public school systems in Central and Eastern North Carolina. The BARRIER scale by Funk et al. (1991) was used to identify the context variables of the school nurses' current practice facilitators and barriers, knowledge, and attitudes of evidence based practice use. An initial pilot study of the school nurses within this county school system was conducted prior to the including the additional county school systems. The school nurses in the pilot study was administered the demographic and BARRIERS scale survey to evaluate the clarity and effectiveness of the research tool.

Sample Population

Inclusion criteria was all available registered nurses who read, write, and speak English and are employed as school nurses in public school systems located in Central and Eastern North Carolina. The length of employment will not be considered as an

inclusion criterion due to including a sample of school nurses with various experience as a school nurse will be a valuable variable with the use of evidence based practice.

Informed Consent

Prior to surveying the School Nurses, who agreed to participate in the study, informed consent was obtained. The informed consent form included details of the purpose of the study and the rights for participating in proposed research study. Each participant had the opportunity to read and have explained the information on the consent form. At any time during the study the participant had the right to decline to participate in the study. A copy of the consent form was given to all participants at the time of the survey. The form was provided to the participant with contact numbers of the primary investigator (PI) and the Internal Review Board (IRB) at Gardner-Webb University. The detailed consent further provided information concerning the potential risks and benefits of the study. Consent from all of the participants confirmed by them responding to the data collection.

Data Collection Method

The survey questionnaires were distributed to the school nurse participants in person, and via email depending upon the preference of the school nurses of the school system and or the location of the school system. Prior to the distribution of the surveys, introduction telephone conferences or emails took place with the available school system's school nurses to explain the study, request participation, and answer any questions that may arise. Rogers Diffusion of Innovations Theory (1995) and previous evidence-based practice studies influenced the selection of the BARRIER scale tool. This survey questionnaire tool uses a five point Likert scale to provide answers of the school

nurses' current facilitators and barriers to research utilization and evidence-based practice use. A Likert scale is used to determine the perception or opinion of a subject by linking a declarative statement with a number on the scale and is the most widely used form of scaling technique (Burns & Grove, 2009). Rogers Diffusion of Innovation Theory's five diffusion elements of (1) Awareness, the innovation characteristics that influence adoption (reported knowledge and awareness) (2) Persuasion, the process which the individuals consider adopting the new idea (perception of importance) (3) Decision, the individuals characteristics and additional factors that make them likely to adopt the change (perceived skills, facilitators, and barriers) (4) Implementation, society and the individuals consequences for adopting the innovation (current practice and practice needs) and (5) Evaluation, the communication channels used for adopting the innovation (access to knowledgeable advance practice nurses and technology), along with the components found throughout EBP studies from the literature review, provided guidance in the selection EBP survey questionnaire (University of Twente, 2010). In addition to the context variables of the BARRIERS scale, the questionnaire will also consist of requests for demographic and background information that will provide the researcher with the school nurse's education level, national school nurse certification obtainment, professional organization membership, length of nursing experience as a registered nurse and school nurse, and population size of school district served.

Data Analysis

Data Analysis is an important step in adequately interpreting the research study findings and meaning of the results (Burns & Grove, 2009). After the entire survey questionnaires of the participating sample population were collected a statistical analysis

of the data was conducted. The Statistical Package for Social Sciences (SPSS) version 20 for Windows (SPSS Inc. Chicago, IL, USA) was used to obtain the statistical analysis of this study. The data obtained was carefully reviewed before being entered into SPSS for data analysis. SPSS allowed the obtainment of descriptive statistics to describe the frequencies, means and percentages of the reported evidence based practice facilitators and barriers with the context variables from the completed questionnaire.

Summary

Research studies that examine the facilitators and barriers to evidence base practice use provide valuable knowledge of the current trends and needs of nurses to provide optimal care. The methodology of this study was designed to examine the current awareness, attitude, skills, and reported facilitators and barriers to school nurses to provide EBP in the school setting. Examination of evidence-based practice among school nurses is especially needed due to the autonomous nature of the school nurse practice. A successful research study using the chosen descriptive cross sectional research design, data collection method, data analysis, and the sample population will provide valuable information about evidence-based practice with this school nurse population. The study results will increase the understanding and awareness of the need to use EBP, and identify the needs associated with providing EBP.

Chapter IV

Results

Demographic Characteristics

The data sample included a convenience sample of school nurse participants with available contact information (n = 50) from Central and Eastern North Carolina, whereas 73 declined and did not return the survey. The school nurse data sample were all female and consisted of Registered Nurses (RNs) with years of experience ranging from four to 40 years, as well as years of school nursing experience ranging from one to 34 years. The school nurse sample included the education levels of Associate, Bachelors, and Masters Degrees. The sample further included both certified and non- certified Nationally Certified School Nurses, as wells as members and non-members of the National Association of School Nurses. The school nurse sample was reported to serve small, medium, and large school districts located both in town/city limits as well in rural areas. Demographic characteristics were collected of the data sample's education, professional achievement, experience, and the school nurse's work settings that could be associated with their reported research utilization facilitators and barriers as depicted in Table 1.

Table 1

Demographic Statistics Frequencies and Percentages

Gender	Degree Obtained	Years As RN	Years Experience As School Nurse	National Certified School Nurse	National Association Of School Nurses Member	Location Area of School	School District Size
Female- (100 %)	ADN- 2 (4%)	0-4 yrs. - 1 (2%)	0-4 yrs. - 10 (20%)	Yes- 41 (82%)	Yes- 17 (34%)	Rural- 33 (66%)	Small (<1000 students)- 5 (10%)
Male- (0%)	BSN/BA/BS- 43 (86%)	5-10 yrs. - 4 (8%)	5-10 yrs. - 22 (44%)	No- 9 (18%)	No- 9 (18%)	In Town/ City Limits- 17 (34%)	Medium- (1000- 4000 students)- 20 (40%)
	Graduate- 5 (10%)	11-15 yrs. -8 (16%)	11-15 yrs. - 10 (20%)		Missing-2 (4%)		
	Doctorate- 0 (0%)	16-20 yrs. - 8 (16%)	16-20 yrs.- 5 (10%)				Large- (>4000 students)- 25 (50%)
		21-25 yrs. - 7 (14%)	21-25 yrs.- 1 (2%)				
		>25 yrs.- 21 (42%)	>25 yrs.- 2 (4%)				
		Missing- 1 (2%)					

Current Awareness

Table 2 depicts the statistical descriptive data of frequencies, percentages, means and standard deviations of the reported barrier levels data to the nurse being unaware of the research.

Table 2

Awareness, Responses to the BARRIER scale item: "The nurse is unaware of the research" and "There is no documented need to change practice" (Funk et al. 1991).

Barrier Level	Frequency	Percentage	Mean	SD
The nurse is unaware of the research-				
To no extent, to little extent (combined)	26	52%	1.32	.621
To moderate extent, to great extent (combined)	20	40%		
No opinion	8	8%		
There is no documented need to change practice				
To no extent, to little extent (combined)	23	46%	1.07	.695
To moderate extent, to great extent (combined)	12	24%		
No opinion	15	30%		

Facilitators to Research Utilization

The BARRIERS scale addressed the facilitators to research by including an open ended question requesting the participants write in what is perceived as facilitators to research as depicted in Table 3.

Table 3

Responses to the BARRIERS scale facilitator open ended question (N=50), "What are the things you think facilitate research utilization?" (Funk et al. 1991).

Reported Facilitator	Frequency	Percentage
Missing or No opinion	43	86%
Resources	2	4%
Collaboration with Colleagues	1	2%
Computer Programs	1	2%
Knowledge	1	2%
Administrative Support	1	2%

Barriers to Research Utilization

Participants of the study were asked to rate each of the 29 items on a scale according to the extent that the item was perceived as a barrier. To a moderate extent and to a great extent responses were combined, as in previous studies, to better understand the results given (Parahoo, 2000). Table 4 shows how the barrier items were ranked with the

combined categories, to moderate extent and to a great extent, for all 29 barrier items addressed in the BARRIER scale.

Table 4

Rank Order of To Moderate or To Great Extent Barriers to Research Utilization as Perceived by Central and Eastern Region School Nurses (N=50) from Barrier Scale Questions 1 to 29

Rank Order	Barrier	% Rating	Type	Mean	SD	Missing or No Opinion
1	The nurse does not have time to read research	56%	S	1.54	.542	1
2	The nurse feels results are not generalizable to own setting	46%	S	1.38	.716	11
3	Research reports/articles are not readily available	44%	P	1.34	.658	5
4	The amount of research is overwhelming	44%	R	1.37	.725	13
5	The nurse does not feel she/he has enough authority to change patient care procedures	42%	S	1.47	.505	5
6	The facilities are inadequate for implementation	42%	S	1.24	.744	9
7	Physicians will not cooperate with implementation	42%	S	1.22	.823	16
8	The nurse is unaware of research	40%	N	1.32	.621	4
9	Other staff are not supportive of implementation	40%	S	1.36	.650	10
10	Administrators will not allow implementation	40%	S	1.34	.680	16
11	Implications for practice are not made clear	38%	P	1.38	.490	0
12	The nurse is isolated from knowledgeable colleagues with whom to discuss the research	38%	N	1.44	.502	7
13	The research is not	38%	P	1.33	.591	3

Rank Order	Barrier	% Rating	Type	Mean	SD	Missing or No Opinion
	relevant to the nurse's practice					
14	There is insufficient time on the job to implement new ideas	38%	S	1.36	.613	9
15	Statistical analyses are not understandable	38%	P	1.30	.614	4
16	The nurse does not feel capable of evaluating the quality of research	38%	N	1.34	.645	10
17	The nurse sees little benefit for self	28%	N	1.27	.539	5
18	The relevant literature is not compiled in one place	28%	P	1.00	.798	19
19	The nurse feels benefits of changing practice will be minimal	26%	N	1.18	.560	4
20	There is not a documented need to change practice	24%	N	1.07	.695	15
21	The nurse is uncertain whether to believe the results of the research	22%	R	1.08	.607	8
22	Research reports/articles are not published fast enough	22%	R	.89	.784	22
23	The research has not been replicated	20%	R	.78	.764	21
24	The research is not reported clearly or readably	18%	P	1.09	.570	12
25	The nurse is unwilling to change/try new ideas	12%	N	1.09	.421	8
26	The conclusions drawn from the research are not justified	12%	R	.98	.556	14
27	The literature reports conflicting results	12%	R	.89	.618	17

Rank Order	Barrier	% Rating	Type	Mean	SD	Missing or No Opinion
28	The nurse does not see the value of research for practice	10%	N	1.04	.424	8
29	The research has methodological inadequacies	10%	R	.78	.636	20

S=Setting, N=Nurse, P=Presentation of the Research, R=Research

Barriers to Research Resource Information

Table 5

Rank Order of To Moderate or To Great Extent Barriers of Research Resource Information as Perceived by Central and Eastern Region School Nurses (N=50).

Rank Order	Barrier	% Rating	Type	Mean	SD	Missing or No Opinion
1	Research reports/articles are not readily available	44%	P	1.34	.658	5
2	The amount of research is overwhelming	44%	R	1.34	.725	13
3	Implications for practice are not made clear	38%	P	1.38	.490	0
4	The research is not relevant to the nurse's practice	38%	P	1.33	.591	3
5	Statistical analyses are not understandable	38%	P	1.30	.614	4
6	The relevant literature is not compiled in one place	28%	P	1.00	.798	19
7	The nurse is uncertain whether to believe the results of the research	22%	R	1.08	.607	8
8	Research reports/articles are not published fast enough	22%	R	.89	.784	22
9	The research has not been replicated	20%	R	.78	.764	21
10		18%	P	1.09	.570	12

Rank Order	Barrier	% Rating	Type	Mean	SD	Missing or No Opinion
11	The research is not reported clearly and readably	12%	R	.98	.556	14
12	The conclusions drawn from research are not justified	12%	R	.89	.618	17
13	The literature reports conflicting results The research has methodological inadequacies	10%	R	.78	.636	20

P=Presentation of the Research, R=Research

Perception of Importance to Research Utilization

The nurses in the sample's perception of the importance of research utilization were analyzed by including the frequency of four of the factor 1 responses on the BARRIER scale. Factor 1 on the BARRIER scale includes the nurse's research values, skills, and awareness, however only the items that addressed the nurse's research values were included in Table 5 (Funk et al.,1991).

Table 5

Perception of Importance to Research Utilization Barriers from to no extent to little extent (N=50)

Rank Order	Barrier	Type	% Ranking	Mean	SD	Missing or No Opinion
1	The nurse does not see the value of research for practice	N	74%	1.04	.424	8
2	The nurse is unwilling to change/try new ideas	N	72%	1.09	.421	2
3	The nurse does not see the value of research for practice	N	66%	1.18	.560	4
4	The nurse sees little benefit for self	N	58%	1.27	.539	2

Perception of Skills

Table 6

Perception of Skill Barriers from to moderate extent to great extent (N=50)

Rank Order	Barrier	Type	% Ranking	Mean	SD	Missing or No Opinion
1	The nurse is isolated from knowledgeable colleagues with whom to discuss the research	N	38%	1.44	.502	7
2	The nurse does not feel capable of evaluating the quality of the research	N	38%	1.34	.645	10

Chapter V

Discussion

The purpose of this study was to address the current perception, awareness, facilitators, resource information barriers, and skills, of school nurses providing EBP in the school setting. The demographic data of the school nurses concluded that all of the school nurses in the sample were female (100%) with the majority (86%) having achieved the educational level of Baccalaureate degree, whereas the 10% of the nurses have achieved the level of Graduate degree and the remainder obtaining an Associate degree (4%). The year of experience as a RN Mean was reported to be 21.45, as well as a Mean of 9.7 for years of experience as a school nurse. Among these nurses, 82% have additionally obtained the professional status of national certification as a school nurse while 34% reported being a member of the National Association of School Nurses professional organization. The data sample further found the majority of the nurses served in rurally located schools with a district size >4000 students (see Table 1).

Awareness of Research Utilization

According to the data collected, the majority of the nurses (52%) reported *to no extent or to little extent* that being unaware of research was a barrier to research utilization (see Table 2). In addition, the BARRIER item there is no documented need to change practice as a barrier contained 15 no opinion responses (30%), however did contain 23 responses (46%) *to no extent* or *little extent* as a barrier to research utilization. These findings suggest that the majority of the school nurses in the sample are aware of research and the majority of the responses to there is no documented need to change, provided are aware of the need of research utilization and have achieved the step of awareness in Roger's Diffusion of Innovation Theory (1995).

Facilitators to Research Utilization

The BARRIER scale addressed the facilitators to research utilization by asking the respondents to write in their perceived facilitators in an opened ended question format. The majority of the school nurses in this sample did not respond or responded *no opinion* (86%), however, three of the responses provided could be seen to be related to the category of setting (see Table 3). The setting facilitator responses included "resources" (4%), "computer programs" (2%), "collaboration with colleagues" (2%), and "administrative support" (2%). The final response of "knowledge" (2%) could be related to the skill of the adopter.

Barriers to Research Utilization

The greatest barrier was found to be that there is not enough time on the job to read research (56%), followed by the nurse does not feel that the research are not generalizable to own setting (46%) (see Table 4). Furthermore, 70% of the top ten reported barriers were characteristics of the organization (setting). The least barrier reported was the research has methodological inadequacies (10%). Additionally all of the 29 individual barriers were ranked according to the combined categories of *to moderate extent* and *to great extent* and provided in Table 4.

Perception of Importance

When addressing the characteristics of the adopter's (school nurse's) value of the innovation (research utilization), the majority of the school nurses in the sample reported the nurse does not see the value of research items as the least barrier (74%) (see Table 5). These findings further suggest that the majority of the school nurses valued the innovation of research and had achieved the step of persuasion in Roger's Diffusion of Innovation Theory (1995).

Skill Level Barrier

With the reported perceived skill barrier of the adopter, the items of 'the nurse does not feel capable of evaluating the quality of the research' and 'the nurse is isolated from knowledgeable colleagues with whom to discuss the research were both reported at 38% to be barrier at *to a moderate extent* or *to a great extent* (See Table 6). The majority of the school nurses did not report that skill was a barrier to research utilization, which also suggests the majority of school nurses had achieved the step of decision in Roger's Diffusion of Innovation (1995).

Significance of Findings

Funk et al. (1991) note that facilitators to research utilization included increased administration support and time available at work to utilize research that will allow evidence to guide practice. This study found that the school nurse's setting is a perceived barrier to research utilization. The setting is greatest reported barrier although the majority of the nurse's reported increased years of experience as a RN and an educational degree beyond the entry level of an Associate degree.

Implications for Nursing Practice

This study contributes to the understanding of the barriers to the process of research utilization that allows evidence to guide the practice of the school nurse in the school setting. Studies that include nurses practicing in organizational settings outside the medical setting can provide a greater understanding to the barriers that individual nurses face with research utilization.

Limitations of the Study

The short time span of one week that was requested of the participants to complete the survey study may have limited the response rate of this study. The convenience sample of 123 school nurses yielded a response rate of 41% (n = 50) which may not have been an adequate sample to show the true response rates to the barriers. The majority of the school nurses (86%) did not respond to the open ended questions requesting their perception of facilitators of research utilization, the low response rate (14%) also may have not adequately portray the entire perceived facilitators of research utilization in the school setting. Including the right of the participant to not respond to any item that they did not wish to respond to, increased the high rate of missing or no opinion responses to items.

Recommendations for Further Research

A repeat of this study with school nurses is recommended that allows for a larger research sample and includes additional research for a better understanding of the current use of evidence based practices. Further studies that address the organizational (setting) barriers to research utilization of school nurses and that address the barriers of administration that compares both nursing and non-nursing administrations.

Importance of the Findings for Nursing

The findings from the survey study suggest that the setting has the potential to be major barrier to research and research utilization. School Nurses are often the only health resource in the school setting. A school nurse that effectively uses EBP can have a great impact on both the staff and the student's lives. Understanding the barriers that prevent school nurse from using research to guide their practice will provide a better understanding of how to support nurses in increasing research utilization.

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