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## Supporting Students with Chronic Health Conditions: An Evaluation of School Nurses' Collaborative Practices with School Psychologists

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Supporting Students with Chronic Health Conditions: An Evaluation of School Nurses'  
Collaborative Practices with School Psychologists

by

Destiny L. Singleton

A thesis submitted in partial fulfillment  
of the requirements for the degree of  
Educational Specialist  
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## **Abstract**

Many students in primary and secondary schools are impacted by a chronic health condition. Researchers have postulated that interprofessional collaboration between medical and mental health providers can be beneficial in improving the academic, behavioral, and social-emotional outcomes of students with chronic health conditions (Drotar, Palermo, & Barry, 2003; Shapiro & Manz, 2003). An emerging area of focus is on the school-based collaboration between school nurses and school psychologists regarding supporting students with chronic health conditions. This study investigated school nurses' perceptions of the benefit of collaborating with school psychologists, school nurses' awareness of the roles of school psychologists, the frequency of collaborative practices, the relationship between the awareness of roles and frequency of collaborative practices, and the barriers and facilitators to the collaborative process. A total of 1,054 school nurses were recruited from National Board for Certification of School Nurses to participate in the study, and 240 surveys were completed (23% response rate). Findings indicate that school nurses perceive the collaborative practice as being beneficial for supporting students with chronic health conditions. Additionally, school nurses were able to accurately identify many roles of school psychologists. Despite school nurses perceiving collaboration with school psychologists as beneficial, and being aware of the roles of school psychologists, the frequency of collaboration between school nurses and school psychologists was low. Further analysis found a significant and positive relationship between awareness of the roles and collaborative practices. Benefits of the collaborative process included cross-disciplinary problem solving and the opportunity to share resources.

Commonly selected barriers were time and inability to access the school psychologists.

Implications for schools, nurses, and psychologists are discussed to aid in increasing the collaboration between these two professionals.



## **Chapter One**

### **Introduction**

#### **Overview of Chronic Health Conditions**

One in four children ages 17 years and younger have a chronic health condition (Van Cleave, Gortmaker, & Perrin, 2010). Some of the most common pediatric chronic health conditions that impact children and youth are obesity, asthma, and attention deficit/hyperactivity disorder (ADHD; Torpy, Campbell, & Glass, 2010). Other chronic health conditions that are less prevalent include cerebral palsy, sickle cell anemia, cystic fibrosis, cancer, and congenital heart problems (Michigan Medicine, 2012). Chronic health conditions are a public health concern because they can result in a host of additional medical outcomes such as high blood pressure, obstructive sleep apnea syndrome (Kelly et al., 2013), persistent or recurrent pain (Friedrichsdorf et al., 2016), and non-adherence to treatment (Lemanek, Kamps, & Chung, 2001)

In addition to adverse medical outcomes, chronic health conditions can have an impact on a student's academic, behavioral, and social-emotional well-being. In regard to academic performance, research indicates that students with chronic health conditions score lower on school readiness assessments (Whiteford et al., 2013), perform lower on standardized test (Quach, Nguyen, O'Connor, & Wake, 2017; Crump et al., 2013), and are more likely to be chronically absent, and therefore miss critical instructional time, in comparison to students without chronic health conditions (Baldanz & Byrnes, 2012). Behaviorally, students with chronic health conditions are more prone to internalizing and externalizing behaviors (Pinquart & Shen, 2011). This can be concerning, because internalizing and externalizing behaviors can lead to

sleep disorders, processing speed deficits, memory problems, and sensory dysregulation (Packer & Pruitt, 2010) in comparison to students without chronic health conditions. Lastly, relative to the social-emotional well-being of these students, research has found that students with chronic health conditions have difficulty building and maintaining social relationships (Olsson et al., 2003), and they score lower on prosocial behavior measures (i.e., less likely to engage in positive interactions with peers) in comparison to children without chronic health conditions (Meijer et al., 2000). The variety of medical, academic, behavioral, and social-emotional challenges that students with chronic health conditions face can inhibit them from succeeding in school. As a result, it is important that professionals with medical and mental health expertise collaborate in order to holistically address the needs of students with chronic health conditions.

### **Conceptual Framework**

Two conceptual frameworks were used to guide the study. The first is Bronfenbrenner's (1977) developmental ecological model, which advocates using a contextual and relational framework for analyzing human functioning. The second framework is the Interprofessional Collaboration Model (IPC), which explains the four core competencies (i.e., values and ethics, interprofessional communication, teams and teamwork, and roles and responsibilities) that are needed for multidisciplinary collaboration.

Bronfenbrenner (1997) developed a multi-systematic approach in order to describe how interactions between individuals and the environment contribute to human functioning. At the center of this model is the individual, and at the outer banks are five different systems that impact how the individual develops. The smallest system is the microsystem and includes people and places that are the most immediate to the child (i.e., family members, friends, teachers, and school). The layer outside of the microsystem is the mesosystem. Bronfenbrenner stated that the

mesosystem is composed of different interactions between the microsystem. This can include interactions between the home and school environment, or between family and the community. The next system is referred to as the exosystem, and involves environments that impact the child indirectly (i.e., parent's occupation). In essence, while the child may not be directly interacting within these environments, they may still be positively or negatively impacted by the resources or decisions that are made within this system. The largest system in Bronfenbrenner's model is the macrosystem. This includes cultural patterns, values, laws, and policies that can shape how a child functions. In regard to students with chronic health conditions, these systems play a critical role in how they receive care at school. For instance, in the macrosystem is the Individuals with Disabilities Education Improvement Act 2004, which helps regulate the type of services that are available to students with disabilities. Using this ecological approach for addressing the needs of students chronic conditions can assist educators in examining the different structures that can interact in order to best serve children with chronic health conditions.

The IPC model that was the basis for this current study is supported by the American Psychological Association (APA) and was proposed by the Interprofessional Education Collaborative Board (IPEC, 2016). This framework recognizes the following four core components to improving care on the individual and community level: values and ethics, interprofessional communication, teams and teamwork, and roles and responsibilities. Values and ethics for interprofessional practice include embracing cultural diversity and individual characteristics of patients, populations, and the interdisciplinary team. In addition, it involves respecting the unique cultures that are prevalent in society, as well as the expertise that other professionals on the team are able to contribute. Interprofessional communication requires team members to select effective communication tools and techniques that enable them to facilitate

discussions and interactions in order to enhance team function. It also involves active listening, instructive feedback, avoiding discipline-specific jargon when possible, and recognizing how one's uniqueness contributes to the effectiveness of communication. Next, are teams and teamwork. This value encourages using collaborative practices for planning, delivering, and evaluating individual and community health-based care. The final competency is roles and responsibilities. Understanding and communicating the roles and responsibilities of all personnel on a team can promote prevention and intervention strategies.

### **IPC: Medical and Mental Health Providers**

Pediatricians are typically the medical providers targeted in research that investigates the collaborative practices between medical and mental health providers for aiding students with chronic health difficulties. Pediatricians are often trained in routine checkups, preventive health care, diagnosis, and treatment of chronic health conditions for children birth to 21 years of age (American Academy of Pediatrics, 2011). Instead of being a general pediatrician, some professionals opt to specialize in an area in order to receive more training and enhance their competency in one targeted population. The specialty that is the most prevalent to individuals with chronic health conditions is a developmental-behavioral pediatric subspecialty. Professionals who take this route learn how to diagnose, treat, and develop interventions for students with a range of developmental and behavioral challenges such as ADHD, learning disorders, and other behavioral and developmental challenges that may be comorbid with chronic health conditions (Soares, Baum, & Patel, 2017).

A mental health provider who pediatricians can collaborate with in order to help students with chronic health conditions thrive in an educational setting is a school psychologist. School psychologists are commonly identified as being well suited school-based mental health providers

for students with chronic health conditions, due to their extensive knowledge in academic, behavior, and mental health assessment, consultation, tiered system of support, intervention, and prevention (Batsche et al., 2005).

There are many perceived benefits of collaboration between medical and mental health providers such as the development of school-based plans related to managing medication, reducing challenging behaviors, and increasing school attendance (Drotar, Palermo, & Barry, 2003). However, the occurrence of collaborative practices between pediatricians and school psychologists is infrequent (Bradley-Klug et al., 2010). Some barriers that prevent the collaborative practices between these two professionals include time and limited understanding of school psychologists' roles (Bradley-Klug et al., 2010; Shaw et al., 1995). As a result, in order to best serve the medical and psychological needs of students with chronic health conditions, researchers hypothesize that it may be advantageous to promote school-based interdisciplinary collaborative practices by focusing on school nurses and school psychologists (Finch et al., 2015).

The American Academy of Pediatrics, Committee on School Health (2001) has identified school nurses as the leaders for providing services for students with chronic health conditions within the educational setting. Current research on the collaborative practices between school nurses and school psychologists is limited. Finch et al. (2015) researched the extent to which 83 school psychologists and 90 school nurses collaborate when addressing the needs of students who require hospital transitions. The majority of the participants worked in elementary schools (77% of school psychologists and 59.1% of school nurses), worked in a suburban setting (44% of school psychologists and 41% of school nurses), and the mean years of experience for both groups was approximately 13 years. The results indicated that 60.2% of the school nurses

worked with school psychologists, and 73.3% of the school psychologists worked with school nurses. Further analysis revealed that lines of communication were a barrier to the process. In a more specific study that investigated the collaborative practices between school nurses and school psychologists during the evaluation and identification process of children with autism spectrum disorder, the researchers found that only 13% of a sample of 100 school nurses reported collaborating with a school psychologist during the assessment and evaluation phases (McIntosh & Thomas, 2015). The stark difference in the degree of collaborative practices between these two studies suggest that there may be specific factors that influence the extent of collaboration between school nurses and school psychologists. In addition, there is limited literature on the ways that school nurses' perceptions of the roles of school psychologists relate to their collaborative practices, or the type of information they share with school psychologists. While this has been studied from the perspective of pediatricians (Bradley-Klug et al., 2010), no information on this topic can be found from the perspective of school nurses. These gaps in the literature were the basis for the rationale for this study, and helped formulate the research questions this study addressed.

### **Purpose of the Study**

The purpose of this study was to gain a preliminary understanding of the extent that school nurses and school psychologists collaborate in order to serve students with chronic health conditions. This study investigated the frequency of collaborative practices, as well as analyzed how school nurses' perceptions of the roles of school psychologists impact the degree their collaborative practices. Additional analysis revealed school nurses' perceptions of the benefits and barriers to collaborating with school psychologists.

## **Significance of the Study**

The results of this study support a larger scale evaluation of the current collaborative practices between school nurses and school psychologists. Further, these findings suggest the need for professional development and training opportunities on the roles of various school personnel and the benefits of interprofessional collaboration in order to serve students with chronic health conditions. Finally, this study contributes to the literature by exploring an area of research that has not yet been investigated.

## **Research Questions**

In order to develop a greater understanding of school nurses' perceptions of their collaborative practices with school psychologists, the following research questions were investigated:

1. To what extent do school nurses believe collaboration with school psychologists is beneficial to the health of students with chronic illnesses?
2. How often do school nurses collaborate with school psychologists?
3. To what extent are school nurses aware of the roles of school psychologists?
4. To what extent, if any, is there a relationship between perceived roles of school psychologists and collaborative practices?
5. What do school nurses perceive as the benefits and barriers to collaborating with school psychologists?

## **Terminology**

- Chronic Health Condition is defined as an illness that lasts three or more months, and can be controlled but not cured. Examples include obesity, ADHD, and diabetes. Non-examples include a cold, stomach ache, or a headache.

- Communication is defined as a one-time, unidirectional sharing of information regarding student status. An example may include a brief email sent to the school psychologist (Bradley-Klug et al., 2010). Non-examples may include multiple, ongoing bidirectional problem-solving efforts.
- Collaboration is defined as two or more people working together to plan and problem-solve for a third-party. Collaboration is different from communication as it involves ongoing, bidirectional problem-solving efforts to promote positive outcomes for students. An example may include when a school nurse provides ongoing consultation regarding the educational implications and accommodations for asthma, diabetes, and cancer. A non-example includes a one-time phone call to a school psychologist in regards to the results of a medical evaluation.
- A school nurse is defined as a school-based practitioner who provides direct care for injuries and acute illness for all students and long-term management of students with special health care needs. Responsibilities may include assessment and treatment within the scope of professional nursing practice, communication with parents, referral to physicians, screening and referral, and provision or supervision of prescribed nursing care (American Academy of Pediatrics, Committee on School Health, 2001).



## **Chapter Two**

### **Literature Review**

This literature review gives a broad overview of the fundamental elements of this research project. The elements include an introduction to the prevalence of chronic health conditions in children; the academic, behavioral, and social impact of chronic health conditions; a description of the theoretical frameworks that will guide the study; introduction to interprofessional collaboration between medical and mental health providers; an overview of the roles of school psychologists' and school nurses' in serving students with chronic health conditions; and research on the collaborative practices between school nurses and school psychologists. This section concludes with the significance of this research study.

#### **Prevalence of Pediatric Chronic Health Conditions**

**Rates and outcomes.** A chronic health condition is one that is persistent for at least three months and can limit an individual's daily activities (Adams, Kirzinger, & Martinez, 2013). It is estimated that 27% of children ages 19 years and younger have a chronic health condition, and 6.7% of children ages 19 years and younger have two or more illnesses (Anderson, 2010).

The most common chronic health condition for school-aged children is obesity. The standard measure for determining if a child is obese is by calculating their body mass index (BMI), which is weight in kilograms divided by their height in meters squared (Centers for Disease Control and Prevention [CDC], 2015). A child is considered obese if their BMI is at or above the 95<sup>th</sup> percentile for an individual of the same age and sex (CDC, 2015). According to

Ogden, Carroll, Kit, and Fleagal (2014), approximately 31.8% of children ages 2 to 19 years are considered obese. Pediatric obesity can lead to numerous health risks such as high blood pressure, cardiovascular disease, diabetes, and obstructive sleep apnea syndrome (Kelly et al., 2013). There is a growing body of literature indicating that obesity can also impact school related issues. In a study conducted by Banis and colleagues (1988), the researchers found that in a sample of thirty children between the ages of 7 and 12 years old, children who were obese reported more behavior problems and poorer self-perceptions than children who were not obese. Similarly, Falkner and colleagues (2001) conducted a cross-sectional study with 9,943 students in the 7<sup>th</sup>, 9<sup>th</sup>, and 11<sup>th</sup> grades, and found that students who were obese were more likely to report a suicide attempt, and less likely to hang out with friends in comparison to their average weight peers. This study also investigated the academic outcomes of children in 7<sup>th</sup>, 9<sup>th</sup>, and 11<sup>th</sup> grades who were obese and found that these students were more likely to be retained, consider themselves as poor students, report disliking school, and have higher rates of graduation failure. The additional health problems, maladaptive internalizing and externalizing behaviors, as well as poor academic achievement associated with obesity reflect the need for medical and psychological support students in this population.

Another common pediatric chronic health condition is asthma. Asthma affects approximately 8.4% of children under the age of 18 years (CDC, 2015). The CDC (2013), defines asthma as the inflammation of airways which can lead to shortness of breath, coughing, chest pain, or trouble sleeping due to coughing and wheezing. According to Isik and Isik (2017), asthma can interfere in a child's ability to play sports, attend school, and establish a daily sleep routine. Celano and Geller (1993) suggests that students with asthma may be at risk for low school performance due to absenteeism, side effects from medication, perceptions from teachers

or parents that they are too vulnerable to participate in activities, and stress. Consequently, these students may have difficulty thriving academically, behaviorally, and socially in school due to missed classroom instruction, overprotectiveness from parents and teachers, and limited opportunities for social interaction.

The last common chronic health condition that will be discussed in depth is attention-deficit/hyperactivity disorder (ADHD). The prevalence of ADHD for school-aged youth ranges from 5% to 11% (American Psychiatric Association [APA], 2017; Visser et al., 2014). The Diagnostic and Statistical Manual of Mental Disorders- 5<sup>th</sup> Edition (DSM-5) defines ADHD as a persistent pattern of inattention and hyperactivity that impacts the individual's functioning or development. Symptoms of ADHD include difficulty sustaining attention, organizing tasks, staying seated, and playing quietly (APA, 2017). ADHD can significantly impact a student's ability to perform well in school (Daley & Birchwood, 2010). Prior literature has found that students with ADHD may have difficulty with impulse control and interaction with peers and adults. These deficiencies can significantly inhibit their ability to actively engage in classroom instruction. Furthermore, research has found that these students have trouble with early literacy, mathematics, and language skills, which can be evident as early as their pre-school years (Spira & Fischel, 2005). Additional areas of deficiencies that are common for a student with ADHD are difficulties with organization, planning and initiating tasks, and goal setting (Abikoff & Gallagher, 2008). Prior research has found that difficulties in these skills tend to increase in severity as students' progress in school, and they can negatively impact the grades they receive on assignments (Lanberg et al., 2010). Unfortunately, due to the low performance of students with ADHD they are more likely to be placed in special education classrooms (Biederman et al., 1996), and be disciplined with suspension or expulsion (LeFever, Villers, & Morrow, 2002) in

comparison to students without the disorder. This disparity highlights the importance of researching best-practices for helping students with chronic health conditions succeed in school.

Although obesity, asthma, and ADHD are the most common chronic health conditions that are prevalent in children and youth, other conditions that school-aged children may have are cerebral palsy, sickle cell anemia, cystic fibrosis, cancer, spina bifida, and congenital heart problems (Michigan Medicine, 2012). The high prevalence rate of chronic health conditions in children and youth suggests that medical, educational, and mental health providers will likely encounter multiple children in their profession who have a chronic medical need. Consequently, it is important to investigate different factors that can contribute to maintaining or enhancing the well-being and educational prosperity of children and youth with chronic health conditions.

### **Academic, Behavioral, and Social Impact of Chronic Health Conditions**

Regardless of the specific disorder that a student may have, there are cross-cutting issues that tend to impact individuals coping with any health condition. These include persistent or recurrent pain (Friedrichsdorf et al., 2016), post-traumatic stress (Coughlin, 2012), and non-adherence to treatment (Lemanek, Kamps, & Chung, 2001). In addition, there are many academic, behavioral, and social outcomes that are correlated with chronic health conditions. These impacts will be further discussed in the proceeding sections.

**Academic.** Chronic health conditions can have an impact on students' academic performance. Whiteford et al. (2013) found that kindergarten students ages 4 and 5 years old with health care needs scored lower on school readiness and end of the year academic performance measures in comparison to students without health care needs. Similarly, Quach, Nguyen, O'Connor, and Wake (2017) conducted a study that investigated the longitudinal academic outcomes for students with chronic health conditions starting at age 8 years, and found

that the students with health adversities performed lower than children without health adversities on standardized tests for up to 2 years. The researchers also found a significant inverse relationship between the number of health adversities that a student had and their academic performance. In essence, as the number of health conditions that a student had increased, their score on the standardized assignment decreased. Further analysis revealed that students who had chronic health conditions in combination with psychological concerns declined in their academic performance at an even faster rate in comparison to children with solely a health or psychosocial issue. The implications of these findings lead to the researchers' suggestion of the coordination of medical, educational, and psychological informants to address the multi-needs of students with chronic health conditions.

Another study related to the academic performance of students with chronic health conditions was conducted by Crump et al. (2013). In this study, researchers collected English language arts (ELA) and math standardized scores from 32,548 students in 57 schools (27 elementary, 7 middle, 7 high, and 11 alternate) and found that students with ADHD, Autism Spectrum Disorder, and seizure disorders had lower scores on ELA and math standardized tests, even when controlling for ethnicity, socioeconomic status, absenteeism, and grade. However, no significant correlations were found for students with cardiovascular disorders or diabetes. The results of this study suggest that specific chronic health conditions may pose a higher threat to a student's academic performance compared to others. Therefore, educators need be cognizant of the different disorders prevalent in their school setting, and investigate how they are impacting the student's achievement.

A school functioning issue that may relate to the low academic performance of students with chronic health conditions is chronic absenteeism (Children's Hospital of Philadelphia,

2018). Chronic absenteeism is often defined as a student missing at least 10% of a school year, which equates to approximately 15 days of school instruction missed (Balfanz & Byrnes, 2012). Attendance is needed for a student to succeed in school, and can impact how they perform in their courses and on end of the year state exams. Additionally, attendance can influence graduation and dropout rates, where students who are chronically absent are less likely to complete school (Balfanz & Byrnes, 2012). For students with chronic health conditions, medical issues can make it difficult to attend school regularly. Furthermore, the lack of access to medical support in schools can make it difficult for students to manage and treat their symptoms while in a school setting. According to Burkhardt Research Services (2007), less than half of the nation's students have access to a full-time school nurse. In addition, less than 5% of students have access to a school-based health center. The limited time school nurses are in schools in combination with the medical needs of students with chronic health conditions highlights the need for investigating strategies on how to help educators develop and deliver high quality services to students with chronic health conditions.

An additional factor that can inhibit a student from excelling academically is sleep deprivation. According to the CDC (2017), school aged children should receive between 9 and 12 hours of sleep each night. Insufficient sleep has been linked to numerous chronic health conditions including diabetes, cardiovascular disease, and obesity. A number of studies have found that when compared to children without a chronic health condition, a higher incidence of sleep disturbances are found in youth with epilepsy (Cortesi, Giannotti, & Ottaviano, 1999), juvenile rheumatoid arthritis (Bloom et al., 2002), and asthma (Fiese, Winter, Sliwinski, & Anabar, 2007). Sleep is necessary because it contributes to healthy brain development, whereas insufficient sleep can be harmful to the hypothalamus which is responsible for regulating

appetite and maintaining energy (Taheri, 2016). In addition, some researchers believe that a lack of adequate sleep can impair a student's executive functioning (Meijer, 2008), and ability to engage in higher order thinking (Harrison & Horne, 1998). These skills are needed for a student to perform well in school.

The studies discussed in this section detail the impact chronic health conditions can have on the academic achievement of a student. In order to help students with chronic health conditions thrive academically, many policies such as the Rehabilitation Act of 1973, Section 504 (PL 93-112), Americans with Disabilities Act (ADA), 42 U.S.C. 12101, and the No Child Left Behind Act have been implemented in order to provide students with exceptional needs the educational services that are needed for them to succeed. These include access to regular classrooms, individualized educational plans, or modifications to rules, policies, and practices when necessary to provide students with disabilities the opportunity to fully engage in school activities. To adequately accommodate the needs of these students collaboration between experts in school settings is beneficial. The next section will discuss ways in which chronic health conditions can impact externalizing and internalizing behaviors.

**Behavioral.** Students with chronic health conditions are at risk for developing maladaptive behaviors related to their illness such as a perceived lack of control, restriction in daily activities, peer rejection, and side effects from medication (Pinquart & Shen, 2011). In a meta-analysis conducted by Pinquart and Shen (2011), the researchers integrated the results of 569 studies to investigate the internalizing and externalizing behaviors in 51,422 children and adolescents with chronic health conditions. The study included 19 illnesses (i.e., arthritis, asthma, cancer, chronic fatigue syndrome, kidney/liver disease, cleft lip, cystic fibrosis, diabetes, epilepsy, hearing impairment, heart disease, human immunodeficiency virus (HIV) / acquired

immunodeficiency syndrome (AIDS), inflammatory bowel disease, migraine, sickle cell disease, spina bifida, visual impairment, and other). Asthma represented the largest subgroup of participants in this study (n=13,793). The behaviors that the researchers measured were withdraw, somatic complaints, aggression, thought, social, and attention problems, delinquency, and anxiety/depression. The results revealed that children and adolescents with chronic health conditions had higher levels of internalizing and externalizing behavior problems in comparison to individuals without chronic health conditions. However, while internalizing problems were found across the majority of participants with chronic health conditions, externalizing behavior problems were illness-specific. For example, children with HIV/AIDS reported elevated levels of delinquent behavior, while this finding was not found in children who have heart disease. In addition, students with kidney disease reported elevated levels of aggression, whereas this effect was not found in students with chronic fatigue syndrome. As highlighted in the previous section, it is possible that some chronic health condition pose a higher risk to behavioral concerns than others. Consequently, it is important that mental health providers are able to identify the psychological needs of students with chronic health conditions, and provide individualized support to those students who are in need.

Similarly to Pinquart and Shen (2011), other studies have also found high rates of internalizing behaviors among individuals with chronic health conditions (Lavigne & Faier-Routman, 1992; McQuaid, Kopel, and Nassau, 2001; LeBovidge, Lavigne, Donenberg, & Miller, 2005). LeBovidge et al. (2005) conducted a study to investigate the role of illness-related stress on depressive and anxiety symptoms in youth ages 8 to 18 years old. The results indicated that high levels of illness-related stress were associated with high levels of anxiety and depression, while low levels of illness-related stress were associated with low levels of anxiety



and depressive symptoms. In essence, the individual's attitude toward their illness moderated the relationship between stress and internalizing behavioral symptoms.

It is important to note that even though the level of internalizing behaviors can vary among individuals with chronic health conditions, internalizing behaviors should still be viewed as a public health concern. If left untreated, children with internalizing behaviors are at a higher risk for suicide, drug abuse, and performing low in school (Packer & Pruitt, 2010). In addition, associated or comorbid conditions linked with internalizing disorders include sleep disorders, processing speed deficits, memory problems, and sensory dysregulation (Packer & Pruitt, 2010). Due to the variability of behavioral concerns amongst individuals with chronic health conditions, it's critical that mental health providers are competent in screening for behavioral concerns, and collaborate to provide these students with the appropriate level of support.

**Social.** Research has shown that students with chronic health conditions are also at risk for social problems. These problems include difficulty building and maintaining friendships, social isolation, bullying, and teasing, which contributes to a low-self-esteem and poor emotional well-being (Olsson et al., 2003). Feelings of social rejection can stem from peers not being able to relate to the student with chronic health condition, the inability to participate in sports or other extracurricular activities that may exacerbate their medical symptoms, or being afraid to start new friendships because they fear being rejected by others because of their illness. In a qualitative study by Olsson and colleagues (2003), the researchers investigated the psychosocial issues facing individuals with chronic health conditions from ages 13 to 26 years old. Although the age of the participants varied, the results indicated that there were no differences responses across age groups. As such, many of the participants reported being teased and physically and emotionally isolated. For example, a 17 year-old female with a chronic health condition stated:

“I don’t like meeting new people because by the time they found out that I can’t do the things that they do they just don’t worry about me anymore ... they feel like they don’t know what to say and I really have only got one friend that I can talk to because he has the same thing as me (Olsson et al., 2003, p. 47).”

In addition to teasing, participants reported that frequent hospitalization and over-protective parenting inhibited their ability to build and maintain social relationships. Furthermore, the study reported that children who had visible medical conditions (e.g., body deformities and skin conditions) expressed more social stigmatization and rejection from peers than participants without visible conditions. In order to cope with negative social interactions that they faced, many participants reported positive adaptive strategies such as positive self-acceptance and understanding their value.

In a related study, Meijer and colleagues (2000) used social anxiety, self-esteem, and social skills measures in order to investigate the differences in scores between 107 school-aged students with chronic health conditions and normative samples provided by each of the measures which ranged from 156 – 2149 children. The chronic health conditions that were prevalent amongst the sample were cystic fibrosis, diabetes, juvenile chronic arthrosis, osteogenesis imperfecta, eczema, and asthma. The researchers concluded that in comparison to children without chronic health conditions, those who had them were more submissive to their peers, lacked adequate social skills, and reported more socially desirable answers. There were no significant differences found between social self-esteem, social anxiety, or social activities. However, it is important to note that even though there may not have been a significant difference in the group means, educators should keep in mind that there are individualized differences in how a student copes with a chronic health condition. While some children are able

to build fruitful relationships with peers, others may struggle with relationships, and exhibit different emotional responses. Although investigating the social-emotional concerns of children with chronic health conditions on a group level can provide a substantial amount of information, in practice, being able to develop individualized plans to support students who would benefit from prevention or intervention services can be monumental in advancing the social-emotional outcomes of students with chronic health conditions.

In summary, research has found a multitude of medical, academic, behavioral, and social-emotional concerns that may impact children with chronic health conditions. Addressing these concerns is important, because they can have a significant impact on a student's school performance. Furthermore, these concerns are often dependent on another. For example, a student with asthma who has difficulty sleeping at night, may be fatigued when they arrive at school, which can lower how well they are able to attend to course instruction. Consequently, because many of these factors are intertwined, it is imperative that medical and psychological professionals are able to collaborate in order to holistically address the different factors that can impact a student's functioning.

### **Theoretical Framework**

In order to address the different factors that can impact and enhance the medical and psychological functioning of students with chronic health conditions, two theoretical frameworks will be mentioned. The first is Bronfenbrenner's (1977) developmental ecological model, which explains how different contextual and relational factors influence human functioning. The second framework is the Interprofessional Collaboration Model (IPC) proposed by Interprofessional Education Collaborative Board (IPEC, 2016), which explains the four core competencies (i.e., values and ethics, interprofessional communication, teams and teamwork, and roles and

responsibilities) that are needed for multidisciplinary teams to effectively enhance students' educational performance.

**Developmental Ecological Model.** Bronfenbrenner's theory of an ecological approach to examining human functioning was based on his belief that:

“the understanding of human development demands going beyond the direct observation of behavior on the part of one or two persons in the same place; it requires examination of multi-person systems of interaction not limited to a single setting and must take into account aspects of the environment beyond the immediate situation containing the subject (Bronfenbrenner, 1977, p. 514.)”

Bronfenbrenner (1997) developed a multi-systematic approach that includes: (a) the individual (i.e., child); (b) the microsystem (i.e., interpersonal relationships between a child and those in their immediate surroundings, such as teachers, peers, and parents); (c) the mesosystem (i.e., interactions between the individual and settings that are prominent in their life such as school, church, and home, as well as interactions between the microsystem and these settings, such as family-church, and peers-school); (d) the exosystem (i.e., social structures that an individual is not involved in, however, indirectly impacts them, such as the mass media, parent's employment, school district), and (e) the macrosystem (i.e., influence that culture has on the legalities of society).

Using an ecological approach for addressing the concerns of students with chronic conditions can help educators examine the different domains that may impact their school performance. Another benefit of using the developmental ecological model in schools is it conveniently aligns with the roles of different educators within the school setting. For example, school nurses are skilled in addressing the medical characteristics (i.e., individual factors) that

impact a child's functioning, while school psychologists can use assessments to investigate how a student's academic, behavioral, or social skills impacts their relationship with teachers and peers (i.e., microsystem). Separately, both professionals are able to address two different aspects of functioning for students with chronic health conditions. However, by working together they are able to better understand how medical conditions can play a role in the educational performance of a student with a chronic health conditions. As a result, the interprofessional collaboration between medical and mental health providers can be beneficial for students with chronic health conditions, which is why a framework for promoting IPC is an essential component of this literature review.

**Interprofessional Collaboration Model.** IPC involves two or more professionals consistently working together in order to enhance a desired outcome. The American Psychology Association supports an IPC model that was created by the Interprofessional Education Collaborative Board (IPEC, 2016). This framework recognizes the following four core competencies for improving care on the individual and community level: values and ethics, interprofessional communication, teams and teamwork, and roles and responsibilities. Values and ethics for interprofessional practice include embracing cultural diversity and individual characteristics of patients, populations, and the work team. In addition, it involves respecting the unique cultures that are prevalent in society, as well as the expertise that other professionals on the team are able to contribute. Next, IPC requires team members to select effective communication tools and techniques that enable them to facilitate discussions and interactions in order to achieve desired outcomes. It also involves active listening, being open to constructive feedback, avoiding discipline-specific jargon when possible, and recognizing how one's uniqueness contributes to the effectiveness of communication. Another core competency for

effective collaborative practices is teamwork. This competency encourages using collaborative practices to plan, deliver, and evaluate individual and community health-based care. The final competency is roles and responsibilities. Being able to understand and communicate the roles and responsibilities of all personnel on a team can help the team nominate individuals for a task that suits their areas of expertise, and it can ensure accountability for everyone to complete the task they have agreed to.

Bronfenbrenner's theory for examining human functioning, as well as the IPC model can play important roles in approaching how to serve the medical and psychological needs of students with chronic health conditions in the school setting. In regards to Bronfenbrenner's developmental ecological model, educators can investigate how different systems impact the educational performance of a student. In addition, the IPC framework teaches educators the core competencies that aid in effective collaborative practices. These two frameworks will serve as the foundation for this study, which aims to investigate the collaborative practices of two school personnel qualified to address the medical and psychological needs of students with chronic health conditions: school nurses and school psychologists. The core competences of the IPC framework will be used to guide the research questions that will be used in this study. By following this framework, more information will be known about school nurses' perceptions of the value of collaborating with school psychologists (i.e., values and ethics competency), different sources of information that school nurses' communicate with school psychologist (i.e., interprofessional collaboration competency), frequency of collaborative practices (i.e., teams and teamwork competency), and school nurses' perceptions of the roles of school psychologist (i.e., roles and responsibilities competency). Using the core competencies to evaluate the IPC between

professionals is a starting point for determining the best practices for providing high quality services to students with chronic health conditions.

### **IPC: Medical and Mental Health Providers**

IPC between medical providers and mental health practitioners can help support the medical and psychological needs that students with chronic health conditions may require to function in school (Power & Bradley-Klug, 2012). Traditionally, pediatricians were the professionals of interest when investigating the collaborative practices between medical and mental health providers for aiding students with chronic health difficulties. Pediatricians can provide a wealth of services such as routine checkups, preventive health care, diagnosis, and treatment of chronic health conditions (American Academy of Pediatrics, 2015). Additionally, some pediatricians receive a developmental-behavioral subspecialty, which enables them to work with families in order to address the medical and psychosocial aspects of child development (American Academy of Pediatrics, 2015). According to the American Academy of Pediatrics, these providers receive training in diagnosing, treating, and providing interventions for different developmental and behavioral difficulties including ADHD, learning disorders, and behavioral and developmental problems that are prevalent in children with chronic illnesses. These professionals also work closely with families in order to have a better understanding of the referral concern.

A mental-health providers that pediatricians can collaborate with in order to help students with chronic health conditions thrive in an educational setting is the school psychologist. School psychologists contribute to providing academic, behavioral, and social-emotional support to all students. However, the role of school the school psychologist has shifted over time. During the early 1900s, school psychologists were primarily responsible for academic, behavior, and mental

health assessments, as well as basic consultation (Fagan & Wise, 2000). This traditional role of school psychology consisted of using an IQ-discrepancy model, in which a school psychologist administered a cognitive and achievement test to a student in order to determine if there was a discrepancy between the two scores. If it was perceived that a student was not performing at their potential level, they would then be considered for placement in a specialized classroom (Fagan & Wise, 2000). Furthermore, behavioral and mental health assessments were primarily used to identify psychopathological symptoms that would be linked to a categorical label (Stoiber & Vanderwood, 2008).

Since the 1900s, school psychologists have transitioned from their traditional role of being the gatekeeper to special education to being responsible for assessing and intervening in issues related to a student's academic, behavioral, and social-emotional needs. A widely recognized framework for identifying, assessing, developing, and evaluating the services that are needed for students in school is the Multi-Tiered System of Supports model (Batsche et al., 2005). Within this framework, interventions are delivered to students in varying intensities (multiple tiers), depending on their needs. Successful delivery of services for students with chronic health conditions requires team-based problem-solving and collaborative practices.

As the field of school psychology continues to evolve, specialty areas have emerged. One that is pertinent to addressing the needs of students with chronic health conditions is commonly referred to as pediatric school psychology. According to Power and Bradley-Klug (2012), pediatric school psychology advocates interdisciplinary practices in order to address various factors that contribute to child development. In order to accomplish this, school psychologists who specialize in pediatric psychology during their graduate studies receive exposure to different skills and training opportunities in a variety of settings outside the school system. In the



University of South Florida School Psychology program, their area of emphasis in pediatrics includes courses in pediatric health issues in the schools, pediatric psychopharmacology, and psychological assessment of infants and toddlers (Bradley-Klug & Armstrong, 2014). In addition, students have the opportunity to collaborate with medical providers in order to gain research, practicum, and internship experience in hospital and community-based settings around the Tampa, Florida area. For this reason, the unique skills and training that school psychologists who specialize in pediatrics receive prepare them to effectively collaborate with medical providers in order to address the medical and psychological needs of students with chronic health conditions.

Within this scope of research, Bradley-Klug and colleagues (2010) surveyed 570 pediatricians in order to investigate the collaborative practices between pediatricians and school psychologists. The findings indicated that the majority of the participants found that improving patient outcomes, cross-disciplinary problem solving, and the opportunity to share resources were benefits of collaboration. However, the study reported that the occurrence of collaborative practices was low, with the majority of pediatricians collaborating with school personnel only a few times per year or less. Research has indicated that some of the barriers to collaboration between pediatricians and school psychologists include funding and insurance reimbursement for issues related to mental health (Bradley-Klug et al., 2010; Dobos et al., 1994), time (Bradley-Klug et al., 2010; Shaw et al., 1995; Shaw & Woo, 2008), inaccurate perception of school psychologists' roles (Bradley-Klug et al., 2010; Shaw et al., 1995), and professional vocabulary (Shaw & Woo, 2008). Unfortunately, while the collaboration between pediatricians and school psychologists can provide meaningful information about best practices for serving students with medical and psychological complexities, it can be hard to overcome the barriers that are present

due to the professionals working in separate employment settings. Consequently, an emerging area of research is investigating the collaborative practices of school-based personnel with expertise on the medical and psychological issues that impact students with chronic health conditions.

Collaboration between school-based providers can help promote engagement in a variety of activities that address the school-related needs of students with chronic health conditions such as the development of behavioral management plans, individualized education plans (IEP), medication management, and school attendance (Drotar, Palermo, & Barry, 2003). In addition, collaboration is perceived to be beneficial because the different perspectives from the professionals allows for a more comprehensive evaluation of a child's functioning (Shapiro & Manz, 2004). As a result, the focus of this study will be on the practices between school nurses and school psychologists.

### **Introduction to School Nurses**

Across the United States there are over 132,000 school-based nurses employed in our educational systems (Willgerodt, Brock, & Maughan, 2018). School nurses are valuable because they have many roles that are relevant in helping students with chronic health conditions such as conducting vision and eye screenings, communicating with physicians, consulting with parents, developing health plans, facilitating early identification screenings, and promoting healthy school environments (Magalnick & Mazyck, 2008). According to a survey with a sample of 1,283 school nurses, 98% of the respondents reported providing care for children with chronic health conditions (Willgerodt, Brock, & Maughan 2018). Historically, school nurses have been cited as the leaders of providing services to students with chronic health conditions in a school

setting (American Academy of Pediatrics, Committee on School Health, 2001). According to the National Association of School Nurses (NASN), school nurses are defined as:

“A specialized practice of nursing [that] protects and promotes student health, facilitates optimal development, and advances academic success. School nurses, grounded in ethical and evidence-based practice, are the leaders who bridge health care and education, provide care coordination, advocate for quality student-centered care, and collaborate to design systems that allow individuals and communities to develop their full potential (National Association of School Nurses, 2017, para. 1).”

The educational credentials required to be a school nurse can vary by district. To highlight this idea, in an unpublished pilot study that included a sample of 46 school nurses, Bradley-Klug (2017) found that the respondents’ vastly differed in their post-secondary education. The sample included nurses with only a high school diploma (2%); licensed practical nurses (LPN, 16%), registered nurses (RN; 40%), nurses with a bachelors in nursing (BSN; 33%), nurses with advanced degrees (4%) and nurses with other credentials (4%). The educational credential(s) a school nurse earns depends on the length and type of post-secondary institution he/she attends. For instance, LPNs are practitioners who have completed a one year training program in nursing, and pass the state licensure exam. Furthermore, RNs have completed two to four years in a community college or university, and have also passed the state licensure exam. Lastly, nurses with a BSN have completed a four year degree from an accredited college or university, and they passed the state licensure exam (NASN, 2015). According to Willgerodt et al., (2018), the majority of nurses employed in a school setting are RNs (84%) followed by LPNs (15%). The responsibilities of school nurses relative to their educational credential varies by state. While some states allow LPNs to work independently in schools,

others require them to work under the supervision of an RN. The differences in training and responsibilities allowed by school nurses can impact the type and quality of services they deliver.

In addition to school nurses differing in educational credentials, they also differ in their employment status. According to the NASN (2016), only 39% of schools in the United States have a full time nurse, and 35% of schools have a part-time nurse. This leaves approximately 26% of schools without a school nurse. Furthermore, of the schools with a full time nurse, the majority of these are elementary schools (62.4%) followed by secondary schools (24.7%) and those that have mixed grade levels (12.9%). In addition to differences based on grade level, there also are differences in the employment of school nurses based on geographical regions.

Willgerodt and colleagues (2018) found that rural areas have the highest percentages of schools without a school nurse (30%) as well as the lowest percentage of full time school nurses (36%). The limited availability of school nurses in post-primary and rural community highlights the need for investigating strategies that can maximize the quality of resources available in these populations (NASN, 2017; Reynolds & Maughan, 2014).

Lastly, many school nurses differ in their caseload. It is not uncommon for school nurses to be employed at two or more schools (NASN, 2015; Mangena & Maughan, 2015). Having to attend to students at more than one school not only increases school nurses' caseload, but it can also reduce the time they are able to spend engaging in high-quality intervention development and implementation services. As a result, enhancing and increasing the collaboration between school nurses and school psychologists can help facilitate effective service-delivery for all students, and particularly those with chronic health conditions.

## **IPC: School Nurses and School Psychologists**

School nurses and school psychologists have complementary roles that make them useful for engaging in IPC in order to address the diverse needs of students with chronic health conditions. However, there are a limited number of studies that have examined the collaborative practices between school nurses and school psychologists for students with chronic health conditions. Finch and colleagues (2015) investigated the extent to which 90 school nurses and 83 school psychologists collaborate when addressing the needs of students who require hospital transitions. The results of the study revealed that 60.2% of school nurses reported working with a school psychologist, while 73.3% of school psychologists reported working with a school nurse. For both groups, school counselors were the most utilized point of contact for addressing students who require transition services. In addition, both groups reported that lines of communication were not sufficient, which can be perceived as a barrier to the collaborative process. Although this study provides important information in regards to collaboration during the transition process, the results do not provide information on the collaborative practices between school psychologists and school nurses for other school-based activities. Understanding the degree of general collaborative practices can provide valuable information on the occurrence of ongoing school-based integration between medical and mental health services.

Another study that investigated the collaborative practices between school nurses and school psychologists focused on the evaluation and identification process of children with autism spectrum disorder (ASD). McIntosh and Thomas (2015) found that in a sample of 100 school nurses, 13% reported collaborating with school psychologists during the assessment and evaluation phase. Instead, school nurses were more involved in reviewing medical records (17.9%), or they were not at all involved (15.3%). After a child was identified with ASD, 23.6%

of school nurses were involved in medication administration and 21.6% were involved in nursing care which was not operationally defined in the study. Few school nurses were involved in intervention development (3.4%) or intervention implementation (3.3%). Although these findings speak to school nurses' involvement in students with ASD, more information is needed about overall collaborative practices involving students with chronic health conditions.

In order to gain a preliminary understanding of the collaborative practices between school nurses and school psychologists regarding the needs of students with chronic health conditions, a pilot study was conducted by Bradley-Klug (2017). In this pilot study, an online survey was developed to assess the degree of communication and collaboration between school nurses and school psychologists regarding students with chronic health condition. The survey was distributed to school nurses who were on the listserv of the state's school nurses association. As a result, 46 school nurses from the state completed the survey. The majority of the participants were female (96%) and white (89%). The age of the participants varied, with the most being 55 to 65 years old (36%), followed by ages 45 to 54 years old (29%), 35 to 44 years old (20%), 26 to 34 years old (13%), and 22-25 years (1%). The results from the pilot study indicated that 53% of school nurses perceived collaboration with school psychologists as being very beneficial, and 16% viewed the collaborative process as somewhat beneficial. Additionally, the majority indicated that collaboration can improve student outcomes (83%), provide an opportunity to share resources (67%), help assess student progress (65%), and allow for cross-disciplinary practices (56%). However, the majority of the school nurses reported that they collaborated with school psychologists Never (23%), Less than a few times a year (25%), or a few times a year (14%). The biggest barrier to collaboration that was reported by school nurses was time (43%).

Based on the results from the pilot study, similar to that of research with pediatricians (Bradley-Klug et al., 2010), although school nurses perceive collaboration with school psychologists as being beneficial, engaging in collaborative practices is not common. Limitations to the pilot study include a small sample size, in which results that may not generalize to other regions outside of the selected state for the pilot. Consequently, a larger and more regionally diverse sample should be used in order to more broadly investigate the collaborative practices between school nurses and school psychologists.

### **Summary and Purpose**

Many students in our communities are impacted by at least one pediatric chronic health condition (Anderson, 2010). In addition to the medical difficulties that these students face (Friedrichsdorf et al., 2016; Cortesi, Giannotti, & Ottaviano, 1999) they are also subject to a variety of psychological deficiencies that impact their school functioning. Prior research has found that students with chronic health conditions are subject to poor academic, behavioral, and social emotional issues which can impact their educational performance (Pinquart & Shen, 2011; Whiteford et al., 2012). This include lower scores on ELA and math standardized tests (Crump et al., 2013), higher risk for developing maladaptive externalizing and internalizing behaviors (Pinquart & Sheen, 2011), difficulty building and maintaining friends, bullying, teasing, and social rejection (Olsson et al., 2003). The issues that students with chronic health conditions may face can make it very difficult for them to thrive within a school setting. This is especially concerning considering that students spend roughly 1,192 hours per year in school, which is a significant amount of time. In order to ensure that students with chronic health conditions have the opportunity to gain a quality educational experience, it is important that

school personnel engage in collaborative practices in order to identify, implement, and evaluate the services that students in this population need to prosper.

Bronfenbrenner's developmental ecological model and current IPC models have provided frameworks on how to investigate the collaborative practices between professionals. Thus far in the literature, researchers have studied the IPC between pediatricians and school psychologists, and many benefits have been identified (Bradley-Klug et al., 2010). However, research has found numerous barriers that inhibit the collaborative practices between these two professionals (Bradley-Klug et al., 2010; Dobos et al., 1994). In response to these barriers, an emerging area of research is the collaborative practices between school nurses and school psychologists. To date, there is little information in the literature about the IPC between school nurses and school psychologists when providing care to students with chronic health conditions. A pilot study was conducted in order to investigate the collaborative practices between school nurses and school psychologists, and the results indicated that although school nurses perceive collaboration as being beneficial in advancing student outcomes, many do not engage in IPC. Limitations to the pilot study were the small sample size, and the limited geographical diversity.

The purpose of this study was to investigate how to address the diverse needs of students with chronic health conditions by focusing on the collaborative practices between school nurses and school psychologists. In order to gain a preliminary understanding of this process, the researcher investigated the frequency of collaboration between school nurses and school psychologists, and explored how school nurses' perceptions of the roles of school psychologists relate to their collaborative practices. In addition, this study aimed to gain more insight on what school nurses perceive as the benefits and barriers to collaborating with school psychologists on behalf of students living with chronic health conditions. The results of this study contribute to the



extent literature by revealing the current collaborative practices between these two professionals, and suggesting strategies that can be used to facilitate collaborative practices while minimizing perceived barriers.

## **Chapter Three**

### **Methods**

This study investigated the collaborative practices between school nurses and school psychologists concerning students with chronic health conditions. A survey was distributed to school nurses to gain information on their frequency of collaboration with school psychologists, as well as to identify facilitators and barriers to the collaborative process. The methods used to collect and analyze data are described in this chapter and outlined as follows: (1) description of the instrument that was used to obtain responses; (2) overview of participant recruitment (3) description of the data collection and analysis procedures; and (4) summary of ethical considerations.

#### **Instrumentation**

**Conceptual Framework.** The development of the survey used in this study was consistent with the following steps of questionnaire development presented by Crocker and Algina (1986): (a) identify purpose; (b) define construct and content domain; (c) create a framework; (d) generate an initial item pool; (e) ask experts to review items, (f) pretest; (g) pilot test; (h) continue collecting data.

*Identify Purpose.* The purpose of this survey was to assess the current status of integrated health care practices between school nurses and school psychologists. Understanding the extent of collaboration between school-based medical and mental health providers can help inform

areas where professional development is necessary to best serve children with chronic health conditions.

*Define Construct and Content Domain.* The constructs used in this study are communication and collaboration. Communication is operationally defined as a “one-time, unidirectional sharing of information regarding patient status” (Bradley-Klug et al., 2010, p. 268). Collaboration is operationally defined as two or more people engaging in a bi-directional problem-solving effort to create a plan for a third party (Bradley-Klug et al., 2010).

*Create a Framework.* This survey was adapted from a previous study that investigated the collaborative practices between pediatricians and school psychologists (Bradley-Klug et al., 2010). Due to the emphasis on integrated behavioral health care, it is critical to explore the disciplinary practices between school nurses and school psychologists.

*Generate an Initial Item Pool.* The majority of the dimensions (e.g., communication and collaboration) included in this survey were adopted from a previous study that surveyed pediatricians (Bradley-Klug et al., 2010). A research group composed of graduate students with experience in educational research, measurement, and who work in school systems that promote integrated health care reviewed the original measure and adapted some of the choice items to make them more applicable to school nurses. The literature informed wording of items and organization of the survey. The research group participants made numerous rounds of revisions before sharing the draft survey with an expert in the field.

*Ask Experts to Review Items.* An expert in school nursing who was the director of a state organization of school nurses and is a current board of director for a national organization of school nurses reviewed the survey items to check for accurate terminology, clarity of questions, and to provide general feedback. Furthermore, graduate students involved in the construction of

the survey asked school nurses at their practicum sites to review the items and provide feedback. The research team compiled a list of the suggestions, thoroughly revised each item, and changed wording where there was consistent feedback.

*Pretest Items.* The survey was inserted into Qualtrics Survey Software, and each research group team member completed the questionnaire to assess for technical difficulties and to determine appropriate completion time. Members also checked on the clarity of wording for each item and all response choices.

*Pilot Test.* A pilot test was conducted to collect preliminary data before the dissemination of the national survey. For the pilot study, a convenience sample was used, in which the Principal Investigator of the study contacted the Florida Association of School Nurses (FASN) and was given permission to have the survey distributed through their listserv. One problem that occurred during the pilot study was a technical error caused by a question in the survey. This question asked the participants to answer demographic questions for up to five schools that they served and was constructed in a matrix that consisted of a variety of drop-down options. The complexity of the matrix caused a technical difficulty during the pilot testing and prohibited participants from being able to continue with the remainder of the survey. Many participants contacted the Principal Investigator about the issue, and a member of the research team was able to log into Qualtrics to fix the matrix. The link was resent to individuals who contacted the Principal Investigator; however, it is likely that this technical issue resulted in a loss of participants. To eliminate this problem from occurring in the national survey, the research team eliminated the matrix and revised the item to include multiple-choice responses.

Fifty participants completed the pilot survey, and the research team collected descriptive statistics on the results that have informed revisions for the national study. Revisions made to the

current study as a result of the pilot study included asking for the state that the school nurse is currently employed in and asking school nurses to select their primary school and answer all of the questions in the survey based on practices that occurred in that school. A school nurses' primary school was defined as the school where they spend the highest percentage of their time each week. If they spend an equal amount of time at each of their sites, they were asked to select the school where they have the highest caseload. This method was chosen to avoid inconsistent responses that could occur if school nurses were responding to the questions based on their experiences working in multiple schools.

**Informed Consent to Participate.** An informed consent letter was displayed on the first page of the survey. In this letter, participants were told about the purpose of the study, study procedures, benefits and risk, privacy and confidentiality, and were provided with the Principal Investigator's contact information. The participants were told that by proceeding with the survey, they agreed to take part in the research. A link was then provided to access the survey.

**Components of Survey.** The survey consisted of 45 questions divided into six sections. The first section contained one question, which was used as the primary inclusion and exclusion criteria for participation in the study. The question asked if the respondents currently practice as a school nurse and provide direct services to students in a school setting. If the respondents selected 'no,' Qualtrics directed them to the end of the survey and thanked them for their time. If the respondents selected 'yes,' they proceeded to the second segment of the survey. The targeted population for this survey was only school-based nurses who had the potential to collaborate with school psychologist; therefore, this first question was critical to the study.

The second section contained 20 questions (13 multiple-choice questions and seven short answer) that pertained to the professional background and demographics of the respondents.

Participants were asked to report their gender, age, race, highest education level, the organization they are employed by (i.e., the school district or department of health), work title, years of employment, additional settings in which they have been employed, number of schools served, employment status (i.e., full-time or part-time), the state they are currently employed, and demographics related to the primary school they selected (i.e., grades served and community setting). This section is beneficial because it allowed for evaluation regarding the diversity of the sample.

The third section contained 12 questions (11 multiple-choice questions and one short answer), designed to elicit information on school nurses' perceptions of communication with school personnel. Participants were asked to indicate their primary contact within the school when they need to communicate with someone regarding a student with a chronic health condition. Respondents also were asked about their perceptions of the roles and training of school psychologists, their frequency of communication with the school psychologist, their level of satisfaction with communication with the school psychologist, most efficient and preferred method of communication, reasons for communicating, types of information shared, and the chronic health conditions they communicated to school psychologists about the most often.

The fourth section aimed to collect information on school nurses' collaborative practices with school psychologists. This section included 11 questions (eight multiple-choice questions, one rank order question, and two short answer questions). Participants were asked to indicate if their school psychologist was easily accessible, the frequency of collaboration, the degree in which collaboration is beneficial, a rank order (1=most frequently) of school personnel they collaborate with, benefits and barriers to collaboration, preferred method of collaboration, the chronic health conditions they collaborate with school psychologists about the most, and whether

they believe specific chronic health conditions (e.g., ADHD, cancer, sleep disorders) affect academic, behavior, and mental health functioning.

The fifth section of the survey contained one open-ended item where the participants could provide additional comments or feedback regarding their collaboration between school nurses and school psychologists.

The last section of the survey thanked school nurses for their participation and directed them to another survey link. This link invited them to participate in further research that may be conducted upon completion of this study. The survey contained four open-ended questions, which asked their name, email address, phone number, and state in which they are employed. The input from this section was stored in a separate Qualtrics database from the main survey responses to avoid being able to link participants' identifying information with their survey responses.

### **Ethical Considerations**

Before data collection, approval to conduct the research was obtained from the Institutional Review Board (IRB) at the University of South Florida (USF). Participants were provided with an informed consent cover letter, which appeared on the first page of the survey. All participants were fully informed of the purpose of the study. This study was considered minimal risk to the school nurses who decided to participate. Participants had the option to skip any questions that they did not want to answer. Moreover, participation in this study was voluntary, and informed consent was obtained. All information gathered from the survey was kept in a secure database.

## **Participant Recruitment and Dissemination Procedures for Current Study**

**Recruitment.** There was a multi-step process for recruitment in this study. First, school nurses in the United States were identified using a list of nationally certified school nurses which is accessible on the National Board for Certification of School Nurses website (see <http://nbcns.org/current-ncsns>). As of August 2018, there were 4,014 school nurses listed on the site. Nationally certified school nurses are registered nurses with at least a bachelor's degree, have met clinical practice requirements of 1,000 hours or more, and have completed the examination for the certification which covers health appraisal, health problems and nursing management, health promotion/disease prevention, special health issues, and professional issues. This convenience sampling procedure is similar to prior studies related to this topic (e.g., Finch et al., 2015). Next, all of the names of the school nurses within each state were inserted into an Excel spreadsheet. The PI then searched for the school nurses' email addresses through Google. A total of 1,136 emails were obtained through the search. An email containing a consent form, a description of the survey, and an embedded link to access the Qualtrics survey was sent to each school nurse. Of the 1,136 emails, 74 were invalid, which resulted in a total of 1,054 emails successfully sent. The survey on Qualtrics prevented indexing (i.e., tagging the survey to allow it to be visible on search engines), and was secured by Qualtrics' security system. Participants' responses to the survey remained anonymous.

**Survey Distribution.** The distribution of the survey occurred in two phases. Phase 1 consisted of sending the survey to school nurses in eight states to assess for any technical difficulties. Two states in each of the geographical region according to the United States Census Bureau were randomly selected (i.e., Alabama, New Mexico, Nevada, New York, Pennsylvania, Illinois, Georgia, and Kansas). In the eight states, a total of 139 email addresses were identified.



Of these 139 email addresses, 17 email addresses were bounced back as invalid or no longer in use, resulting in 122 delivered emails and 29 completed surveys (23% response rate). Following Phase 1 data collection, in Phase 2 the survey was distributed to the school nurses in the remaining 42 states and followed the same initial contact procedures as Phase 1. In the 42 states a total of 997 email addresses were identified. Of these 997 email addresses, 57 email addresses were bounced back as invalid or no longer in use, resulting in 940 delivered emails and 232 completed surveys (25% response rate).

**Response Rate.** The anticipated response rate, as reported in the literature, for cold-emailing an individual is 13.5% (Dillman, 2015). To increase a response rate, Dillman (2015) suggested sending prospective participants follow-up reminders to complete the survey. In accordance with the Australian Bureau of Statistics (2010), the current study distributed follow-up reminders 6 and 11 days following the start date of the survey. The current study yielded a total response rate of 30%. Within the first six days that the survey was available, the total response rate was 9%. Follow-up reminders increased survey response by 70%. Table 1 displays the number of survey responses that were received during the first six days of the survey being available, as well as the frequency following the first and second reminder.

Table 1  
*Total Number of Survey Responses (n=322)*

	<i>n</i>	% of total number of responses
Day 1 - 6	98	30%
Day 7- 13 (First reminder)	110	34%
Day 14 – 24 (Second reminder)	114	35%

## Demographics

**Sample Demographic Characteristics.** The final dataset included 240 useable surveys. Surveys that were incomplete, or those in which the school nurse did not meet the inclusion

criteria were not included in the final dataset. Approximately 70% ( $n = 43$ ) of the participants who did not complete the survey stopped the survey after completing the demographic questions. Additionally, none of the incomplete surveys answered a question regarding their collaborative practices with school psychologists, which was the purpose of this study. Consequently, it was decided that all incomplete surveys would be removed from the study. Of the completed surveys, the majority of participants in this sample identified as female (98%) and Caucasian (94%). In regard to the age of the participants, most were between the ages of 55-65 years (43%), followed by 45-54 years (32%), 35-44 years (17%), 26-34 years (4%), over 65 years (3%) and 18-21 years (<1%). The majority of the participants had a Bachelor of Science in Nursing (54%), and another advanced degree that was common was a Master of Science in Nursing (43%). Approximately 40% of the sample worked in Massachusetts or North Carolina (20% and 20% respectively). Furthermore, most school nurses in this sample were employed by the school district (97%) and worked full-time (93%). Additional characteristics regarding the demographic information about the respondents can be found in Table 2. Table 3 summarizes the geographical representation of the sample and is displayed in descending order based on frequency.

Finally, information was collected on the school nurses' primary school. The majority of school nurses in this sample worked in elementary schools (56%), followed by high school (25%) and middle school (19%). Furthermore, most school nurses were employed in urban settings (56%), and others worked in suburban (47%) and rural (29%) schools. The majority of school nurses in this survey were employed in Title 1 schools (65%) and only one respondent indicated being employed in a private or charter school. Results related to the demographics of the respondents' primary school are summarized in Table 4.

Table 2

*Demographic Characteristics of Study Participants (n=240)*

Variable	N	%
Gender		
Female	234	98%
Male	3	1%
Other	3	1%
Age		
18 – 21 years	1	<1%
22 – 25 years	0	0%
26 – 34 years	10	4%
35 – 44 years	40	17%
45 – 54 years	77	32%
55 – 65 years	104	43%
> 65 years	8	3%
Race		
Asian	0	0%
American Indian or Alaska Native	3	1%
Black/African American	5	2%
Multi-racial	4	2%
Native Hawaiian or Other Pacific Islander	0	0%
White/Caucasian	226	94%
Other	2	1%
Highest Education Level		
Registered Nurse (R.N)	7	3%
Bachelor of Science in Nursing (B.S.N)	130	54%
Advanced Degree	84	35%
Other	18	8%
Employment Institution		
School District	230	97%
Department of Health	8	3%
Employment Status		
Full time	223	93%
Part time	16	7%
Years Employed as School Nurse		
0-5	37	16%
6-10	48	20%
10-15	56	24%
16-20	58	24%
< 21	38	16%
Other Settings Worked		
In-Patient	219	36%
Out-Patient	47	8%
Physician's Office	78	13%
Residential Facility	34	6%
Health/Walk-in Clinic	44	7%

Table 3

*Geographical Representation of Study Participants (n=240)*

State	# of emails identified	# of emails completed	Response rate	% of total participants
Massachusetts	223	49	22%	20%
North Carolina	240	48	20%	20%
West Virginia	43	27	63%	11%
Arkansas	7	12	171%	5%
Illinois	48	11	23%	5%
Washington	30	9	30%	4%
Texas	41	8	20%	3%
Colorado	36	7	19%	3%
Minnesota	15	7	47%	3%
Pennsylvania	35	7	20%	3%
Ohio	25	6	24%	3%
Connecticut	30	4	13%	2%
Indiana	4	4	100%	2%
New Mexico	14	4	29%	2%
Virginia	25	4	16%	2%
Delaware	28	3	11%	1%
Maine	15	3	20%	1%
Alaska	19	2	11%	<1%
Arizona	7	2	29%	<1%
California	8	2	25%	<1%
Iowa	7	2	29%	<1%
Mississippi	14	2	14%	<1%
New Jersey	3	2	67%	<1%
Utah	7	2	29%	<1%
Vermont	5	2	40%	<1%
Florida	13	1	8%	<1%
Hawaii	5	1	20%	<1%
Idaho	6	1	17%	<1%
Maryland	11	1	9%	<1%
Michigan	7	1	14%	<1%
Montana	32	1	3%	<1%
Nevada	15	1	7%	<1%
New York	16	1	6%	<1%
Oregon	8	1	13%	<1%
Rhode Island	12	1	8%	<1%
Wyoming	15	1	7%	<1%
Alabama	5	0	0%	0%
Georgia	3	0	0%	0%
Kansas	3	0	0%	0%
Kentucky	1	0	0%	0%
Louisiana	1	0	0%	0%

Table 3 (Continued)

State	# of emails identified	# of emails completed	Response rate	% of total participants
Nebraska	1	0	0%	0%
New Hampshire	15	0	0%	0%
North Dakota	1	0	0%	0%
Oklahoma	0	0	0%	0%
South Carolina	10	0	0%	0%
South Dakota	3	0	0%	0%
Tennessee	5	0	0%	0%
Wisconsin	19	0	0%	0%

Table 4

*Demographic Characteristics of School*

Variable	N	%
Level of School		
Elementary	132	56%
Middle	45	19%
High	59	25%
Community Setting		
Rural	69	29%
Suburban	113	47%
Urban	56	56%
Title I		
Yes	153	65%
No	83	35%
Private School		
Yes	1	<1%
No	237	100%
Charter School		
Yes	1	<1%
No	238	100%

**Review of Data Analysis Plan**

All data were exported from Qualtrics into SPSS Statistics 25 (IBM Corp, 2017) by the PI. All research questions were analyzed using SPSS. The following section explains the analyses that were used to examine each research question of the study.

**Research Question 1:** *To what extent do school nurses believe collaboration with school psychologists is beneficial to the health of students with chronic health illnesses?*

The first research question investigated the extent to which school nurses believe collaborating with school psychologists is beneficial to helping students with chronic health conditions. The frequency and percent distribution of the responses (i.e., not beneficial, moderately beneficial, very beneficial, unsure) from item *Q43* were analyzed to answer this research question.

**Research Question 2:** *How often do school nurses collaborate with school psychologists?*

The second research question analyzed information regarding the frequency in which school nurses collaborate with school psychologists. Responses to item *Q42* were analyzed to answer this question. For this item, participants selected a response from the following options: never, less than a few times a year, a few times a year, once per month, once per week, more than once per week. The frequency and percentage distribution of the responses were derived to answer this question.

**Research Question 3:** *To what extent are school nurses aware of the roles of school psychologists?*

The third research question examined the extent to which school nurses were aware of the roles of school psychologists. This question aligns with item *Q29* in the survey, where participants were asked to endorse ‘yes’ or ‘no’ from a list of 13 roles of school psychologists (i.e., academic assessment, academic intervention, behavioral assessment, behavioral intervention, consultation, crisis intervention, data-based decision making, guidance, health prevention, interprofessional collaboration, mental health assessment, mental health intervention,

and progress monitoring of student outcomes). The responses to this question were evaluated by calculating a percent distribution of the respondents' answers.

**Research Question 4.** *To what extent, if any, is there a relationship between perceived roles of school psychologists and collaborative practices?*

The fourth research question examined the extent to which the awareness of school psychologists' roles correlated with collaborative practices. It was hypothesized that the more aware school nurses were of the roles of school psychologists, the more frequently they would collaborate. To answer this question, participants first completed items *Q29* that asked respondents to endorse 'yes' or 'no' from a list of 13 roles of school psychologists, and item *Q42* which asked school nurses to select their frequency of collaboration. Each factor was then coded into a numeric rating.

Regarding the awareness of roles, responses to this item were coded as *Yes* = 1 and *No* = 2. Regarding the frequency of collaboration, the following numeric rating was used to code items in *Q42*: 0 = *Never*, 1 = *Less than a few times a year*, 2 = *A few times a year*, 3 = *Once per month*, 4 = *Once per week*, 5 = *More than once per week*. To review a complete list of the variables and codes that were used in the final dataset, please view the Codebook of Variables provided in Appendix D. Following the coding of variables, a total mean score of the participant's awareness of the roles of school psychologists was then calculated. To include as many responses in the data analysis as possible, a "MEAN.10 (Q1 to Q13)" extension was used, which calculated the mean number of 'yes' responses a participant selected if they responded to at least 10 of the 13 variables. This computation was performed to account for participants who responded to at least 75% of the items for *Q29*. Consequently, the minimum score that a participant could receive was

0, and the maximum score was 1. Finally, a bivariate correlation procedure was conducted to determine the strength of the variables.

**Research Question 5:** *What do school nurses perceive as the benefits and barriers to collaborating with school psychologists?*

The sixth research question evaluated school nurses' perceptions of the benefits and barriers to collaborating with school psychologists. This item was composed of both quantitative and qualitative analysis. Descriptions of the analysis for both procedures are detailed in the following section.

*Quantitative.* Regarding benefits, item *Q45* asked school nurses to endorse 'yes' or 'no' for the following responses: (a) improve student outcomes/health, (b) avoiding duplication of services, (c) opportunity for cross-disciplinary problem-solving, (d) opportunity to share resources, (e) feeling valued for the expertise you offer to other professionals, (f) assessing student progress, and (f) other, please specify. The frequency and percent distribution for each response was collected. To assess barriers, item *Q47* asked school nurses to endorse 'yes' or 'no' for the following responses: (a) there is not enough time in my day, (b) school psychologists are not accessible, (c) not part of my responsibilities, (d) differing views on child development between school nurses and school psychologists, (e) it is not beneficial to my practice, (f) I have too many schools, and (g) other, please specify. The frequency and percent distribution of the responses were calculated. Furthermore, of the seven items in *Q47*, item *Q48* asked participants to select the primary barrier that inhibited their collaboration with school psychologists. The frequency and percentage distribution of the responses were also collected for this item.

*Qualitative:* The qualitative portion of this research question analyzed the typed-in responses from the survey. Regarding benefits, item *Q45* included a list of benefits that could be



selected, and also featured a textbox for participants to type-in any additional benefits. In relation to barriers, item *Q47* provided participants the opportunity to record additional barriers. Additionally, item *Q48* allowed respondents to type in a primary barrier as their response. Analysis of this section occurred through a procedure known as *tabletop categories* (Saldana, 2009). Using this procedure, participants' responses were cut on individual pieces of paper, and the papers were sorted into categories that represent similar themes. Finally, upon review of all the items in each category, they were assigned a theme name. The sorting and development of themes were completed only by the PI of the research study.

## **Chapter Four**

### **Results**

This study explored school nurses' collaborative practices with school psychologists relative to supporting students with chronic health conditions. A Qualtrics survey was distributed to school-based nurses to collect data regarding their collaboration. The survey had a 30% response rate ( $n=322$ ); however, only 75% of the surveys were included in the final dataset ( $n=240$ ). This chapter will highlight the results of all the research questions.

#### **Data Screening**

Surveys were submitted by 322 out of 1062 participants, yielding a response rate of 30%. Of the 322 responses, 61 were returned incomplete. Additionally, 21 participants responded that they were not employed as a school nurse that provides direct services to students in a school setting and were excluded from the study. Consequently, the final dataset included 240 surveys.

#### **Research Question 1**

*To what extent do school nurses believe collaboration with school psychologists is beneficial to the health of students with chronic health illnesses?* The frequency and percent distributions of each response from survey item *Q43* were analyzed to answer this research question. Specifically, this item asks "To what degree do you believe that collaboration with school psychologists is beneficial to the health of your students?" This item included four responses choices which were (1) *Not beneficial*, (2) *Moderately beneficial*, (3) *Very beneficial*, and (4) *Unsure*. The results for this item are reported in Table 5.

As shown in Table 5, the majority of participants (61%) indicated that collaborating with school psychologists is ‘*Very Beneficial*’ to the health of students with chronic health conditions. Approximately 24% of the school nurses perceived collaborating with school psychologists as ‘*Moderately beneficial*’; and 3% viewed the collaborative process as ‘*Not Beneficial*’. Less than a quarter (12%) of participants were ‘*Unsure*’ if collaborating with school psychologists is beneficial for supporting students with chronic health conditions.

Table 5

*Frequency/Percent Distribution of School Nurses’ Perceived Benefit of Collaborating with School Psychologists (n=234)*

	<i>n</i>	%
Very beneficial	143	61
Moderately beneficial	56	24
Not beneficial	8	3
Unsure	27	12

## Research Question 2

*How often do school nurses collaborate with school psychologists?* The frequency and percent distribution of the responses in survey item *Q42* were analyzed to answer this question. Specifically, *Q42* asks “On average, how often do you collaborate with the school psychologist at your school?” The response choices for this question were (1) *Never*, (2) *Less than a few times a year*, (3) *A few times a year*, (4) *Once per month*, (5) *Once per week*, and (6) *More than once per week*. Results are reported in Table 6.

As shown in Table 6, the frequency of collaboration varied between school nurses. The most frequent response was ‘*Less than a few times a year*’ in which 23% of participants selected this option. Furthermore, approximately 56% of respondents reported low levels of collaboration, by selecting either ‘*A few times a year*’ (16%), ‘*Less than a few times a year*’ (23%), or ‘*Never*’ (16%). The other participants indicated collaborating with school psychologists more frequently,

by selecting ‘*Once per month*’ (14%), ‘*Once per week*’ (17%) or ‘*More than once per week*’ (15%).

Table 6  
*Frequency/Percent Distribution of School Nurses’ Collaboration with School Psychologists*  
(*n*= 237)

	<i>n</i>	%
More than once per week	35	15
Once per week	40	17
Once per month	33	14
A few times a year	37	16
Less than a few times a year	54	23
Never	38	16

### Research Question 3

*To what extent are school nurses aware of the roles of school psychologists?* The frequency and percent distribution of the responses to survey item Q29 were analyzed to answer this question. Specifically, Q29 asks, “What do you perceive as the school psychologist’s role when working with students with chronic health conditions. Participants were asked to endorse ‘Yes’ or ‘No’ for the following 14 items: (1) *Academic assessment*, (2) *Academic intervention*, (3) *Behavioral assessment*, (4) *Behavioral intervention*, (5) *Consultation*, (6) *Crisis intervention*, (7) *Data-based decision making*, (8) *Guidance*, (9) *Health prevention*, (10) *Interprofessional collaboration*, (11) *Mental health assessment*, (12) *Mental health intervention*, (13) *Progress monitoring of student outcomes*, and (14) *I do not know*. The results for this item are displayed in Table 7.

As shown in Table 7, the role of school psychologists that school nurses are the most aware of is Consultation (94%). Additionally, the majority of school nurses indicated that additional roles of school psychologists include *Academic assessment* (78%); *Academic intervention* (51%); *Behavioral assessment* (92%); *Behavioral intervention* (72%); *Crisis*

*intervention (69%); Data-based decision making (75%); Guidance (70%); Interprofessional collaboration (83%); Mental health assessment (81%); Mental health intervention (70%), and Progress monitoring student outcomes (71%).* The role that was the most underreported by school nurses was *Health Prevention*, in which only 19% of school nurses believed that this was a role of school psychologists.

Table 7

*Percent Distribution of School Nurses' Perception of the Roles of School Psychologists*

	<i>n</i>	Sample Endorsed "Yes"	Sample Endorsed "No"
Consultation	236	94%	6%
Behavioral Assessment	236	92%	7%
Interprofessional collaboration	232	83%	17%
Mental health assessment	234	81%	18%
Academic assessment	230	78%	22%
Data-based decision making	227	75%	25%
Behavioral Intervention	228	72%	28%
Progress monitoring of student outcomes	230	71%	29%
Guidance	227	70%	30%
Mental health intervention	226	70%	31%
Crisis intervention	229	69%	31%
Academic intervention	221	51%	49%
Health prevention	214	19%	81%
I do not know	107	9%	91%

*\*Note.* Participants were able to select more than one response.

#### Research Question 4

*To what extent, if any, is there a relationship between perceived roles of school psychologists and collaborative practices?* Responses to item Q29 were analyzed to answer this question. Each endorsement of the role of school psychologist was coded as the following: *Yes* = 1 and *No*=0. The mean of the participants' responses (minimum of 0 and maximum of 1) was collected to develop a total awareness score. To account for missing data, participants who responded to at least 10 of the 13 variables were included in the analysis, in which an adjusted

mean value was calculated. The frequency of collaboration which aligns with item *Q42* was coded using the following numeric rating: 0 = *Never*, 1 = *Less than a few times a year*, 2 = *A few times a year*, 3 = *Once per month*, 4 = *Once per week*, 5 = *More than once per week*. A Pearson correlation was computed to identify whether a relationship existed between awareness of the roles of school psychologists and frequency of collaboration.

The mean numeric ratings demonstrated an overall moderate awareness of the roles of school psychologists ( $M = .71$ ,  $SD = .24$ ) and a frequency of collaboration averaging to ‘*A few times a year*’ ( $M = 2.37$ ,  $SD = 1.70$ ). Results demonstrated a statistically significant positive relationship between the awareness of the roles of school psychologists and the frequency of collaborative practices ( $r = .47$ ,  $p < .01$ ).

### **Research Question 5**

*What do school nurses perceive as the benefits and barriers to collaborating with school psychologists?* Responses to the barriers and facilitators to collaboration will be described using quantitative and qualitative data.

**Benefits Quantitative.** To examine school nurses’ perceptions of the benefits of collaborating with school psychologists, participants responded to *Q45* which asks, “What do you perceive as the benefits of collaboration (current or anticipated) with school psychologists regarding students with a chronic health condition. Participants were asked to endorse ‘Yes’ or ‘No’ for the following 7 items: (1) *Improved student outcomes/health*, (2) *Avoiding duplication of services*, (3) *Opportunity for cross-disciplinary problem-solving*, (4) *Opportunity to share resources*, (5) *Feeling valued for the expertise you offer to other professionals*, (6) *Assessing student progress*, and (7) *Other*. The frequency and percent distributions for these items are displayed in Table 8.

As shown in Table 8, the benefits that were selected the most by school nurses were *Cross-disciplinary problem solving* (96%) and *Sharing resources* (96%). Additionally, the majority of school nurses also reported that improving student outcomes (92%), assessing student progress (92%), feeling valued for expertise (86%) and avoiding duplication of services (80%) were benefits of collaborating with a school psychologist.

Table 8  
*Percent Distribution of School Nurses' Perception of the Benefits of Collaboration*

	<i>n</i>	Sample Endorsed "Yes"	Sample Endorsed "No"
Cross-disciplinary problem-solving	227	96%	4%
Share Resources	227	96%	4%
Assessing student progress	227	92%	8%
Improved student outcomes/health	230	92%	19%
Feeling valued for expertise	224	86%	14%
Avoiding duplication of services	223	80%	20%
Other	35	20%	80%

\*Note. Participants were able to select more than one response.

**Benefits Qualitative.** Survey respondents who selected "*Other*" for the benefits of collaboration were asked to specify additional barriers that were not provided on the list. Some of the participants' responses aligned with benefits that were listed in the survey, and therefore were not included in the qualitative analysis. Of the new responses, the following three themes emerged: (1) consistency in treatment, (2) professional development opportunities, (3) and improved communication with parents.

Of the respondents, two school nurses indicated that collaborating with school psychologists could increase the consistency in treatment between providers. For example, one school nurse stated that collaboration allows for "making sure everyone is on the same page with interactions and treatments for students," and the other respondent stated that collaboration allows for "following [the] same procedures and adjust as needed." A secondary benefit for

collaboration between school nurses and school psychologists that was reported is that it can aid in professional development opportunities. One school nurse expressed this by commenting that collaboration allows for “professional development or training from the school psychologist as needed.” Finally, one school nurse reported that collaboration allows for “improving communication with parent/guardian,” which was the third theme that emerged from the qualitative data.

**Barriers Quantitative.** In addition to assessing for the benefits of collaborating with school psychologists, school nurses also were asked to indicate barriers to the collaborative process. To examine the barriers, participants responded to item *Q47* and *Q48*. Question *Q47* asked school nurses, “What do you perceive as barriers to collaboration (current or anticipated) with school psychologists?” This item included seven options which were the following: (1) *There is not enough time in the day*, (2) *School psychologists are not accessible*, (3) *Not part of my responsibilities*, (4) *Differing views on child development between school nurses and school psychologists*, (5) *It is not beneficial to my practice*, (6) *I have too many schools*, and (7) *Other*. For this item, respondents were able to select as many barriers that were applicable and endorsed each item as ‘Yes’ or ‘No.’ After completing this question, participants then transitioned to item *Q48* and were asked to select a primary barrier to collaborating with school psychologists. School nurses were provided the same seven options that were presented in item *Q47*; however, they were only able to select one barrier as their response. Table 9 displays the results of all the barriers that school nurses selected, and Table 10 displays the results for the primary barrier that was selected.

As shown in Table 9, time was the most significant barrier selected by school nurses (73%). Additionally, a secondary barrier that was chosen by a majority of participants (60%) was



that the school psychologist is not accessible. The majority of school nurses reported that lack of alignment with professional responsibilities (94%), differing views on child development (86%), not beneficial to practice (95%), and multiple schools (86%) were not barriers to the collaborative process. As shown in Table 10, the most common barrier selected (38%) was that the school psychologist is not accessible, followed by time (37%). Obstacles that were selected infrequently include multiple schools (6%) lack of alignment with professional (1%), differing views on child development (1%), and not beneficial to practice (<1%).

Table 9  
*Barriers of Collaboration*

	<i>n</i>	Sample Endorsed “Yes”	Sample Endorsed “No”
There is not enough time in the day	218	73%	27%
School psychologists are not accessible	219	60%	40%
Differing views on child development	206	14%	86%
I have too many schools	200	14%	86%
Not part of my responsibilities	201	6%	94%
It is not beneficial to my practice	201	5%	95%
Other	59	54%	46%

*\*Note.* Participants were able to select more than one response

Table 10  
*Primary Barrier of Collaboration (n= 227)*

	<i>n</i>	%
School psychologists are not accessible	86	38
There is not enough time in the day	83	37
I have too many schools	13	6
Not part of my responsibilities	3	1
Differing views on child development	2	1
It is not beneficial to my practice	1	<1
Other	39	17

*\*Note.* Participants selected only one response

**Barriers Qualitative.** Participants who selected ‘*Other*’ for items *Q47* ( $n = 50$ ) and *Q48* ( $n = 39$ ) were provided the opportunity to type in a barrier that was not included on the list. Some responses that were typed in aligned with an item on the list so they were not included in

the qualitative analysis. In regard to new items, the following four themes emerged when school nurses were allowed to input any additional barriers to the collaboration process: (1) limited role of the school psychologist, (2) limited understanding of the value of school nurses, (3) school psychologists' limited caseload, and (4) lack of communication.

The first theme that was referenced was the limited role of the school psychologist. Five respondents referenced the limited role of school psychologists as a barrier to collaboration. More specifically, all of these school nurses stated that the role of their school psychologist is testing, and this interferes with their ability to collaborate. The second theme that was derived is the limited understanding of the value of school nurses. For this item, six school nurses responded that they do not feel valued by their school psychologist. For instance, one stated "unwillingness on part of the school psychologist to recognize the value of the school nurses in the behavioral/mental health arena." An additional theme that was created was related to the limited caseload of the school psychologists. Four school nurses noted that the school psychologist at their site only catered to specific students such as "SPED" students, those with individualized education plans, and students with ADHD. The last theme developed was associated with a lack of communication. Three respondents indicated that the school psychologist at their site does not initiate communication or does not reciprocate the communication process. Additionally, six school nurses reported that there are no barriers to the collaborative process between them and their school psychologists.

## **Summary**

Results of these analyses indicate that most school nurses view collaboration with school psychologists as very beneficial to the health of students with chronic health conditions. Commonly selected benefits by school nurses were (1) opportunity for cross-disciplinary

problem solving, (2) sharing resources, (3) assessing student progress, (4) improving student outcomes/health, (5) feeling values for expertise, and (6) avoiding duplication of services. Additional benefits that were cited by school nurses in the qualitative responses included the opportunity for consistent treatment and professional development, as well as improved communication with parents. Furthermore, the majority of school nurses perceived school psychologists as encompassing many roles, with the most common being consultation. However, though school nurses acknowledged the value of collaborating with school psychologists and were aware of many of their roles, the majority of school nurses reported a low frequency of collaboration with school psychologists. More specifically, over half of the school nurses in this sample reported collaborating with school psychologists a few times a year, less than a few times a year, or never. Further analysis was calculated to identify whether a relationship existed between the participants' perceived roles of school psychologists and their frequency of collaboration. Results indicated a statistically significant and positive relationship between awareness of school psychologists' roles and frequency of collaborative practices. In other words, the more aware a school nurse was of the roles of a school psychologist, the more frequent their collaborative practices ( $r = .47, p < .01$ ).

Additional findings from these analyses indicated that school nurses identified some barriers to collaborating with school psychologists in regard to serving students with chronic health conditions. The majority of school nurses reported that the most significant barriers to the collaborative process are time and the accessibility of the school psychologist. The primary barrier to the collaborative process reported by school nurses was the limited accessibility of the school psychologist. Additional barriers that were reported by a small sample of school nurses (less than 10%) that inhibited the collaborative process was a lack of alignment with

professional, differing views on child development, and collaboration not being beneficial to practice. Finally, the qualitative data regarding barriers revealed that limitations in the role of school psychologists, a school psychologist's caseload, communication, and perceived value of school nurses were barriers that impeded the collaboration process.

## **Chapter Five**

### **Discussion**

The purpose of this study was to investigate school nurses' collaborative practices with school psychologists regarding students with chronic health conditions. This study distributed a survey to school nurses across the United States to explore school nurses' practices within a geographically diverse sample. Data regarding school nurses' perceptions of the benefits of collaborating with school psychologists, school nurses' awareness of the roles of school psychologists, their frequency of collaboration, as well as benefits and barriers to the collaborative process were collected in this study. The final dataset included 240 useable surveys, yielding a 23% response rate. This chapter interprets and summarizes each research question that was reported in Chapter Four. Additionally, this section will discuss implications for school nurses and school psychologists, limitations of the study, and directions for future research.

#### **Research Question 1: Benefit of Collaboration**

Findings from this study indicate that most school nurses perceive collaborating with school psychologists as very beneficial to the health of students with chronic health conditions. Additionally, approximately one quarter of the participants indicated that collaboration with school psychologists could be moderately beneficial to the health of students. A small portion of the sample was unsure how beneficial collaboration was for supporting students with chronic health conditions, and an even smaller percentage of school nurses did not believe collaboration was beneficial. The results for this item were similar to those that were found in a pilot study that

evaluated the collaborative practices of a small sample of school nurses (Bradley-Klug, 2017).

Bradley-Klug (2017) found that a majority of the school nurses reported that collaborating with a school psychologist is beneficial for aiding students with chronic health conditions.

These findings suggest that school nurses see value in collaborating with school psychologists. In alignment with the IPC framework (IPEC, 2016) detailed in Chapter Two, a core component for effective interprofessional collaboration is being able to understand the value of each expert that is a part of the team. Due to the diverse needs of students with chronic health conditions which can include academic, behavioral, and social-emotional challenges, it is advantageous that school nurses perceive school psychologists as being beneficial in supporting students with chronic health conditions because they have the competency for addressing school-related issues that impede student success. School nurses in this study indicating high awareness of the diverse roles of school psychologist further support this idea. Moreover, the collaboration amongst these two professionals can allow for a comprehensive evaluation that addresses the needs of these students which can evoke high-quality behavioral management plans, individualized education plans (IEP), and medication management treatment plans (Drotar, Palermo, & Barry, 2003).

## **Research Question 2: Frequency of Collaboration**

Findings from this study indicate variability in how frequent school nurses collaborate with school psychologists. Slightly more than half of the respondents reported low levels of collaboration, by stating that they collaborate either a few times a year, less than a few times a year, or never. However, other school nurses reported more frequent levels of collaboration with school psychologists, with over a quarter declaring that they collaborate at least once a week.

These findings suggest that in general, school nurses do not collaborate with school psychologists frequently. The finding from this study aligns with the one found in Bradley-Klug (2017), which also reported low levels of collaboration between school nurses and school psychologists. Based on the differences in frequency between providers, this suggests that there may be factors that facilitate or hinder the frequency of collaboration between these two professionals. One factor that could influence the collaborative process is the type of case that a professional has been assigned. In a study by Finch and colleagues (2015), these researchers found that approximately 60% of school nurses reported collaborating with school psychologists when helping transition a student from the hospital back into the school setting. However, when collaboration pertained to completing evaluations for ASD, McIntosh and Thomas (2015) found that only 13% of school nurses in their sample collaborated with school psychologists. This finding is interesting because it suggests that instead of school nurses and school psychologists collaborating on every case related to a student with a chronic health condition, it is possible that the chances of collaboration are higher for specific issues (e.g., school reintegration) than others (e.g., autism evaluation). Additional research should be conducted on the influence case-type has on collaboration.

### **Research Questions 3 & 4: Awareness of the Roles of School Psychologists**

Findings from this study suggested that school nurses were aware of the diverse roles of school psychologists. The majority of the participants in this study identified academic assessment, academic intervention, behavioral assessment, behavioral intervention, consultation, crisis intervention, data-based decision making, guidance, interprofessional collaboration, mental health assessment, mental health intervention, and progress monitoring as roles of a school psychologist. The role that was selected the most frequently by school nurses was consultation,

which was endorsed 'yes' by 94% of participants. The only role that was not chosen by a majority of participants was health prevention, in which only 19% of the participants endorsed this item. It is not surprising that school nurses did not view health prevention as a role of school psychologists. Health prevention is considered pertinent to the role of a school nurse (American Academy of Pediatrics, Committee on School Health, 2001). Therefore, though health prevention can also include mental health services, it can be challenging for school nurses to associate that role belonging to a professional in a different field because it is a core component of their profession. In comparison, findings were reported in Bradley-Klug (2017) in which behavior assessment was the most commonly identified role of school psychologists (76% endorsed), and only a handful of participants endorsed health prevention (<1%).

An awareness of the diverse roles of school psychologists can be highly beneficial to the collaborative process. According to the IPC framework (IPEC, 2016), an understanding of the roles and responsibilities of all personnel on a team can help engage diverse professionals whose roles complement one another, thus aiding in the development of accommodations and interventions that are suitable for a targeted population. Findings from this study revealed a significant and positive correlation between awareness of the roles of school psychologists and collaborative practices. More specifically, the more aware a school nurse was of the skillset of a school psychologist, the more frequently they engaged in collaborative practices. This demonstrates a need for schools to allow professionals involved in school-based support teams the opportunity to communicate their roles and responsibilities with each other. This strategy could occur at the beginning of each school year, in which the support staff meet and share with each other their roles and responsibilities at the school. This can allow for other professionals to



gain an understanding of the roles of others and how each provider contributes to the health and well-being of students.

### **Research Question 5: Benefits and Barriers to Collaboration**

Findings from this study indicate that school nurses perceive a number of benefits to collaborating with school psychologists regarding students with chronic health conditions. Six benefits that emerged from the quantitative data selected by the majority of school nurses included the ability to improve student outcomes, avoid duplication of services, engage in cross-disciplinary problem-solving, share resources, feel valued for expertise, and assess student progress. In the qualitative data, consistency in treatment, professional development opportunities, and improving communication with parents also were identified as benefits to collaborating with school psychologists. School nurses reported the most significant benefit for collaborating with school psychologists to be the opportunity for cross-disciplinary problem-solving and sharing resources.

Regarding barriers, in the quantitative data the majority of school nurses identified time and school psychologists not being accessible as two significant barriers. The primary barrier that was selected by school nurses was school psychologists not being accessible, which was selected by 38% of the sample. Qualitative data revealed additional barriers to the collaborative process, which included the limited role of the school psychologists, limited understanding of the value of school nurses, school psychologists' limited caseload, and a lack of communication; however, these barriers were only expressed by a minute sample of school nurses.

Findings from this study were partially consistent with the extant literature. Prior research (Bradley-Klug, 2017) has shown that the most significant benefit of collaboration according to school nurses was improving student outcomes, whereas the respondents in this study viewed the

opportunity for cross-disciplinary practices and sharing resources as the most significant benefits. However, it is important to note that despite the difference in the most commonly selected benefits, the percentage of school nurses who selected *improving student outcomes* as a benefit was higher in this study (92%) than in Bradley-Klug (2017; 83%). Overall, the school nurses in this study endorsed more benefits to collaborating with school psychologists than in the pilot conducted in Bradley-Klug (2017). One hypothesis for the discrepancy in this finding is the differences in training that may exist between the participants described in Bradley-Klug (2017) and those in this current study. As outlined in Chapter Four, the participants in the current study were recruited from the National Board for Certification of School Nurses. In essence, all of these nurses have obtained at least a bachelor's degree, have met clinical practice requirements of 1,000 hours or more, and have completed an exam that addresses a variety of topics including health appraisal, health problems and nursing management, health promotion/disease prevention, special health issues, and professional issues. Though these are the minimal requirements that the school nurses in this sample obtain, the educational credentials and professional experiences of the school nurses are advanced as evidenced by 42% of school nurses in this sample who obtained an advanced degree. In contrast, in Bradley-Klug (2017), 40% of the school nurses in the sample were registered nurses, followed by 33% with a bachelors in nursing; 16% licenses practical nurses; 4% with advanced degrees, and 4% with other educational credentials. Consequently, the advanced training of the school nurses in this sample may have contributed to acknowledging more benefits for engaging in interdisciplinary teams. Regarding barriers, time has consistently been identified as a significant barrier to the collaborative process between medical and mental health professionals (Bradley-Klug et al., 2010; Bradley-Klug et al., 2017 Shaw et al., 1995). Many explanations can be generated regarding why time is a limitation in the

collaborative process such as the large number of cases, employment schedules (e.g., part-time school psychologists), and multiple schools. Though many of these factors may be difficult to change, they highlight the importance of configuring how to engage in efficient and effective collaborative practices to enhance the well-being of students with chronic health conditions.

### **Implications of Findings**

The results of this study emphasize the need for supporting the collaborative practices between school nurses and school psychologists. Although most school nurses perceived collaborating with school psychologists as beneficial and reported many potential benefits for collaborating, the frequency of collaboration between these two professionals is low. Findings from this study lead to many implications. The following sections will outline the practice and research implications from this study.

**Implications for Schools.** One purpose of this study was to investigate the frequency of interprofessional collaboration between school nurses and school psychologists concerning students with chronic health conditions. Results of this study revealed that the overall incidence of collaboration between the two professionals is low. However, further analysis demonstrated a relationship between how aware school nurses were of the roles of school psychologists and the frequency with which they collaborated with school psychologists. As previously noted in Chapter Two, a core component to effective interprofessional collaboration is understanding the roles and responsibilities of professionals (IPEC, 2016). Consequently, it is essential that schools identify and implement strategies to increase professionals' understanding of the roles and responsibilities of different personnel within the school setting. One strategy that can be implemented in a school setting is a brief seminar with all educators that provides descriptions of the roles and responsibilities of various school personnel. This meeting can be very advantageous

because it can allow each member of the school community to share with their colleagues the specific duties that they perform at the school. Following the introductory meeting, having a physical or electronic handout available with a description of each person's roles and responsibilities can also be a valuable resource. Additionally, because the accessibility of school providers has been cited as a barrier in this current study, it can also be meaningful for faculty to communicate the days and times when they are available on campus so that collaboration can be planned effectively.

In addition to educators communicating their roles and responsibilities, it is vital that the benefits of engaging in interprofessional collaboration also are promoted. Some of the benefits of engaging in interprofessional collaboration include the opportunity to increase professional networks, knowledge and skills, productivity, and the ability to problem-solve complex challenges (Green & Johnson, 2015). Participants in the current study also viewed interprofessional collaboration as being beneficial for improving student outcomes, avoiding the duplication of services, problem-solving, resource sharing, assessing student progress, and feeling valued for expertise. Consequently, this information can be delivered in a seminar format, where a facilitator is appointed to discuss the various benefits of engaging in collaborative practices. Dedicating time towards promoting a collaborative school culture can foster a positive climate which can promote beneficial outcomes for all educators and students (Payne, 2018).

**Implications for School Nurses.** School nurses have expertise in how to manage acute and chronic illnesses, which makes them very beneficial for treating students with chronic health conditions. Willgerodt, Brock, and Maughan (2018) found that in a survey of 1,283 school nurses, 98% reported that they provide care for children with chronic health conditions. In essence, supporting students with chronic health conditions is a typical role of school nurses. As

previously reported in Chapter Four, the majority of school nurses did not view health prevention as a role of school psychologists, which aligns with the viewpoint that school nurses are the leaders of providing services to students with health conditions in the school setting (American Academy of Pediatrics, Committee on School Health, 2001). Consequently, school nurses can play a significant role in health prevention by educating school faculty about the impact chronic health conditions have on the performance of children in schools. Having these discussions can enable professionals with the opportunity to learn about the diverse needs of students with chronic health conditions and can allow providers to understand the value of school nurses regarding supporting students with chronic health conditions. In the current study, some respondents reported not feeling valued by their school's psychologist. This can be damaging to the collaboration process because, as previously noted, a core component to interprofessional collaboration is valuing the expertise that other professionals can contribute to the health outcomes of the served population. As a result, school nurses' knowledge of chronic health conditions can allow other providers to understand how valuable they can be in supporting students with chronic health conditions in the school setting.

**Implications for School Psychologists.** Though school psychologists may not have the same level of knowledge in health conditions as that of school nurses, their expertise in how to support students academically, behaviorally, and social-emotionally can be highly advantageous to the collaborative process regarding serving students with chronic health conditions. Similarly to school nurses, it is essential that school psychologists communicate to other providers how they can contribute to addressing the diverse needs of students in this population. Additionally, findings in this study revealed that the accessibility of school psychologists served as a barrier to the collaborative process. More specifically, many school nurses reported that their school

psychologists were only available at the school part-time, or their primary role was academic testing. Because the physical presence at a school can be a challenge, brainstorming alternative and practical strategies for engaging in collaboration is necessary. One strategy involves having access to video streaming services (e.g., Panopto, Blackboard Connect, Zoom, Skype) that can allow absent members to attend problem-solving meetings virtually.

### **Delimitations**

The study incorporated a few delimitations. First, members from NBSCN were selected for recruitment through convenience sampling. Namely, this organization has all the members listed on their website, which enabled the PI to search for the nurses' contact information. Although using this method poses a threat to population validity, convenience sampling is not uncommon in this line of research. Finch and colleagues (2015) used publicly available email addresses to recruit school nurses for their study. Though this sampling procedure limits the generalizability of the results, it was the most feasible method for the PI to identify and disseminate the survey to school nurses and allowed for an adequate response rate. Additionally, the type of members recruited to participate in this study poses another delimitation. As previously noted, members of the NBSCN organization are registered nurses with at least a bachelor's degree, have met clinical practice requirements of 1,000 hours or more, and have completed an examination that covers a variety of health-related topics (e.g., health appraisal, health problems and nursing management, health promotion/disease prevention, special health issues, and professional issues). Due to the standards of this organization, school nurses who are LPNS or are new to the practice were not represented in this study. This is evidenced by all the school nurses in this study having at least a bachelor's degree, and the majority (64%) working as a school nurse for at least 10 years. However, the findings from this study are very similar to

the results of the pilot study conducted by Bradley-Klug (2017) and colleagues, in which 15% of the sample were LPNS, and 67% had been employed in the school setting for less than 10 years ( $M = 8.23$ ). Additionally, though the survey did include operational definitions for school nurse, collaboration, and communication, a definition of chronic health condition was not provided. Consequently, it is possible that school nurses answered the survey without a clear or accurate understanding of a chronic health condition. Lastly, the survey was distributed to school nurses in early August and September. The start dates of schools vary, and this delimitation could have prevented some school nurses from having access to the survey on the initial start date. To minimize the impact of this delimitation, school nurses were provided two weeks to complete the study to offer them more time to participate in the study.

### **Limitations**

Threats to validity in this study were anticipated. First, though this was intended to be a national study, 40% of the participants resided in North Carolina or Massachusetts. Furthermore, school nurses in 13 states (i.e., Alabama, Georgia, Kansas, Kentucky, Louisiana, Nebraska, New Hampshire, North Dakota, Oklahoma, South Carolina, South Dakota, Tennessee, and Wisconsin) were not represented in this study. Additionally, a representative in the state of Virginia distributed the survey to other school nurses who were not recruited for participation. Moreover, the PI is unable to determine if there were other school nurses who also distributed the survey to their colleagues. Consequently, it is likely that some of the participants in the study are not nationally certified school nurses; thus, they may not have some of the educational and professional experiences as those who are nationally certified school nurses. Furthermore, the response rate for Arizona was shown to be 171%. It is likely that some participants did not accurately type in their state abbreviation or the survey was distributed to individuals outside the

targeted sample. These possibilities could contribute to errors in counting how many responses came from each state. Also, the closed-format survey did not allow for in-depth elaboration of the responses, which may influence the content validity of these findings. Furthermore, it is possible that school nurses selected answers that were socially desirable. Lastly, the sample size of the study also poses a limitation. Though the response rate in this study (30%) exceeded what is typical for cold-emailing participants (13%), having more participants can increase how generalizable the results of the study are to the practices of school nurses. Ways to increase the sample size in the future could entail requesting school nurse organizations to disseminate the survey to their members, as well as attending national conferences that target school nurses, and providing school nurses the opportunity to participate in my survey.

### **Contributions to the Literature and Future Directions**

The current study has contributed to the literature by using a national study to analyze the collaborative practices between school nurses and school psychologists regarding students with chronic health conditions. More specifically, due to this study, more is known about the frequency in which school nurses collaborate with school psychologists, and the extent to which they perceive collaboration as beneficial to the health of students with chronic health conditions. The findings from this study also have revealed school nurses' awareness of the roles of school psychologists, and the correlation between level of awareness and the frequency of collaborative practices. Additionally, this study provided information on school nurses' perceptions of the barriers and benefits to the collaborative process.

Despite the vast amount of quantitative data collected in this study, more research is needed to extend the findings. This study was adequate in addressing two of the core values of the IPC framework proposed by IPEC (2016), values/ethics and roles/responsibilities. Future



research should extend this study by conducting in-depth interviews with school nurses to better understand how values/ethics and roles/responsibilities impact their collaborative practices with school nurses. The majority of the items in this study followed a closed-ended format, which allowed the PI to gain a basic understanding of the perceptions of school nurses. However, this style limits how school nurses are able to respond to items, thus, potentially forcing them to make choices that are not truly reflective of their viewpoints. In contrast, an open-ended format would provide school nurses with more flexibility and ability to share information regarding their collaboration with school nurses. Additionally, understanding the perspectives of school psychologists regarding collaborating with school nurses also can be beneficial and it would allow a holistic understanding of IPC between school-based medical and mental health professionals. A similar format to the current study could be used with school psychologist, in which a survey could be distributed to school psychologists to gauge their collaborative practices. Following the collection of quantitative data, a qualitative approach can be used where school psychologists are interviewed to shed more light on their collaboration with school nurses. Lastly, future studies should investigate parents' perceptions of the services their children with chronic health conditions are receiving in schools. Feedback from parents could serve to further fill the gap in understanding what is considered 'best practice' and the actual services received by these students in our schools as perceived by parents.

## **Conclusions**

Addressing the collaborative practices between school nurses and school psychologists can help facilitate an ecological approach to serving the diverse needs of students with chronic health conditions. Taking an ecological approach allows for a more in-depth investigation of how people, institutions, social structures, policies, and norms can influence the performance and

prosperity of students. Additionally, it warrants an exploration of how these domains can interact to produce positive outcomes for students. In the current study, schools were selected as the institution of focus due to the significant amount of time students spend in the educational setting. Furthermore, schools often have medical and mental health providers available who can aid in addressing the medical and psychological functioning of students with chronic health conditions. As such, the study was interested in exploring the collaboration between medical and mental health providers to have a better understanding of their interaction patterns. A survey was used to collect data regarding school nurses' perceptions of the benefits of collaboration with school psychologists, the frequency of collaboration, their awareness of the roles of school psychologists, the relationship between awareness of roles and frequency of collaboration, and barriers to the collaborative process. In the current study, it was evident that school nurses viewed school psychologists as beneficial for enhancing the health of students with chronic health conditions. However, the results indicated that school nurses reported low levels of collaboration with school psychologists. These low levels of collaboration may be explained by barriers that were reported in the study such as difficulty accessing school psychologists and limited time. The results of this study warrant a more in-depth exploration of the collaborative practices between these two professionals. Additional information regarding school climate, district policies, community-school partnerships, parent involvement and their expectations regarding service-delivery, and problem-solving team structures may shed light on factors that contribute to the collaboration between these two professionals. By investigating these topics, additional strategies may be offered regarding how to advance the educational system in best supporting students at risk for medical and mental health challenges.

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## Appendix A: Survey Cover Letter Cover Letter

Dear School Nurse,

We are asking for your help in understanding the degree of communication and collaboration that occurs between school psychologists and school nurses regarding students with a chronic health condition. The growing numbers of young survivors of chronic illness and the impact of these illnesses on educational outcomes has created an increased need for school nurses and school psychologists to work together to meet the diverse needs of these youth.

The Pediatric School Psychology Research Team at the University of South Florida has developed an online survey assessing the collaborative practices between school nurses and school psychologists. Our goal is to collect data that investigates school nurses' perspectives of these collaborative practices across the United States. Data from a recent pilot study conducted in one state in the southeast found that collaboration between both disciplines is valued, but there are a number of reported barriers that make this process difficult. **Through your participation in this survey, we will be able to understand school nurse's perspectives in this collaborative effort within the United States.** The overall goal of this research is to develop strategies to facilitate collaborative practices while minimizing perceived barriers.

This online survey should only take you approximately 17 minutes to complete. We would be most appreciative if you would complete this survey by clicking on this link [https://usf.az1.qualtrics.com/jfe/form/SV\\_bOUgdAQjHJcz8pv](https://usf.az1.qualtrics.com/jfe/form/SV_bOUgdAQjHJcz8pv) and submitting it by August 31, 2018. All components of the survey are included through this survey link and no further action by you is required. We want to assure you that data will be reported only in aggregate form and that the responses of individuals will be treated in the strictest confidence. Participation in this study is voluntary. You have the alternative to choose not to participate in this study. You should only take part in this study if you want to volunteer.

If you have any questions or concerns about this study, please contact Destiny Singleton by email at [singleton2@mail.usf.edu](mailto:singleton2@mail.usf.edu).

Thank you in advance for your time and assistance.

Sincerely,

Destiny Singleton, M.A  
Principal Investigator

Kathy Bradley-Klug, Ph.D  
Secondary Study Coordinator

Research Doctoral Student  
School Psychology Program

University of South Florida  
[singleton2@mail.usf.edu](mailto:singleton2@mail.usf.edu)

Associate Dean of Faculty Affairs and Research  
Research Professor School Psychology Program

University of South Florida  
[kbradley@usf.edu](mailto:kbradley@usf.edu)

## Appendix B: Initial Email

Dear School Nurse,

We are asking for your help in understanding the degree of communication and collaboration that occurs between school psychologists and school nurses regarding students with a chronic health condition. The growing numbers of young survivors of chronic illness and the impact of these illnesses on educational outcomes has created an increased need for school nurses and school psychologists to work together to meet the diverse needs of these youth.

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If you have any questions or concerns about this study, please contact Destiny Singleton by email at [singleton2@mail.usf.edu](mailto:singleton2@mail.usf.edu).

Thank you in advance for your time and assistance.

**Appendix C: Nurses' Survey**  
**Pediatrics- School Psych and Nurses - Final**

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**Start of Block: Consent**

Q1

**Informed Consent    Informed Consent to Participate in Research**

Information to Consider Before Taking Part in this Research Study

**Pro # 00036317** Researchers at the University of South Florida (USF) study many topics. To do this, we need the help of people who agree to take part in a research study. This form tells you about this research study. We are asking you to take part in a research study that is called: School Nurses and School Psychologists: A National Study of Integrated Health Care in Schools. The person who is in charge of this research study Destiny Singleton. This person is called the Principal Investigator.

**Purpose of the Study**

The purpose of this study is to conduct a national survey to assess the current status of integrated health care practices between school nurses and school psychologists. The data collected from this survey will assist in developing strategies to enhance the partnership between these professionals to serve students with chronic health conditions.

**Why are you being asked to take part?**

We are asking you to take part in this research study because you work in the role of a school nurse in a school in the United States.

**Study Procedures**

If you take part in this study, you will be asked to complete an online Qualtrics survey investigating the communication and collaborative practices between school nurses and school psychologists in the United States. This survey will also ask you to indicate what you perceive to be facilitators and barriers to this partnership between school-based professionals. Data will be collected anonymously, and reported only in aggregate form and the responses of individuals



will be treated in the strictest confidence. Furthermore, at the end of the study participants will be asked to provide their contact information (i.e., name, email address, and phone number) if they are interested in participating in future studies on this topic. Future studies may include phone interviews, focus groups, or other forms of qualitative methods. The information for the future study will only be used by the Principal Investigator, and will help aid in a dissertation study. The Principal Investigator will disengage the option to collect IP addresses to ensure that the information from both surveys will not be linked together.

### **Alternatives / Voluntary Participation / Withdrawal**

You have the alternative to choose not to participate in this research study. You should only take part in this study if you want to volunteer; you are free to participate in this research or withdraw at any time. There will be no penalty or loss of benefits you are entitled to receive if you stop taking part in this study.

### **Benefits and Risks**

The present study's direct benefits to participants include a chance to contribute to important research that may enhance their best practices in working with students with chronic health conditions. Participants may also benefit professionally from reflecting on their current practices in communicating and collaborating with school psychologists on behalf of students with health conditions.

This research is considered to be minimal risk.

### **Compensation**

We will not pay you for the time you volunteer while being in this study.      **Privacy and**

### **Confidentiality**

We must keep your study records as confidential as possible. It is possible, although unlikely, that unauthorized individuals could gain access to your responses because you are responding online.

Certain people may need to see your study records. By law, anyone who looks at your records must keep them completely confidential. The only people who will be allowed to see these records are: the Principal Investigator, members of the Principal Investigators' thesis committee, and The University of South Florida Institutional Review Board (IRB).

It is possible, although unlikely, that unauthorized individuals could gain access to your responses. Confidentiality will be maintained to the degree permitted by the technology used. No guarantees can be made regarding the interception of data sent via the Internet. However, your participation in this online survey involves risks similar to a person's everyday use of the Internet. If you complete and submit an anonymous survey and later request your data be withdrawn, this may or may not be possible as the researcher may be unable to

extract anonymous data from the database.

### **Contact Information**

If you have any questions about your rights as a research participant, please contact the USF IRB at (813) 974-5638 or contact by email at RSCH-IRB@usf.edu. If you have questions regarding the research, please contact the Principal Investigator by email at singleton2@mail.usf.edu

We may publish what we learn from this study. If we do, we will not let anyone know your name. We will not publish anything else that would let people know who you are. You can print a copy of this consent form for your records.

I freely give my consent to take part in this study. I understand that by proceeding with this survey that I am agreeing to take part in research and I am 18 years of age or older.

End of Block: Consent

---

Start of Block: Introduction

## **Q2 School Nurses and School Psychologists: A National Study of Integrated Health Care in Schools**

**Directions:** This survey consists of three sections within which we are asking for your response to specific items: Demographics, Communication, and Collaboration.

Please read each item and respond accordingly. We thank you in advance for your participation as we gather information on ways to promote integrated health care in schools.

End of Block: Introduction

---

Start of Block: Block 7

Q3 School nurses are defined as school-based practitioners that provide care for injuries and acute illness for all students, as well as management plans for students with special health care needs, in order to promote academic success, and life-long achievement of students.

---

Q4 Based on the above definition, are you currently employed as a school nurse that provides direct services to students in a school setting ?

☐ Yes

☐ No

**End of Block: Block 7**

---

**Start of Block: Demographics**

Q5 Gender:

☐ Male

☐ Female

☐ Transgender

☐ Other \_\_\_\_\_

---

Q6 Age:

☐ 18-21 years

☐ 22-25 years

☐ 26-34 years

☐ 35-44 years

☐ 45-54 years

☐ 55-65 years

☐ >65 years

Q7 Race:

- ☐ American Indian or Alaska Native
  - ☐ Asian
  - ☐ Black or African American
  - ☐ Native Hawaiian or Other Pacific Islander
  - ☐ White
  - ☐ Multi-Racial (please specify) \_\_\_\_\_
  - ☐ Other (please specify) \_\_\_\_\_
- 

Q8 Highest Education Level:

- ☐ High School Diploma
  - ☐ LPN
  - ☐ R.N.
  - ☐ B.S.N.
  - ☐ Advanced Degree (please list)  
\_\_\_\_\_
  - ☐ Other (please specify) \_\_\_\_\_
- 

Q9 Are you currently employed by (select one):

- ☐ The school district
- ☐ Department of Health (public health)

---

Q10 What is your work title at your school?

---

---

Q11 Years employed as a nurse in a school setting:

---

---

Q12 Other Settings You Have Worked In (Select all that apply):

☐ In-Patient Hospital Settings

☐ Out-Patient Hospital Settings

☐ Physician's Office

☐ Residential Facility

☐ Health/Walk-In Clinics

☐ Visiting Nurse Association

☐ College/University Clinic

☐ Home Health Care

☐ Other (please indicate): \_\_\_\_\_

☐ Not applicable

---

Q13 How many schools do you currently serve?

---

Q14 Are you employed full time or part time?

☐ Full time

☐ Part time

Q15 What state do you work in?

---

Q16 School nurses may serve a number of schools. For the purpose of this study, we ask that you identify one school when considering responses for the following questions. Please choose the school where you spend the highest percentage of your time each week. If you spend an equal amount of time at each of your schools, please choose the school where you have the highest caseload. Please answer the following questions based on the school you chose.

Q17 Level of school

☐ Elementary

☐ Middle

☐ High

Q18 Grades served (indicate all)

---

Q19 Community setting

☐ Rural

☐ Suburban

☐ Urban

Q20 Title 1?

☐ Yes

☐ No

Q21 Private school?

☐ Yes

☐ No

Q22 Charter school?

☐ Yes

☐ No

Q23 Other relevant information

---

Q24 **For the remainder of this survey, please answer based on the school you chose.**

Q25 Average Number of Students Seen Per Week (please indicate number):

---



Q26 What percent of your time is spent in each of the following activities (\*Please make sure your percentages total to 100%)

	Percentage
Clinic Duties (e.g., administering medication, perform nursing assessments, monitor immunizations)	
Case Management (e.g., consultation, problem-solving meetings, managing medical care plans)	
Teaching (e.g., CPR, health classes, human growth & development, coordinating outreach services)	
Other (please list)	

End of Block: Demographics

Start of Block: Communication

#### Q27 Communication

Communication involves a one-time, unidirectional sharing of information regarding student status. Examples may include a brief email sent to the school psychologist. Non-examples may include multiple, ongoing bi-directional problem solving efforts.

#### Q28

Using the above definition of communication **and** focusing on the school that you previously chose:

When you need to communicate with other school personnel about a student with a chronic health condition, who is your primary contact? (select only one)

- ☐ Principal
  - ☐ Classroom teacher
  - ☐ School psychologist
  - ☐ Behavior specialist
  - ☐ School counselor
  - ☐ School social worker
  - ☐ Speech/Language pathologist
  - ☐ Physical/Occupational therapist
  - ☐ Other (please specify) \_\_\_\_\_
-

Q29 What do you perceive as the **school psychologist's** role when working with students with chronic health conditions?

	Please select Yes or No for each item	
	Yes	No
Academic assessment	<input type="radio"/>	<input type="radio"/>
Academic intervention	<input type="radio"/>	<input type="radio"/>
Behavioral assessment	<input type="radio"/>	<input type="radio"/>
Behavioral intervention	<input type="radio"/>	<input type="radio"/>
Consultation	<input type="radio"/>	<input type="radio"/>
Crisis Intervention	<input type="radio"/>	<input type="radio"/>
Data-based decision making	<input type="radio"/>	<input type="radio"/>
Guidance	<input type="radio"/>	<input type="radio"/>
Health prevention	<input type="radio"/>	<input type="radio"/>
Interprofessional collaboration (e.g., educators and healthcare providers)	<input type="radio"/>	<input type="radio"/>
Mental health assessment	<input type="radio"/>	<input type="radio"/>
Mental health intervention	<input type="radio"/>	<input type="radio"/>
Progress monitoring of student outcomes	<input type="radio"/>	<input type="radio"/>
I do not know	<input type="radio"/>	<input type="radio"/>

Q30 In what areas do you believe **school psychologists** receive training?

	Please select Yes or No for each item	
	Yes	No
Academic assessment	<input type="radio"/>	<input type="radio"/>
Academic intervention	<input type="radio"/>	<input type="radio"/>
Behavioral assessment	<input type="radio"/>	<input type="radio"/>
Behavioral intervention	<input type="radio"/>	<input type="radio"/>
Consultation	<input type="radio"/>	<input type="radio"/>
Crisis Intervention	<input type="radio"/>	<input type="radio"/>
Data-based decision making	<input type="radio"/>	<input type="radio"/>
Guidance	<input type="radio"/>	<input type="radio"/>
Health prevention	<input type="radio"/>	<input type="radio"/>
Interprofessional collaboration (e.g., educators and healthcare providers)	<input type="radio"/>	<input type="radio"/>
Mental health assessment	<input type="radio"/>	<input type="radio"/>
Mental health intervention	<input type="radio"/>	<input type="radio"/>
Pediatric health issues	<input type="radio"/>	<input type="radio"/>
Progress monitoring of student outcomes	<input type="radio"/>	<input type="radio"/>
Psychopharmacology	<input type="radio"/>	<input type="radio"/>
I do not know	<input type="radio"/>	<input type="radio"/>

Q31 On average, how often do you communicate with a school psychologist about students with a chronic health condition?

- ☐ Never
  - ☐ Less than a few times a year
  - ☐ A few times a year
  - ☐ Once per month
  - ☐ Once per week
  - ☐ More than once per week
- 

Q32 Are you satisfied with the amount of communication between you and the school psychologist regarding students with chronic health conditions?

- ☐ Very dissatisfied
  - ☐ Dissatisfied
  - ☐ Neutral
  - ☐ Moderately satisfied
  - ☐ Very satisfied
-

Q33 To what degree do you believe that communication with the school psychologist regarding students with chronic health conditions is beneficial?

- ☐ Not beneficial
  - ☐ Moderately beneficial
  - ☐ Very beneficial
  - ☐ Unsure
- 

Q34 Has the school psychologist ever **initiated** communication with you regarding a student with a chronic health condition?

- ☐ Yes
  - ☐ No
- 

Q35 What have you found to be the **most efficient** method to communicate with school psychologists? (select only one)

- ☐ Phone call
  - ☐ Written report (e.g., incident report, informal documentation, evaluation)
  - ☐ Face-to-face discussion
  - ☐ Handwritten or typed note
  - ☐ E-mail
  - ☐ Medical care plans/emergency action plans
  - ☐ Other (please specify) \_\_\_\_\_
-

Q36 What is your most preferred method of communication with school psychologists? (mark one)

- ☐ Phone call
- ☐ Written report (e.g., incident report, informal documentation, evaluation)
- ☐ Face-to-face discussion
- ☐ Handwritten or typed note
- ☐ E-mail
- ☐ Medical care plans/emergency action plans
- ☐ Other (please specify) \_\_\_\_\_

Q37 For what reason(s) do you communicate with school psychologists?

	Please select Yes or No for each item	
	Yes	No
Provide/Request information about a student (e.g., diagnosis, adherence, response to intervention)	<input type="radio"/>	<input type="radio"/>
Request an assessment/evaluation be conducted	<input type="radio"/>	<input type="radio"/>
Request intervention/treatment be implemented	<input type="radio"/>	<input type="radio"/>
Provide information related to problem solving/response to intervention/multi-tiered system of support meetings or PLC workgroup	<input type="radio"/>	<input type="radio"/>
Other (please specify)	<input type="radio"/>	<input type="radio"/>

---

Q38 What type of information do you normally share with the school psychologist?

	Please select Yes or No for each item	
	Yes	No
Academic implications/impact	<input type="radio"/>	<input type="radio"/>
Disease specific/ health action plan	<input type="radio"/>	<input type="radio"/>
Medical records (e.g., hearing, vision, and student diagnosis)	<input type="radio"/>	<input type="radio"/>
Medication information	<input type="radio"/>	<input type="radio"/>
School reentry plan	<input type="radio"/>	<input type="radio"/>
Treatment Plan (e.g., 504 information)	<input type="radio"/>	<input type="radio"/>
Other (please specify)	<input type="radio"/>	<input type="radio"/>

---

Q39 Please list the chronic health conditions (i.e., asthma, allergies, diabetes, ADHD, etc.) about which you most often communicate to school psychologists?

\_\_\_\_\_

**End of Block: Communication**

---

**Start of Block: Collaboration**

**Q40 Collaboration with School Personnel**

Collaboration is defined as two or more people working together to plan and problem-solve for a third-party. Collaboration is different from communication as it involves ongoing, bi-directional problem-solving efforts to promote positive outcomes for students. An example may include when a school nurse provides ongoing consultation regarding the educational implications and



accommodations for asthma, diabetes, cancer, and other medical illness. Other school personnel then provide information that helps the school nurse understand the scope of services available.

---

Q41 Using the above definition of collaboration **and** focusing on the school that you previously chose:

Is your school psychologist easily accessible for collaboration?

☐ Yes

☐ No

---

Q42 On average, how often do you collaborate with the school psychologist at your school?

☐ Never

☐ Less than a few times a year

☐ A few times a year

☐ Once per month

☐ Once per week

☐ More than once per week

---

Q43 To what degree do you believe that collaboration with school psychologists is beneficial to the health of your students?

- ☐ Not beneficial
- ☐ Moderately beneficial
- ☐ Very beneficial
- ☐ Unsure

Q44 Please rank order with whom you collaborate most frequently for the benefit of your students with chronic health conditions? (1=most frequent, leave blank if you do not collaborate with a particular educator)

- \_\_\_\_\_ Principal
- \_\_\_\_\_ Classroom teacher
- \_\_\_\_\_ School psychologist
- \_\_\_\_\_ Behavior Specialist
- \_\_\_\_\_ School counselor
- \_\_\_\_\_ School social worker
- \_\_\_\_\_ Speech/Language pathologist
- \_\_\_\_\_ Physical/Occupational therapist
- \_\_\_\_\_ Other (please specify)

Q45 What do you perceive as the benefits of collaboration (current or anticipated) with school psychologists regarding students with chronic health conditions?

Please select Yes or No for each item		
	Yes	No

Improved student outcomes/health	<input type="radio"/>	<input type="radio"/>
Avoiding duplication of services	<input type="radio"/>	<input type="radio"/>
Opportunity for cross-disciplinary problem-solving	<input type="radio"/>	<input type="radio"/>
Opportunity to share resources	<input type="radio"/>	<input type="radio"/>
Feeling valued for the expertise you offer to other professionals	<input type="radio"/>	<input type="radio"/>
Assessing student progress	<input type="radio"/>	<input type="radio"/>
Other (please specify)	<input type="radio"/>	<input type="radio"/>

Q46 Which preferred methods of collaboration with school psychologists do you use for students with chronic health conditions? (select all that apply)

- ☐ E-mail
- ☐ Phone
- ☐ Attend meeting
- ☐ Informal consultation
- ☐ Other (please specify) \_\_\_\_\_

Q47 What do you perceive as barriers to collaboration (current or anticipated) with school psychologists?

	Please select Yes or No for each item	
	Yes	No

There is not enough time in the day

☐☐

School psychologists are not accessible

☐☐

Not part of my responsibilities

☐☐

Differing views on child development between school nurses and school psychologists

☐☐

It is not beneficial to my practice

☐☐

I have too many schools

☐☐

Other (please specify)

☐☐

---

Q48 What do you perceive as the primary barrier to collaboration (current or anticipated) with school psychologists? (select one)

☐ There is not enough time in the day

☐ School psychologists are not accessible

☐ Not part of my responsibilities

☐ Differing views on child development between school nurses and school psychologists

☐ It is not beneficial to my practice

☐ I have too many schools

☐ Other (please specify) \_\_\_\_\_

---

Q49 Please feel free to elaborate on the barrier that you selected in the previous question.

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Q50 Please list the chronic health conditions (i.e., asthma, allergies, diabetes, ADHD, etc.) about which you most often collaborate with school psychologists?

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Q51 Do you believe the following medical conditions impact academic, behavior, and/or mental health domains?

	Academic - e.g., Learning, Concentration, Cognitive processing, Executive functioning		Behavior - e.g., Noncompliance, Attention, Hyperactivity, Oppositional behavior, Aggression, Social skills		Mental Health - e.g., Depression, Anxiety, Post- traumatic stress symptoms, Adjustment difficulties	
	YES	NO	YES	NO	YES	NO
ADHD	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Asthma	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cancer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cerebral Palsy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cystic Fibrosis	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Diabetes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
HIV/AIDS	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Obesity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Seizure Disorders	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sickle Cell Disease	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sleep Disorders	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Traumatic Brain Injuries	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other Condition	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**End of Block: Collaboration**

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**Start of Block: Feedback**

Q52 Any additional comments/feedback you have in regard to the collaboration between school nurses and school psychologists would be greatly appreciated.

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**End of Block: Feedback**

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### Appendix D: Codebook of Variables

Question Number	Code Name	Value
<i>Q4</i>	Q4Inclus	0 =No 1 = Yes
<i>Q5</i>	Q5Gen	1 = Male 2 = Female 3 = Transgender 4 = Other
<i>Q6</i>	Q6Age	1 = 18-21 years 2 = 22-25 years 3 = 26-34 years 4 = 35-44 years 5 = 45-54 years 6= 55-65 years 7 = > 65 years
<i>Q7</i>	Q7Race	1 = American Indian or Alaska Native 2 = Asian 3 = Black or African American 4 = Native Hawaiian or Other Pacific Islander 5 = White 6 = Multi-Racial 7 = Other
<i>Q8</i>	Q8Edu	1 = High School Diploma 2 = LPN 3 = R.N. 4 = B.S.N 5 = Advanced Degree 6 = Other
<i>Q9</i>	Q9Empl	1 = The School District 2 = Department of Health (Public Health)
<i>Q14</i>	Q14ForP	1 = Full Time 2 = Part Time
<i>Q17</i>	Q17Level	1 = Elementary 2 = Middle 3 = High
<i>Q19</i>	Q19Comm	1 = Rural 2 = Suburban 3 = Urban
<i>Q20</i>	Q20Title1	0 = No 1 = Yes
<i>Q21</i>	Q21Priv	0 = No



		1 = Yes
<i>Q22</i>	Q22Char	0 = No 1 = Yes
<i>Q28</i>	Q28CommMost	1 = Principal 2 = Classroom Teacher 3 = School Psychologist 4 = Behavioral Specialist 5 = School Counselor 6 = School Social Worker 7 = Speech/Language Pathologist 8 = Physical/ Occupational Therapist 9 = Other
<i>Q29</i>	Q29.01AcadAss	0 = No 1 = Yes
<i>Q29</i>	Q29.02AcadInt	0 = No 1 = Yes
<i>Q29</i>	Q29.03BehAss	0 = No 1 = Yes
<i>Q29</i>	Q29.04BehInt	0 = No 1 = Yes
<i>Q29</i>	Q29.05Cons	0 = No 1 = Yes
<i>Q29</i>	Q29.06Crisis	0 = No 1 = Yes
<i>Q29</i>	Q29.07Data	0 = No 1 = Yes
<i>Q29</i>	Q29.08Guid	0 = No 1 = Yes
<i>Q29</i>	Q29.09Health	0 = No 1 = Yes
<i>Q29</i>	Q29.1IPC	0 = No 1 = Yes
<i>Q29</i>	Q29.12MHA	0 = No 1 = Yes
<i>Q29</i>	Q29.13MHI	0 = No 1 = Yes
<i>Q29</i>	Q29.14Progress	0 = No 1 = Yes
<i>Q29</i>	Q29.15IDK	0 = No 1 = Yes
<i>Q30</i>	Q30.01AcadAss	0 = No 1 = Yes
<i>Q30</i>	Q30.02AcadInt	0 = No 1 = Yes
<i>Q30</i>	Q30.03BehAss	0 = No 1 = Yes
<i>Q30</i>	Q30.04BehInt	0 = No 1 = Yes
<i>Q30</i>	Q30.05Cons	0 = No 1 = Yes

<i>Q30</i>	Q30.06Crisis	0 = No 1 = Yes
<i>Q30</i>	Q30.07Data	0 = No 1 = Yes
<i>Q30</i>	Q30.08Guid	0 = No 1 = Yes
<i>Q30</i>	Q30.09Health	0 = No 1 = Yes
<i>Q30</i>	Q30.1IPC	0 = No 1 = Yes
<i>Q30</i>	Q30.12MHA	0 = No 1 = Yes
<i>Q30</i>	Q30.13MHI	0 = No 1 = Yes
<i>Q30</i>	Q30.14PED	0 = No 1 = Yes
<i>Q30</i>	Q30.15Progress	0 = No 1 = Yes
<i>Q30</i>	Q30.16Pharm	0 = No 1 = Yes
<i>Q30</i>	Q30.17IDK	0 = No 1 = Yes
<i>Q31</i>	Q31Comm	0 = Never 1 = Less than a few times a year 2 = A few times a year 3 = Once per month 4 = Once per week 5 = More than once per week
<i>Q32</i>	Q32SATCOM	1 = Very dissatisfied 2 = Dissatisfied 3 = Neutral 4 = Moderately Satisfied 5 = Very Satisfied
<i>Q33</i>	Q33COMBEN	0 = Unsure 1 = Not beneficial 2 = Moderately beneficial 3 = Very beneficial
<i>Q34</i>	Q34INITCOM	0 = No 1 = Yes
<i>Q35</i>	Q35COMMETH	1 = Phone call 2 = Written report 3 = Face to face discussion 4 = Handwritten or typed note 5 = Email 6 = Medical care plans/emergency action plans 7 = Other
<i>Q36</i>	Q36PERCOM	1 = Phone call 2 = Written report 3 = Face to face discussion 4 = Handwritten or typed note

		5 = Email 6 = Medical care plans/emergency action plans 7 = Other
<i>Q37</i>	Q37.01PRO	0 = No 1 = Yes
<i>Q37</i>	Q37.02ASS	0 = No 1 = Yes
<i>Q37</i>	Q37.03INTE	0 = No 1 = Yes
<i>Q37</i>	Q37.04RTI	0 = No 1 = Yes
<i>Q37</i>	Q37.05OTHER	0 = No 1 = Yes
<i>Q38</i>	Q38.01ACAD	0 = No 1 = Yes
<i>Q38</i>	Q38.02DISE	0 = No 1 = Yes
<i>Q38</i>	Q38.03REC	0 = No 1 = Yes
<i>Q38</i>	Q38.04MED	0 = No 1 = Yes
<i>Q38</i>	Q38.05REINT	0 = No 1 = Yes
<i>Q38</i>	Q38.06TREAT	0 = No 1 = Yes
<i>Q38</i>	Q38.07OTHER	0 = No 1 = Yes
<i>Q41</i>	Q41ASSES	0 = No 1 = Yes
<i>Q42</i>	Q42AVERIPC	0 = Never 1 = Less than a few times a year 2 = A few times a year 3 = Once per month 4 = Once per week 5 = More than once per week
<i>Q43</i>	Q43BNFTIPC	1 = Not beneficial 2 = Moderately beneficial 3 = Very beneficial 4 = Unsure
<i>Q45</i>	Q45.01IMPR	0 = No 1 = Yes
<i>Q45</i>	Q45.02AVOID	0 = No 1 = Yes
<i>Q45</i>	Q45.03IPC	0 = No 1 = Yes
<i>Q45</i>	Q45.04SHARE	0 = No 1 = Yes
<i>Q45</i>	Q45.05VALUE	0 = No 1 = Yes
<i>Q45</i>	Q45.06PROGR	0 = No

		1 = Yes
<i>Q45</i>	Q45.07OTHER	0 = No 1 = Yes
<i>Q47</i>	Q47.01TIME	0 = No 1 = Yes
<i>Q47</i>	Q47.02ASS	0 = No 1 = Yes
<i>Q47</i>	Q47.03RESPON	0 = No 1 = Yes
<i>Q47</i>	Q47.05VIEWS	0 = No 1 = Yes
<i>Q47</i>	Q47.06BEN	0 = No 1 = Yes
<i>Q47</i>	Q47.07SCHOOLS	0 = No 1 = Yes
<i>Q47</i>	Q47.08OTHER	0 = No 1 = Yes
<i>Q48</i>	Q48PRIMARY	0 = Other 1 = There is not enough time in the day 2 = School psychologists are not accessible 3 = Not part of my responsibilities 4 = Differing views on child development 5 = It is not beneficial to my practice 6 = I have too many schools
<i>Q51</i>	Q51.01A_ADHD	0 = No 1 = Yes
<i>Q51</i>	Q51.02A_AST	0 = No 1 = Yes
<i>Q51</i>	Q51.03A_CANC	0 = No 1 = Yes
<i>Q51</i>	Q51.04A_CEREB	0 = No 1 = Yes
<i>Q51</i>	Q51.05A_CYS	0 = No 1 = Yes
<i>Q51</i>	Q51.06A_DIAB	0 = No 1 = Yes
<i>Q51</i>	Q51.07A_HIV	0 = No 1 = Yes
<i>Q51</i>	Q51.08A_OBES	0 = No 1 = Yes
<i>Q51</i>	Q51.09A_SEI	0 = No 1 = Yes
<i>Q51</i>	Q51.10A_SICK	0 = No 1 = Yes
<i>Q51</i>	Q51.12A_SLEEP	0 = No 1 = Yes
<i>Q51</i>	Q51.13A_TBI	0 = No 1 = Yes
<i>Q51</i>	Q51.15A_OTHER	0 = No 1 = Yes

<i>Q51</i>	Q51.01B_ADHD	0 = No 1 = Yes
<i>Q51</i>	Q51.02B_AST	0 = No 1 = Yes
<i>Q51</i>	Q51.03B_CANC	0 = No 1 = Yes
<i>Q51</i>	Q51.04B_CEREB	0 = No 1 = Yes
<i>Q51</i>	Q51.05B_CYS	0 = No 1 = Yes
<i>Q51</i>	Q51.06B_DIAB	0 = No 1 = Yes
<i>Q51</i>	Q51.07B_HIV	0 = No 1 = Yes
<i>Q51</i>	Q51.08B_OBES	0 = No 1 = Yes
<i>Q51</i>	Q51.09B_SEI	0 = No 1 = Yes
<i>Q51</i>	Q51.10B_SICK	0 = No 1 = Yes
<i>Q51</i>	Q51.12B_SLEEP	0 = No 1 = Yes
<i>Q51</i>	Q51.13B_TBI	0 = No 1 = Yes
<i>Q51</i>	Q51.15B_OTHER	0 = No 1 = Yes
<i>Q51</i>	Q51.01MH_ADHD	0 = No 1 = Yes
<i>Q51</i>	Q51.02MH_AST	0 = No 1 = Yes
<i>Q51</i>	Q51.03MH_CANC	0 = No 1 = Yes
<i>Q51</i>	Q51.04MH_CEREB	0 = No 1 = Yes
<i>Q51</i>	Q51.05MH_CYS	0 = No 1 = Yes
<i>Q51</i>	Q51.06MH_DIAB	0 = No 1 = Yes
<i>Q51</i>	Q51.07MH_HIV	0 = No 1 = Yes
<i>Q51</i>	Q51.08MH_OBES	0 = No 1 = Yes
<i>Q51</i>	Q51.09MH_SEI	0 = No 1 = Yes
<i>Q51</i>	Q51.10MH_SICK	0 = No 1 = Yes
<i>Q51</i>	Q51.12MH_SLEEP	0 = No 1 = Yes
<i>Q51</i>	Q51.13MH_TBI	0 = No 1 = Yes

<i>Q51</i>	Q51.15MH_OTHER	0 = No 1 = Yes
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## Appendix E: Institutional Review Board Letter of Approval



RESEARCH INTEGRITY AND COMPLIANCE  
Institutional Review Boards, FWA No. 00001669  
12901 Bruce B. Downs Blvd., MDC035 • Tampa, FL 33612-4799  
(813) 974-5638 • FAX(813)974-7091

August 7, 2018

Destiny Singleton  
Educational and Psychological Studies  
Tampa, FL 33612

RE: **Exempt Certification**

IRB#: Pro00036317

Title: School Nurses and School Psychologists: A National Study of Integrated Health Care in Schools

Dear Ms. Singleton:

On 8/4/2018, the Institutional Review Board (IRB) determined that your research meets criteria for exemption from the federal regulations as outlined by 45CFR46.101(b):

(2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless:  
(i) information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and (ii) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

As the principal investigator for this study, it is your responsibility to ensure that this research is conducted as outlined in your application and consistent with the ethical principles outlined in the Belmont Report and with USF HRPP policies and procedures.

Please note, as per USF HRPP Policy, once the Exempt determination is made, the application is closed in ARC. Any proposed or anticipated changes to the study design that was previously declared exempt from IRB review must be submitted to the IRB as a new study prior to initiation of the change. However, administrative changes, including changes in research personnel, do not warrant an amendment or new application.

Given the determination of exemption, this application is being closed in ARC. This does not limit your ability to conduct your research project.

We appreciate your dedication to the ethical conduct of human subject research at the University of South Florida and your continued commitment to human research protections. If you have any questions regarding this matter, please call 813-974-5638.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Mark Ruiz', with a stylized flourish at the end.

Mark Ruiz, PhD, Vice Chairperson  
USF Institutional Review Board