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Exploring Relationships Between School-based Health Clinics and Academic Performance in Elementary School-aged Children

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Exploring Relationships Between School-based Health Clinics and
Academic Performance in Elementary School-aged Children

by

Cynthia Elizabeth Sherwood-Samuel

Submitted in partial fulfillment of the requirements for the degree of

Doctor of Philosophy Department of Health

and Medical Sciences Seton Hall University

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"Exploring School-Based Health Clinics and Improved
Academic Performance"

By

Cynthia Elizabeth Sherwood-Samuel


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“I can do all things through Christ who strengthens me”

Philippians 4:13

Dedication

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ABSTRACT

School based health clinics provide medical services and healthcare to students within the school setting. Research suggests that students who use school based health clinic services perform better academically in school by improving their attendance, health status, and addressing their medical needs. This retrospective study explored the relationship between school based health clinics and academic performance in elementary school-aged children. Academic performance was measured using students' final grades, New Jersey Assessment of Skills and Knowledge (NJ ASK), and Language Arts Literacy (LAL) scores. Students were tracked longitudinally from grades 3-5 comparing students who used an onsite school based health clinic versus those who did not use an onsite school based health clinic. Results explore relationships between school based health clinic users versus school based health clinic non-users as well as differences between school based health clinic users and non-users. These findings suggest that having an onsite school based health clinic may improve academic performance in elementary school-aged children.

CHAPTER 1: INTRODUCTION

Student health in elementary and secondary schools is an important aspect that has gained increased consideration over the past several decades in the United States (The Center for Health and Healthcare in Schools, 2007). It is important to assure that children receive adequate healthcare within the school setting that contributes to the growth and development of healthy and productive lifestyles. Children between the ages of 5 and 19 make up approximately 18% (55 million) of the population in the United States (The Center for Health and Healthcare in Schools, 2007). One way of assuring that these students mature with meaningful lives is to provide them with onsite healthcare access in school.

A School-based Health Clinic (SBHC) is an onsite clinic located within the school grounds providing a comprehensive range of services to students. These services are targeted to the specific healthcare needs of the youth community (National Assembly of School-Based Healthcare [NASBHC], 2008). These onsite clinics become part of the school community, as healthcare practitioners and others involved strive to become leaders, mentors, and instructors of healthcare, and hope to provide beyond the necessary medical and health services to students with illnesses. According to Kalet et al. (2007),

School-based health centers (SBHCs) have tremendous untapped potential as models for learning about systems-based care of vulnerable children. SBHCs aim to provide comprehensive, community-based primary healthcare to primary and secondary schoolchildren who might not otherwise have ready access to that care. The staffing at SBHCs is multidisciplinary, including various combinations of nurse practitioners, physicians, dentists, nutritionists, and mental health providers. (p.1)

SBHCs employ practitioners who provide comprehensive care to students in diverse areas of healthcare, including general practitioners such as physicians, nurse practitioners, registered nurses, and physician assistants; mental health specialists such as social workers,

alcohol counsellors, and drug counsellors; and other varieties of health professionals (NASBHC, 2008). Students use the services of the SBHC for medication administration, preventative care, mental health counselling services, and emergency care during the school day. SBHCs provide services through a qualified health provider such as a hospital, health department, or medical practice. Parents must sign written consent forms in order for their children to receive access to the full scope of available services (NASBHC, 2008).

Researchers have documented the positive impact of school-related health services on several health-related outcomes. These have included the effect of school-based and school-linked health services on the prevention of early pregnancies and other sexual health-related problems. These health services, in conjunction with the school, smooth the plight of those who are pregnant or have mental disorders. However, because these services are school-related, it may be possible that the presence of these services would have an effect on the students' academic performance and school attendance.

Theoretical Frames

This study operated on the premise of two conceptual theories. First, the researcher based the study on the idea that convenience is becoming an important determinant of how consumers choose which services to make use of, including healthcare options. This relates to the structural changes that the American family is undergoing—specifically, the need for both spouses to join the workforce, increasing the need for products and services that are more convenient. Second, the researcher based this study on the increasing body of knowledge positing that all aspects of health relate to academic performance. SBHCs offer a comprehensive range of health services, which range from catering to physical health to providing counselling and services for high-risk issues such as substance abuse, sexual health, and other matters that relate to these issues. The

researcher will discuss these two theories in greater detail in the literature review, found in Chapter 2 of this study.

Problem Statement

Providing students with clinical healthcare access onsite has been a powerful tool in maintaining and assessing the health needs of students; however, it has been a challenge to fund access to healthcare for all schools (Franklin, Harris, & Allen-Meares, 2006). For this reason, not all students in the United States have access to health centers at their schools. As a result, students may be forced to miss classes or school due to illnesses or injuries that require treatment outside of the school setting (Franklin et al., 2006). The student would have to receive treatment at a location outside of the school, resulting in longer wait times or travel. By having a healthcare center on site, students are able to obtain quick and efficient care for their illness or injury, resulting in less missed class time. This lack of access to onsite SBHCs could affect students' academic achievement. The primary premise of this study was to determine if there is a difference in academic performance across schools that have access to SBHCs and those that do not have access to SBHCs. Although some studies that have shown a link between school-related health services and academic services, there is still no study detailing the direct relationship between these school-related health services such as school-based clinics and school-linked clinics on the academic performance of students.

According to Walker, Kerns, Lyons, Bruns, and Cosgrove (2009), this dearth of literature results from difficulties in gathering related data due to privacy laws, "limitations of self-report data for measuring academic outcomes, inability to make conclusive causal statements because of cross-sectional data or limited follow up, and the paucity of research studies that have employed control groups or well-controlled analyses."

For example, Walker et al. (2009) aimed to examine the effects of SBHCs on the academic performances on high school students by utilizing a well-controlled longitudinal model. The researchers also wanted to investigate whether there is a difference on the impacts on SBHC medical services from its mental health services. Their participants involved ninth-grade SBHC users and non-users. The duration of the study was for five school semesters, from the fall of 2005 to the fall of 2007.

The researchers compared the participants based on their academic outcomes for this period. The researchers concluded that SBHC medical users attended classes more often than non-users. Findings also suggested that SBHC mental health services users demonstrated increased GPAs over time. However, the researchers did not gather any significant findings regarding the students' discipline and behaviors (Walker et al., 2009). This demonstrated that SBHCs in general have a positive impact on academic improvements, but determining which aspect the SBHCs improve requires a closer look at the specific services offered.

Purpose of the Study

The purpose of this study was to determine if there is a significant difference in academic performance among urban elementary school students using school-based health clinics (SBHCs) and those that do not use SBHCs. A School-based Health Clinic (SBHC) is an onsite clinic located within the school grounds that provides a comprehensive range of services to students. These onsite clinics become a part of the school community, lending insight and advocacy in promoting the health status of the students they serve (NASBHC, 2008). SBHCs employ practitioners who provide comprehensive care to students in all different areas of healthcare, including general practitioners such as physicians, nurse practitioners, registered nurses, and physician assistants; mental health specialists such as social workers, alcohol counsellors, and

drug counsellors; and other varieties of health professionals (NASBHC, 2008).

The researcher employed a quantitative, ex post facto causal-comparative, retrospective cohort research design. The researcher collected historical data related to academic achievement and SBHCs through a district database consisting of attendance records, SBHC logs, and report cards. The quantitative ex post facto design was appropriate for this study, because the objective was to determine whether there are differences between two types of schools when it comes to academic achievement. With the ex post facto design, the levels or categories for the independent variable were already defined or classified, so that the researcher did not have the ability to manipulate or randomly assign individuals to certain groups.

In the context of social and educational research, ex post facto research is frequently part of retrospective studies, in which researchers assess cause-and-effect relationships by using existing conditions or state of affairs (Cohen, Manion, & Morrison, 2000). Ex post facto research looks back in time to determine any possible causes for the particular outcomes of interest. Additionally, the ex post facto design is appropriate when the events or treatments have already occurred and cannot be manipulated by the researcher (Cohen et al., 2000). Students using SBHCs and those not using SBHCs are already present and, therefore, cannot be manipulated by the researcher, making the ex post facto research design the most appropriate for the study.

The quantitative research method will be used for the current study rather than a qualitative design because with a qualitative design the researcher would not be able to assess a direct relationship between two variables as result of the open-ended questions (Creswell, 2009). The researcher will interpret and code the responses received, in order to identify trends or themes in the responses of qualitative research designs. Moreover, qualitative research addresses different questions, such as the *how* and *why* questions of research (Yin, 2003). This was not the

purpose of the current study. The purpose of the study was to determine if there is a difference in academic performance across students that have access to SBHCs and those that do not have access to SBHCs.

The population for the study was students who were currently enrolled in an urban public school. The researcher assessed a random sample of those students who use SBHCs and those do not use SBHCs. Schools that have SBHCs employ practitioners who provide comprehensive care to students in all different areas of healthcare, including general practitioners such as physicians, nurse practitioners, registered nurses, and physician assistants; mental health specialists such as social workers, alcohol counsellors, and drug counsellors; and other varieties of health professionals (NASBHC, 2008). Thus, one school will sufficiently provide a random sample representing a student population that does and does not use SBHCs.

Significance of the Study

The findings of this study can help fill the gap in existing knowledge regarding the direct effects of school-related health services on the attendance and academic performance of children. Previous studies have shown indirect links and probable effects, but no researchers have undertaken comprehensive studies to ascertain the positive effects of providing school-based healthcare for students. The findings of this study can provide support for efforts to provide school-based healthcare, especially for students residing in undeserved, underprivileged communities who lack access to healthcare. The findings may can also encourage educators and school district board members to increase efforts in finding various ways to fund and provide healthcare programs for students, in order to help boost their school attendance and academic performance.

Research Questions

The research questions formulated for the study were as follows:

RQ1: Is there a relationship between SBHC use, SBHC non-use, and academic performance (as measured by final grades, NJ ASK scores, and LAL scores) across grades 3, 4, and 5?

RQ1A: Is there a relationship between SBHC use and academic performance (as measured by final grades, NJ ASK scores, and LAL scores) across grades 3, 4, and 5?

RQ1B: Is there a relationship between SBHC non-use and academic performance (as measured by final grades, NJ ASK scores, and LAL scores) across grades 3, 4, and 5?

RQ2: Is there a relationship between primary services offered by SBHCs (physicals, immunizations, and mental health) and academic performance (as measured by final grades, NJ ASK scores, and LAL scores) across grades 3, 4, and 5?

RQ2A: Is there a relationship between the primary service “Physicals” offered by SBHCs and academic performance (as measured by final grades, NJ ASK scores, and LAL scores) across grade 3, 4, and 5?

RQ2B: Is there a relationship between the primary service “Immunizations” offered by SBHCs and academic performance (as measured by final grades, NJ ASK scores, and LAL scores) across grade 3, 4, and 5?

RQ2C: Is there a relationship between the primary service “Mental Health” offered by SBHC and academic performance (as measured by final grades, NJ ASK scores, and LAL scores) across grade 3, 4, and 5?

RQ3: Is there a difference in academic performance (as measured by final grades, NJASK scores, and LAL scores) between SBHC Users and SBHC Non-users, across grades 3, 4, and 5?

RQ4: Is there a difference in academic performance (as measured by final grades, NJASK scores, and LAL scores) between primary SBHC services used (physicals, immunizations, and mental health) and primary SBHC services not used (physicals, immunizations, and mental health), across grades 3, 4, and 5?

Hypotheses

To assess the research questions, the researcher posed the following hypotheses. The hypotheses include null and alternative hypotheses. The null and alternative hypotheses for the current study, based on the research questions stated previously, were as follows:

H₀1: There is no relationship between SBHC use, SBHC non-use, and academic performance (as measured by final grades, NJ ASK scores, and LAL scores) across grades 3, 4, and 5.

H_A1: There is a relationship between SBHC use, SBHC non-use, and academic performance (as measured by final grades, NJ ASK scores, and LAL scores) across grades 3, 4, and 5.

H₀1A: There is no relationship between SBHC use and academic performance.

H_A1A: There is a relationship between SBHC use and academic performance.

H₀1B: There is no relationship between SBHC non-use and academic performance.

H_A1B: There is a relationship between SBHC non-use and academic performance.

H₀2: There is no relationship between primary services offered by SBHCS (physicals, immunizations, and mental health) and academic performance (as measured by final

grades, NJ ASK scores, and LAL scores) across grades 3, 4, and 5.

H_{A2}: There is a relationship between primary services offered by SBHCS (physicals, immunizations, and mental health) and academic performance (as measured by final grades, NJ ASK scores, and LAL scores) across grades 3, 4, and 5.

H_{02A}: There is no relationship between the primary service “Physicals” and academic performance.

H_{A2A}: There is a relationship between the primary service “Physicals” and academic performance.

H_{02B}: There is no relationship between the primary service “Immunizations” and academic performance.

H_{A2B}: There is a relationship between the primary service “Immunizations” and academic performance.

H_{02C}: There is no relationship between the primary service “Mental Health” and academic performance.

H_{A2C}: There is a relationship between the primary service “Mental Health” and academic performance.

H₀₃: There is no difference in academic performance between SBHC users and SBHC non-users across grades 3,4, and 5.

H_{A3}: There is a difference in academic performance between SBHC users and SBHC non-users across grades 3,4, and 5.

H₀₄: There is no difference in academic performance between primary SBHC services used (physicals, immunizations, and mental health) and primary SBHC services not used (physicals, immunizations, and mental health), across grades 3, 4, and 5?

H_{A4}: There is a difference in academic performance between primary SBHC services used (physicals, immunizations, and mental health) and primary SBHC services not used (physicals, immunizations, and mental health), across grades 3, 4, and 5?

Ethical Concerns, Assumptions, Limitations, and Delimitations

When conducting a study that includes human subjects, the researcher took a number of ethical concerns into consideration (Cozby, 2007). The first thing the researcher did was to obtain ethical approval from the Institutional Review Board (IRB) in order to conduct the study. Once approval was granted, the researcher provided each of the participants with an informed consent form illustrating the main components of the study. As listed by Cozby (2007), first, these forms should include the purpose of the research along with the expected duration of the study and procedures that are involved. The second is that the participants have the option to decline or withdraw from the research once the research has begun, while the third is that the potential participants know the consequences of declining or withdrawing. This included the principal's willingness to accept or decline the researcher's ability to use the school's databases for the current study.

The assumptions of this study were that the school selected would be representative of all the elementary schools in the target population. If the school is representative of the target population, this will allow for the generalization of the findings of the study in the respective school district. This required selecting a school that is representative of the target population in terms of demographic and social characteristics. The researcher assumed that the students selected for this study would have identical methods for calculating their GPA. All schools in the respective school district use the New Jersey State Core Curriculum Standards to measure students' academic achievement.

Limitations to this study are those that the researcher is unable to control. A limitation to this study was the fact that the researcher was unable to control for the subjects participating in the study; the sample came from a small cohort that the researcher obtained through a convenience sample. The participants were comprised of students from a school where the administrator was willing to consent to use their school databases for the study. The second limitation to the study was that the data of the sample set are retrospective, and already a part of the students' cumulative school record. The quantitative nature of the study may have limited the results, in that the researcher could not ask follow-up or probing questions.

The delimitations of the study are those that illustrate the boundaries that the researcher imposed. In turn, the delimitations of the studies are those that limit the outcomes, thus generalizing the findings to the target population and to the school district from which the researcher culled the data. Additionally, only one school represented the target population. The researcher studied one school with students using SBHCs and students not using SBHCs. As a result, this school may not be representative of other school districts, such that generalizations are limited to the specific school district. The researcher attempted to select a school that has similar methods for calculating the students' GPA, as well as a school that is representative of the target population in terms of demographic and social characteristics.

Summary

The health of students in elementary or secondary schools is an important aspect over the past several decades in the United States. One way of assuring that these students mature and engage in meaningful productive lives that positively contribute to society is to provide them with access to health clinics on site. A School-based Health Clinic (SBHC) is an onsite clinic located within the school premises providing comprehensive services to students. These services

address specific healthcare needs of students needing medical care.

Providing the students with access to healthcare clinics on site has been a powerful tool in maintaining and assessing the health needs of those students; however, ensuring that all schools have healthcare access is a significant challenge. For this reason, not every student in the United States has sufficient healthcare resources at their schools. As a result, students may be forced to miss classes or school entirely due to illnesses or injuries that require treatment outside of the school.

The positive impact of school health services is reflected in the literature review, which includes school-based and school-linked health services on prevention, counselling, and health promotion. The possibility of reducing child health disparities is a relevant concern in school districts. Assessing the causes and consequences of health disparities in schools is becoming a primary indicator in evaluating the effectiveness of our overall healthcare system. The role that SBHCs play in addressing school health promotion speaks to the outcomes of improved academic performance, and healthcare reform for children, which ultimately influences their adult social status. A child's health as a student has implications over one's entire life. Therefore, poor health impacts children educationally, creating social consequences that reach into adulthood.

The purpose of the study was to assess if there is a significant difference in school attendance and academic performance among students that use school-based health clinics (SBHCs) and those that do not. The research lends insight to school-based health practice, and the relevance SBHCs possess in rendering medical care to underserved underprivileged students in urban communities. Although health and social status are often considered to act independently of each other in influencing students' educational success, they are more likely to

interact, creating and sustaining health disparities among urban community students. Addressing healthcare early in life is a significant indicator of students' educational success.

Research has suggested that educational participation and academic performance play meaningful roles in identifying why students with poor health status do not display increased learning readiness levels unlike their peers with adequate healthcare status. Researchers across health, sociological, and educational disciplines have suggested the significant contribution of SBHCs in school districts. Assessing the relationship between SBHCs and academic performance in the urban community increases the potential for school health to contribute in a distinctive way that addresses the educational development of students. The relationship of school health to academic performance is suggestive of a profound role in producing a student Diaspora, empowered with healthier choices leading to meaningful successful lifestyles that contribute to society.

CHAPTER 2: LITERATURE REVIEW

Introduction

Providing school-based health services to young people is increasingly acknowledged for its capacity to give students something comprehensive, easily accessible, and in-tuned to their confidentiality requirements within a very familiar and safe environment (Chase, Goodrich, Simon, Holtermann, & Aggleton, 2006). Furthermore, these school-based services can establish a connection between health-related issues through the curriculum and the practical support necessary to assist young individuals in learning how to be responsible for their own health and wellbeing (Chase et al., 2006). According to West Side Community Park Center, there are many barriers concerning why people are not convinced to go to a hospital or health centers. People do not make use of available services because first, their level of poverty and education may not be sufficient to know that they should seek preventative care from doctors. Secondly, they may lack health insurance, which makes it hard for them to consult with someone on proper healthcare.

Problems with Access to Healthcare

School-based health clinics in urban communities offer the benefit of convenience for students and parents. They provide readily available and convenient healthcare access. In addition, because they employ the services of people from various sectors of the community, such as the medical health professionals, parents, and community planning organizations, school-based health clinics are in the position to enact positive changes in the community that cater to the diverse needs of its members.

A community can also gain from SBHCs because they provide accessibility to people who are uninsured, as well as unequivocal attention to their health needs. Students can access healthcare during the times that they need it without actually missing school. This adjusts student

attendance and enhances their academic performance. Early life-saving warning signs can come from these school-based health centers as well. These centers provide other child care services, as well such as “child visits, primary care, sports physicals, immunizations, dispensing of daily medications, lab services, health promotion, counselling, referrals, home visits, HIV testing and chronic disease management, making the center very valuable for communities” (Dowling, 2009).

Schools are the optimal place to entrust accessible and relatively stable interventions for children, and to promote school connectedness during a time of multiple transitions (Bond et al., 2004; Dwyer & Wyn, 2001; National Research Council and Institute of Medicine [NRCIM], 2002; Willms, 2003). The intervention programs implemented in schools bring about better educational and health outcomes (Bowlby, 1980; NRCIM, 2004). That is why health reforms, especially those that propose budget cuts, always pose a threat for not only the center, but for the whole community as well (Dowling, 2009).

State-funded services such as SHBCs are always affected by reforms by the federal government. Reforms implemented in earlier years have had an impact on SBHCs. The greatest benefit a community can gain from having an SBHC in their district is that it helps the students and their families overcome financial and other socio-economical barriers that limits them from accessing healthcare services (Steinschneider, 1998). SHBCs assist in resolving the dilemma of lacking health insurance, difficulty in transportation, and inadequate attention to the population’s needs, since the clinic is based at school within the community. However, because these centers are state-funded, they commonly face the challenge of acquiring stable sources of funding and enough resources to meet the health needs of all their users or patients. SHBCs also have the challenge of obtaining reimbursements from private and public insurers. Brindis et al. (2003)

observed that sustainability is always a problem for SBHCs, mainly because they lack the stability in their financial inflows. They survive only because they offer accessibility to the uninsured and those who cannot afford expensive healthcare services. Due to their ease of access and services provided, SBHCs indirectly enhance the academic performance of the student users. Additionally, the study of Brindis et al. (2003) illustrated how SBHCs survive in their precarious position by learning to adapt and implanting quality assurance mechanisms.

With these financial challenges brought on by their status as state-funded operations, healthcare reforms by the federal government can therefore affect the people greatly. According to the Health Reform study, reforms that would increase access to insurance coverage would help the SBHCs face their challenges, because more people would receive quality healthcare (NASBHC, 2009).

In light of President Obama's healthcare reform commitments, there are a myriad of implications for SBHCs. The reform in debate addresses how to increase access to healthcare by lowering costs for Americans. Initially, the reform proposed some threats for the SBHCs; the White House suggested that the healthcare reform legislation eliminate the SBHC program in order to cut costs. State-wide, the proposed cuts make up an anticipated loss of \$4.7 million in SBHC funding. NASBHC addressed the threat by quickly mobilizing and appealing to the White House through calls and emails. No cuts have yet been made (NASBHC, 2009).

Despite these threats, the NASBHC seized the opportunities presented by the health reforms. This organization identified opportunities that will promote school-based healthcare. In particular, one amendment that the NASBHC proposed was accepted, and now there is a requirement in place relative to cost-based reimbursement for SBHCs. This is a major milestone, considering the financial challenges faced by SHBCs. Furthermore, the NASBHC Assembly was

integrated the authorization language into the H.E.L.P. Bill. The NASBHC Assembly's bill was able to survive discussions of amendments that would have deteriorated the operations of SBHCs if otherwise implemented. Another breakthrough was the establishment of a 2-year competitive grant program that would provide SBHCs funds and assistance at a time when other programs are suffering from budget cuts (NASBHC, 2009).

This funding reflects government and community advocacy of SBHC operations, which significantly aid in maintenance and sustainability amidst threatening financial challenges and reforms. The government, community, and the school should be cognizant that budgeting is critical for the school-based health centers, especially for the benefits they bring to the entire community.

Theoretical Framework

The study operated on the premise of two conceptual theories. The first was a marketing theory, which focuses on convenience as the reason why consumers may opt for one service over another. The second was a concept which connects the status of one's physical health to one's performance in school. These two ideas combined helped to explain how SBHCs are important in supporting the American urban community.

The first theory deals with the role of convenience in marketing goods and services. Defined as anything that is intended to save time, resources, or frustration, convenience is rapidly becoming a determinant in consumer decision making (Farquhar & Rowley, 2009). Various other sources have supported this idea, posited by Farquhar and Rowley. As early as 1958, Kelley had already determined that convenience assumes importance as a determinant of patronage. This concept is true for marketing strategies for a variety of products, ranging from everyday consumer goods such as food to more specified needs such as pharmaceuticals.

According to Gladson (1990), the changes in the structure of the American family have contributed to the increased need for convenience goods. With both spouses working to provide for the family, it has become increasingly important to Americans that they be able to meet required expectations expeditiously (Gladson, 1990). In 1999, Elitzak reported that the costs of food production in the United States had risen dramatically, in an effort to provide food that is in a form that is considered convenient—namely, cleaned, marinated, packaged, and practically ready to eat. The rising trend for online shopping is also driven by the consumers' need for convenience. As an example, Chang and Dibb (2006) found that using the Internet to replace actual travel increased service convenience to consumers, thus allowing them to save time and effort in securing necessary products. Given this concept, Chang and Dibb concluded that e-service businesses are capable of constantly providing desired consumer convenience. Figure 1 illustrates convenience theory.

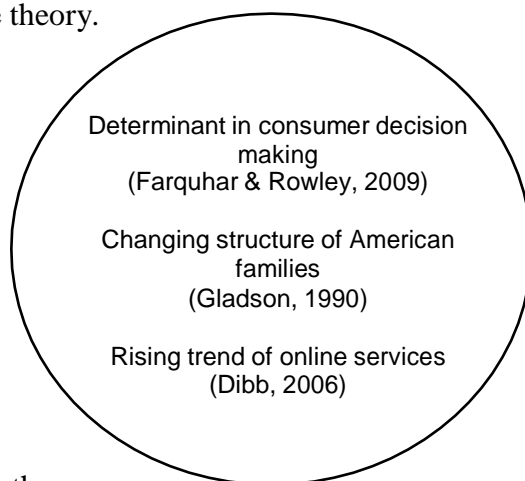


Figure 1. Convenience theory.

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The second concept on which this study was based postulates that academic performance is bolstered by good health status in students. A study conducted by Behrman in 1996 found strong associations between child health and nutrition and educational achievement. Rungo (2008) found that children who are in a better state of health are able to start schooling at an earlier age. Lehrer, Ding, and Rosenquist (2006) conducted a study that explained the correlation

between health and education. Their study examined the effects of various health conditions such as obesity, ADHD, and depression on the academic performance of adolescents. This study found that poor physical and mental health had an adverse effect on the academic performance of their respondents, particularly on the female students. In support of this, the California Education Supports Project (2009) revealed that the health status of students has a direct effect on academic performance, particularly dropout rates, attendance, and the ability to reach academic achievement goals as mandated by the state. The report published also stated that “student health is a strong predictor of academic performance... yet an overwhelming number of students come to school with a myriad of health problems that compromise their ability to learn” (California Education Supports Project, 2009, p.2). Dilley (2009) concluded that not only are health and education linked to each other, but academic success can also be vastly affected by every health risk. These health risks are not just limited to physical health risks, such as outright illness, but also include unhealthy behaviors such as too much consumption of sugar, smoking, and drinking; watching too much TV; and insufficient exercise. In conjunction to this work, Hanson and Austin (2002) also linked positive academic performance with environmental health factors such as perceived school safety and external assets such as resilience. According to Hanson and Austin, this sense of resilience relies upon the presence of three protective factors in the school environment: caring relationships, high expectations, and opportunities for meaningful participation. The development of these factors correlates not only to positive academic performance, but also to low involvement in risky behaviors and positive youth development. Figure 2 illustrates health and academic performance theory.

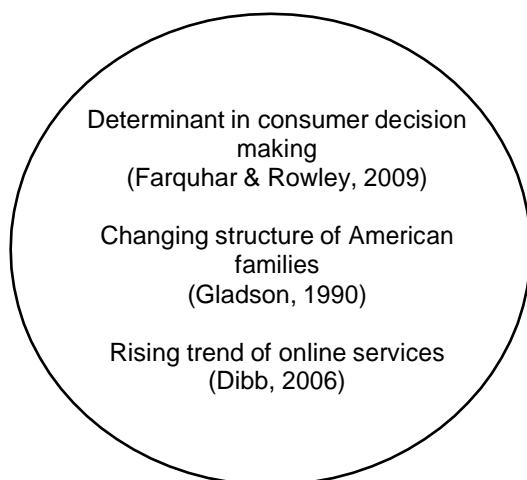


Figure 2. Health and academic performance theory.

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SBHC implementation combines these two concepts, advocating for improved health care access and academic performance in school-aged children. Because SBHCs are located on school grounds, they can provide a comprehensive range of health services from within the heart of the community. Figure 3 illustrates the merging of convenience theory and health and academic performance theory.

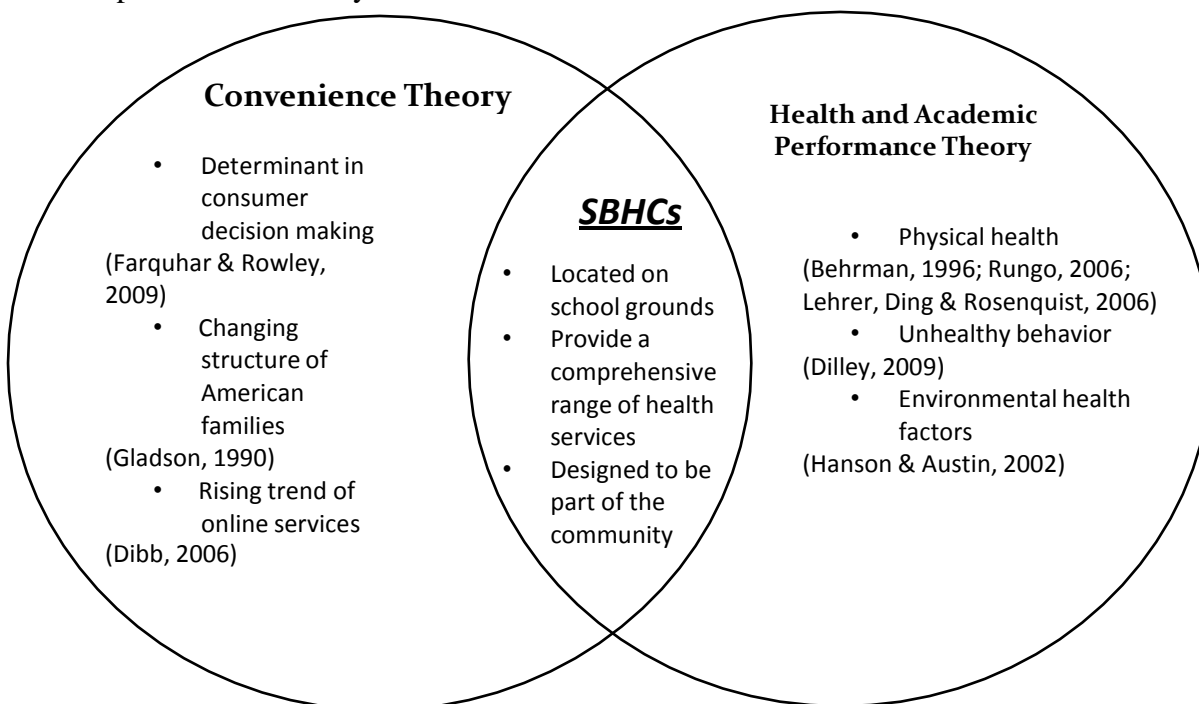


Figure 3. SBHC implementation.

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Operational Definitions

There are two types of SBHCs that vary slightly in form, methodology, and structure: school-based health clinics (SBHCs) and school-linked health services. Both are programs that attempt to improve upon and expand the services provided to help students with the goal of positively influencing academic performance through physical, mental or academic connection.

School-based Health Clinics

A School-based Health Clinic (SBHC) is an onsite clinic located within the school grounds that provides a comprehensive range of services to students. In 2000, Weinick and Krauss discussed that SBHCs have also been a vital link and community voice in school healthcare within the American school districts. Acosta, Weist, Lopez, Shafer, and Josefina (2004) explained that SBHCs offer mental health services that can address the students' needs and lend insight to the concerns of school staff. These services target the specific healthcare needs of the youth community (NASBHC, 2008). These onsite clinics become a part of the school community, as healthcare practitioners and others involved strive to become leaders, mentors, and instructors of healthcare, and hope to provide beyond the necessary medical and health services to students with illnesses.

SBHCs employ practitioners who provide comprehensive care to students in multi-faceted areas of healthcare. These areas may include general practitioners such as physicians, nurse practitioners, registered nurses, and physician assistants; mental health specialists such as social workers, alcohol counsellors, and drug counsellors, and other varieties of health professionals (NASBHC, 2008). Students use the services of the SBHC for school nurse medication administration, preventative care, mental health counselling services, dental care, and emergency care during the school day. SBHCs provide services through a qualified health

provider such as a hospital, health department, or medical practice. The developers of this program recognized the need to enhance primary and preventive healthcare of family with low-income, high-risk communities. Compared with other health centers, SBHCs give more focus in preventing illness leading to disabilities and hospitalizations. These precautionary measures are given to each student who enrolls. Parents are required to sign written consent forms in order for their children to be allowed the full scope of available services within the school perimeters (NASBHC, 2008).

School-linked Health Services

School-Linked Health Services (SLHS), the second type of school-based health centers, are similar to the school-based health clinics in that they provide healthcare services in a readily accessible manner to youths. However, these clinics are often mobile, meaning that their availability to the student body may be intermittent as they frequently serve more than one school system. While this could be considered a drawback in an urban community school with a large student body, these types of clinics are well-suited to travel and cover the distance required to service a greater amount of students in suburban and rural areas. SLHSs may provide more options for youths in need of healthcare. The healthcare offered often varies depending on the geographical makeup of the served area. SLHSs also frequently provide extended office hours beyond those of the school day, and provide a larger range of services because they serve more than one youth community, such as multiple schools in a district, and the needs of each community may vary from another (NASBHC, 2008). Regardless of which form is available in the community, both health clinics decrease barriers to accessing healthcare, because school is the center of community healthcare activity.

Benefits of SBHCs

Effects on Overall Well-being of Students on Urban Communities

School-based health centers have decided effects on society, some of which include the well-being of the students, their academic performance, attendance, self-esteem, and school connectedness. One of the most significant benefits to students of school-based health clinics in the urban communities is that, aside from the ready availability of convenient healthcare access, some SBHCs employ a board of advisors consisting of medical professionals, parents, youths and community planning organizations to help provide direction and insight into the diverse needs of their client population. These advisors provide keen insight into the school community's challenges and obstacles. These advisors are best equipped to collaboratively arrive at viable solutions to these problems like teen pregnancy and discrimination. The student community is more likely to accept solutions obtained in this manner. There is frequently cultural distrust for the medical profession in underserved, under-privileged communities. By involving the community in the healthcare process, the population determines feasible solutions that address health disparities within these communities (NASBHC, 2008).

Another significant benefit of these clinics is that they allow for the pooling of community resources and knowledge, benefiting every child that needs care. The lack of healthcare challenges students' learning capabilities, as well as teachers rendering instruction for their students. Armed with the insight of a healthcare provider's familiarity with students' life circumstances, teachers are better able to understand the underlying causes of a student's poor or struggling performance and to offer the right type of assistance at the right time. Teachers benefit from this type of whole student understanding provided by SBHCs to accurately assess the performance of their students and provide the support that students need to succeed

academically.

The greatest benefit students report is the confidentiality provided by the SBHC (Brindis et al., 2003). Students have demonstrated that they feel more comfortable seeking medical attention for high risk behaviours such as sex, drugs, and violence when they understand that the SBHC is held to a high level of confidentiality as provided by the Health Insurance Portability and Accountability Act (HIPAA), and that the healthcare providers will work with them directly and according to their needs to help resolve any issues (NASBHC, 2008).

Existing HIPAA protocols allow SBHCs to mentor students directly. SBHCs have demonstrated not just a positive influence over high school aged students who exhibit high risk behaviours, but also promote them to interact with both community and school programs. (Brindis et al, 2003; Gall, Pagano, Desmond, Perrin & Murphy, 2000). Researchers have postulated that if SBHCs are able to influence high school aged youth, and direct toward health promoting behaviours, they may be even more successful academically at the elementary and middle school levels. Students in these age groups are more easily influenced by adult leaders, and have fewer years of detrimental habits to overcome.

Due to their functional difference, the way school-linked health centers benefit users is different from how school-based health clinics (SBHCs) benefit users. According to Fothergill (1997), SLHCs appeal to young people because they give aid to adolescent health and answers questions regarding their development issues. All the providers are experienced in serving this particular population. Most school-linked health centers (SLHCs) make an extensive array of general medical services, counseling services, reproductive healthcare, and social services intended for adolescents available.

By supplying wide-ranging services, SLHCs can respond to several problems at one time;

thus, adolescents have one central place to go for all their medical needs. Aside from these services, most SLHCs' staffs follow specific procedures to assist and support adolescent use of services, including calls reminding them of appointments and conducting follow-up. The special relationship between school-linked health centers (SLHCs) and schools gives them a unique advantage over other community-based models of care since they are not restricted in the kind of interventions they can offer. One example would be that some of the school-based health clinics (SBHCs) cannot distribute contraceptives to young students because they do not provide family planning inside the school grounds. The special relationship that the SBHC develops with the school guarantees two-way referrals, consultations, and overall improvement of quality and continuity of care (Fothergill, 1997).

One more important advantage of the SLHCs over SBHCs is that they have more independence or autonomy to make decisions with regard to the scope of services. All of the SLHCs' programs are located on sites that are convenient to different schools and neighborhoods, thus serving more than the school population. This enhances the access of adolescents to the services that SLHCs provide, and is less costly than establishing health centers within each school.

When a SLHC serves junior and senior high schools, then the care offered is continuous and consistent throughout the adolescent years (Fothergill, 1997). Furthermore, SLHCs are in better position to discuss and negotiate with managed care plans, while the SBHCs are not as independent and experience more restrictions in billing clients. SBHCs are less capable of meeting the stringent criteria imposed by the managed care plans (Fothergill, 1997).

Both types of school-based health centers have demonstrated clear benefits that are unique to the school health concept (Nelson & Quinney, 1997). Both types have also

significantly evolved in their efficiency in providing services. As discussed in the study of Waszak, Peak, Neidell, and Hyche-Williams (1991), the Center for Population Options conducted a survey that assessing the effectiveness of 183 school-based and school-linked clinics on facilitating on-site provision of contraceptives to adolescents in 1990. This research assessed the preparedness of the clinics. The researchers discovered that only 48 of the clinics surveyed had contraceptives available. Those who distributed contraceptives were those funded by community health centers, while those who did not have contraceptives available relied on the budget from health departments, city government, or private foundations (Waszak et al., 1991).

A more recent study conducted in 2003 suggested that SBHCs and SLHCs are more effective and prevalent in specific communities. Distribution of condoms and other prevalent health related services such as free screenings and referrals that empower needy communities further justifies the need for these services. These school-based health services provided their greatest service by disseminating this much-needed health information (Thistle, 2003).

According to Kirby, Short, and Collins (1994), in their review of 23 studies published about school-based programs, they found there were specific sexual health programs that actually delay adolescent and teenage sexual activity. These programs reportedly lower the frequency of intercourse and sexually transmitted diseases (STDs), decrease the average number of sexual partners, as well as increase safe sex activities such as using condoms and other contraceptives. Moreover, these school-based programs have demonstrated effectiveness in health promotion by using preventive measures in reducing potential exposure to unwanted and early pregnancies. These programs also aid in reducing vulnerability to sexually-transmitted diseases and HIV infection.

The latest research by Strunk (2008) suggested that school-based health clinics can also

be useful in providing support and guidance in response to negative outcomes associated with early teenage pregnancy and parenting. For example, in cases of teenage pregnancy, students would have the school-based health clinics, nurse practitioners, and the school nurses to guide them throughout the process. They can access needed services such as educational support, counselling and community resources (Strunk, 2008). The number of teenage pregnancy decreases when there is an established school-based health clinic. This is beneficial for the students and the community, since the children receive proper guidance regarding personal and emotional health.

Effects on Academic Performance

Effect on academic achievement. In this portion of the literature review, the researcher focuses on the link between school-based health clinics (SBHCs) and the improvement of the student-users in relation to their academic performance. There are students who regularly use either school-based or school-linked health clinics for their healthcare services. These students have reported feeling a connection with their healthcare providers, since they established a relationship and became their confidants. Additionally, these students had greater academic success in terms of staying in school, promotion and graduation (Thompson, Lachan, Overpeck, Ross, & Gross, 2006).

Thompson et al. (2006) culled characteristics of schools from data maintained by Quality Education Data, and school neighborhood characteristics, which the researchers derived from the 2000 decennial census. School connectedness was the independent variable, defined as the “likability” of the school on behalf of the students, as well as the presence of positive relations between students and teachers. The dependent variables in the study were varied and included observed characteristics of students, schools, and school neighbourhoods. This data

demonstrated the connection between the dependent and independent variable proposed by this study. Outcomes suggested that the rate of school connectedness is higher in schools with smaller, more racially homogenous and wealthier student populations (Thompson et al., 2006).

Some of the students in the study by Thompson et al. (2006) were enmeshed in difficult life circumstances, such as teen pregnancy, parenthood, and living independently from their parents. These students were among the groups of students most likely to drop out or otherwise not graduate from school. The study credited the connectedness of the students to their SBHC providers, and thus, to their teachers as a community of support rather than as another obstacle to overcome in an already difficult set of life circumstances. The supportive community of school health providers and teachers were primary factors that kept these high-risk students in school. This underscores the SBHCs' role in providing for the psychosocial needs of students with otherwise limited access to healthcare.

Thompson et al. (2006) contended that school-based health clinics (SBHCs) and academic performance have a direct and positive relationship. Furthermore, this reinforced the finding of earlier studies by McCord, Klein, Foy, and Fothergill (1993), which examined the effects of having a SBHC in urban communities where socio-economically deprived families could rely on the school system to support them by providing healthcare to their children. The findings suggested that as a direct result of having access to the SBHC, one school system in New York City improved student attendance, promotion, and graduation rates, and reduced the rates of suspension and withdrawal from school.

A published report on education claimed that healthy students are more successful in school (Keshishian, 2009). Barbara Keshishian, President of the New Jersey Education Association, asserted that health status during childhood and adolescence influences children's

educational success. Keshishian stated that educators instinctively understand that healthy students have great academic advantages: they are in class more often, and are better able to learn and focus during classroom instructional time. Educators are also positioned to strongly advocate for students to have access to the medical services they need. Educators realize that with readily available healthcare, students come to school strong, healthy, and ready to learn. (Keshishian, 2009).

Researchers have established an important link between childhood health and academic achievement. Sociologist Jackson (2009) suggested that students struggling with a health condition are apt to miss more days of school than their peers. Without a proper safety net to compensate for missed schoolwork and learning, adolescents fall behind academically and perform poorly on learning assessments both within and outside of school. Jackson also contended that there may be subjective limitations associated with poor adolescent health, which translates into reduced educational attainment.

Using nationally representative data from adolescents in the National Longitudinal Survey of Youth 1997, with educational attainment as the dependent variable and health, social, parental, academic mediators, and demographic characteristics as independent variables, Jackson assessed variation in the link between health and educational attainment by race/ethnicity and socio-economic status. Jackson also assessed the role of several academic factors related to participation, performance, and expectations that may lend insight on the link between adolescent health and educational attainment.

Jackson's research outcomes on the relationship between health and educational attainment in adolescents were multidirectional. The findings suggested that adolescents with poor health are less likely to graduate from high school in a timely manner and are less likely to

attend college. The findings also reflected that the adverse educational consequences of poor health are not limited to one subgroup of the population, but span the socio-economic spectrum when defined by ethnicity and race. Lastly, the findings demonstrated that educational participation and performance play meaningful roles in explaining why adolescents with poorer health status attain lower educational status levels.

Following Jackson's (1997) findings, Mirowsky, Ross, and Reynolds (2000) claimed that the link between social status and health may be partially explained by the diverse beliefs and choices people make in shaping their success. Mirowsky et al. (2000) asserted that those who are on the low end of the socio-economic spectrum may believe more strongly that their outcomes are out of their control. Although this theory has typically been applied in explaining socio-economic disparities in health, it also lends to examining the relationship between health disparities and students' academic achievement.

Effect on student attendance. One way that SBHCs reduce student dropout rates or increase student academic achievement overall is from the centers' impact on student attendance. Attendance is the number one determinant of the connectedness between students and their school community, whether this is high or low (Weismuller, Grasska, Alexander, White, & Kramer, 2007). Weismuller et al. found that since attending school regularly is a necessary part of the learning process, being absent most of the time has a direct negative effect on academic performance.

Foy and Hahn (2009) studied the operations of an onsite, community school-based health center by Vallejo City Unified School District over a 4-year operation. The researchers gauged the relation to the clinics effect on students' exclusion rates reduction and increase in student school attendance. One of the primary goals of the clinic was to reduce student absences.

Attendance benefits not only the student and his or her family, but also prevents any budget cuts of the school district's state funding. In the 4 years since the health center started operations, the high exclusion rate of first grade students due to the inability to meet the state-mandated physical examinations dropped by 74%.

This reduction in rates translates into increased school attendance and increased financial funds for the school district. In other words, this improved attendance rate also led to school-based health being protected in times of school district financial difficulties from budget cuts. This center also decreased hospitalizations due to asthma and demonstrated improved immunization rates. Foy and Hahn (2009) claimed the center is successful because it fills a void that "benefits the children, their families and the community" that it serves. Researchers have also claimed that the center bridges the gap between those children who can access healthcare because of their insurance and those cannot do so because they are uninsured. This study also suggested that the center is very well-accepted by the community; the school district provided more funding, allowing the clinic to operate another larger school-based health center in other underserved Vallejo areas in the spring of 2009 (Foy & Hahn, 2009).

According to Kearney (2007), absenteeism from school is a grave public health matter for mental health professionals, physicians, and educators. The occurrence of unexcused absences from school exceeds that of major childhood behaviour disorders, and is a main risk factor for adverse behaviours such aggression, injury, substance abuse, psychiatric disorders, and economic difficulty. According to Kearney, one important determinant or precursor to absenteeism is the school climate. This refers to how the students feel about their school and its environment and the level of support they receive academically, socially, and physically. The study also looks at the connectedness that students feel for their school. School climate and connectedness may also

encompass positive classroom management, participation in extracurricular activities, and considerate disciplinary procedures. The feeling of safety, acceptance, belongingness, worth, and respect are all aspects of school connectedness for the student (Kearney, 2007).

Kearney (2007) showed that school attendance is directly related to academic achievement and inversely related to school dropout rates. Students who are always absent from class or show irregular attendance rates are at higher risk of delinquency and dropping out of school. They will have more problems in adulthood as well, whether it concerns their job, their marriage, or their general emotional and social well-being. However, youths who receive intervention for these problems, whether received from parents or school, may be at decreased long-term risk.

According to Weismuller et al. (2007), the presence of school nurses can be very effective in addressing the issue of school absences. The researchers described the effect of school nurse interventions on both lower rates and decreasing the rate of student absenteeism because of their increased interaction with students who are absent from school. The study also assessed how school nurses helped promote overall student health by giving health guidance to the students.

Conducting a retrospective review of 240 randomly-selected elementary student health folders and attendance records, Weismuller et al. (2007) found that school nurses interact closely with students who have high absences compared to low-absence students—the rate was 75% versus 66%, respectively. This is revealing, especially since there were no referrals mentioned requiring these students who were absent frequently to see the school nurse. Nor were there any school nurse interventions targeted towards attendance, yet the study suggested that school nurses were very much involved with students who had previously identified acute or chronic

health conditions (Weismuller et al., 2007).

According to Geierstanger, Amaral, Mansour, and Walters (2004), there is a strong correlation between student attendance (including absenteeism and tardiness) and SBHCs. Students are more likely to attend school if there is an SBHC available, because this provides a margin of health safety and security for the students. It provides them with resources to utilize when they have health concerns, especially on days that they become ill (Geierstanger et al., 2004).

Allen (2003) supported this argument by showing that the presence of school nurses who work full time may decrease the number of children who drop out of school for medical reasons. Allen investigated this by gathering the data related to student absences and student checkouts from 22 schools. The total student population was 10,000 students. The author found that a statistically-significant number of students dropped out of school for other reasons not considered health-related. Also, students who exhibited high absence rates demonstrated a tendency to compare their own academic achievement to that of their peers. This has the potential to lock students into a vicious cycle of substandard academic performance, reduced self-esteem, and physical illness, from which it is difficult to break (Allen, 2003).

Geierstanger et al. (2004) found a correlation between students' absenteeism, academic achievement, and self-esteem. A student who is frequently absent from school because of lack of access to healthcare is also likely to suffer in terms of self-esteem. This is because compared to their peers who have satisfactory attendance rates, learning the missed lessons is challenging for these students (Geierstanger et al., 2004).

Effect on self-esteem. Polkenon (2003) conducted an earlier study that assessed the three self-esteem variables: (a) positive thinking, (b) hope, and (c) resilience. Polkenon emphasized

the importance of self-esteem towards academic achievement. Students who are unable to keep up with their peers with regard to academic achievement are likely to suffer a decrease in self-esteem (Delgash-Pelish, 2006). Delgash-Pelish found that self-esteem is necessary for school-aged children's overall health. High self-esteem is connected to an enhanced academic performance, better health, and being creative as well as productive individuals. The researcher analyzed the effects of a four-lesson self-esteem enhancement program for 98 5th and 6th grade students who were divided into six groups. The four-lesson program is interactive. The program teaches children what self-esteem is, and how to acquire it. The program also exposes children to diverse media influences, consequences of hiding emotions, and various factors that could result in self-esteem changes.

The study utilized Coopersmith's Self-Esteem Inventory (SEI) to measure the participants' self-esteem before and after the lessons. The study asserted that self-esteem is quicker to change in girls than in boys. Changes in self-esteem were more prevalent for children with friends than those without. Also, the child's socioeconomic status determines his or her self-esteem level, with those children coming from a lower-income family having a decreased level of self-esteem (Delgash-Pelish, 2006).

Self-esteem is a significant factor for academic achievement as well as in life, and it should especially be boosted and maintained while students are still young. If young people are to achieve success in an increasingly competitive global environment, it is necessary that their academic achievement reflect their inherent ability. Students must also possess adequate psychological resources in meeting the challenges life throws at them. Other studies have claimed that this lack of psychological and emotional strength or could lead to the waste and erosion of a person's potential. Studies also show that self-esteem is one important aspect of an

individual's social and cognitive development (Berndt, 2002; Pulkkinen, Nygren, & Kokko, 2002; Wigfield, Battle, Keller, & Eccles, 2002).

The level of one's self esteem has significant important effects on academic performance and the overall adjustment of a person in his or her teenage years. There are cross-sectional studies that illustrated the direct relation of self-esteem http://0-www.sciencedirect.com.lib1000.dlsu.edu.ph/science?_ob=ArticleURL&_udi=B6WM0-4N25VPW-1&_user=688293&_coverDate=12%2F31%2F2007&_alid=1010697756&_rdoc=3&_fmt=high&_orig=search&_cdi=6920&_sort=r&_docanchor=&_view=c&_ct=25527&_acct=C000038398&_version=1&_urlVersion=0&_userid=688293&_md5=aedc6c28147062ab71ab093fb471f6ff-hit29 and academic performance (Baumeister, Campbell, Krueger, & Vohs, 2003). The most conclusive evidence can be derived from a large meta-analysis that gives a review of 128 studies by Hansford and Hattie (1982) demonstrating the expected results that self-esteem is indeed positively related with academic achievement and outcomes.

Moreover, there is an undeniable impact of self-esteem on overall adjustment and emotional states of students as well. Low self-esteem is associated with many behavioural and psychological problems. Several studies have suggested that depression, suicidal tendencies, aggression and victimization, delinquency, eating disorders, and low happiness levels are related to low self-esteem (Palmer, 2004; Pelkonen, 2003; Wild et al., 2004).

Similar results with respect to depression were noted by Ralph and Mineka (1998), who also observed that individuals with low self-esteem were less prepared to accommodate good news compared to those with higher self-esteem. As Baumeister et al. (2003) pointed out, not only is there evidence that low self-esteem is prospectively related to emotional states, but low self-esteem also has the ability to "poison the good times." Also, in a study conducted by Aunola, Stattin and Nurmi (2000) where over 1,000 students participated, the researchers

indicated that self-esteem was closely related to the low internalizing problem behaviors and significantly negatively related to parents' reports of adolescents' maladaptive achievement strategies.

Delgash-Pelish (2006) claimed that having a SBHC involved in the school community is one factor that could help break this maladaptive achievement cycle. Healthcare providers are able to collaborate with school faculty members in reaching viable solutions that promote students' self-esteem. This is because SBHCs in this circumstance provide the necessary support the students need physically as well as emotionally to boost their self-esteem (Delgash-Pelish, 2006).

With community cooperation between healthcare providers, faculty, and students, SBHC involvement could potentially improve academic performance and thus increase students' self-esteem. Self-esteem often correlates with their academic performance, particularly when students compare their performance to that of their peers (Delgash-Pelish, 2006). Apart from boosting academic performance by increasing attendance rates and the self-esteem of students, SBHCs are also capable of fostering school connectedness. As mentioned earlier in the Thompson et al. (2006) study, this is another variable that has an effect on increased academic performance.

Effect on school connectedness. McCord et al. (1993) found that SBHCs increased school attendance and reduced dropout rates in socio-economically deprived communities. These findings also revealed that it was the connectedness fostered by SBHCs that actually led to improved academic performance; this is not due to the improved access to services by the families within these communities.

This investigation led to the findings that aside from students being able to access the healthcare they need, the communities have a special sense of interdependence through the

SBHC venue. Community residents work on the same team for the benefit of the community's children by the SBHCs presence (McCord et al., 1993). This led to the improved academic performances of the students living within these communities.

Licata and Harper (1999) examined this sense of connectedness within the school community, and cited the importance of "healthy and robust school systems" (p. 463). This refers not only to the students within the school systems, but to the degree to which the school system functions as a positively contributing element to the community.

In another study, Geierstanger et al. (2004) found that schools with an increased sense of connectedness to their communities demonstrated a higher rate of helping students achieve academic success. This reported increased sense of connection also contributed significantly to health curriculum planning, safety precautions in schools, and strategic planning within school districts. This study suggested that teachers and students who feel connected to their school demonstrate increased instructional quality and significantly improved learning readiness respectively (Geierstanger et al., 2004).

Walker et al. (2009) attempted to examine the effects of SBHCs on the academic performance of high school students by utilizing a very well-controlled longitudinal model. The researchers also attempted to investigate whether there is a difference on the impacts of SBHC medical services from the mental health services. The participants of the study consisted of ninth-grade SBHC users and non-users. The duration of the study was for five school semesters, from the fall of 2005 to the fall of 2007.

Several studies have shown that both high connectedness to family and to school during adolescence are key areas where protective factors for positive educational outcomes and for lower rates of health-risk behaviors can be based (Blum & Libbey, 2004; Glover, Burns, &

Butler, 1998; Libbey, 2004; Resnick, Harris, & Blum, 1993; Resnick, 2000).

Research has further reflected that the students who do not engage extensively with learning or do not build pleasant relationships with their peers and teachers are the ones who are more likely to end up with substance abuse problems. They are community members who would eventually engage in deviant behaviour and socially disruptive activities, show signs of depression, have poorer adult relationships, and dropout from school (Barclay & Doll, 2001; Bond, Carlin, & Thomas, 2001; Bond, Dutton, & Glover, 2004; Catalano, Kosterman, & Hawkins, 1996; Marcus & Sanders-Reio, 2000; Resnick, Bearman, & Blum, 1997). Being disconnected from the school is demonstrated as the cause of several and far-reaching potential negative consequences. In particular, Resnick et al. (1997) defined school connectedness as the sense of safety, belongingness, love, and respect an adolescent has while in school. Using a cross-sectional study design to analyze risk and protective factors for eight different health risk outcomes among adolescents, the researchers found that among the eight scenarios, only school connectedness could be identified as the only school-related variable that protected students from every single health risk outcome. This finding was so significant that it encouraged state health departments and school boards to start evaluating how well they are doing in terms of promoting school connectedness, and motivated schools to start monitoring their successive operations in relation to this variable.

Similarly, various studies have also contended that negative school experiences are largely responsible for the feeling of disconnection or alienation for the young (Glover et al., 1998; Nutbeam, Smith, & Moore, 1993; Osterman, 2000; Samdal, Nutbeam, & Wold, 1998). These research studies emphasized the quality of relationships among students and teachers on learning engagement, health, and well-being. Relationships of poor quality led to unhealthy

behaviours and experiences such as being bullied or bullying others, hating the teacher, or feeling alienated. These feelings were attributed to poor academic performance, stress, and depression.

Different models explain how school connectedness can influence students to avoid unproductive and unhealthy behaviours. These models have identified aspects of school connectedness that are theoretically important to foster healthy adolescent development. One of these models is the social development model (Hawkins & Weis, 1985). This model posited that as students form a bond with their school, they are more likely to be interested and engaged in school lessons and activities that divert from antisocial and damaging behaviours (Hawkins & Weis, 1985).

School bond refers to the positive relationship a student has with school personnel, commitment to the school activities, and belief in the established norms of that school. Another related model is the social membership model, which posited that students who have higher sense of belongingness in school demonstrate increased academic performance and engagement, as compared to their peers (Battistic & Hom, 1997).

Another useful model is the social support model, which stated that student performance and engagement within a school comes from his or her perception of the support he or she is getting from his or her teachers and peers (Rosenfeld, Richman, & Bowen, 2000). Supportive communication and interaction lead to less uncertainty and increased engagement in school activities. All of these models suggested that SBHCs foster feelings of connectedness between the student and the school. This feeling of connectedness results in a positive impact on the student's academic performance.

Gaps in the Literature

Alternatively, the positive impact of school-related health services on several health-related outcomes have been documented in the studies reported here. The above discussion reflects the positive effect of school-based and school-linked health services on the prevention of early pregnancies and other sexual health related problems. The literature also contended that these health services, in conjunction with the school, ease the plight of those students who need medical care for the myriad of health disparities they encounter.

The study participants were compared in terms of their academic outcomes for this period through surveys. The study suggested that SBHC medical users attend classes more often than those who are not medical users. Outcomes also indicated that SBHC mental health services users saw their GPAs increase over time. However, the researchers gathered no significant findings regarding the students' discipline and behaviour (Walker et al., 2009). The results of these studies reflected how SBHCs generally have a positive impact on academic performance, but did not specify which aspect of academic performance improved. However, because these services are school-related, researchers should investigate whether the presence of these services would affect the students they cater to in terms of their academic performance. Although there are some studies that have suggested an indirect link between school-related health services and academic performance, there are very few empirical studies that have examined whether there is a connection between school-related health services such as school-based clinics and school-linked clinics on the academic performance of the students. Figure 4 illustrates the gap in the literature.

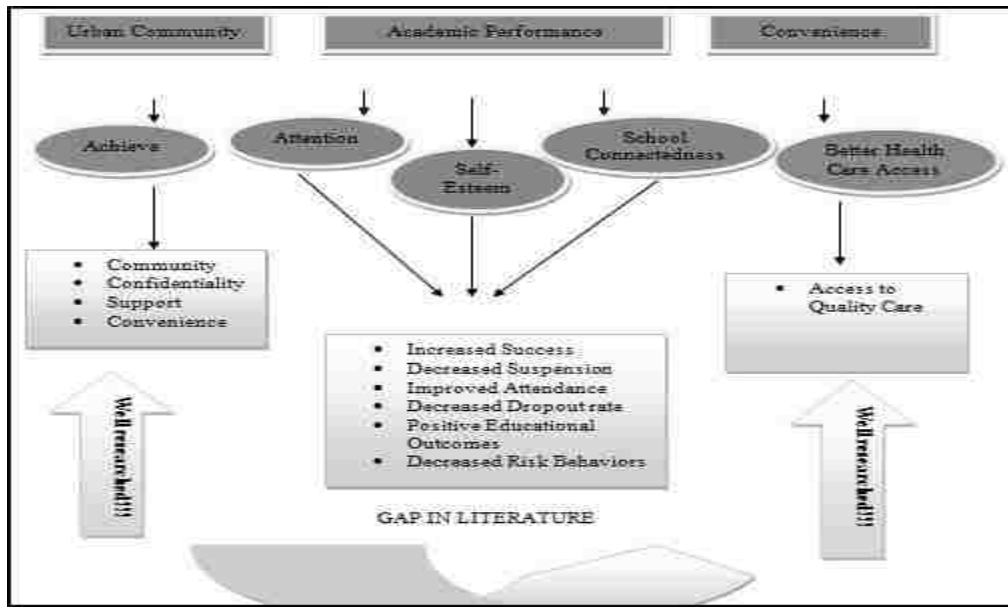


Figure 4. Gaps in the literature.

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This is supported by the study of Walker et al. (2009). According to Walker et al., this dearth of literature can be accounted for by difficulties in gathering related data due to privacy laws; “Limitations of self-report data for measuring academic outcomes, inability to make conclusive causal statements because of cross-sectional data or limited follow up, and the paucity of research studies that have employed control groups or well-controlled analyses.” This study’s main purpose was to know if having School-Based Health Clinics (SBHCs) or School-Linked Health Clinics (SLHCs) would have a significantly positive effect on students.

Conclusion

Previous studies on the topic of school-based health clinics (SBHCs) have revealed that school-related health services have an effect on the academic performance of student users, especially if the health services are based within the schools. Furthermore, the benefits of these health programs are not only for the students, but extend to the entire community as well. According to Foy and Hahn (2009), the centers fill a need in the community and the school. SBHCs offer convenience and accessibility by rendering care needed by students in a timely

fashion. SBHCs also increase the appropriate utilization of child services, improve immunization rates, and lessen the use of expensive emergency room visits. Asthma care, for example, is enhanced by these school-based centers, thus reducing hospitalizations due to this particular ailment. Moreover, a significant benefit offered by school-based health centers is that they provide access to medical assistance to those children without insurance.

The whole structure of accessibility can be quite unstable, especially since the entire enterprise is state or federally funded, and therefore very vulnerable to state decisions such as healthcare reform and budget cuts. Furthermore, there is still a dearth of studies analyzing the relationship between SBHCs and academic performance. To that end, this current research study was based on extensive school health and child health literature review across diverse educational, sociological, and psychological disciplines. This study investigated the effects of school-based health services on improving academic performance in urban community elementary students. This study assessed these students according to demographic and socio-economic factors. This study also identified the individuals who serve to benefit from these programs, by determining what SBHC services significantly contribute to students' academic success. This research study assessed how relevant SBHCs are in improving healthcare access in under-served urban school districts.

CHAPTER 3: METHODS

The purpose of the study was to determine if there is a difference in academic performance across schools that have access to school-based health clinics (SBHCs) and those that do not have access to SBHCs. A School-based Health Clinic (SBHC) is an onsite clinic located within the school grounds that provides a comprehensive range of services to students. These onsite clinics become a part of the school community, as healthcare practitioners and others involved strive to become leaders, mentors, and instructors of healthcare, and hope to provide beyond the necessary medical and health services to students with illnesses. SBHCs employ practitioners who provide comprehensive care to students in all different areas of healthcare, including general practitioners such as physicians, nurse practitioners, registered nurses, and physician assistants; mental health specialists such as social workers, alcohol counsellors, and drug counsellors; and other varieties of health professionals (NASBHC, 2008). In Chapter 3, the researcher presents the outline of the research design, the population, the data collection and analysis techniques, and the threats to external and internal validity for the study.

Research Design

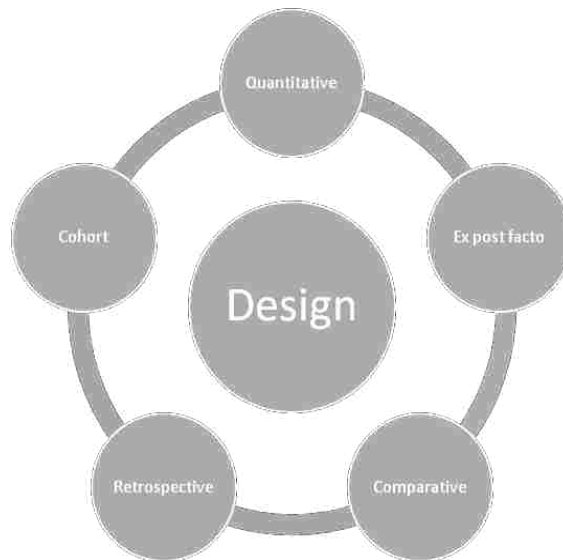
The research design of the current study allowed effective comparison through retrospective analysis of students attending schools with access to school-based health clinics (SBHCs) and students attending schools who do not have access to SBHCs. The researcher sought to determine whether students from schools with access to SBHCs would have higher academic performance measures than students from schools that do not have access to SBHCs. To measure the students' academic performance, the researcher compared the GPA scores between students attending schools with access to SBHCs and students attending schools that do

not have access to SBHCs. The researcher employed a quantitative, ex post facto comparative, retrospective cohort research design. The researcher collected historical data related to academic achievement and SBHCs through a district database.

The quantitative ex post facto design was appropriate for this study, since the objective was to determine whether there are differences between two types of schools when it comes to academic achievement. The schools were those with access to SBHCs and those without access to SBHCs. With the ex post facto design, the levels or categories for the independent variable were already defined or classified, so the researcher did not have the ability to manipulate or randomly assign individuals to certain groups. In the context of social and educational research, retrospective studies use ex post facto research, in which researchers assess cause-and-effect relationships using existing conditions or state of affairs (Cohen et al., 2000). Ex post facto researchers look back in time to determine any possible causes for the particular outcomes of interest. Additionally, the ex post facto design is appropriate when the events or treatments have already occurred and cannot be manipulated by the researcher (Cohen et al., 2000). The schools with access to SBHCs and without access to SBHCs are already present and, therefore, cannot be manipulated by the researcher, making the ex post facto research design the most appropriate for the current study.

The researcher used a quantitative research method for the study rather than a qualitative design, because with a qualitative design the researcher could not assess a direct relationship between two variables as result of the open-ended questions (Creswell, 2009). The responses received, based on the questions asked, were interpreted and coded to identify trends or themes in the responses of qualitative research designs. Moreover, qualitative research addresses different questions, such as the *how* and *why* questions of research (Yin, 2003). This was not the

purpose of the study. The purpose of the study was to determine if there is a difference in academic performance across schools that have access to SBHCs and those that do not have access to SBHCs. Figure 5 illustrates the study's methodology.



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Figure 5. Quantitative, ex-post-facto, causal comparative, retrospective cohort research design.

Research Questions

The following research questions guided this study:

RQ1: Is there a relationship between SBHC use, SBHC non-use, and academic performance (as measured by final grades, NJ ASK scores, and LAL scores) across grades 3, 4, and 5?

RQ1A: Is there a relationship between SBHC use and academic performance (as measured by final grades, NJ ASK scores, and LAL scores) across grades 3, 4, and 5?

RQ1B: Is there a relationship between SBHC non-use and academic performance (as measured by final grades, NJ ASK scores, and LAL scores) across grades 3, 4, and 5?

RQ2: Is there a relationship between primary services offered by SBHCs (physicals, immunizations, and mental health) and academic performance (as measured by final grades, NJ

ASK scores, and LAL scores) across grades 3, 4, and 5?

RQ2A: Is there a relationship between the primary service “Physicals” offered by SBHCs and academic performance (as measured by final grades, NJ ASK scores, and LAL scores) across grade 3, 4, and 5?

RQ2B: Is there a relationship between the primary service “Immunizations” offered by SBHCs and academic performance (as measured by final grades, NJ ASK scores, and LAL scores) across grade 3, 4, and 5?

RQ2C: Is there a relationship between the primary service “Mental Health” offered by SBHC and academic performance (as measured by final grades, NJ ASK scores, and LAL scores) across grade 3, 4, and 5?

RQ3: Is there a difference in academic performance (as measured by final grades, NJASK scores, and LAL scores) between SBHC Users and SBHC Non-users, across grades 3, 4, and 5?

RQ4: Is there a difference in academic performance (as measured by final grades, NJASK scores, and LAL scores) between primary SBHC services used (physicals, immunizations, and mental health) and primary SBHC services not used (physicals, immunizations, and mental health), across grades 3, 4, and 5?

Hypotheses

To assess the research questions, the researcher posed the following hypotheses. The hypotheses include null and alternative hypotheses. The null and alternative hypothesis for the study, based on the research question stated previously, is as follows:

H₀1: There is no relationship between SBHC use, SBHC non-use, and academic performance (as measured by final grades, NJ ASK scores, and LAL scores) across

grades 3, 4, and 5.

H_{A1}: There is a relationship between SBHC use, SBHC non-use, and academic performance (as measured by final grades, NJ ASK scores, and LAL scores) across grades 3, 4, and 5.

H_{01A}: There is no relationship between SBHC use and academic performance.

H_{A1A}: There is a relationship between SBHC use and academic performance.

H_{01B}: There is no relationship between SBHC non-use and academic performance.

H_{A1B}: There is a relationship between SBHC non-use and academic performance.

H₀₂: There is no relationship between primary services offered by SBHCS (physicals, immunizations, and mental health) and academic performance (as measured by final grades, NJ ASK scores, and LAL scores) across grades 3, 4, and 5.

H_{A2}: There is a relationship between primary services offered by SBHCS (physicals, immunizations, and mental health) and academic performance (as measured by final grades, NJ ASK scores, and LAL scores) across grades 3, 4, and 5.

H_{02A}: There is no relationship between the primary service “Physicals” and academic performance.

H_{A2A}: There is a relationship between the primary service “Physicals” and academic performance.

H_{02B}: There is no relationship between the primary service “Immunizations” and

academic performance.

H_{A2B}: There is a relationship between the primary service “Immunizations” and academic performance.

H_{02C}: There is no relationship between the primary service “Mental Health” and academic performance.

H_{A2C}: There is a relationship between the primary service “Mental Health” and academic performance.

H₀₃: There is no difference in academic performance between SBHC users and SBHC non-users across grades 3,4, and 5.

H_{A3}: There is a difference in academic performance between SBHC users and SBHC non-users across grades 3,4, and 5.

H₀₄: There is no difference in academic performance between primary SBHC services used (physicals, immunizations, and mental health) and primary SBHC services not used (physicals, immunizations, and mental health), across grades 3, 4, and 5?

H_{A4}: There is a difference in academic performance between primary SBHC services used (physicals, immunizations, and mental health) and primary SBHC services not used (physicals, immunizations, and mental health), across grades 3, 4, and 5?

Population

The population for the study were students in the Newark Public School District (NPS) who were currently enrolled in a public school having access to SBHCs. Schools that have SBHCs employ practitioners who provide comprehensive care to students in all different areas of healthcare, including general practitioners such as physicians, nurse practitioners, registered

nurses, and physician assistants; mental health specialists such as social workers, alcohol counsellors, and drug counsellors; and other varieties of health professionals (NASBHC, 2008). The researcher selected a sample of students attending a school that has access to SBHCs. The researcher compared the academic achievement scores between students who use the SBHC and students not using the SBHC to determine if there was a statistically-significant difference academically. The students assessed in the study were from a school having similar methods for calculating the students' GPA, and which used the same tests to measure academic achievement throughout the NPS.

The researcher contacted the Director of Student Health Services and the CEO of Jewish Renaissance who oversees all SBHCs in the NPS to determine if they would be willing to allow the researcher to use the school databases. Students were identified as being either a SBHC user or a non-SBHC user. The researcher sampled one school with access to a SBHC.

The researcher used a cross-sectional convenience sampling plan to collect information for the study. The researcher chose a cross-sectional sampling plan because the researcher collected data on a single occasion or during a short time span (Hulley, 2007). The researcher used a convenience sampling plan to gather information from the school. In convenience sampling, researchers select participants based on ease-of-access, proximity, and willingness to participate in the study (Urda, 2005, p. 3). The researcher collected historical data related to student achievement measurements from the students attending the school. A potential limitation to convenience sampling was that the sample obtained for the study may not have been representative of the entire population; however, if the convenience sample does not differ from the target population, then the convenience sampling plan is an acceptable way of selecting the participants for the study (Urda, 2005). The researcher selected a school that was representative

of the target population for the current study in terms of demographic and social characteristics.

Data Collection

The researcher sampled one school tracking a group of students longitudinally over a three year time frame from grade three through grade five. The researcher compared academic performance between students using the SBHC and students not using the SBHC. The researcher collected data on an individual or student level. The researcher recorded individual academic achievement scores from the database. The researcher identified each student as either being a SBHC user or SBHC non-user. The researcher received databases from the NPS Student Information department and the CEO of Jewish Renaissance.

The researcher informed NPS and Jewish Renaissance the purpose of the study, as well as the potential benefits the study may have in the academic environment. The researcher also specified that any information collected from the database would remain confidential, and that she would use no personal or identifying information. All parties agreed to the terms of the study, and IRB submitted by the researcher from Seton Hall University and NPS. Once the IRB was approved by Seton Hall University and NPS, the researcher gained access to the school's SBHC and academic database.

The researcher collected information regarding demographics and academic achievement from the school database, and imported this data into an Excel spreadsheet. Each row in the spreadsheet identified an individual student from the school, while each column represented the demographic characteristics, SBHC services used, final grades, and academic achievement scores for each student as per the New Jersey Assessment of Skills and Knowledge (NJ ASK) and Language Arts Literacy (LAL). The researcher identified the students as either being SBHC users or non-users along with their final grades, and academic performance results on their

respective achievement tests.

The researcher stored the electronic-based material on a password-protected computer, which only the researcher may access. This assured the confidentiality of the schools selected for the study. The researcher placed the SBHC information jump drive in a locked filing cabinet. The information collected for the study will remain on file for a period of 5 years, after which the researcher will destroy it. The researcher will permanently delete all electronic-based material from the hard drive, and will shred paper-based material in a paper shredder. Figure 6 illustrates the data collection and analysis steps that the researcher took.

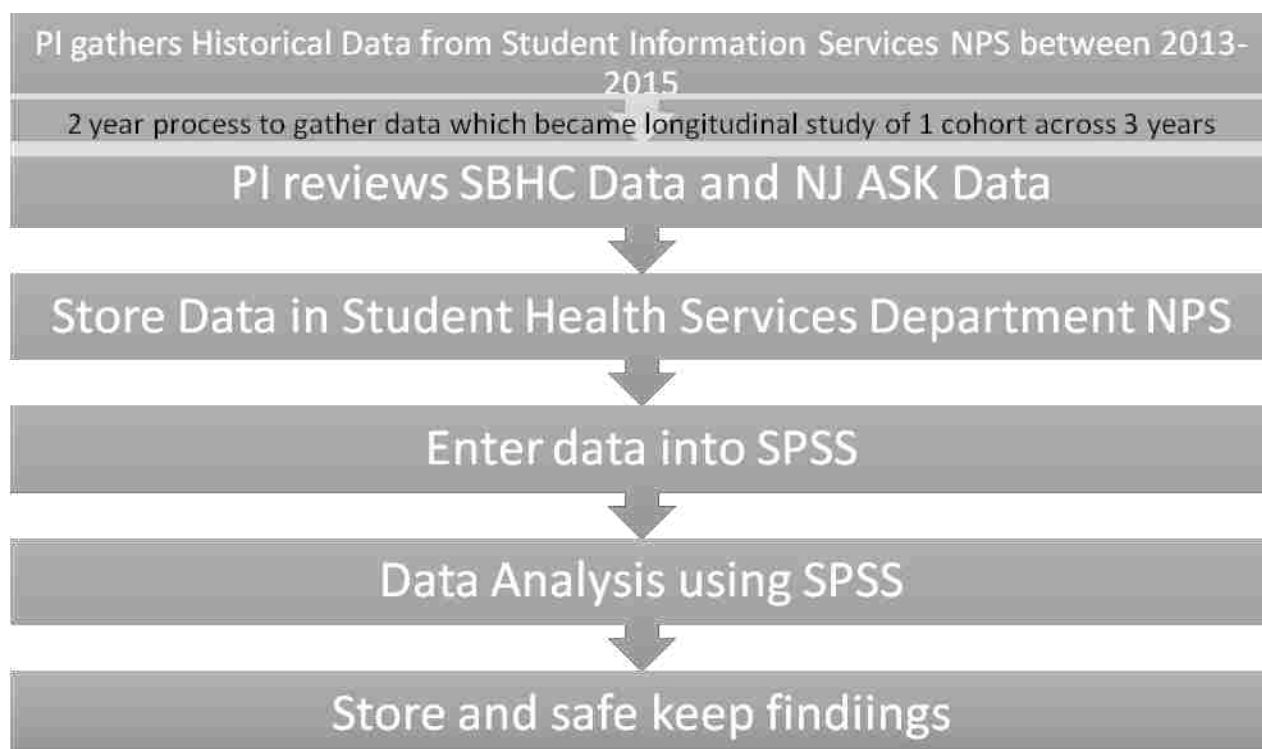


Figure 6. Data collection and analysis steps.

Operationalization of Variables

Academic achievement. Academic achievement was the dependent variable of the study. The researcher operationalized academic achievement as a continuous interval level variable

across grade levels. The researcher measured the academic achievement for the students using the students' final grades/grade point average (GPA) scores. The GPA will be based on the overall student average for all the classes the students have taken.

FINAL GRADES/GPA-Grades received at the end of the school year in June averaged from all 4 marking periods.

NJ ASK-The New Jersey Assessment of Skills and Knowledge is a standardized test administered to all New Jersey public-schooled students in grades 3-8 during (usually) March, April, or May, and is administered by the New Jersey Department of Education.

LANGUAGE ARTS LITERACY (LAL)-A standardized test measuring students comprehension level, and ability to read and write.

School-based health clinic. The SBHC was the independent variable of the study. The researcher operationalized it as a dichotomous level variable. It had two distinct categories or groups of students. The two groups included students that use SBHCs and students that do not use SBHCs. Those students using SBHCs were assigned a value of 1 for analysis purposes, while students that do not use SBHCs were assigned a value of 0 for analysis purposes.

Data Analysis

The researcher conducted analysis for the study in SPSS Version 16.0[®]. The researcher used a Spearman's Rho correlation analysis and mixed MANOVA tests to determine if there is a difference between academic achievement of students from schools that have access to SBHCs and students from schools that do not have access to SBHCs. The MANOVA was appropriate to address the hypothesis of the study, because the purpose of an MANOVA is to determine if the independent variable significantly explains the variation in the dependent variables (Tabachnick & Fidell, 2007). The independent variable for the study was students using SBHCs and students

not using SBHCs. The dependent variable was the students' academic achievement, as measured by the students' GPA/final grades, NJ ASK and LAL across grades three through five.

If there was a significant difference between the groups, to determine how students using SBHCs and students not using SBHCs differed from one another, the researcher would have conducted a post hoc test. The post hoc test would be based on a *t*-statistic. The direction of the difference in academic achievement for students using SBHCs and students not SBHCs would depend on the sign of the test statistic. A positive statistic would indicate that students using SBHCs have higher academic achievement than students not using SBHCs, while a negative statistic would indicate the opposite.

External and Internal Validity

In this section of the report, the researcher describes the research methods chosen to evaluate the above hypotheses. For the evaluation of the research methods, the researcher considered four factors. These included the internal validity's strengths and weaknesses, and the external validity's strengths and weaknesses.

Validity illustrates the accurate nature of the study relating to the variables of significance (Vogt, 2007). Valid methodological approaches are those that accurately measure the variable or variables under investigation in a manner that can apply to comparable situations (Cooper & Schindler, 2003). In contrast, external validity refers to the outcome when the instrument measures like groups (Neuman & Neuman, 2003). The sections to follow explore the external and internal validity as it related to the current study.

Neuman and Neuman (2003) discussed an array of challenges related to internal validity, including testing and selection bias, maturation challenges, environmental changes, subject mortality, statistical regression, treatment difficulties, compensation issues, and researcher bias.

The current research was a quantitative study, which was better suited than a qualitative study on the basis that internal validity is greatly improved in a quantitative research design. This is because the internal validity of the study refers to the ability to draw cause and affect relationships between two variables (Singh, 2007). Similarly, an explanatory or descriptive quantitative design provides a higher degree of internal validity than an exploratory quantitative design.

Because the study was not a true experimental study, the internal validity is reduced to a certain extent. This is because the researcher was not able to determine directly whether the independent variable caused a change in the dependent variable. This is because the researcher was unable to randomly select or assign participants to specific groups for comparison purposes (Cooper & Schindler, 2003). The groups the students belonged to were already determined based on whether their school had access or did not have access to SBHCs.

External validity references the ability to apply research findings to differing environments or research samples (Cooper & Schindler, 2003; Neuman & Neuman, 2003). Problems associated with external validity are, practicality of experiment, correspondence with existing conditions and settings (Cooper & Schindler, 2003). The sample size from the school that the researcher obtained for the study made the sample more representative of the entire target population of students. The students selected for the study were from a school that has similar methods for calculating the students' GPA. One disadvantage was that only one school from a single school district was used in the study. For this reason, results may not be generalizable to other schools in other school districts.

Summary

The purpose of the study was to determine if there is a relationship in academic

performance between students that use school-based health clinics (SBHCs) and those that do not use SBHCs. The research design of the study allowed the researcher to effectively examine students who use school-based health clinics (SBHCs) and students who do not use SBHCs. The researcher used a quantitative ex post facto design. The quantitative ex post facto design was appropriate for this study, since the objective was to determine whether there are relationships and/or differences between SBHC users and non-users when it comes to academic achievement. With the ex post facto design the levels or categories for the independent variable were already defined or classified, so the researcher did not have the ability to manipulate or randomly assign individuals to certain groups.

The population for the study were students who were currently enrolled in a school within NPS that have access to a SBHC. The researcher received a sample of students enabling a longitudinal study of the same cohort of students over a three year period across grades three through five. The researcher compared the students' academic achievement scores between SBHC users and non-users to determine if there was a statistically-significant correlation and difference across grade levels. The researcher received data from a school that uses the same tests measuring academic achievement district wide for the study.

The researcher sampled students from one school that has access to a SBHC comparing academic performance between students who use the SBHC and those who do not use the SBHC. The researcher collected data on an individual or student level. The researcher recorded individual academic achievement scores from the database, and used a mixed analysis of variance (MANOVA) to determine if there is a difference between academic achievement of students using SBHCs and those not using SBHCs across grades three through five. The researcher determined the significance of the relationship between the independent and

dependent variable by an F -statistic (Tabachnick & Fidell, 2007). If the F -statistic exceeded the critical value, at the .05 level of significance, the researcher concluded that the independent variable of students who use SBHCs and students that do not use SBHCs significantly explains the variation in academic achievement. If there was a significant difference between the student cohort, to determine how students that use SBHCs and students do not use SBHCs differed from one another, the researcher would have conducted a post hoc test. The researcher presents the results of the Spearman's Rho and MANOVA tests used to address the hypothesis of the study in Chapter 4.

CHAPTER 4: DISCUSSION

The purpose of this quantitative research was to determine whether the use of onsite SBHC in a public school would impact academic performance of students. The main independent variable (IV) of this study is SBHC use, as well as the specific SBHC uses of SBHC Physicals, SBHC Immunizations, and SBHC Mental Health Counselling. The dependent variables (DV) of this study were the forms of academic outcome variables: the average final grades (2010-2011, 2011-2012, and 2012-2013), and the average New Jersey Assessment of Skills and Knowledge (NJ ASK) test results (2011, 2012 (Math and Language Arts Literacy (LAL) only), and 2013 (Math and LAL only). The moderating variables for this study were the demographic variables of gender, ethnicity, and age. The researcher performed a Spearman's Rho correlation test, and a mixed analysis of variance (MANOVA) tests to analyze the collected data in relation to the research questions and their respective hypotheses. This chapter presents the statistical test results and analysis.

Research Questions and Hypotheses

RQ1: Is there a relationship between SBHC use, SBHC non-use, and academic performance (as measured by final grades, NJ ASK scores, and LAL scores) across grades 3, 4, and 5?

H₀1: There is no relationship between SBHC use, SBHC non-use, and academic performance (as measured by final grades, NJ ASK scores, and LAL scores) across grades 3, 4, and 5.

H_A1: There is a relationship between SBHC use, SBHC non-use, and academic performance (as measured by final grades, NJ ASK scores, and LAL scores) across

grades 3, 4, and 5.

RQ1A: Is there a relationship between SBHC use and academic performance (as measured by final grades, NJ ASK scores, and LAL scores) across grades 3, 4, and 5?

H₀1A: There is no relationship between SBHC use and academic performance.

H_A1A: There is a relationship between SBHC use and academic performance.

RQ1B: Is there a relationship between SBHC non-use and academic performance (as measured by final grades, NJ ASK scores, and LAL scores) across grades 3, 4, and 5?

H₀1B: There is no relationship between SBHC non-use and academic performance.

H_A1B: There is a relationship between SBHC non-use and academic performance.

RQ2: Is there a relationship between primary services offered by SBHCs (physicals, immunizations, and mental health) and academic performance (as measured by final grades, NJ ASK scores, and LAL scores) across grades 3, 4, and 5?

H₀2: There is no relationship between primary services offered by SBHCS (physicals, immunizations, and mental health) and academic performance (as measured by final grades, NJ ASK scores, and LAL scores) across grades 3, 4, and 5.

H_A2: There is a relationship between primary services offered by SBHCS (physicals, immunizations, and mental health) and academic performance (as measured by final grades, NJ ASK scores, and LAL scores) across grades 3, 4, and 5.

RQ2A: Is there a relationship between the primary service “Physicals” offered by SBHCs and academic performance (as measured by final grades, NJ ASK scores, and LAL scores) across grade 3, 4, and 5?

H₀2A: There is no relationship between the primary service “Physicals” and academic performance.

H_A2A: There is a relationship between the primary service “Physicals” and academic performance.

RQ2B: Is there a relationship between the primary service “Immunizations” offered by SBHCs and academic performance (as measured by final grades, NJ ASK scores, and LAL scores) across grade 3, 4, and 5?

H₀2B: There is no relationship between the primary service “Immunizations” and academic performance.

H_A2B: There is a relationship between the primary service “Immunizations” and academic performance.

RQ2C: Is there a relationship between the primary service “Mental Health” offered by SBHC and academic performance (as measured by final grades, NJ ASK scores, and LAL scores) across grade 3, 4, and 5?

H₀2C: There is no relationship between the primary service “Mental Health” and academic performance.

H_A2C: There is a relationship between the primary service “Mental Health” and academic performance.

RQ3: Is there a difference in academic performance (as measured by final grades, NJASK scores, and LAL scores) between SBHC Users and SBHC Non-users, across grades 3, 4, and 5?

H₀3: There is no difference in academic performance between SBHC users and SBHC non-users across grades 3,4, and 5.

H_A3: There is a difference in academic performance between SBHC users and SBHC non-users across grades 3,4, and 5.

RQ4: Is there a difference in academic performance (as measured by final grades, NJASK scores, and LAL scores) between primary SBHC services used (physicals, immunizations, and mental health) and primary SBHC services not used (physicals, immunizations, and mental health), across grades 3, 4, and 5?

H₀₄: There is no difference in academic performance between primary SBHC services used (physicals, immunizations, and mental health) and primary SBHC services not used (physicals, immunizations, and mental health), across grades 3, 4, and 5?

H_{A4}: There is a difference in academic performance between primary SBHC services used (physicals, immunizations, and mental health) and primary SBHC services not used (physicals, immunizations, and mental health), across grades 3, 4, and 5?

Description of the Sample

The sample participants are urban elementary school students enrolled in a public school with an onsite SBHC. These students begin as third graders tracked through the fifth grade (2010-2011 = third graders, 2011-2012 = fourth graders, and 2012-2013 = fifth graders). Initially, there were a total of 48 students for the sample. Several students had missing data with regards to the final grades and NJ ASK test results and were filtered out. After the data cleaning, the final sample size was 30 students. In this section, the researcher presents the descriptive statistics of the samples.

Table 1 and Figure 7 present the descriptive statistics of the continuous variables for the sample. The continuous variables consisted of the average age of the samples, the DVs of average final grades and NJ ASK test results average scores. Average age of the samples from 2011 to 2013 ranged from 10 to 12 years old, with a mean of 10.33 ($SD = 0.61$). Average final grade of school year 2010-2011 ranged from 38.80 to 93.80, with a mean of 77.42 ($SD = 12.00$).

Average final grade of school year 2011-2012 ranged from 46.50 to 92.25, with a mean of 73.12 ($SD = 11.09$). Average final grade of school year 2012-2013 ranged from 31.50 to 93.38, with a mean of 71.40 ($SD = 13.04$). Average of 2011 NJ ASK test results ranged from 104.50 to 254, with a mean of 172.22 ($SD = 29.35$). Average of 2012 NJ ASK test results for Math and LAL ranged from 130.50 to 240.50, with a mean of 173.00 ($SD = 26.13$). Average of 2013 NJ ASK test results for Math and LAL ranged from 130.50 to 240.50, with a mean of 172.30 ($SD = 27.10$). From the NJ ASK guidelines, the proficiency of students are grouped into three categories: a.) advanced proficient: 250-300, b.) proficient: 200-249, and c.) partially proficient: 100-199. The mean NJ ASK scores using the average of Math and LAL indicate that the students are partially proficient. Attendance of the students in 2010-2011 ranged from 82 to 185 days, with an average of 165.67 days ($SD = 19.69$). Attendance of the students in 2011-2012 ranged from 150 to 185 days, with an average of 174.86 days ($SD = 9.22$). Attendance of the students in 2012-2013 ranged from 110 to 184 days, with an average of 171.31 days ($SD = 14.20$).

Table 1

Descriptive Statistics Analysis of Student Cohort

	Minimum	Maximum	Mean	Std. Deviation
Average age (2011-2013)	10.00	12.00	10.3333	.60648
Average final grade 2010-2011	38.80	93.80	77.4200	11.99648
Average final grade 2011-2012	46.50	92.25	73.1167	11.08718
Average final grade 2012-2013	31.50	93.38	71.4042	13.04380
2011 NJ ASK test results average	104.50	254.00	172.2167	29.34623
2012 NJ ASK test results average (Math and LAL)	130.50	240.50	173.0000	26.13394
2013 NJ ASK test results average (Math and LAL)	113.50	245.50	172.3000	27.10344
2010-2011 Attendance	82.00	185.00	164.67	19.688
2011-2012 Attendance	150.00	185.00	174.8621	9.21848
2012-2013 Attendance	110.00	184.00	171.3125	14.19875

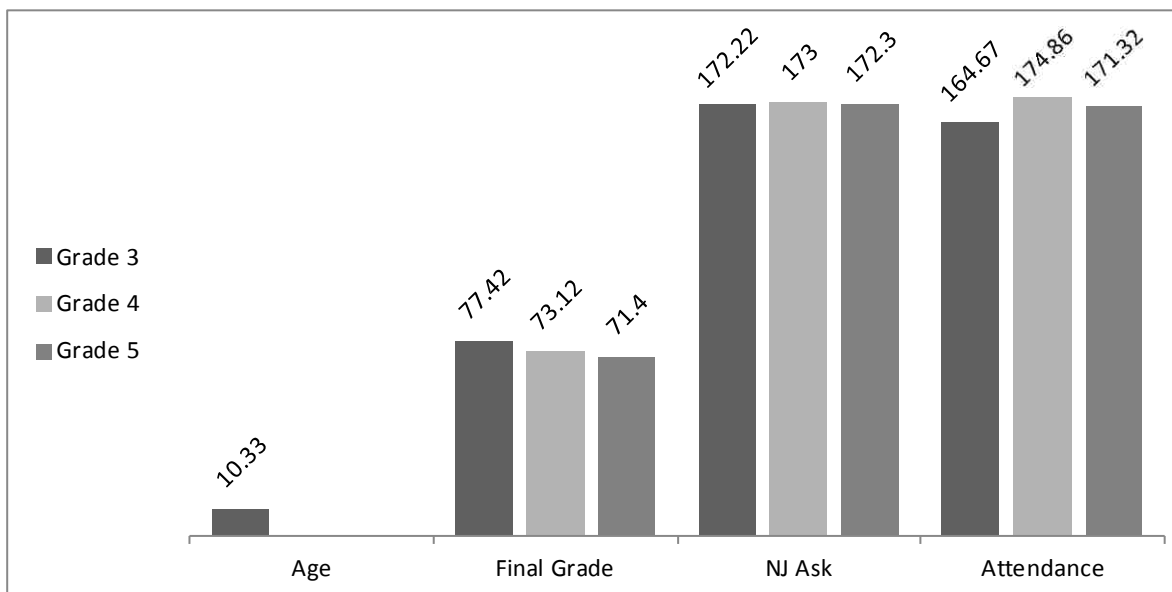


Figure 7. Descriptive statistics of student cohort.

The categorical variables consisted of the demographic variables of gender and ethnicity, and the SBHC use, as well as the specific SBHC use in the categories of physicals, immunizations, and mental health counselling. The samples consisted of 60% males ($n = 18$), and 40% females ($n = 12$). Ethnicity of the samples were 73.3% ($n = 22$) Black, and 26.7% ($n = 8$) Hispanic.

Table 2

Frequency Table of Gender

	Frequency	Percent
Male	18	60.0
Female	12	40.0
Total	30	100.0

Table 3

Frequency Table of Ethnicity

	Frequency	Percent
Black	22	73.3
Hispanic	8	26.7
Total	30	100.0

Throughout the years of 2010 to 2013, 40% ($n = 12$) of the samples did not access the onsite SBHC of the school, while 60% ($n = 18$) accessed the onsite SBHC. Specifically, 60% ($n = 18$) of the students availed of SBHC physicals, 40% ($n = 12$) availed of SBHC immunizations, and 43.3% ($n = 13$) availed of SBHC mental health counselling.

Table 4

Frequency Table of SBHC Access

	Frequency	Percent
Did not avail	12	40.0
Availed	18	60.0
Total	30	100.0

Table 5

Frequency Table of Specific SBHC Access

	SBHC Physicals		SBHC Immunizations		SBHC Mental Health Counselling	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Did not avail	12	40.0	18	60.0	17	56.7
Availed	18	60.0	12	40.0	13	43.3
Total	30	100.0	30	100.0	30	100.0

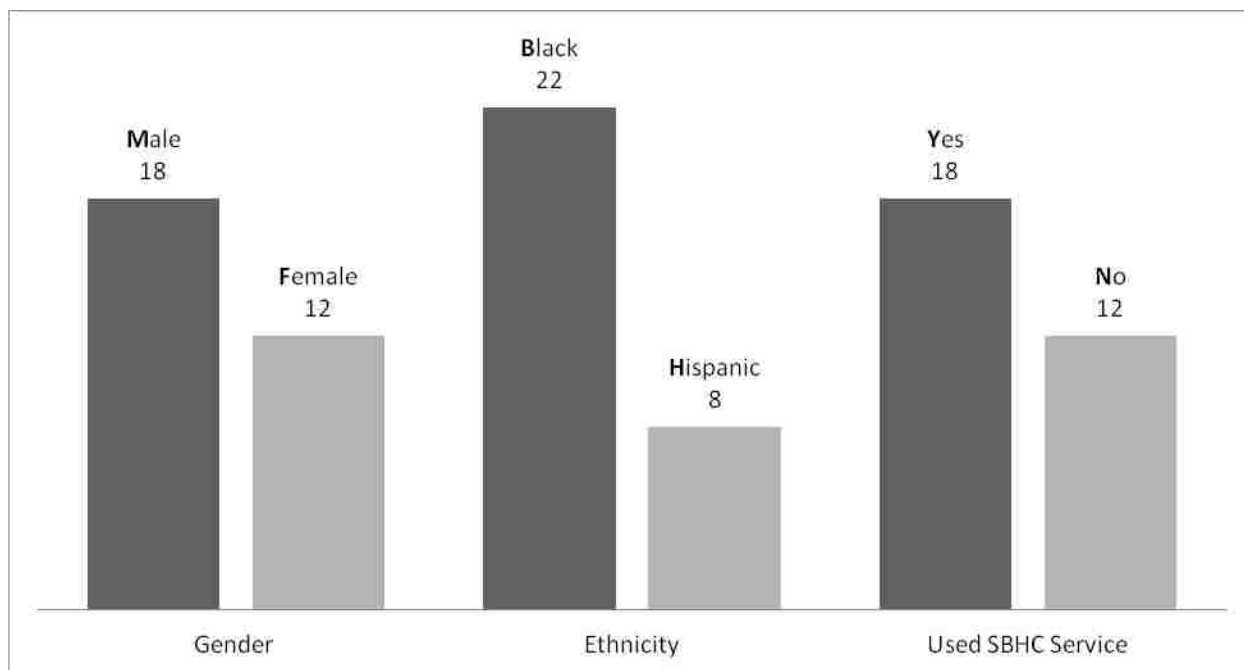


Figure 8. Demographic frequency analysis of student cohort.

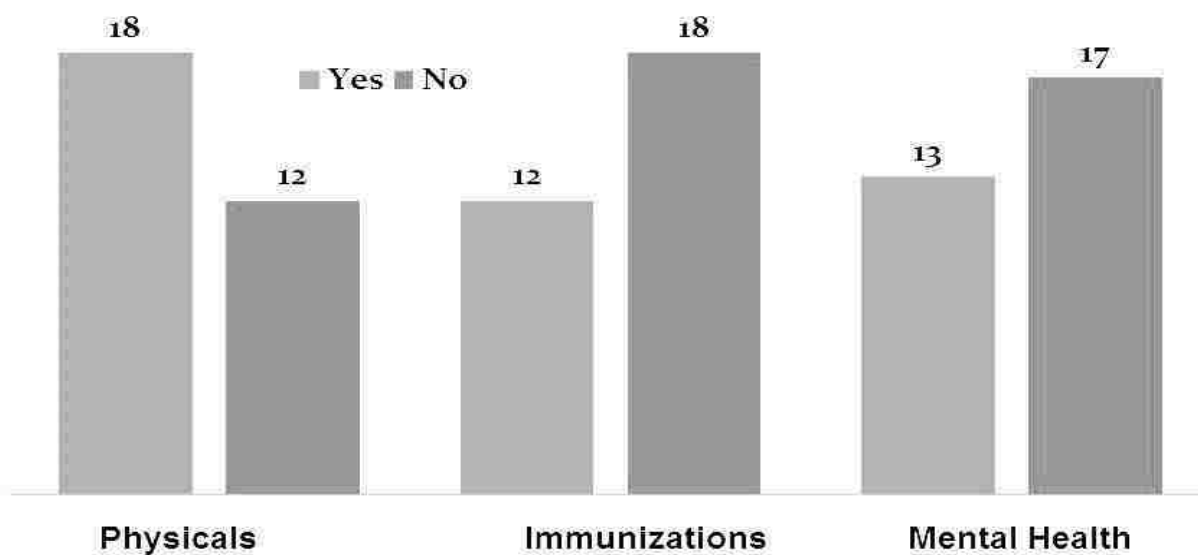


Figure 9. Frequency analysis of SBHC services for student cohort.

The researcher conducted chi-square goodness of fit tests for the categorical independent variables of SBHC access, and the specific SBHC uses of SBHC Physicals, SBHC

Immunizations, and SBHC Mental Health Counselling. The results are presented in Table 6. Results of the chi-square goodness of fit tests show that the test statistics for each variable is statistically a weak positive ($p > 0.05$). There are weak positive statistically significant differences in availing and not availing SBHC for all categories.

Table 6

Chi-square Goodness of Fit Test for Categorical Independent Variables

	SBHC use	SBHC Physicals	SBHC Immunizations	SBHC Mental Health Counseling
Chi-Square	1.200	1.200	1.200	.533
Df	1	1	1	1
Asymp. Sig.	.273	.273	.273	.465

Tests of Normality

The researcher examined the assumption of normality of data for the continuous dependent variables of: average grade 2010-2011, average grade 2011-2012, average grade 2012-2013, 2011 NJ ASK test results average, 2012 NJ ASK test results (Math + LAL) average, and 2013 NJ ASK test results (Math + LAL) average. Table 7 presents the Shapiro-Wilk's test for normality results of these variables. As observed, with the exception of average final grade 2010-2011 ($p = 0.001$), data of the dependent variables were found to be normally distributed. Repeated measures MANOVA however, is robust to the violation of non-normality (Howell, 2002).

Table 7

Shapiro-Wilk's Test for Normality

	Shapiro-Wilk		
	Statistic	Df	Sig.
Average final grade 2010-2011	.853	30	.001
Average final grade 2011-2012	.966	30	.432
Average final grade 2012-2013	.953	30	.203
2011 NJ ASK test results average	.948	30	.146
2012 NJ ASK test results average (Math and LAL)	.953	30	.198
2013 NJ ASK test results average (Math and LAL)	.983	30	.896

Results of the Statistical Tests

This study addressed four research questions. The first research question examined whether there is a statistically significant relationship between the use of SBHC, non-use of SBHC, and the students' academic outcomes. The second research question examined whether there is a statistically significant relationship between the use of specific SBHC services (physicals, immunizations, and mental health counselling) and the students' academic outcomes. The third research question examined whether there was a difference in academic performance between SBHC users and SBHC non-users. The fourth research question asked whether there was a difference in academic performance among services that students used and services that students did not use. The study considered two academic outcomes for the students, the first is the average of final grades, and the second is the NJ ASK test results. Due to limitations in data, the NJ ASK test results accounted only for Math and LAL subjects. Upon analysis of the retrospective data, there was incomplete data recorded for SBHC use for the 2011-2012 school year; thus, the researcher could not establish a correlation for the grade 4 data. The researcher only used data from grades 3 and 5.

Research Question 1

The researcher tested Research Question 1 through Spearman's Rho analysis. The sub-hypotheses of RQ1, RQ1A and RQ1B, examined whether SBHC use and non-use, respectively, affected students' academic performance.

RQ1A. The results of the Spearman's correlation analysis regarding SBHC use and academic performance are found in Table 8. The correlations were not significant at the .05 level; thus, the researcher did not reject the null hypothesis. There is no statistically significant relationship between SBHC use and academic performance.

Table 8

Spearman's Rho Analysis for SBHC Use

		Final1011	NJASK1011
SBHC1011	Correlation	-.246	-.117
(Grade 3)	Sig.	.236	.576
		Final1213	NJASK1213
SBHC1213	Correlation	-.091	-.214
(Grade 5)	Sig.	.665	.303

RQ1B. The results of the Spearman's correlation analysis regarding SBHC use and academic performance are found in Table 9. The correlations were not significant at the .05 level; thus, the researcher did not reject the null hypothesis. There is no statistically significant relationship between SBHC non-use and academic performance.

Table 9

Spearman's Rho Analysis for SBHC Non-Use

		Final1011	NJASK1011
SBHC1011 Non	Correlation	-.246	-.117
(Grade 3)	Sig.	.236	.576
		Final1213	NJASK1213
SBHC1213 Non	Correlation	-.091	-.214
(Grade 5)	Sig.	.665	.303

Research Question 2

RQ2A. The first sub-hypothesis of Research Question 2 was to determine whether the use of SBHC, specifically for physicals, had a statistically significant impact on the students' academic outcomes. The results of the Spearman's correlation analysis indicated that there was no correlation between physicals and final grades as well as NJ ASK scores, as seen in Table 10. Thus, the researcher did not reject the null hypothesis..

Table 10

Spearman's Rho Analysis for Physicals vs. Academic Performance

		Final1011	NJASK1011
Physicals (3)	Correlation	-.246	-.117
	Sig.	.236	.576
		Final1213	NJASK1213
Physicals (5)	Correlation	-.091	-.214
	Sig.	.665	.303

RQ2B. The second sub-hypothesis of Research Question 2 was to determine whether the use of SBHC, specifically for immunizations, had a statistically significant impact on the students' academic outcomes. The researcher conducted a Spearman's Rho analysis to determine the impact of SBHC Immunizations use on the students' average final grades across three time periods (2010-2011, 2011-2012, and 2012-2013). Table 11 presents the results of this analysis.

Table 11

Spearman's Rho Analysis for Immunization vs. Academic Performance

		Final1011	NJASK1011
Immun (3)	Correlation	.208	.187
	Sig.	.318	.370
		Final1213	NJASK1213
Immun (5)	Correlation	.171	-.196
	Sig.	.414	.347

The results of the Spearman's correlation analysis indicated that there was a weak positive

relationship between Immunizations and academic performance. Thus, the researcher did not reject the null hypothesis. As such, SBHC use, specifically SBHC Immunizations, has a weak positive statistically significant impact on students' academic outcome of average NJ ASK test results.

RQ2C. The third sub-hypothesis of Research Question 2 was to determine whether the use of SBHC, specifically for mental health counselling, had statistically significant impact on the students' academic outcomes. The researcher conducted a Spearman's Rho correlation analysis to determine the impact of SBHC Mental Health Counselling use on the students' average final grades. Table 12 presents the results of this part of the analysis. The results of the Spearman's correlation analysis indicated that there was a weak negative relationship between Mental Health and Academic Performance for the cohort of students in grade 3. Thus, based on these results, the researcher did not reject the null hypothesis for RQ2C. Table 12

Spearman's Rho Analysis for Mental Health vs. Academic Performance

		Final1011	NJASK1011
Mental (3)	Correlation	-.358	-.133
	Sig.	.079	.526

Research Question 3

The researcher used a mixed multiple analysis of variance (MANOVA) to address Research Question 3, which investigated whether there was a statistically significant difference in the academic performance between SBHC users and SBHC non-users across grade levels. The mixed MANOVA used the combined dependent variables of final grades for grades 3, 4, and 5, and the NJ ASK scores for grades 3, 4, and 5. The researcher conducted Levene's and Box's tests to satisfy the assumptions for homogeneity and variance-covariance normality in order to use mixed MANOVA. The results of the MANOVA are found in Tables 13 and 14. The results

of the MANOVA indicated that there was no statistically significant difference between SBHC services and academic performance; thus, the null hypothesis for Research Question 3 was not rejected.

Table 13

SBHC Services vs. Academic Performance – Wilks Lambda

Effect		Value	<i>F</i>	df	Error df	Sig.	Partial ETA squared
SBHC1011	Pillai's Trace	.119	.383b	6.000	17.000	.880	.119
	Wilk's Lambda	.881	.383b	6.000	17.000	.880	.119
	Hotelling's Trace	.135	.383b	6.000	17.000	.880	.119
	Roy's Largest Root	.135	.383b	6.000	17.000	.880	.119
SBHC1213	Pillai's Trace	.152	.510b	6.000	17.000	.793	.152
	Wilk's Lambda	.848	.510b	6.000	17.000	.793	.152
	Hotelling's Trace	.180	.510b	6.000	17.000	.793	.152
	Roy's Largest Root	.180	.510b	6.000	17.000	.793	.152
SBHC1011*	Pillai's Trace	0.000	.b	0.000	0.000		
SBHC1213	Wilk's Lambda	1.000	.b	0.000	19.500		
	Hotelling's Trace	0.000	.b	0.000	2.000		
	Roy's Largest Root	0.000	.000b	6.000	16.000	1.000	0.000

Table 14

SBHC Services vs. Academic Performance – Mixed MANOVA

Source		Type III		Mean square	<i>F</i>	Sig.	Partial ETA squared
		sum of squares	Df				
SBHC1011	Final1011	46.090	1	46.090	.432	.518	.019
	Final1112	3.122	1	3.122	.025	.876	.001
	Final1213	.520	1	.520	.005	.945	.000
	NJASK1011	329.285	1	329.285	.438	.515	.020
	NJASK1112	320.469	1	320.469	.416	.526	.019
	NJASK1213	608.900	1	608.900	.818	.376	.036
SBHC1213	Final1011	119.349	1	119.349	1.120	.301	.048
	Final1112	172.530	1	172.530	1.372	.254	.059
	Final1213	40.513	1	40.513	.385	.541	.017
	NJASK1011	542.881	1	542.881	.723	.404	.032
	NJASK1112	38.095	1	38.095	.049	.826	.002
	NJASK1213	150.482	1	150.482	.202	.657	.009
SBHC1011	Final1011	0.000	0				0.000
SBHC1213	Final1112	0.000	0				0.000
	Final1213	0.000	0				0.000
	NJASK1011	0.000	0				0.000
	NJASK1112	0.000	0				0.000
	NJASK1213	0.000	0				0.000

Research Question 4

Research Question 4 investigated whether there was a statistically significant difference in the academic performance of users of primary SBHC services and non-users of primary SBHC services across grade levels. To address this research question, the researcher used a mixed multiple analysis of variance (MANOVA) using the combined dependent variables of final grades and NJ ASK scores for grades 3, 4, and 5. Again, the researcher satisfied assumptions for homogeneity and variance-covariance normality using the Levene's and Box's tests, respectively. Tables 15-20 show the results of the mixed MANOVA tests regarding the variables of physicals, immunizations, and mental health in relation to academic outcomes. The results of the mixed MANOVA tests indicated that the dependent variables differed slightly with respect to

usage of mental health services for grade 3; thus, the researcher did not reject the null hypothesis for Research Question 4.

Table 15

Physicals Usage vs. Academic Performance – Wilk's Lambda

Effect		Value	<i>F</i>	Df	Error df	Sig.	Partial ETA squared
Phys1011	Pillai's Trace	.119	.383b	6.000	17.000	.880	.119
	Wilk's Lambda	.881	.383b	6.000	17.000	.880	.119
	Hotelling's Trace	.135	.383b	6.000	17.000	.880	.119
	Roy's Largest Root	.135	.383b	6.000	17.000	.880	.119
Phys1213	Pillai's Trace	.152	.510b	6.000	17.000	.793	.152
	Wilk's Lambda	.848	.510b	6.000	17.000	.793	.152
	Hotelling's Trace	.180	.510b	6.000	17.000	.793	.152
	Roy's Largest Root	.180	.510b	6.000	17.000	.793	.152
Phys1011* Phys1213	Pillai's Trace						
	Wilk's Lambda						
	Hotelling's Trace						
	Roy's Largest Root						

Table 16

Physicals Usage vs. Academic Performance – Mixed MANOVA

Source		Type III		Mean			Partial
		sum of	Df	square	<i>F</i>	Sig.	ETA
		squares					squared
Phys1011	Final1011	46.090	1	46.090	.432	.518	.019
	Final1112	3.122	1	3.122	.025	.876	.001
	Final1213	.520	1	.520	.005	.945	.000
	NJASK1011	329.285	1	329.285	.438	.515	.020
	NJASK1112	320.469	1	320.469	.416	.526	.019
	NJASK1213	608.900	1	608.900	.818	.376	.036
Phys1213	Final1011	119.349	1	119.349	1.120	.301	.048
	Final1112	172.530	1	172.530	1.372	.254	.059
	Final1213	40.513	1	40.513	.385	.541	.017
	NJASK1011	542.881	1	542.881	.723	.404	.032
	NJASK1112	38.095	1	38.095	.049	.826	.002
	NJASK1213	150.482	1	150.482	.202	.657	.009
Phys1011	Final1011						
Phys1213	Final1112						
	Final1213						
	NJASK1011						
	NJASK1112						
	NJASK1213						

Table 17

Immunizations vs. Academic Performance – Wilk's Lambda

Effect		Value	<i>F</i>	Df	Error df	Sig.	Partial ETA squared
Vac1011	Pillai's Trace	.127	.412b	6.000	17.000	.861	.127
	Wilk's Lambda	.873	.412b	6.000	17.000	.861	.127
	Hotelling's Trace	.146	.412b	6.000	17.000	.861	.127
	Roy's Largest Root	.143	.412b	6.000	17.000	.861	.127
Vac1213	Pillai's Trace	.151	.505b	6.000	17.000	.796	.151
	Wilk's Lambda	.849	.505b	6.000	17.000	.796	.151
	Hotelling's Trace	.178	.505b	6.000	17.000	.796	.151
	Roy's Largest Root	.178	.505b	6.000	17.000	.796	.151
Vac1011* Vac1213	Pillai's Trace						
	Wilk's Lambda						
	Hotelling's Trace						
	Roy's Largest Root						

Table 18

Immunization vs. Academic Performance – Mixed MANOVA

Source		Type III		Mean			Partial
		sum of	Df	square	<i>F</i>	Sig.	ETA
		squares					squared
Vac1011	Final1011	174.262	1	174.262	1.541	.228	.065
	Final1112	217.010	1	217.010	1.809	.192	.076
	Final1213	244.655	1	244.655	2.630	.119	.107
	NJASK1011	866.056	1	866.056	1.114	.303	.048
	NJASK1112	1082.473	1	1082.473	1.453	.241	.062
	NJASK1213	1098.056	1	1098.056	1.502	.233	.064
Vac1213	Final1011	100.101	1	100.101	.885	.357	.039
	Final1112	326.700	1	326.700	2.724	.113	.110
	Final1213	28.519	1	28.519	.307	.585	.014
	NJASK1011	1080.000	1	1080.000	1.389	.251	.059
	NJASK1112	946.408	1	946.408	1.270	.272	.055
	NJASK1213	1695.008	1	1695.008	2.318	.142	.095
Vac1011	Final1011						
Vac1213	Final1112						
	Final1213						
	NJASK1011						
	NJASK1112						
	NJASK1213						

Table 19

Mental Health vs. Academic Performance – Wilk's Lambda

Effect		Value	<i>F</i>	Df	Error df	Sig.	Partial ETA squared
MHC1011	Pillai's Trace	.195	.727b	6.000	18.000	.634	.195
	Wilk's Lambda	.805	.727b	6.000	18.000	.634	.195
	Hotelling's Trace	.242	.727b	6.000	18.000	.634	.195
	Roy's Largest Root	.242	.727b	6.000	18.000	.634	.195
MHC1213	Pillai's Trace	0.000	.b	6.000	0.000		
	Wilk's Lambda	1.000	.b	6.000	20.500		
	Hotelling's Trace	0.000	.b	6.000	2.000		
	Roy's Largest Root	0.000	.000b	6.000	17.000		0.000
MHC1011* MHC1213	Pillai's Trace						
	Wilk's Lambda						
	Hotelling's Trace						
	Roy's Largest Root						

Table 20

Mental Health vs. Academic Performance – Mixed MANOVA

Source		Type III		Mean square	<i>F</i>	Sig.	Partial ETA squared
		sum of squares	Df				
MHC1011	Final1011	88.266	1	88.266	.788	.384	.033
	Final1112	16.801	1	16.801	.131	.721	.006
	Final1213	5.670	1	5.670	.055	.817	.002
	NJASK1011	154.856	1	154.856	.197	.661	.008
	NJASK1112	417.608	1	417.608	.560	.462	.024
	NJASK1213	1133.063	1	1133.063	1.564	.224	.064
MHC1213	Final1011						
	Final1112						
	Final1213						
	NJASK1011						
	NJASK1112						
	NJASK1213						
MHC1011	Final1011						
MHC1213	Final1112						
	Final1213						
	NJASK1011						
	NJASK1112						
	NJASK1213						

Summary

In this chapter, the researcher presented the research findings and data analyses within the framework of the research questions posed in this study. The researcher used the Spearman's Rho correlation analysis to answer Research Questions 1 and 2, and performed mixed MANOVA tests to analyze Research Questions 3 and 4. The results of all analyses resulted in the support of the null hypotheses; that is, there were no significant relationships observed.

In Chapter 5, the researcher will present the summary and discussion of results and insights gained from the results of the statistical tests performed in Chapter 4. The researcher will discuss the findings in the context of existing literature. In addition, the researcher will present the limitations of the current study, including data limitations. Finally, the researcher will discuss

the implications for school nursing practice drawn from the results of this study, as well as the recommendations for further research.

CHAPTER 5: CONCLUSION

Introduction and Summary

Students should have onsite access to clinic healthcare, as it is a powerful tool to maintain and assess the health status of students; however, doing so remains a challenge for schools due to lack of funding (Franklin et al., 2006). Lack of funding hinders students' access to healthcare in school. Students seeking medical care outside of school compromise their academic performance. When students become ill, they must miss classes or school days to be treated outside of the school (Franklin et al., 2006). The lack of access to onsite school-based health clinics (SBHC) possibly affects the students' academic achievement. The purpose of this study was to determine if there is a significant difference in academic performance among urban elementary school students using SBHC and those that do not use SBHCs. Several studies have shown a link between school-related health services and academic services; however, there is no study available that details the direct relationship between these school-related health services on the academic performance of students.

The research questions and hypotheses that guided the study are as follows:

RQ1: Is there a relationship between SBHC use, SBHC non-use, and academic performance (as measured by final grades, NJ ASK scores, and LAL scores) across grades 3, 4, and 5?

H₀1: There is no relationship between SBHC use, SBHC non-use, and academic performance (as measured by final grades, NJ ASK scores, and LAL scores) across grades 3, 4, and 5.

H_A1: There is a relationship between SBHC use, SBHC non-use, and academic performance (as measured by final grades, NJ ASK scores, and LAL scores) across

grades 3, 4, and 5.

RQ1A: Is there a relationship between SBHC use and academic performance (as measured by final grades, NJ ASK scores, and LAL scores) across grades 3, 4, and 5?

H₀1A: There is no relationship between SBHC use and academic performance.

H_A1A: There is a relationship between SBHC use and academic performance.

RQ1B: Is there a relationship between SBHC non-use and academic performance (as measured by final grades, NJ ASK scores, and LAL scores) across grades 3, 4, and 5?

H₀1B: There is no relationship between SBHC non-use and academic performance.

H_A1B: There is a relationship between SBHC non-use and academic performance.

RQ2: Is there a relationship between primary services offered by SBHCs (physicals, immunizations, and mental health) and academic performance (as measured by final grades, NJ ASK scores, and LAL scores) across grades 3, 4, and 5?

H₀2: There is no relationship between primary services offered by SBHCS (physicals, immunizations, and mental health) and academic performance (as measured by final grades, NJ ASK scores, and LAL scores) across grades 3, 4, and 5.

H_A2: There is a relationship between primary services offered by SBHCS (physicals, immunizations, and mental health) and academic performance (as measured by final grades, NJ ASK scores, and LAL scores) across grades 3, 4, and 5.

RQ2A: Is there a relationship between the primary service “Physicals” offered by SBHCs and academic performance (as measured by final grades, NJ ASK scores, and LAL scores) across grade 3, 4, and 5?

H₀2A: There is no relationship between the primary service “Physicals” and academic performance.

H_{A2A}: There is a relationship between the primary service “Physicals” and academic performance.

RQ2B: Is there a relationship between the primary service “Immunizations” offered by SBHCs and academic performance (as measured by final grades, NJ ASK scores, and LAL scores) across grade 3, 4, and 5?

H_{02B}: There is no relationship between the primary service “Immunizations” and academic performance.

H_{A2B}: There is a relationship between the primary service “Immunizations” and academic performance.

RQ2C: Is there a relationship between the primary service “Mental Health” offered by SBHC and academic performance (as measured by final grades, NJ ASK scores, and LAL scores) across grade 3, 4, and 5?

H_{02C}: There is no relationship between the primary service “Mental Health” and academic performance.

H_{A2C}: There is a relationship between the primary service “Mental Health” and academic performance.

RQ3: Is there a difference in academic performance (as measured by final grades, NJASK scores, and LAL scores) between SBHC Users and SBHC Non-users, across grades 3, 4, and 5?

H₀₃: There is no difference in academic performance between SBHC users and SBHC non-users across grades 3,4, and 5.

H_{A3}: There is a difference in academic performance between SBHC users and SBHC non-users across grades 3,4, and 5.

RQ4: Is there a difference in academic performance (as measured by final grades, NJASK scores, and LAL scores) between primary SBHC services used (physicals, immunizations, and mental health) and primary SBHC services not used (physicals, immunizations, and mental health), across grades 3, 4, and 5?

H₀₄: There is no difference in academic performance between primary SBHC services used (physicals, immunizations, and mental health) and primary SBHC services not used (physicals, immunizations, and mental health), across grades 3, 4, and 5?

H_{A4}: There is a difference in academic performance between primary SBHC services used (physicals, immunizations, and mental health) and primary SBHC services not used (physicals, immunizations, and mental health), across grades 3, 4, and 5?

Interpretation of the Findings

RQ1. There is a relationship between SBHC use and non-use and academic performance. The researcher tested the main hypothesis of Research Question 1 through a Spearman's Rho correlation analysis. There was not enough evidence to reject the null hypotheses of either RQ1A or RQ1B; neither the use nor disuse of SBHC affects students' academic outcomes. The researcher accepted the null hypothesis.

This finding disconfirms the findings of previous researchers who concluded that the use of SBHC has an impact to the academic outcomes of students. Thompson et al. (2006) contended that SBHCs and academic performance have a direct and positive relationship. Thompson et al. stated that students who regularly use either school-based or school-linked health clinics for their healthcare services have good grades. These students also feel a connection with their healthcare providers since they established a relationship and became their confidants. Thus, these students had greater academic success in terms of staying in school, promotion, and graduation. McCord

et al. (1993) also suggested that as a direct result of having access to the SBHC, one school system in New York City improved student attendance, promotion, and graduation rates and reduced the rates of suspension and withdrawal from school. Keshishian (2009) also stated that educators instinctively understand that healthy students have great academic advantages: they are in class more often, and are better able to learn and focus during classroom instructional time. Moreover, with readily available healthcare, students come to school strong, healthy, and ready to learn. Jackson (2009) stated that students struggling with a health condition are apt to miss more days of school than their peers. Jackson assessed variation in the link between health and educational attainment by race/ethnicity and socio-economic status. Jackson concluded that adolescents tend to have good health, especially with available school health clinics, and are more likely to graduate from high school in a timely manner and less likely to attend college. The findings also reflected that adverse educational consequences of poor health are not limited to one subgroup of the population, but span the socio-economic spectrum when defined by ethnicity and race.

Previous researchers have also examined the influence of SBHC on student attendance. One way that SBHCs reduce student dropout rate or increase student academic achievement overall is from its impact on student attendance. Kearney (2007) showed that school attendance is directly related to academic achievement and inversely related to school dropout rates. Foy and Hahn (2009) examined the influence of an onsite, community school-based health center by Vallejo City Unified School District over a 4-year operation. Foy and Hahn found that the establishment of the center was correlated to reduced absences and reduced hospitalization that improved the academic performance of the students. Weismuller et al. (2007) stated that the presence of school nurses can be very effective in addressing the issue of school absences. Allen

(2003) supported this argument by showing that the presence of school nurses who work full-time may decrease the number of children who drop out of school for medical reasons.

Geierstanger et al. (2004) also concluded there is a strong correlation between student attendance (including absenteeism and tardiness) and SBHCs.

Geierstanger et al. (2004) found a correlation between students' absenteeism, academic achievement, and self-esteem. Self-esteem has a significant impact to academic performance and the overall adjustment of a person in his or her teenage years (Berndt, 2002; Pulkkinen et al., 2002; Wigfield et al., 2002). Due to low self-esteem, students could experience depression that leads to adolescents' maladaptive achievement strategies such as delinquency, suicidal tendencies, victimization, and low happiness levels (Baumeister et al., 2003; Palmer, 2004; Pelkonen, 2003; Wild et al., 2004). Delgash-Pelish (2006) asserted that having a SBHC involved in the school community is one factor that could help break such a maladaptive achievement cycle.

School connectedness is also an important factor in academic performance. McCord et al. (1993) found the SBHCs increased school attendance as well as reduced dropout rates. Moreover, the researchers also found that connectedness fostered by SBHCs actually led to improved academic performance. Geierstanger et al. (2004) concluded that increased sense of connectedness to their communities demonstrate a higher rate of helping students achieve academic success.

RQ2. Is there a significant relationship between use of specific SBHC services (physicals, immunizations, and mental health counseling) student's academic outcomes?

The Spearman's Rho tests also demonstrated that SBHC use, including SBHC as a whole and specific SBHC uses (physicals, immunizations, and mental health counselling) were not

statistically significantly related to the students' academic outcomes. The researcher rejected this hypothesis.

This finding extends the knowledge in the discipline. No study has been found that explored the relationship of specific SBHC services (physicals, immunizations, and mental health counseling) and student's academic outcomes.

H₀2A. There is no significant relationship between availing of physicals and academic outcomes.

The first sub-hypothesis of Research Question 2 was to determine whether the use of SBHC, specifically for physicals, had a statistically significant impact on the students' academic outcomes. There was not enough evidence to reject the first null sub-hypothesis of Research Question 2, there is no significant relationship between availing of physicals and academic outcomes.

This is consistent with the main finding that there is no relationship between specific SBHC services (physicals, immunizations, and mental health counseling) and student's academic outcomes. This finding extends the knowledge in the discipline. No study has been found that directly examines the relationship between availing of physicals and academic outcomes.

H₀2B. There is no significant relationship between availing of immunizations and academic outcomes.

The second sub-hypothesis of Research Question 2 was to determine whether the use of SBHC, specifically for immunizations, had statistically significant impact on the students' academic outcomes. The results of the Spearman's correlation analysis showed that SBHC use, specifically SBHC Immunizations, has no statistically significant impact on students' academic outcome of average NJ ASK test results.

This is consistent with the main finding that there is no relationship between specific SBHC services (physicals, immunizations, and mental health counseling) and student's academic outcomes. This finding extends the knowledge in the discipline. No study has been found that directly examines the relationship between immunization use and academic outcomes.

H₀2C. There is no significant relationship between availing of mental health counseling and academic outcomes.

The third sub-hypothesis of Research Question 2 was to determine whether the use of SBHC, specifically for mental health counselling, had statistically significant impact on the students' academic outcomes. There was not enough evidence to reject the third null sub-hypothesis of Research Question 2, that there is no significant relationship between availing of mental health counselling and academic outcomes. The researcher accepted this hypothesis.

This is consistent with the main finding that there is no relationship between specific SBHC services (physicals, immunizations, and mental health counseling) and students' academic outcomes. This finding extends the knowledge in the discipline. No study has been found that directly examines the relationship between availing of mental health counselling and academic outcomes.

RQ3. Is there a difference in academic performance (as measured by final grades, NJASK scores, and LAL scores) between SBHC Users and SBHC Non-users, across grades 3, 4, and 5?

The researcher used a mixed multiple analysis of variance (MANOVA) to address Research Question 3, which investigated whether there was a statistically significant difference in the academic performance between SBHC users and SBHC non-users across grade levels. The mixed MANOVA used the combined dependent variables of final grades for grades 3, 4, and 5,

and the NJ ASK scores for grades 3, 4, and 5. The results of the MANOVA indicated that there was no statistically significant difference between SBHC services and academic performance; thus, there was not enough evidence to reject the null hypothesis.

As described in the discussion for Research Question 1, this finding disconfirms the findings of previous researchers who concluded that the use of SBHC has an impact to the academic outcomes of students, such as Thompson (2006) and Keshishian (2009).

RQ4. Is there a difference in academic performance (as measured by final grades, NJASK scores, and LAL scores) between primary SBHC services used (physicals, immunizations, and mental health) and primary SBHC services not used (physicals, immunizations, and mental health), across grades 3, 4, and 5?

Research Question 4 investigated whether there was a statistically significant difference in the academic performance of users of primary SBHC services and non-users of primary SBHC services across grade levels. To address this research question, the researcher used a mixed multiple analysis of variance (MANOVA) using the combined dependent variables of final grades and NJ ASK scores for grades 3, 4, and 5. There was not enough evidence to reject the null hypothesis for Research Question 4, that there is no difference in academic performance between primary services used and those not used.

This is consistent with the main finding that there is no relationship between specific SBHC services (physicals, immunizations, and mental health counseling) and students' academic outcomes. This finding extends the knowledge in the discipline. No study has been found that directly examines the relationship between availing of mental health counselling, immunizations, and physicals) and academic outcomes.

Results Summary

In summary, there are weak negative relationships between SBHC use and academic performance, as measured by final grades and NJASK scores among the cohort of students. Likewise, there is a weak negative relationship between SBHC non-use and academic performance among the cohort of students. Thus, the researcher supported the null hypotheses for the first research questions.

The results of the next set of correlation analysis indicated that there are weak negative relationships between the usage of specific SBHC services, namely Physicals, and Mental Health Care services, and a weak positive relationship—the only positive correlation between Immunizations and the academic performance of the cohort of students for grades 3 and 5. There was incomplete data on SBHC use for the 2011-2012 school year, so no analysis was conducted using the grade 4 data. However, the results of the analysis suggest that the hypothesis for second research question was not met. Table 21 presents the results summary for Research Questions 1 and 2. The hypotheses for the third and the fourth research questions were not met because of non-significant differences in academic performance between the users and the non-users of SBHC services, whether as a general service or the usage of the specific SBHC services of Physicals, Immunizations, or Mental Health Care. The results summary for Research Questions 3 and 4 is in Table 22.

Table 21

Results Summary for RQ1 and RQ2

RQ	Measured	Final Grade	NJASK	Results
1A	SBHC Users	X	X	Hypothesis not met
1B	SBHC Non-Users	X	X	Hypothesis not met
2A1	Physicals (3rd grade)	X	X	Hypothesis not met
2A2	Physicals (4th grade)	--	--	Hypothesis met
2A3	Physicals (5th grade)	X	X	Hypothesis not met
2B1	Immunizations (3rd grade)	X	X	Hypothesis not met
2B2	Immunizations (4th grade)	--	--	Hypothesis met
2B3	Immunizations (5th grade)	X	X	Hypothesis not met
2C1	Mental Health (3rd grade)	X	X	Hypothesis not met
2C2	Mental Health (4th grade)	--	--	Hypothesis met
2C3	Mental Health (5th grade)	--	--	Hypothesis met

Table 22

Results Summary for RQ3 and RQ4

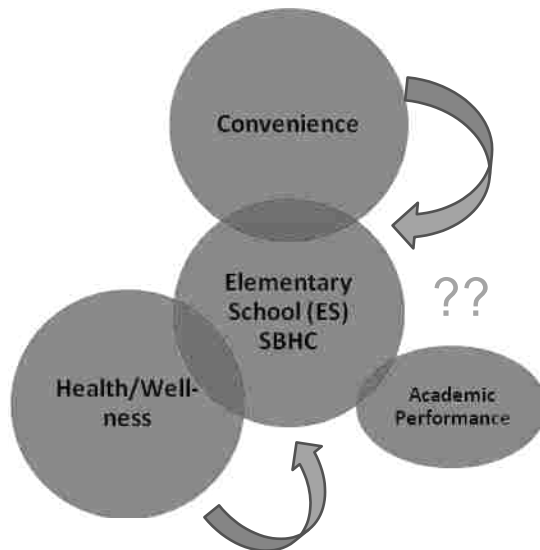
RQ	Measured	Final Grade	NJASK	Results
3	SBHC Use	X	X	Hypothesis not met
	SBHC Non-use	X	X	Hypothesis not met
4A	Physicals	X	X	Hypothesis not met
4B	Immunization	X	X	Hypothesis not met
4C	Mental Health Care	X	X	Hypothesis not met

Implications of the Findings

The findings contradicted the convenience theory. The researcher hypothesized that the establishment of SBHCs would save time and provide resources (Farquhar & Rowley, 2009), which would have a significant influence on the academic performance of the students. Gladson (1990) also stated that changes in the structure of the American family have contributed to the increased need for convenience goods. Chang and Dibb (2006) asserted that more families are turning to e-shopping because it is more convenient. Similarly, students should benefit because SBHCs are more convenient to them. However, in this study, the presence of SBHCs and other services under SBCHs had no influence on student academic outcomes in this age group.

The findings contradict the conceptual framework Health and Academic Performance Theory. This theory postulated that academic performance is bolstered by good health status in students. Behrman (1996) found strong associations between child health and nutrition and educational achievement. Lehrer et al. (2006) concluded that poor physical and mental health had an adverse effect on the academic performance of their respondents, particularly the female students. Dilley (2009) also concluded that not only are health and education linked to each other, but academic success can also be vastly affected by every health risk. With the establishment of SBHCs, the students should have good health status, which would positively influence their academic performance. However, in this study, the presence of SBHCs and other services under SBCHs had no influence on student academic outcomes at the elementary school level. At the elementary school level, the SBHC conceptual framework reflects wellness promotion and healthy behavior practices. The original theoretical frame combined Convenience Theory and Health and Academic Performance Theory for SBHCs at the ES level. Whereas this initial SBHC conceptual frame works for the MS and HS it needs to reflect use at the ES level.

Based on my research outcomes, at the ES level the SBHC is influenced by the convenience and health constructs. In the literature, health is synonymous to wellness promotion for the ES level with academic performance suggested for future research (Figure 10).



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Figure 10. Principal Investigator's conceived modified conceptual frame.

Academic achievement in this student cohort is defined differently from the MS and HS levels needing further research. Perhaps in future research ES socialization skills and school connectedness are dependent variables defining academic achievement in this student cohort. These constructs can be measured in the ability to achieve academic success through preparation skills for the NJ ASK and improved GPA through SBHC services that address this particular ES need. The researcher illustrated the discrepancy between ES, MS, and HS levels as three separate formulas (Figure 11).

$\mathbf{HS > MS > ES (?)}$ $\mathbf{HS \neq ES \text{ and } MS \neq ES}$ $\mathbf{ES < MS < HS}$

Figure 11. Formulas based on research results.

The findings of this study helped fill the gap in existing knowledge regarding the direct effects of school-related health services on the attendance and academic performance of children. While the literature clearly states there is a relationship between SBHCs and academic performance at the middle and high school levels, researchers suggest a relationship at the elementary school level. This study found no significant relationship between SBHCs and academic outcomes at the elementary school level. However, this comprehensive study provided knowledge about the effects of providing school-based healthcare for students in this age group. When we refer back to the literature and theoretical frame we see all the factors that speak to improved academic performance at the middle and high school level. By exposing elementary students to SBHC use at an early age level we level the playing field encouraging healthy behaviors and practices across all school age groups. Referring back to the literature, SBHCs enable the opportunity to address the health disparities many of these students face at such a young age. Students in the elementary age group are more impressionable and easier to reach than older students where problems tend to be more complex because they experiment more with unhealthy practices and risky behaviors

The findings of this study help provide support for efforts to provide school-based healthcare, especially for those students residing in undeserved, underprivileged communities who lack access to healthcare. The literature states the school population is adolescent where there is a stronger positive relationship between SBHC and Academic Performance. This is the middle and high school level. This data shows the beginning stages of students being exposed to

health care access through SBHCs. As a school nurse practitioner in this age group, the researcher can see the benefit of early exposure to healthy habits. While there may never be an issue at the elementary school level or strong positive relationship as suggested in the data, you don't necessarily eschew the youngest most fragile members of society. Good health habits established early keeps them in school so that as the behaviors get risky they can be handled appropriately then. Early exposure to SBHCs establishes a firm foundation for improved academic performance to Even though the findings of the study contradict the previous findings about the relationship of providing healthcare programs for students and improved school attendance and academic performance, the findings of this study encourage further research assessing SBHC use at the elementary school level ensuring the services offered are age appropriate to meet their needs.

Limitations of the Study

Limitations to this study are those which the researcher is unable to control for. A limitation to this study was the fact that the researcher was unable to control for the subjects participating in the study; the sample came from a small cohort that the researcher obtained through a convenience sample. The participants consisted of students from a school where the administrator was willing to consent to use their school databases for the study. The second limitation to the study was that the data of the sample set were retrospective, and were already a part of the students' cumulative school record. The third limitation was the methodological design of the study. The quantitative nature of the study might have limited the results of the study, in that the researcher was unable to ask more questions or probe the results.

Recommendations for Future Research

Based the research study findings, at the ES level you have the SBHC being influenced

by the convenience and health constructs. In the literature, health is synonymous to wellness promotion for the ES level with academic performance suggested for future research. The first recommendation is to replicate the study using a larger urban elementary school sample. The second recommendation is to replicate the study in other urban school districts, in-state. With the telehealth concept being introduced in more rural and underserved demographic regions, school based health care and student academic performance can be more closely assessed for effectiveness in addressing students' medical needs, and improving healthcare access. The third recommendation is to conduct a comparative study involving affluent and under-served school districts. The fourth recommendation is to conduct a qualitative case study about the impact of SBHC to the academic outcomes of students. The fifth recommendation is to make provisions for IRB collaboration and uniformity that are user-friendly for conducting research in school districts.

Lessons Learned

This retrospective study is the first of its kind in this Health and Medical Sciences program. There were delays involved in obtaining this retrospective data—the researcher experienced a delay of over 2 years when dealing with the New Jersey Board of Education with no control over the politics of the process. However, the results were worth it – the longitudinal data was more helpful than a snapshot of a current group would have been. The results of the analysis were also contrary to the researcher's expectations. The researcher expected that having a SBHC on site would improve students' academic performance, but observed the opposite outcome—that SBHC use and non-use did not influence academic performance at the ES level. Lastly, as a school nurse in the elementary school, the researcher had the unique opportunity to move from clinical experience as a practitioner to seeing the study evolve as a scholarly piece of

interesting research.

Summary and Conclusions

The purpose of this quantitative research was to determine whether the use of onsite SBHC in public schools would impact academic performance of students. Based from the convenience and the health and academic performance theories, it was expected that SBHC would have a positive influence on the academic performance of students because it is convenient and maintains the good health status of the students. Previous studies have also asserted that SBHCs and academic performance have a direct and positive relationship (Jackson, 2009; Keshishian, 2009; McCord et al., 1993; Thompson et al., 2006). As such, the researcher expected that there is a relationship between SBHCs and academic performance. However, according to the statistical analyses performed, SBHC use, non-use, and all services were not positively related to academic achievement. The researcher rejected none of the null hypotheses, and found no relationship between the variables under study and academic achievement, in both final grades and standardized tests. This dissertation does acknowledge the importance of school health, and the implications for healthy behavior practices in school aged children. This dissertation suggests further research on school based health clinic use at the elementary school level focusing on other aspects defining academic performance.

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Appendix A
IRB Approval Letter



May 6, 2015

Cynthia Samuel

Dear Ms. Samuel,

The Seton Hall University Institutional Review Board has reviewed the information you have submitted addressing its concern of lacking performance site approval from the Newark NJ Public Schools for your proposal entitled "Exploring Relationships Between School Based Health Clinics and Academic Performance in Elementary School-Aged Children: Dissertation." Your research protocol is now reactivated. It is accepted as revised and is categorized as exempt.

Please note that, where applicable, subjects must sign and must be given a copy of the Seton Hall University current stamped Letter of Solicitation or Consent Form before the subjects' participation. All data, as well as the investigator's copies of the signed Consent Forms, must be retained by the principal investigator for a period of at least three years following the termination of the project.

Should you wish to make changes to the IRB approved procedures, the following materials must be submitted for IRB review and be approved by the IRB prior to being instituted:

- Description of proposed revisions;
- *If applicable*, any new or revised materials, such as recruitment fliers, letters to subjects, or consent documents; and
- *If applicable*, updated letters of approval from cooperating institutions and IRBs.

At the present time, there is no need for further action on your part with the IRB.

In harmony with federal regulations, none of the investigators or research staff involved in the study took part in the final decision.

Sincerely,

Mary F. Ruzicka, Ph.D.
Professor
Director, Institutional Review Board

Office of Institutional Review Board

Presidents Hall • 400 South Orange Avenue • South Orange, New Jersey 07079 • Tel: 973.313.6314 • Fax: 973.275.2361 • www.shu.edu

A HOME FOR THE MIND. THE HEART AND THE SPIRIT

Appendix B

Newark Public Schools Research and Data-Sharing Agreement

NEWARK PUBLIC SCHOOLS

Research and Data-Sharing Agreement

REQUIRED FOR DISCLOSURE OF INFORMATION PERTAINING TO INDIVIDUAL STUDENTS TO
BONA FIDE RESEARCHERS AND ORGANIZATIONS CONDUCTING RESEARCH PROJECTS AND
STUDIES

Organization Conducting Project/Study _____

Principal Researcher _____
 Cynthia E. Samuel, Ph. D. Student
 Interprofessional Health Sciences and Health
 Administration Department
 School of Health & Medical Sciences
 Seton Hall University, South Orange, NJ 07079

Faculty Advisor/Supervisor _____
 (if Principal Researcher is a student) Deborah A. DeLuca, MS, JD

Name of Project/Study: Exploring Relationships Between School Based Health Clinics and
Academic Performance in Elementary School-Aged Children: DISSERTATION

Educational Records requested and/or On-site Research Planned (be specific):

Please know that as part of the Seton Hall University Institutional Review Board Policies and Procedures, in accordance with 45 CFR 46 *et seq*, the approved SHU IRB application is provided to NBOE as a matter of course and will be provided as soon as the letter of approval is received. However, in anticipation and contemplation of this approval being provided to NBOE, the answers to your questions below are excerpted from that application as indicated. Thank you.

The Educational Records Requested question is answered previously in the approved and exempted study by Seton Hall University IRB and the NBOE which was placed on file with the NBOE (February 2013, May 2013) in Question #15. This question is reproduced in its entirety here:

15. "From where and how will potential subjects be identified (e.g., outpatient list, class list, etc.)?"

Potential subjects will be identified from class lists and school district databases both electronically and manually, which will be provided to the Principal Investigator by the Newark Public School District, previously coded, so that no particular identification can be associated with any individual student.

Student privacy and identification is protected by a numerical and/or letter code issued to each student upon school enrollment and upon SBHC enrollment if medical services are utilized. The identifiers also identify the students' grade. All necessary data can be accessed by computer through these identifiers so no other student information is compromised. Electronic icons not only blind private student information, but also categorize and interpret

the data as per the dissertation study research questions. *There is neither student contact nor contact with personal and/or private information. This is retrospective data, publicly available that has been previously accumulated, coded and aggregated, and electronically entered into the Newark Public School database.*

Additionally – the SHU IRB requires the answer to the following question about the subjects and privacy/confidentiality:

“Describe the subjects, removing geographic identifiers that could compromise anonymity or confidentiality:” – the answer from my approved IRB is again provided for herein as follows:

This dissertation consists of a convenience sample of retrospective, historic data independently collected and aggregated in a blinded format and provided to the PI, about students who are currently enrolled in Quitman Street Community School located in the Newark Public School district (NPS), Newark, New Jersey. Quitman Street Community School has an onsite SBHC and includes students from pre-kindergarten through Grade 5. I have conducted my Pilot Study (approved and exempted study by both the SHU IRB and NBOE) on the students in grade 3 during the 2010-2011 school year (N=48). A school year is from September to June totaling a ten (10) month period. These same students will be followed to grade 4 during the 2011-2012 school year, and to grade 5 during the 2012-2013 school year for a total of three (3) consecutive school years.

Age(s) of subjects: 3rd Grade students, male and female, aged 8-9 years old, whose parent/guardian has either approved the use of the SBHC (coded as “SBHC-n”) for their child(ren) or who has disapproved the use of the SBHC (coded as “NSBHC-n”) for their child(ren). These same students aged 8-9 years old in the 2010-2011 school year will be 9-10 years old in the 4th grade during the 2011-2012 school year, and 10-11 years old in the 5th grade during the 2012-2013 school year.

Number of subjects: N = 48 (*) per school year

(*) According to a preliminary G-power analysis conducted for the pilot study, a convenience sample of 34 students was revealed, however a sample of 48 students is being used for this study, which includes the entirety of the 3rd grade students on record. These same students who comprised the 3rd grade at Quitman Street School, and served as the sample set for the pilot study will be followed to grade 4 and grade 5 for the dissertation study. Therefore, the same median effect and significance level of $p < 0.05$, calculated for the pilot study will remain the same for the dissertation. It is anticipated that there may be a slight difference in this N from 3rd to 4th grade and 4th to 5th grade, accounting for students entering and leaving the NPS system, since Newark is a transient community. The PI is unaware of the total population in any year and has no control over the actual number of students per classroom in each grade year available in the datasets provided since that information is not made available until approval by the SHU IRB is attained and the study is retrospective.

The question regarding where and how data will be collected or on-site research being conducted is answered previously in the approved and exempted study by Seton Hall University IRB and the NBOE which was placed on file with the NBOE (February 2013, May 2013) in Question #20. This question is reproduced in its entirety here:

20. Where will research be conducted? (Be specific)

The Principal Investigator will be collecting data at the following location:

Newark Board of Education Central Office
2 Cedar Street
Newark, New Jersey 07112

At the time for data collection of the Quitman Street Community School students, the Principal Investigator will go to the Newark Board of Education Central Office to gather data on the students in grades 4 and 5 as outlined in the inclusion criteria. At the risk of being repetitive, there are no subjects to recruit for this study since the study is retrospective in scope. Data for the dissertation will be provided to the Principal Investigator by the NPS in the form of consolidated reports for students who are in the third grade during the 2010-2011 school year. Data for these same third grade students will be provided as fourth graders during the 2011-2012 school year, and as fifth graders during the 2012-2013 school year totaling a three year period. These records consist of report cards, SBHC logs and outcomes of the New Jersey Assessment of Skills and Knowledge (NJ ASK) annual testing and attendance records, all previously coded and blinded to the PI. All information for this dissertation will be collected electronically and manually from the reports provided to the Principal Investigator from the Newark Public Schools BOE, and Jewish Renaissance Medical Center.

Inclusion and exclusion criteria for this dissertation study are as follows:

Inclusion Criteria:

1. Data from students who entered grade 3 (2010-2011) to grade 4 (2011-2012) to grade 5 (2012-2013) at Quitman Street Community School, from 2010-2011, 2011-2012, and 2012-2013 academic years respectively, pre-blinded with electronic icons and pre-coded to protect both the privacy and the confidentiality of the student subjects.
2. Males and females are equivalently welcomed if they meet criteria (1) above.
3. Users of SBHC if they meet criteria (1) above (the "case")
4. Non-Users of SBHC if they meet criteria (1) above (the "control")

Exclusion Criteria:

1. Data from any student attending the Quitman Street Community School, from the specified 2010-2013 academic years that is not in the aforementioned grade levels at that consecutive time frame.
2. Any data that does not otherwise meet the criteria strictly specified in inclusion criteria points (1) – (4) above.

Information that can be utilized on site only will be utilized and returned according to any instructions and arrangements agreed upon with the Principal or Health Services Director. Any data which can be removed from the premises will be placed in a secure case and will be brought to the Principal Investigator's home office, where it will be kept in a securely locked drawer (paper) or on a password-protected memory key kept in a securely locked drawer, only to be accessed when being used for analysis.

Relevance of the requested Education Records and/or On-Site Research to the project or study:

SIGNIFICANCE of this DISSERTATION STUDY

Current literature suggests that school based health clinics are designed to become a part of the school community, lending insight and advocacy in promoting the health status of the students they serve (NASBHC, 2008; NASBHC, 2009). SBHCs employ practitioners who provide

comprehensive medical care to students in all different areas of health care, including general practitioners such as physicians, nurse practitioners, registered nurses, and physician assistants, mental health specialists such as social workers, alcohol and drug counselors, and other varieties of health professionals (NASBHC, 2008). According to Academic Medicine (2007), SBHCs have tremendous untapped potential as models for learning about systems-based care of vulnerable children. SBHCs aim to provide comprehensive, community-based primary health care to primary and secondary school children who might not otherwise have ready access to that care (NASBHC, 2008).

Not every student in the United States has access to health centers at their schools, nor can easily access care within their community setting. As a result, students may be forced to miss classes or school due to illness or injury that has to be treated outside of the school setting (Franklin, Harris & Allen-Meares, 2006). If they would be treated at a medical facility outside of the school, they will likely suffer longer wait times or have to travel significant distances by public transportation which may not be convenient or which they may not be able to navigate successfully by themselves, especially if they are ill. For this reason, providing the students with clinic health care access on site has been a powerful tool in maintaining and assessing the health needs of students (Franklin, Harris & Allen-Meares, 2006). By having a health care center on site, students are able to obtain quick and efficient care for their illness or injury, resulting in less class time missed. Studies previously discussed herein already show that lack of access to onsite SBHCs seem to negatively affect students' academic achievement, although the majority of the studies were conducted at the high school level.

The literature on SBHCs is well established. However, there is a paucity of literature discussing the specific relationship between academic performance among students that utilize SBHCs and those that do not utilize SBHCs at the elementary school level. This dissertation is designed to assist in closing this particular gap in the published literature by contributing to school health and child health literature.

Also, this dissertation is novel in that it is retrospective in its design, and although this is not wholly unfamiliar in medical based research, it is less commonly used in the social sciences area of research and hence, makes this study unique and significant. A retrospective study utilizes existing data that has been recorded for purposes other than pure research (Hess, 2004). In the field of healthcare, these studies are referred to as chart reviews, because the data source is usually the medical record. Retrospective studies, which include case report, case series and case-control studies, can provide a new perspective as an important contribution to existing literature. Many criticize retrospective studies as "quick and dirty" and would not usually include them as a legitimate type of research study. These individuals tend to view these studies as hastily done, where the data are just gathered from already existing records to answer a question. However, these individuals would be incorrect and rash in their assumptions, as not all retrospective studies can be nor should be characterized as "dirty and quick" (Hess, 2004). Some retrospective studies serve useful purposes. A dissertation conducted with retrospective review of data can help to focus the study question, determine reasonable sample size, clarify hypothesis(es) and determine if there are feasibility issues for an eventual proposed prospective study (Hess, 2004).

Therefore, not only are the four questions regarding discerning the relationship, if any, between the existence of and contribution of an SBHC to academic performance at the elementary school level novel and significant, but using a retrospective review of readily available New Jersey State data is an appropriate, novel and different approach to elucidating the beginning answers to these challenging questions, while making a significant contribution to the already existing literature on this subject. More important, this study is novel in that it is retrospective and longitudinal in its scope, in that it is involving a data analysis of the same cohort of students who entered the 3rd grade during the 2010-2011 school year through their completion of their 5th grade school year in 2012-2013.

- Franklin, C., Harris, M.B., & Allen-Meares, P. (2006). *The school services sourcebook: a guide for school-based professionals*. New York, NY: Oxford University Press.
- Hess, D. (2004). Retrospective Studies and Chart Reviews. *Respiratory Case*, 49(10), 1171-1174.
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- National Assembly of School-Based Health Care (NASBHC). (2009). SBHCs in Health Care Reform. September Policy Update. Washington D.C.

The Family Education Rights and Privacy Act (“FERPA”), 20 U.S.C. § 1232g, is a federal law that applies to all schools receiving funds under a program of the United States Department of Education. FERPA, which protects the privacy of student education records (“Education Records”), permits schools to disclose Educational Records and personally identifiable information to certain organizations conducting research projects and studies in accordance with designated guidelines.

The Principal Researcher named above (“Principal Researcher”) will be provided access to and/or disclosure of Education Records of current and/or former Newark Public Schools (“NPS”) students, including personally identifiable information (as that term is defined in FERPA) relating to such students, for the purposes described in the Scope of Work attached hereto and subject to the terms and conditions set forth below.

A. Specific terms and conditions of access/disclosure of Education Records, if any:

There is NO access to or disclosure of any educational records or personally identifiable information associated with this dissertation study. The reason is because this study is based on analysis of publicly available RETROSPECTIVE DATA gathered independently and compiled on a flash drive prepared for the PI by an agent of the NPS that is only available as AGGREGATE data for grades 4 and 5 from the Quitman School, Newark, NJ. There is nothing that is traceable to any individual student who is at the school in any of the classrooms associated with Grades 4 and 5. Copy of the approved, exempted study and any subsequent correspondences have all been provided previously to the NBOE by the PI.

A copy of a small portion of the data as aggregated for the PI's study is attached herein (Grade 3 from the PI's previously approved and exempted Pilot Study) in Appendix NBOE-1 so that the NBOE can see how the data is completely free of any personally identifying information and is only provided for in the AGGREGATE.

B. Confidentiality of Education Records and Conditions of Access/Disclosure.

1. The project or study will be conducted in a manner that does not permit personal identification of students or parents (through the use of names, addresses, student identification numbers, photographs, electronic images or any other personally identifiable information) by individuals other than representatives of the organization named above that have legitimate interests in the information. – *NON APPLICABLE to this study because this study is based on*

analysis of publicly available RETROSPECTIVE DATA gathered independently and compiled on a flash drive prepared for the PI by an agent of the NPS that is only available as AGGREGATE data for grades 4 and 5 from the Quitman School, Newark, NJ. There is nothing that is traceable to any individual student who is at the school in any of the classrooms associated with Grades 4 and 5.

2. Personally identifiable information will be used only to meet the purpose or purposes of the project or study as stated in the Scope of Work attached. *–Yes but as stated in #1 above, Non applicable to this study because this study is based on analysis of publicly available RETROSPECTIVE DATA gathered independently and compiled on a flash drive prepared for the PI by an agent of the NPS that is only available as AGGREGATE data for grades 4 and 5 from the Quitman School, Newark, NJ. There is nothing that is traceable to any individual student who is at the school in any of the classrooms associated with Grades 4 and 5*

3. Within no more than thirty (30) days of the completion of the project or study, all personally identifiable information shall be returned to the Newark Public Schools, or the Principal Researcher and/or his/her supervisor/advisor shall certify in writing that all of the personally identifiable information has been destroyed. *Since there is no personally identifying information involved in this study, this is not necessary for the PI to give to the NPS.*

4. All data relating to, arising out of or in connection with the project or study will be maintained on a secure computer network or system.

As stated in Q23 of the Seton Hall University IRB application which was approved and exempted for this study, regarding the privacy and confidentiality of all data and materials associated with this research study, I have reproduced in its entirety the response provided herein. The application originally approved by SHU IRB and NBOE was provided to NBOE and is on file. The statement referenced herein pertaining to Q23 is:

23. *What methodology will be taken to insure the anonymity of the subjects and the confidentiality of the data (i.e., coding system, how and where data will be stored and secured, how data will be analyzed, who will have access to data, what will happen to data after the study is completed)? [Note: For security reasons, data can no longer be stored electronically on hard drives of laptop or desktop computers. Data must now be stored electronically only on a CD or USB memory key, and kept in a locked, secure physical site.] Researchers should retain all data collected for at least 3 years after project completion.*

Protection and confidentiality will be maintained throughout the duration of the research project. No personal identifying information will be collected from participants. However, upon completion of the study, any paper information collected or utilized in the study will be kept in a locked filing cabinet in the Principal Investigator's home for three years after which time all data will be destroyed. Similarly, all electronic data will be stored on a USB memory key with access to the file protected by use of a password known only to the principal investigator. The memory key will also remain in a secured filing cabinet for three years, upon which time the data will be destroyed.

5. Any report or other work product derived from or produced as part of the project or study shall not contain any personally identifiable information.

Yes, but again, there is no personally identified information contemplated in any part of this study.

6. The Principal Researcher and/or his/her supervisor/advisor shall immediately advise the Newark Public Schools in writing if he or she learns of any unauthorized use or disclosure of any personally identifiable information. *Yes, but again, there is no personally identified information contemplated in any part of this study.*

C. Reports, Publications, Press Releases, or Statements.

7. The Organization Conducting the Project/Study (“Organization”) and the Principal Researcher shall ensure that any and all reports and other publications, press releases or written or electronic statements (“Reports”) issued by it or by any individual or entity working in cooperation with it or under its auspices that describe, discuss or relate in any way to NPS, its schools, students or employees, or to data maintained or kept on file by NPS, shall be provided to NPS in draft form (plainly marked “DRAFT – NOT FOR PUBLICATION” on the cover) not less than ten days in advance of publication, in order to afford NPS an opportunity to review the draft, provide comments, suggest changes and respond to stated conclusions. If the Organization, the Principal Researcher or any such individual or entity decides not to make any changes suggested by NPS, the Organization or Principal Researcher shall so inform NPS in writing, with a statement of the reasons for its decision. In such event, NPS may publish electronically or in print any comment it chooses to make about the Report, including a statement of its disagreement and the reasons therefor, and the Organization and the Principal Researcher shall ensure that reference to NPS’ comment is included in any and all printed and electronic copies of the Report.

8. The Organization and the Principal Researcher shall ensure that all Reports issued by the Organization or the Principal Researcher or any individual or entity working in cooperation with them, or either of them, that describe, discuss or relate in any way to NPS, its schools, students or employees, or to data maintained or kept on file with NPS, shall include a statement acknowledging the support and cooperation of NPS and its administration, in a form approved in advance by NPS. In addition, the Organization and the Principal Researcher shall ensure that all such Reports shall state that the findings, conclusions and recommendations stated therein (except for any comment by NPS included pursuant to paragraph (a) above) belong to the Organization and/or the Principal Researcher, and that the Organization and/or Principal Researcher take sole responsibility for everything contained therein.

D. Criminal History Record Checks.

9. The Organization shall not employ or contract for paid or unpaid services of any person in a position involving regular contact with NPS students unless such person has produced

satisfactory results of a criminal history record check. The Organization shall not employ any person who is, or becomes, disqualified from employment or service as a result of his or her criminal history record. The Principal Researcher shall notify NPS immediately of any notice of disqualification the Organization receives with respect to any employee, consultant or volunteer.

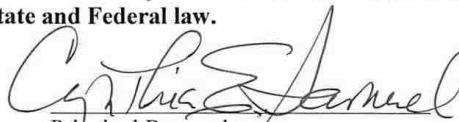
E. Indemnification.

10. In consideration for execution of this Research and Data-Sharing Agreement and the benefits of collaboration with NPS to be received by the Organization and the Principal Researcher (which are acknowledged to be good and valuable consideration), the Organization and Principal Researcher hereby agree to fully indemnify, release, protect and hold harmless NPS, its Advisory Board of Education and members thereof, the State District Superintendent, and NPS' officers, employees, agents and representatives as well as the respective heirs, personal representatives, successors and assigns, of any and all of them from and against any and all losses, damages, costs, expenses, claims and liabilities (including all attorneys' fees and costs), which NPS or any of the parties listed in this paragraph may suffer or incur as a result of the willful, reckless or negligent acts, errors or omissions of the Organization, its employees or agents, including but not limited to the Principal Researcher, in connection with the project or study and the performance of their obligations under this Research and Data-Sharing Agreement.


By signing this Research and Data-Sharing Agreement, I agree to be bound by these terms and conditions, both on my own behalf and on behalf of the Organization named above, and I represent that I am authorized to do so on behalf of the Organization. I further agree that any and all individuals to whom Education Records are disclosed in the course of the project or study will be bound by these terms and conditions.

I understand and acknowledge that any breach of these terms and conditions may result in future denial of access to or disclosure of Education Records by NPS to me and/or the Organization, and that NPS also shall be entitled to any other remedies for such breach allowable by this Agreement or applicable State and Federal law.

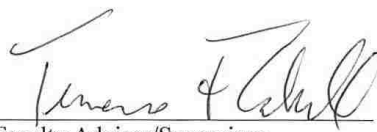
4-30-15
Date


Principal Researcher
Cynthia E. Samuel, Ph.D. Student
IHSA Department, SHMS Seton Hall
University

4/30/2015
Date


Faculty Advisor/Supervisor
(if Principal Researcher is a student)
Deborah A. DeLuca, MS, JD
Dissertation Chair

4/30/2015
Date


Faculty Advisor/Supervisor
(if Principal Researcher is a student)
Dr. Terrence F. Cahill, Ed.D., FACHE
Dissertation Committee Member and IHSA
Department Chair

Date of NPS Approval:
(NPS Only – Do not fill out)

SETON HALL UNIVERSITY

1 8 S 6

January 30, 2013

Cynthia E. Samuel

Dear Ms. Samuel,

The Seton Hall University Institutional Review Board has reviewed your research proposal entitled, "Exploring Relationships between School Based Health Clinics and Academic Performance in Elementary School-Age Children: A Pilot Study," and has categorized it as exempt.

Enclosed for your records is the signed Request for Approval form.

Please note that, where applicable, subjects must sign and must be given a copy of the Seton Hall University current stamped Letter of Solicitation or Consent Form before the subjects' participation. All data, as well as the investigator's copies of the signed Consent Forms, must be retained by the principal investigator for a period of at least three years following the termination of the project.

Should you wish to make changes to the IRB approved procedures, the following materials must be submitted for IRB review and be approved by the IRB prior to being implemented:

- Description of proposed revisions;
- *If applicable*, any new or revised materials, such as recruitment fliers, letters to subjects, or consent documents; and
- *If applicable, updated* letters of approval from cooperating institutions and IRBs.

At the present time, there is no need for further action on your part with the IRB.

In harmony with federal regulations, none of the investigators or research staff involved in the study took part in the final decision.

Sincerely,

M. F. Ruzicica

Mary F. Ruzicica, Ph.D.
Professor
Director, Institutional Review Board

cc: Dr. Deborah A. Deluca

Office of Institutional Review Board
1111 Hill • 400 South Orange • Newark, NJ 07102 • Tel: 973.313.6314 • Fax: 973.313.1361 • irb@setonhall.edu

A I I O M E F O H J " H f M I N O . T i i i : I I I i A R T A N D I I I E s r I R 1 1

Cynthia E. Samuel
48 Lord Stirling Road
Parsippany, New Jersey 07054

Mary F. Ruzicka, Ph.D.
Professor
Director, Institutional Review Board
Office of the Institutional Review Board
President's Hall, 4th Floor
400 South Orange Avenue
South Orange, New Jersey 07079

May 4, 2015

Re: Dissertation Study: Cynthia E. Samuel


Dear Dr. Ruzicka:

Please find enclosed for your file the approval letter from the Office of the State District Superintendent, Newark Public Schools for my dissertation study entitled "Exploring the Relationships Between School Based Health Clinics and Academic Performance in Elementary School Aged Children."

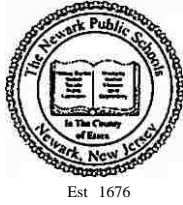
I will be greatly appreciative if you would please reactivate my IRB application for my dissertation study now that I have FINALLY received this approval to conduct my study in Newark.

I look forward to receiving your approval letter so that I may submit it to Maria Orozco in Newark so that I may collect my data key and commence my dissertation research.

Thank you in advance for your kind assistance and I look forward to your soonest reply.

Sincerely,

Cynthia E. Samuel

Cc: Dr. Deborah A. Deluca
Dr. Terrence F. Cahill



Cami Anderson
State District Superintendent

THE NEWARK PUBLIC SCHOOLS
Office of the State District Superintendent
2 Cedar Street
Newark, New Jersey 07102-3091
Phone: 973-733-7333
Fax: 973-733-6834
www.nps.k12.nj.us



March 27, 2015

Cynthia Samuel
48 Lord Stirling Drive
Parsippany, NJ 07054

Dear Ms. Smauel,

Thank you for submitting a continuation of your research proposal as a part of the Research and Data Sharing Application Process. The final stages of your research entitled, "Exploring the Relationships Between School Based Health Clinics and Academic Performance in Elementary School Aged Children," has been reviewed and approved by the Newark Public Schools.

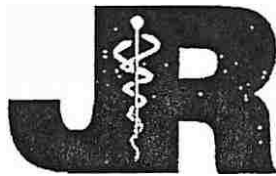
Please keep in mind that:

- If your project changes, and/or if data collection instruments change, you must request and receive prior approval in writing from the Newark Public Schools.
- If any terms outlined in your Research and Data Sharing Application is deemed to be violated, the Newark Public Schools has the authority to terminate this approval at any time.
- If you plan to conduct additional years of study, you are required to re-submit for review and approval.

Please sign and complete the attached student information confidentiality agreement.

Please ensure that any and all reports and other publications, press releases or written or electronic statements ("Publications") issued by you or by any individual or entity working in cooperation with you or under its auspices that describe, discuss or relate in any way to NPS, its schools, students or employees, or to data maintained or kept on file by NPS, shall be provided to NPS in draft form (plainly marked "DRAFT- NOT FOR PUBLICATION" on the cover) not less than ten days in advance of publication, in order to afford NPS an opportunity to review the draft, provide comments, suggest changes and respond to stated conclusions. If you or any such individual or entity decides not to make any changes suggested by NPS, you shall so inform NPS in writing, with a statement of the reasons for its decision. In such event, NPS may publish electronically or in print any comment it chooses to make about the Publication, including a statement of its disagreement and the reasons therefor, and you shall ensure that reference to NPS' comment is included in any and all printed and electronic copies of the Publication.

Please ensure that all Publications issued by you or any individual or entity working in cooperation with you that describe, discuss or relate in any way to NPS, its schools, students or employees, or to data maintained or kept on file with NPS, shall include a statement acknowledging the support and



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Alan Goldsmith, Ph.D.

January 29, 2014

To Whom It May Concern,

After discussing the project with Ms. Samuals, I believe her dissertation to be a noteworthy project to support and improve the healthcare outcomes of children in the JRMC Newark School Based Healthcare system and the community at large.

I welcome the opportunity for her to present the completed project to the Jewish Renaissance Board of Directors.

~
Mark Roberts

Chief Executive Officer

Jewish Renaissance Medical Center

MR/jsv



Est 1676

Cami Anderson
State District Superintendent

THE NEWARK PUBLIC SCHOOLS
Office of the State District Superintendent

2 Cedar Street
Newark, New Jersey 07102-3091
Phone: 973-733-7333
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cooperation of NPS and its administration, in a form approved in advance by NPS. In addition, you must ensure that all such Publications shall state that the findings, conclusions and recommendations stated therein (except for any comment by NPS included pursuant to paragraph (a) above) belong to you and/or any individual or entity working in cooperation with or under your auspices, and that you and such other individual or entity take sole responsibility for everything contained therein.

Sincerely,

Il!lwda (9~

'2v/f .~

Maria Orozco
Executive Director - Dept. of Data and Policy

CC:

Gabrielle Wyatt - Executive Director, Dept. of Strategy and Innovation
Dr. Marguerite Leuze, Special Assistant -Health Services and Nursing