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Interdisciplinary Collaboration for Youth Mental Health: A National Study

Audra St. John Walsh
University of South Florida, audrawalsh@gmail.com

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by

Audra St. John Walsh

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Major Professor: Kathy Bradley-Klug, Ph.D.
Linda Raffaele Mendez, Ph.D.
John Ferron, Ph.D.
Tiffany Chenneville, Ph.D.

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Abstract

Collaboration between school- and community-based mental health professionals has the potential to result in early identification of and intervention for youth with mental health problems; however, the limited research in this area suggests that collaboration does not often occur between these professionals (Walsh, 2011). The purpose of this investigation was to collect survey data from a national sample of school psychologists in order to examine the collaborative practices of school psychologists and community-based mental health professionals on behalf of youth with mental health problems. Survey data from 327 members of 11 professional state organizations of school psychology were collected and analyzed. Data indicate that all respondents communicated and 77% collaborated with community-based mental health professionals at least once during the 2011-2012 school year. The primary purpose of this communication was to obtain or provide information to community-based professionals. Respondents communicated and collaborated most commonly with community-based counselors and therapists and least commonly with neurologists. Barriers to collaboration included a lack of time, inaccessible community-based professionals, and obtaining parent consent to collaborate. Significant relationships were found in communication and collaboration frequencies and number of professional development hours received related to mental health, as well as between collaboration frequency and the primary professional role of the school psychologist. Significant relationships were not found between communication or collaboration frequencies related to the highest degree earned or the years experience of the school psychologist, the socio-economic status of the student population, the number of students served, or the number of

schools served by the school psychologist. Furthermore, significant results were not obtained for predicting collaboration frequency by the percentage of students with internalizing or externalizing problems. Implications of these findings are discussed in relation to strategies and policy recommendations for professional organizations and supervisors of school- and community-based mental health professionals to foster systems-level interdisciplinary collaboration for the promotion of mental health and wellness in youth.

Chapter One

Introduction

Statement of the Problem

Many children and adolescents experience mental health problems that interfere with their normal development, impede their day-to-day social relationships and academic performance, and hinder their overall well-being. In fact, it has been estimated that between 10% and 20% of school-age children, and perhaps more, suffer from mental health problems, which encompass a number of conditions, including Attention-Deficit/Hyperactivity Disorder, anxiety, autism, bipolar disorder, conduct disorder, depression, oppositional defiant disorder, and schizophrenia (Doll, 1996; Doll & Cummings, 2008; Merrell, 2009). Without effective intervention, these conditions often result in academic and social problems in school that may persist into adulthood (Dadds, Holland, Laurens, Mullins, Barrett, & Spence,1999; Dawson & Osterling; 1997; Schwartz & Davis, 2008). Evidence from emerging research supports the positive relationship between early intervention for mental illness and improved educational outcomes.

There are many challenges related to the early identification of and interventions for mental illness in the developing child. Diagnosing and identifying effective interventions for mental health problems in youth can be a complex undertaking due to many factors including, but not limited to, the multifarious nature of child development, the heterogeneity of the expression of mental disorders, the overlapping symptoms, the premorbidity and comorbidity among disorders, the child-by-child variability in response to treatment, and the varying environmental experiences of children. Despite these

challenges, schools that provide universal, targeted, and individualized systems of social-emotional supports will likely be able to meet the mental health needs of most students; however, students with the most significant dysfunction will likely require support from community-based mental health professionals (CBMHPs) who are able to access assessment and intervention resources beyond the scope of those available in schools (Doll & Cummings, 2008). CBMHPs include professionals such as psychiatrists, psychologists, neurologists, licensed mental health counselors, therapists, social workers, mental health case managers, and pediatricians who work for either a public or private organization to ameliorate mental illness and/or promote wellness.

Collaboration between school psychologists and CBMHPs has the potential to result in a multitude of benefits for children with mental health problems. For instance, collaboration between these professionals has the potential to increase the early identification of mental illness and improve the effectiveness of treatment for individuals struggling to cope with these illnesses (Nastasi, 2004). Also, through collaboration, school psychologists and CBMHPs can share data collected across diverse settings (i.e., school, home, community clinic, and other community environments) and clearly define and analyze a presenting problem. Furthermore, this partnership has the potential to increase the precision of the diagnosis, result in the implementation of treatment(s) with a research base of support for use with the diagnosed condition, and allow for ongoing progress monitoring of treatment effects.

Despite the persuasive argument that collaboration between school psychologists and CBMHPs has potential to improve student outcomes, it has been suggested that collaborative practices are not frequently employed (Shaw & Woo, 2008). Additionally, there is limited evidence in the professional literature (e.g., professional journals) of research investigating the collaborative practices of school psychologists and CBMHPs on behalf of children with mental health problems. In fact, until recently

the degree of collaboration between school psychologists and CBMHPs was unknown. Findings from a preliminary investigation of the collaborative practices of school psychologists in the state of Florida conducted by Walsh (2011) suggest very low rates of collaboration between school psychologists and CBMHPs; however, additional research is warranted due to the small and restricted sample (Walsh, 2011). Thus, the frequency that school psychologists in the United States work together with CBMHPs in order to support students with mental health problems remains unclear.

Interdisciplinary Collaboration

Professionals from across diverse disciplines agree that interdisciplinary collaboration holds the potential to find solutions to complex societal problems that would not be discovered through the efforts of the same professionals working alone (American Academy of Pediatrics Council on Children with Disabilities, 2007; American Psychological Association, 1995; Bradley-Klug et al., 2010; Hardiman, Curcio, & Fortune, 1998; Huberty, 2008; Kral, LaRosa, Brown, Kubiszyn, 2006; March et al., 2007; Nastasi, 2004; National Advisory Mental Health Council's Workgroup on Child and Adolescent Mental Health Intervention Development and Deployment, 2001; Riddle, Kastelic, & Frosch, 2001; Walsh, Brabeck, & Howard, 1999). The benefits of interdisciplinary collaboration depend, in large part, on the nature of the collaborative goals and the various expertise of the group of professionals working in concert and tend to involve the integration of ideas, theories, and resources, forming comprehensive solutions. The specific benefits of interdisciplinary collaboration as they relate to promoting the mental health of youth are briefly discussed in the following section of this chapter and discussed at length in chapter 2. Despite the strong call for interdisciplinary collaboration, there are a number of barriers that prevent individuals from initiating and maintaining cooperative working relationships. Furthermore, making a shift from a system where professionals function in isolation to an institutionalized system of

interdisciplinary collaboration presents great challenges that must be overcome in order to realize the full benefits of collaboration (Hall & Hord, 2006).

Importance of collaboration for youth with mental health problems. Accurate diagnosis of mental health problems in youth and identification of effective treatments is extremely challenging. Not only do mental health problems in childhood manifest differently from one child to the next, but responses to treatment also are child-specific and tend to vary dramatically from one child to another. Moreover, many treatments require difficult behavioral change on the part of children and their caregivers (e.g., take daily medication or implement cognitive strategies in school and at home) that may threaten treatment integrity and also make it difficult to progress monitor treatment effects.

Collaboration between school psychologists and CBMHPs holds promise to resolve many of these challenges and may potentially generate significant benefits for children with mental illness. Specifically, the benefits of collaboration include, but are not limited to, ecological assessment informed by collecting data across multiple settings (e.g., school, home, clinic), implementing evidence-based interventions linked to validated hypotheses about the triggers and maintaining factors of the mental health problems, and increasing treatment integrity and the capacity to monitor treatment effects. In other words, integrating data collected across multiple settings (i.e., school, home, clinic, etc.) informs an ecological understanding of a child's strengths, weaknesses, and dysfunctions, resulting in accurate identification of the problem and diagnosis which can be linked to effective treatment (Batsche, Castillo, Dixon, & Forde, 2008).

Collaboration can increase treatment integrity by informing school psychologists of community-based treatment details and informing CBMHPs of school-based interventions. Treatment integrity is a term that refers to the extent to which an

intervention/treatment is carried out as planned (Sanetti, Fallon, & Collier-Meek, 2011). For instance, a medication treatment plan with high levels of treatment integrity would involve a child taking every dose of medication as prescribed by his/her doctor (i.e., doses of medication are missed infrequently, if ever and are taken at the proper time of day and with/without food as indicated). An example of a psychosocial treatment plan with a high level of treatment integrity would involve a child engaging in daily practice of the cognitive-behavioral strategies (e.g., social skills, exposure, positive self-talk, etc.) taught in community- or school-based therapy sessions. Although taking medication as prescribed and daily practice of skills taught in therapy are examples of critical components of intervention plans, both are difficult for youth and their caregivers to carry out with fidelity.

In both examples, collaboration has the potential to increase treatment integrity because school psychologists who are aware of the medication regimen of youth will be able to provide daily support (e.g., visual schedule reminders and reinforcers for adherence) and those who are aware of the strategies being taught in community-based therapy will be able to prompt youth and coordinate practice of skills within the natural environment (e.g., classroom, playground, etc.). Likewise, CBMHPs who are aware of the skills being taught in school-based therapy (e.g., social skills groups, etc.) will be able to coordinate practice of these strategies in alternative settings (i.e., home, clinic, and/or other naturalistic community-based settings). Additionally, through collaboration with school psychologists, CBMHPs may become aware of educational barriers related to implementing a treatment plan with integrity (i.e., a youth is not able to take medication at the prescribed time or there are not opportunities for the youth to practice a specific strategy). By sharing and integrating treatment plans, school psychologists and CBMHPs are able to provide consistent messages to youth and their caregivers (i.e., provide ongoing communication about the rationale for the treatment/intervention

plan, prompts and reminders for following the treatment plan, and reinforcement for adherence to the plan) emphasizing the importance of implementing the treatment/intervention exactly as planned.

Through collaboration, the ability to monitor the intended and unintended effects of treatment is enhanced (Carlson, 2008). Because school psychologists are knowledgeable of both educational and mental health factors, they are in a prime position to develop progress monitoring plans that are acceptable to teachers and students as well as to collect and share school outcome data with CBMHPs. Because youth spend the majority of their waking hours in schools, much of their daily functioning can and should be assessed in the school setting. Educators, including teachers, instructional assistants, and other educational service providers have many opportunities throughout the school day to collect data important for measuring treatment effects (e.g., medication effects/side-effects, use of cognitive-behavioral strategies, academic engagement/performance, initiation of social contact, etc.). Through collaboration with CBMHPs, school psychologists will be aware of the intended and possible unintended effects of treatment and will be able to develop and implement progress monitoring plans in conjunction with other school personnel, allowing for ongoing collection of progress monitoring data that can then be shared with the CBMHPs and used to effectively tailor treatment to each individual youth.

Theoretical Framework

Ecological systems theory, developed out of the work of Bronfenbrenner (1977, 1979, 1989), forms the theoretical base for this study. This theory conceptualizes the child at the center of a series of concentric circles, which represent the numerous systems within which human development occurs, from the narrowest system impacting only the child and their immediate family to the broadest systems impacting the development of a great many children. According to Bronfenbrenner, the developing

child lives and grows within a number of microsystems (e.g., the child, family, and school systems), the mesosystem (i.e., interactions between components of the microsystem), the exosystem (e.g., social contexts of norms, beliefs, and expectations), and the macrosystem (i.e., cultural values, general beliefs, customs, and laws of a society). For instance, a child's developmental trajectory is shaped not only by within-child factors (e.g., genetics, temperament, etc.) but also by the child's family system factors (e.g., marital status, siblings, financial status, etc.), the settings in which the child spends their time (e.g., the home, school, and daycare environments, etc.), the interactions between significant people across environments (e.g., parent-teacher interactions), the institutions which impact the child (e.g., policies created by federal and local government), and the culture expectations within which these systems function.

Because all of these systems (i.e., micro-, meso-, exo-, and macro) influence children's social-emotional development, it is important to coordinate efforts across systems in order to promote wellness most effectively (Adelman & Taylor, 1999). Within the micro-system, each child has unique characteristics related to genetics and temperament, which may result in vulnerability or protection from developing mental illness. Also, at home, parents model behavior and respond to their child's behavior thereby shaping a child's social-emotional development. School personnel, such as teachers and school psychologists, create learning environments, behavior management, and positive behavior support systems that contribute to the social-emotional development of children as well. Within the meso-system, school psychologists, teachers, parents, and CBMHPs may collaborate to implement coordinated interventions across home and school environments. The micro- and meso-systems function within the exo- and macro- systems, which shape human development through the beliefs, norms, and expectations of the community and larger society as a whole. Simply put, ecological systems theory recognizes the numerous within-child as

well as the environmental factors involved in shaping human development and, as such, this theory emphasizes the need for collaboration between and across systems (i.e., between parents, teachers, school psychologists, CBMHPs, etc.) in order to promote mental health in childhood.

Purpose of the Current Study

The primary purpose of this study was to investigate the current practices and experiences of practicing school psychologists in the United States relative to their communication and collaboration with CBMHPs on behalf of students with mental health problems. This study aimed to collect data regarding the frequency of collaboration between school psychologists and CBMHPs. Additionally, this study intended to obtain data regarding school psychologists' purposes and methods of communication with CBMHPs. Another objective of this study was to acquire data about school psychologists' perceptions of the benefits and barriers to collaboration with CBMHPs. Another goal was to ascertain whether school psychologists' collaborative practices differ as a function of professional characteristics of the school psychologist and school variables. The final objective of this study was to investigate whether school psychologists' collaborative practices are predicted by the percentage of students served by the school psychologists with internalizing or externalizing mental health problems. By gaining increased understanding of school psychologists' collaborative practices and perceptions, strategies have been developed to facilitate communication and collaboration. School psychologists and their supervisors can implement these strategies in order to help to resolve mental health problems in youth. Furthermore, these findings inform policy aimed at developing structures for systems level interdisciplinary collaboration between school psychologists and CBMHPs, promoting mental health and wellness in youth.

Research Questions

A sample of school psychologists, obtained from the 2011-2012 membership directories of 11 geographically representative state professional organizations of school psychology, were asked to complete an electronic survey in order to gather information regarding school psychologists' collaborative practices with CBMHPs on behalf of children with mental health problems. The following research questions were explored by analyzing responses to items on the survey questionnaire:

Research question 1. What is the frequency of communication and collaboration between school psychologists and CBMHPs on behalf of students with mental health problems?

Research question 2. With which type of CBMHPs are school psychologists communicating and collaborating?

Research question 3. What is the nature and purpose of communication and collaboration between school psychologists and CBMHPs ?

Research question 4. What do school psychologists perceive as the benefits and barriers of collaboration with CBMHPs?

Research question 5. Does the frequency of communication and collaboration between school psychologists and CBMHPs relate to professional characteristics of the school psychologist, such as:

a) the highest degree earned by the school psychologist?

b) the ongoing professional development of the school psychologist?

c) the years of experience of the school psychologist?

Research question 6. Does the frequency of communication and collaboration between school psychologists and CBMHPs relate to school characteristics, such as:

a) the socio-economic status of the student population served by the school psychologist (i.e., Title 1 funding)?

b) the number of students served by the school psychologist?

c) the number of schools served by the school psychologist?

d) the type of community where the majority of the students served by the school psychologist reside (e.g., urban vs. rural)?

Research question 7. Is the frequency of collaboration between school psychologists and CBMHPs predicted by the percentage of students with externalizing and internalizing problems served by the school psychologists?

Contributions to the Literature

This study contributes to the existing literature by assessing the current collaborative practices of a national sample of school psychologists with CBMHPs on behalf of children with mental health problems. Also, this study contributes to the literature by developing strategies to enhance systems level collaborative practices based upon data on the perceived benefits and barriers to this type of collaboration. Additionally, the findings from this study have been used to develop strategies intended to inform professional development programs related to interdisciplinary collaboration and mental health in youth.

Definition of Key Terms

Mental health. "Mental health is a state of successful performance of mental function, resulting in productive activities, fulfilling relationships with other people, and the ability to adapt to change and to cope with adversity. Mental health is indispensable to personal well-being, family and interpersonal relationships, and contribution to community or society." (U. S. Department of Health and Human Services [USDHHS], 1999, p.4).

Psychopathology and mental illness. The terms psychopathology and mental illness are terms that "refer to all diagnosable mental disorders. Mental disorders are health conditions that are characterized by alterations in thinking, mood, or behavior (or

some combination thereof) associated with distress and/or impaired functioning…Alterations in thinking, mood, or behavior contribute to a host of problems-patient distress, impaired functioning, or heightened risk of death, pain, disability, or loss of freedom (DSM-IV, 1994 [American Psychiatric Association, 1994])" (U. S. Department of Health and Human Services [US DHHS], 1999, p. 5). Childhood psychopathology and mental illness refer to those conditions that present in infancy, childhood, and/or adolescence.

Internalizing disorders. Internalizing disorders is a term used to categorize disorders involving overcontrolled behaviors (Cicchetti & Toth, 1991) such as dysphonic mood, withdrawal, anxiousness and inhibition (Merrell, 2009). Mental Disorders typically included in this category are the inattentive subtype of Attention-Deficit/Hyperactivity Disorder (ADHD; Tobin, Schneider, Reck, Landau, 2008), Anxiety, and Depression.

Externalizing disorders. Externalizing disorders is a term used to categorize disorders involving undercontrolled behaviors (Cicchetti & Toth, 1991) such as aggressive, disruptive, hyperactive behaviors (Merrel, 2009). Mental disorders typically included in this category are the Hyperactive/Impulsive and Combined subtypes of ADHD (Tobin, Schneider, Reck, Landau, 2008), Conduct Disorder, and Oppositional Defiant Disorder. Bipolar disorder, Pervasive Developmental Disorders (PDDs), the Combined subtype of ADHD, and schizophrenia sometimes contain behaviors that fall into both internalizing and externalizing categories simultaneously. Due to the nature of externalizing disorders (i.e., externalizing symptoms tend to be disruptive in nature and difficult to overlook; Harris-Murri, King, & Rostenberg, 2006), for the purpose of this study disorders involving both internalizing and externalizing symptoms will be categorized as externalizing disorders.

Community-based mental health professionals. Mental health professionals including psychiatrists, psychologists, neurologists, social workers, mental health case

managers, licensed mental health counselors, and pediatricians who work for either a public or private organization are referred to as community-based mental health professionals (CBMHPs; Johnson, Tobben, & Hong, 2005). Many of these professionals treat physical health problems as well as mental health problems and may work in a school setting. For the clarity of this study, these professionals are only considered CBMHPs when they work outside of a child's school and they are addressing mental health problems.

Interdisciplinary collaboration. Interdisciplinary collaboration refers to a process where members of diverse disciplines engage in interpersonal interaction in order to achieve a common goal (Berg-Weger & Schneider, 1989).

Communication. For the purposes of the study the term communication refers to a one-time, unidirectional sharing of information regarding a student (e.g., a phone call, letter, or email; Bradley-Klug, Sundman, Nadeau, Cunningham & Ogg, 2010).

Collaboration. For the purpose of this study the term collaboration refers to ongoing, bi-directional sharing of information by two or more people who are working together to plan and problem-solve to promote positive outcomes for a child (Bradley-Klug et al., 2010). An example of collaboration may include when a school psychologist provides ongoing consultation regarding information that helps CBMHPs understand the school system and the services that are available. CBMHPs then provide information about the specific needs of the student, including such information as the educational implications and accommodations for the student's mental health. Based on the expertise and coordinated efforts of the school psychologist and CBMHP, a comprehensive intervention plan is developed.

Chapter Two

Review of the Literature

This chapter reviews the professional literature in order to provide a context for the purpose and rationale of the current study. Specifically, this chapter reviews the literature in the following three areas: 1) the prevalence and prognosis of mental health problems in youth, 2) best practices and current issues in the diagnosis and treatment of childhood psychopathology, and 3) the need for systems level interdisciplinary collaboration for mental health promotion for all children. The current study was informed and guided by this review of the literature.

Prevalence and Prognosis of Mental Health Problems in Youth

According to Doll and Cummings (2008), between 10% and 20% of school-age children, and perhaps more, experience behavioral, social, and/or emotional problems resulting in a diagnosable psychiatric disorder and causing some level of impairment. Additional data presented in the Surgeon Generals Report on Mental Health (US Department of Health and Human Services, 1999) suggest that upwards of 21% of youth age 9-17 have a diagnosable mental health problem. While not all, most mental health problems in youth can be organized into one of two overarching dimensions: internalizing or externalizing problems. Internalizing disorders, or disorders involving overcontrolled behaviors (Cicchetti & Toth, 1991) such as dysphonic mood, withdrawal, anxiousness and inhibition (Merrell, 2009), typically include the inattentive subtype of Attention-Deficit/Hyperactivity Disorder (ADHD; Tobin, Schneider, Reck, Landau, 2008), Anxiety, and Depression. Externalizing disorders, or disorders involving undercontrolled behaviors (Cicchetti & Toth, 1991) such as aggressive, disruptive, hyperactive behaviors

(Merrel, 2009), typically include the Hyperactive/Impulsive and Combined subtypes of ADHD (Tobin, Schneider, Reck, Landau, 2008) as well as Conduct Disorders. Bipolar disorder, Pervasive Developmental Disorders (PDDs), the Combined subtype of ADHD, and schizophrenia do not fit as precisely into the externalizing or internalizing taxonomy (Merrel, 2009) and may instead contain behaviors that fall into both dimensions simultaneously. However, because externalizing symptoms tend to be disruptive in nature and difficult to overlook (Harris-Murri, King, & Rostenberg, 2006), for the purpose of this study disorders involving both internalizing and externalizing symptoms will be categorized as externalizing disorders. The complex array of common internalizing and externalizing mental health problems in youth vary widely in regard to onset, manifestation of symptoms, and the degree of impairment on academic, social, and emotional wellbeing.

In recent years, research has emerged indicating that mental health is vital for school success. In a longitudinal study conducted by Masten and colleagues (2005), the link between mental illness and academic achievement was examined. Specifically, symptoms of mental illness and academic performance of a normative sample of 205 children were assessed at 8 to 12 years old and then again 7, 10, and 20 years later. Structural equation modeling was used to test a series of nested developmental cascade models (i.e., the relational models linking mental illness to academic problems). Findings from this study suggest that externalizing problems in childhood have a negative impact on academic achievement and contribute at least in part to internalizing problems in adulthood. Although findings from this normative sample indicate that internalizing problems in childhood have relatively little negative impact on academic achievement, it is probable that academic problems develop for subgroups experiencing clinical levels of internalizing symptoms.

Graziano and colleagues (2007) investigated the relationship between emotion regulation, a common difficulty for children with mental illness, and academic success in kindergarten. The emotion regulation, academic competence, and behavior of 325 children in kindergarten (143 boys, 172 girls) was assessed using the Emotion Regulation scale, the Academic Performance Rating Scale, Wechsler Individual Achievement Test, Wechsler Preschool and Primary Scale of Intelligence-Revised, and the Behavior Assessment System for Children. Findings suggest that there is a positive relationship between emotion regulation and standardized early literacy and math test scores as well as teacher reports of academic success. These findings have important implications for parents, educators, and mental health professionals and provide impetus to prevent and intervene in the development of childhood mental illness.

The following sections will briefly review the common internalizing and externalizing problems in youth and their implications for a child's functioning within a school setting and beyond. The mental health problems included for review were chosen based on either their high prevalence (e.g., Anxiety, Depression, ADHD) or level of impairment presented in childhood (e.g., Oppositional Defiant Disorder, Conduct Disorder, Pervasive Developmental Disorder, Bipolar Disorder, and Schizophrenia) and are reviewed according to internalizing or externalizing symptom category and in order of prevalence in childhood (i.e., from more to less common). Although there are multiple diagnostic systems, such as the *International Classification of Diseases* (IDC-10; World Health Organization, 2005), the *Diagnostic and Statistical Manual of Mental Disorders* (4^{th} ed., text rev.) (DSM-IV-TR; American Psychiatric Association, 2000), and the guidelines set forth in IDEA, for the sake of clarity and consistency this chapter discusses childhood mental disorders based on the criteria set forth in the DSM-IV-TR, as this is the principle classification system for mental illness in the United States (Beauchaine & Hinshaw, 2008).

Internalizing disorders. ***Anxiety*****.** A recent study conducted by Carter and colleagues (2010) found that at school entry, approximately 11% of children meet the diagnostic criteria for an internalizing disorder, which include symptoms of both anxiety and depression. Anxiety disorders are among the most common mental health problems in youth (Curry, March, & Hervey, 2004). A study by Costello, Mustillo, Erkanli, Keeler, and Angold (2003) estimated that 10% of children are diagnosed with an anxiety disorder by the time they are 16 years old. Research shows that anxiety and depression tend to exist concurrently, and some recent estimates indicate that "as many as 15-20% of children and youth have depressive or anxiety symptoms that warrant direct intervention, and many more are at risk for developing symptoms during the childhood or adolescent years" (Huberty, 2008, p. 1473). A recent study conducted by Kessler and colleagues (2010) found that the median age of the onset of anxiety disorders is 11 years. Experiencing some degree of anxiety in new or dangerous situations is considered normal and even adaptive because it can alert a child to potential harm (Ramirez et al., 2006); however, elevated levels of anxiety, including excessive worries, fears, and/or phobias, can lead to an anxiety disorder in childhood (Huberty, 2008). Unhealthy levels of anxiety are frequently masked in children because it is common for young children to experience transient fears and anxiety, which are considered part of normal development. Although there is still much unknown about the onset and development of anxiety disorders in childhood, it is clear that when anxieties and fears become excessive and severe, the child may experience an anxiety disorder (Albano, Chorpita, & Barlow, 2003). As listed in the *DSM-IV*, there are nine anxiety disorders, with which children may be diagnosed including, seasonal affective disorder, panic disorder, agoraphobia, generalized anxiety disorder, social phobia, specific phobia, obsessive compulsive disorder, posttraumatic stress disorder, and acute stress disorder (*DSM-IV*; American Psychiatric Association, 1994). The features of

these disorders involve “subjective feelings (e.g., discomfort, fear, dread), overt behaviors (e.g., avoidance, withdrawal), and physiological responding (e.g., sweating, nausea, general arousal)” (Merrell, 2009, p. 309).

Anxiety disorders often are associated with academic, behavioral, and social-emotional difficulties throughout a youth’s school years and even endure into adulthood. Anxiety has been found to greatly impede a child’s ability to focus on a task and hold information in their working memory (Levine, 1999), which, in turn, can have negative effects on academic performance. For instance, if a child is preoccupied with excessive worry then they may have difficulty focusing on and completing academic tasks. Socially, these children may withdraw from situations in which they are vulnerable rather than risking rejection, which often results in difficulty making friends (Huberty, 2008). Although the extant literature is limited due to a number of methodological constraints, emerging research indicates that some childhood anxiety disorders may begin as early as the preschool years (Spence, Rapee, McDonald, & Ingram, 2001) and without proper intervention/treatment, may continue throughout adulthood (Albano, Chorpita, & Barlow, 2003).

***Depression*.** Despite the relatively low rates of depression in youth, ranging from approximately 3%-6% (Costello, Erkanli, & Angold, 2006), depression is one of the most prevalent lifetime disorders and often begins in youth (Huberty, 2008; Kessler et al., 2010; Stark, Molnar, Simpson, 2006). Depression is more than temporarily feeling “blue” or “down in the dumps”. Rather depressive characteristics span the cognitive domains (e.g., feelings of hopelessness, difficulty making decisions, and low self-esteem), behavioral domains (e.g., depressed mood, social withdrawal, irritability, apathy, and suicide attempts), and physiological domains (e.g., insomnia or hypersomnia, somatic complaints, and fatigue) (Huberty, 2008). According to the *DSM-IV*, the fundamental symptoms of childhood depression are dysphoric mood and/or loss

of interest or pleasure in almost all usual activities and pastimes. In addition to these symptoms, the *DSM-IV* includes seven additional symptoms of which four need to be present in order for a diagnosis of depression to be made (i.e., poor appetite or significant weight loss, trouble with sleep, psychomotor agitation or retardation, loss of energy or fatigue, feelings of worthlessness or guilt, difficulty with concentration or decisiveness, and recurrent thoughts of death or suicide; American Psychiatric Association, 1994).

Depression during childhood is often tied to poor academic performance (Nelson & Harwood, 2011). In fact, Gallegos, Langley, and Billegas (2012) found that youth with learning disabilities are at higher risk for depression than those without learning disabilities (32% vs. 18%). Academically, children with depression tend to have lower grades, lower motivation, and poor achievement (Blackman, Ostrander, & Herman, 2005; Cole, Martin, Powers, & Truglio, 1996). The research is inconclusive, however, about the direction of this relationship. In other words, it is difficult to determine whether a child is depressed because they have academic deficits and experience frequent failure, or whether they experience academic failure because of the disengagement associated with depression (Levine, 1999). Similar to the social-emotional challenges of children with anxiety, children with depression tend to isolate themselves from their peers. They may also experience lower thresholds for frustration and thus show signs of irritability that may create further isolation. Without appropriate intervention and treatment, depression beginning in childhood will likely result in academic and social-emotional problems that persist across the individual's life span, and in some cases may become debilitating.

Externalizing disorders. Externalizing disorders classify undercontrolled behaviors associated with Hyperactive/Impulsive and Combined subtypes of ADHD (Tobin, Schneider, Reck, & Landau, 2008) Oppositional Defiant Disorder, and Conduct

Disorders. Bipolar Disorder, Pervasive Developmental Disorders (PDDs), the Combined subtype of ADHD, and Schizophrenia tend to have both externalizing and internalizing symptoms. However, for the purposes of this study these disorders will be categorized as externalizing disorders.

Attention-Deficit/Hyperactivity Disorder (ADHD). Initiating and sustaining attention in school is one of the most common behavioral problems for school-aged children (Wolraich, Hannah, Baumgaertel, & Feurer, 1998). Three to five percent of children in elementary school experience attention problems beyond those of a typically developing child and are diagnosed with ADHD (Barkley, 2006). The American Psychiatric Association (1994) describes the prominent characteristic of ADHD as a "persistent pattern of inattention and/or hyperactivity-impulsivity that is more frequent and severe than is typically observed in individuals at a comparable level of development" (p. 78). The four subtypes of ADHD that children present are 1) hyperactive-impulsive, 2) inattentive subtype, typically is classified as an internalizing disorder, 3) combined type and 4) not otherwise specified. Generally, the onset of ADHD begins in infancy or early childhood, continues throughout childhood, and requires adjustment during adulthood (Merrell, 2009).

Children diagnosed with ADHD typically experience a number of behavioral and academic challenges throughout their school experience. Behaviorally, these children experience difficulty engaging and maintaining appropriate peer relationships and following classroom and school rules. In fact, without proper intervention, these children are at higher risk for poor peer relationships as well as antisocial acts such as lying, stealing, and fighting (DuPaul, Stoner, & O'Reilly, 2008). Academically, children with ADHD often experience difficulty associated with inattention, poor academic engagement, and inconsistent task completion (DuPaul & Stoner, 2003). Without proper intervention, these children are more likely to earn lower grades and experience grade

retention, and less likely to earn a college degree than their typically developing peers (Weiss & Hechtman, 1993).

Oppositional Defiant Disorder. According to the DSM-IV, the prevalence of Oppositional Defiant Disorder (ODD) in youth has been estimated to range between 2% and 16% (American Psychiatric Association, 1994). The essential features of ODD include "defiant, disobedient and hostile behavior toward authority figures" (American Psychiatric Association, 1994, p. 91). Commonly associated behaviors include, but are not limited to, frequently arguing with and defying adults, intentionally annoying others, becoming angry and annoyed by others, and engaging in vindictive actions (American Psychiatric Association, 1994). ODD is very similar to Conduct Disorder (CD) and is often considered to be a precursor to the development of CD (Hinshaw & Lee, 2003). For this reason, the prognosis of ODD and CD will be discussed together in the following section.

Conduct Disorder. The prevalence of CD in youth varies by age and ranges from 2% to 16% with boys being 3 times more likely than girls to develop the disorder (Loeber, Burke, Lahey, Winters, & Zera, 2000). Although CD is less prevalent in girls than boys, girls with conduct disorder are at greater risk of poor outcomes (Loeber et al., 2000). The primary feature of CD is a high level of antisocial behavior (Merrell, 2009). Both ODD and CD share a number of key features however CD is differentiated by the presence of blatantly aggressive behaviors (Merrell, 2009).

The American Psychiatric Association (1994) describes the prominent characteristic of CD as a "repetitive and persistent pattern of behavior in which the basic rights of others or major age-appropriate societal norms or rules are violated" (p. 85). In order to meet the diagnostic criteria for CD, a child must present at least 3 out of 15 symptoms. These symptoms include, but are not limited to, bullying or threatening others, initiating physical fights, deliberate destruction of property, stealing, and rape.

The prognosis of ODD and CD in youth is associated with poor academic and social outcomes as well as poor prognosis for future adjustment (Hinshaw & Lee, 2003). However, this prognosis varies greatly depending on a number of factors including, the severity of aggressive behavior as well as the age of symptom onset (Hinshaw & Lee, 2003; Merrell, 2009). More than half of youth with conduct problems also meet criteria for major depression (Greene et al., 2002), further complicating the diagnosis of this disorder.

Youth who present challenging behaviors in early childhood, which may be a precursor to ODD and CD, may have fewer opportunities to learn academic skills and social expectations as their parents may refrain from taking them to public events, their teachers may not select them for enrichment activities, and peers may not invite them to social gatherings outside of school (Williams et al., 2011). Simply put, these children may engage in fewer positive interactions with adults and peers resulting in fewer opportunities to learn academic and social skills. Furthermore, youth with ODD or CD may present poor academic performance due to disruptions in their learning and missed opportunities to learn resulting from removal from class, suspension, expulsion, and juvenile detention related to disruptive and aggressive behaviors (Hinshaw & Lee, 2003).

Due to difficulties abiding by social norms, school rules and expectations, and common courtesies, youth who are diagnosed with ODD or CD may also have difficulty establishing and maintaining relationships with peers and adults. They may have trouble making and keeping friends and maintaining ongoing relationships with parents, teachers, and other authority figures (Hinshaw & Lee, 2003). Although the prognosis of ODD and CD varies considerably, findings from longitudinally research are clear and consistent: Youth diagnosed with these disorders tend to experience impairing academic and behavior problems and they typically continue to display antisocial

behavior (e.g., adjustment problems at work and social dysfunction) throughout adulthood (Kazdin, 1995).

***Pervasive Developmental Disorders*.** Pervasive Developmental Disorders (PDD), including Autism Spectrum Disorder (ASD), Rett's Disorder, Childhood Disintegrative Disorder, and Asperger's Syndrome, are neurodevelopmental disorders "characterized by severe and pervasive impairment in several areas of development: reciprocal social interaction skills, communication skills, or the presence of stereotyped behavior, interests and activities" (American Psychiatric Association, 1994, p. 65). Compared to other childhood mental illnesses PDD are less common. In fact, according a recent study published by the Center for Disease Control and Prevention (2012), ASD, which is one of the more common PDDs, affects one in 88 children in the United States. However, these disorders are among some of the most debilitating in childhood (Merrell, 2009).

As a result of the core symptoms, children who are diagnosed with a PDD tend to have impaired social functioning (American Psychiatric Association, 1994). Although specific social deficits vary widely among children with PDDs, general areas of difficulty are observed. Children with PDD typically have difficulty initiating and sustaining eye contact, experiencing physical contact, and modulating vocalizations, if they are able to speak at all. Children with PDD often display repetitive and perseverative behaviors, which may cause them to have difficulty communicating their basic human needs, forming and maintaining friendships, interacting appropriately with adults, and engaging in social relationships throughout their lifetime.

Despite these constant social deficits, the academic functioning of children with PDD is extremely variable. Some PDDs are associated with intellectual disabilities (e.g., Childhood Disintegrative Disorder) while others tend to be accompanied by higher levels of intellectual functioning (e.g., Asperger's Syndrome). Due to this variance, the

academic prognosis for children with PDD depends to a large extent on the individual level of cognitive functioning as well as the extent to which the child received early and ongoing intervention/treatment (Dawson & Osterling, 1997; National Research Council [NRC], 2001; Odom, Brown, Frey, Karasu, Smith-Canter, & Strain, 2003).

Bipolar Disorder. Rates of early onset bipolar disorder in children are low (American Psychiatric Association, 1994), with current estimates of prevalence to be around 1% (Hammen & Rudolph, 2003). However, a study conducted by Lish and colleagues (1994) found that 60% of adults with bipolar disorder reported experiencing symptoms in childhood or adolescents. The features of bipolar disorder include cycling between episodes of major depression and mania in the case of Bipolar 1, or depression and hypomania in the case of Bipolar 2 (Hammen & Rudolph, 2003). The depressive episodes of bipolar disorder are much like depressive episodes previously described in that, among other things, they are marked by dysphoric mood and/or loss of interest or pleasure in almost all usual activities and pastimes. They are different from depressive episodes in that they are followed by a period of regulated mood, which is then followed by a manic or hypomanic episode. In children, manic episodes include a period of abnormally elevated or irritable mood, and often involve behaviors such as rages and explosive temper tantrums, elation as represented by periods of extreme giddy or silly behavior, restlessness and difficulty falling and staying asleep, rapid or pressured speech, racing thoughts, distractibility, grandiosity, hyper-sexuality, and increased risk-taking behavior (Papalos & Papalos, 2006). Symptoms of hypomania are similar to those of mania, but are less severe. The duration and severity of manic and depressive episodes as well as the interval of time between episodes may be quite variable from person to person. Although rapid cycling, or quickly moving between depressive and manic phases, is rare in adults, it is very common in children with early-onset bipolar disorder.

Although the frequency of bipolar disorder is low in children, occurrences are often severe, putting children with early onset bipolar disorder at high risk for school failure, social rejection, and even suicide (Costello et al., 2002). Children with early-onset bipolar disorder often struggle academically which may be due to decreased academic engagement related to symptoms of depressive or manic episodes (i.e., inattention due to racing thoughts or lack of motivation due to depression). In addition to decreased academic engagement, the academic difficulties of children with bipolar disorder may be comorbid with learning difficulties such as deficits in executive functioning and working memory (Mayes & Calhoun, 2006). Although academic challenges of children with bipolar disorder exist, they are often overshadowed by the severe social-emotional and behavior problems that emerge in school. During periods of depression, children with early-onset bipolar disorder tend to isolate themselves from their peers and adults, negatively impacting the development of social skills and support systems. Furthermore, during periods of mania, these children tend to have difficulty considering another child's point of view, taking turns, sharing, compromising, and appropriately expressing their concerns or needs. This often contributes to the child becoming easily frustrated in peer interactions and may lead to further social isolation. In addition to academic and social challenges, during healthy periods between episodes, children with bipolar disorder often experience elevated levels of anxiety, confusion, stress, and guilt about the impact their behavior has on their family and friends. Without early and effective intervention, these academic and social struggles often endure throughout an individual's lifetime and may lead to high levels of risk taking behaviors such as substance abuse, unprotected sexual activity, and even suicide (Costello et al., 2002).

***Schizophrenia*.** Similar to bipolar disorder, the rates of schizophrenia in children, also referred to as early onset schizophrenia (EOS), are low (American

Psychiatric Association, 1994), with only 10% of all cases of schizophrenia manifesting before the age of 18 years old (Muratori, Salvadori, Arcangelo, Viglione & Picchi, 2005). The hallmark symptoms of schizophrenia "include 1) delusions of thought, 2) prominent and lasting hallucinations, 3) incoherence or a marked loosening of association, 4) catatonic behavior, and 5) flat or grossly inappropriate affect" (Merrell, 2009, p. 363).

Individuals who display disturbances in thought, perception, and affect associated with EOS typically experience a severe decline in academic and social functioning. Due to the break from reality that is typically associated with EOS, these children may lack academic engagement and the ability to focus on academic tasks. Additionally, social relationships with peers and adults are impaired by distinctly atypical behaviors such as talking to themselves, hording odd items, and showing disregard for personal hygiene. Although EOS typically begins in adolescence, recent research suggests that behavior problems emerge much earlier in development (e.g., challenging behavior in early childhood). Specifically, adolescents diagnosed with EOS frequently report symptoms of social withdrawal and isolation earlier in childhood (Muratori et al., 2005). In other words, children and adolescents diagnosed with EOS tend to present challenging behaviors earlier in their childhood and they typically experience significant impairment throughout their life span. Moreover, some research suggests EOS may represent a particularly severe variant of the disorder (Asarnow & Asarnow, 2003).

Risk and Protective Factors of Mental Illness

Because the major emphasis of this chapter is on the prevalence, prognosis, diagnosis and treatment of childhood mental illness, the risk factors associated with mental illness discussed in this section are not examined in substantial depth. Instead this section is meant to provide a brief description of what is currently known about the risks and protective factors related to childhood mental health problems in order to provide a context for diagnostic and treatment practices.

Although the exact causes of mental illnesses remain unknown, in recent years there has been an increased level of research aimed at determining the factors that contribute to the onset and persistence of mental disorders. Cross-disciplinary researchers agree, however, that mental illness is a developmental brain disorder whereby genetic vulnerability and environmental risk factors interact resulting in problematic thought and behavior (Isel, 2010).

Although many details related to the causes of mental illness have yet to be explicitly discerned, in recent years evidence has emerged suggesting that mental illness has a genetic basis. Twin and molecular genetic research provide results indicating that certain combinations of genes are responsible for each individual's degree of vulnerability for mental illness (Eley & Stevenson, 1999; Kendler, Neale, Kessler, Heath, & Eaves, 1992; Reinemann, Stark, Molnar & Simpson, 2006; U.S. Department of Health and Human Services, 1999).

This genetic risk factor interacts with "unique environmental experience (and) modifies the specific expression of this vulnerability" (Albano, Chorpita, & Barlow, 2003, p. 309). Simply put, for individuals who are genetically predisposed, the manifestation of a mental disorder is influenced by environmental stressors and protective factors. Although environmental stressors such as prenatal assault, abuse, or poverty may elicit the expression of mental illness, environmental protective factors such as healthy role models, secure home environments, and coping strategies may prevent the onset of mental illness (U.S. Department of Health and Human Services, 1999). The critical role environmental factors play in triggering and maintaining mental illness makes a compelling argument for early identification and intervention as a means of preventing the onset and/or minimizing the severity and duration of mental illness.

Diagnosis and Treatment of Childhood Psychopathology

Diagnosis. The diagnosis of mental illness is a complex process of generating and testing hypotheses. This diagnostic process is often termed differential diagnosis. When making a differential diagnosis, practitioners gather data about a child's presenting symptoms, behaviors, and developmental history, and decide whether the presenting symptoms are considered normal or abnormal by comparing them to others in their peer group. Finally, they must decide how to classify the mental health problem (Merrell, 2009), which is done by forming hypotheses, or potential diagnoses, then testing these hypotheses by collecting new data obtained through a variety of methods including observations, parent/teacher ratings of a child's behavior, and clinical interviews (Pennington, 2009).

***Advantages of diagnosis*.** Notwithstanding the challenges of diagnosing mental health problems in youth, there are a number of benefits discussed in the literature. The diagnosis of mental illness in children can lead to early identification, intervention, and access to needed services. Research literature spanning a wide variety of mental disorders indicates that early intervention has the potential to minimize environmental stressors and increase protective factors for children diagnosed with mental illness, thus decreasing the severity and/or duration of mental illness over the course of a lifetime (Beauchaine & Neuhaus, 2008; Cole & Hall, 2008; Dawson & Osterling; 1997; National Research Council [NRC], 2001; NIMH, 2001; Schwartz & Davis, 2008). Conversely, without intervention, mental illness often results in academic and social problems in school, which may continue into adulthood (Dadds et al, 1999; Dawson & Osterling; 1997; National Research Council [NRC], 2001; NIMH, 2001; Schwartz & Davis, 2008; Shaw & Who, 2008). Evidence from emerging research supports the positive relationship between early intervention for mental illness and improved educational outcomes (Dawson et al., 2010). Another benefit of diagnosing

mental illness in children is that it provides guidance to professionals working with the child, allowing them to call upon their past experiences and knowledge of best practices for working with children with a specific disorder. By diagnosing a child with a mental disorder, parents and professionals working with the child may have an increased understanding of the child's condition, resulting in more precisely identifying and meeting their specific needs. Additionally, diagnoses are often required by educational and mental health service providers for client reimbursement and/or agency compensation (Merrell, 2009).

***Diagnostic challenges*.** As discussed previously, the process of differential diagnosis of mental illness in youth is difficult not only due to the child-by-child variability in development but also because of the variability in the expression of mental illness. The premorbidity and comorbidity among disorders, the varying environmental experiences of children, and the many systems of classification further complicate the task.

The challenges of diagnosis are compounded by the complexity of child development, which involves the maturation and integration of diverse physical and cognitive functions. The development of interconnected motor, cognitive, language, adaptive, and social functions of the child is "neither uniform nor linear, but is punctuated by hesitations, false starts, trial and error, regressions, and progressions" (Levine, 1998, p. 2) which can influence the manifestation of mental disorders (Tobert, 1996). Moreover, each child's precise sequence of development may vary dramatically depending on biological and environmental factors. Social-emotional development during childhood is particularly variable, which is even more pronounced in the behavior of young children as it tends to be dramatically influenced by environmental factors (Cicchetti & Curtis, 2006; Rutter, Pickles, Murray, & Eaves, 2001). This variation makes it difficult to diagnose childhood mental illness because clinicians have difficulty

determining whether social-emotional and behavior problems are the result of a developmental delay, which is likely to decrease with maturation, or whether the behavior problem is the result of an emerging mental disorder.

Not only are the types of childhood mental illnesses diverse in nature, but similar to adult populations, great heterogeneity exists even among children with the same diagnosis. Although each disorder has hallmark symptoms, children tend to present a unique combination of symptoms along with the common characteristics. Thus, it is likely that two children diagnosed with the same disorder present behaviors and experience social-emotional challenges that differ greatly.

Accurate diagnosis is also complicated by the nature of the symptoms a child presents often resulting in either over- or under-diagnosis. As discussed earlier, many mental health problems in youth do not fit precisely into the externalizing or internalizing taxonomy and may instead contain behaviors that fall into both dimensions simultaneously (Merrel, 2009). Because the symptoms of externalizing behaviors are often aggressive and/or disruptive in nature, these disorders are difficult to overlook but have the tendency to be over-diagnosed especially among children in certain demographic groups (Harris-Murri, King, & Rostenberg, 2006). In contrast, due to the nature of the symptoms of internalizing disorders, such as withdrawal and inhibition, children with these disorders are often overlooked and under-diagnosed (Reynolds, 1992).

Another significant challenge practitioners face in diagnosing childhood mental health problems is the difficulty identifying the disorder when a child presents with a complex set of frequently overlapping symptoms, especially when they are complicated by premorbid and/or comorbid disorders. Premorbidity is a term that is used to refer to disorders that precede the onset of another disorder and a comorbid condition is when a child has more than one disorder (Reinemann et al., 2006; Sistrunk, 2007). For

example, there is a growing body of research indicating that childhood depression and anxiety often co-occur (Last, Strauss, & Francis, 1987; Laurent & Ettelson, 2001). However, other research suggests that periods of unmanaged anxiety can lead to subsequent onset of depression (Avenevoli, Stolar, Li, Dierker, & Ma, 2001; Kovacs, Gatsonis, Paulauskas, & Richards, 1989; Lewinsohn, Zinbarg, Seeley, Leinsohn & Sack, 1997; Pine, Cohen, Gurley, Grook & Ma, 1998; Wickramaratne & Weissman, 1998). Thus, many disorders have overlapping symptoms; however, the core reasons for these symptoms may be quite different. When children present with complex and overlapping symptom profiles it may be difficult for the practitioner to differentiate between disorders and thus misdiagnoses may occur (Costello et al., 2002).

A point of noteworthy caution, as discussed by Levine (1999) is that diagnostic labels have the potential to oversimplify developmental dysfunction. He asserts that labeling a disorder may create a false dichotomy that has the potential to misrepresent a child's condition. Additionally, because mental health problems are associated with strong and enduring stigmas, labeling a mental health problem in childhood may have negative social implications, such as stereotyping and discrimination. Historically, people with mental illness have been discriminated against in educational settings as well as in the workplace. Therefore, children with mental illness, and their families often live with fear that diagnosis or treatment of their condition will result in life-long discrimination and judgment. Another potential risk associated the diagnosis of childhood mental illness is the potential for the self-fulfilling prophecy to occur (Snyder, Tanke, & Berscheid, 1977). In other words, children who are diagnosed with a mental illness may, consciously or not, underachieve and/or present inappropriate behaviors as a result of the societal expectations associated with people who have mental illness. Due to stigmas and self-fulfilling prophecy, practitioners will often err on the side of caution and avoid making a diagnosis until developmental delays can be ruled out.

Treatment. The treatments for childhood mental illness are extremely varied and selecting an effective treatment is a dynamic process. There is no one prescriptive treatment that works for all children or disorders; rather, effective treatment of social-emotional and behavioral problems typically results from an iterative process of evaluating child specific, individualized treatment plans that combine various evidence-based interventions which are directly linked to a validated diagnosis. There are three overarching approaches for treating childhood mental illness that are supported by research: 1) psychotropic medication, 2) psychosocial therapy, and 3) a combination of treatments. The most effective interventions tend to be individualized combinations of treatments that are discovered through an iterative process of trail and error (DuPaul, Stoner, & O'Reilly, 2008; Huberty, 2008; Schwartz, 2008).

Just as the diagnosis of mental illness in children is complicated by a number of factors, the treatment of childhood mental illness is complicated by many of these same factors. For example, due to the frequent changes that occur throughout child development, it is common that a treatment plan that is effective at one point in the child's life may no longer be effective later. Additionally, children tend to have more difficulty reporting the details of the effects of treatment in large part due to the fact that they are still developing communication skills and a sense of self-awareness.

***Psychotropic medication*.** A child's pediatrician or pediatric psychiatrist may prescribe psychotropic medication (i.e., antidepressants, antipsychotics, anti-anxiety agents, and stimulants) to treat a number of childhood mental illnesses. These prescription drugs are intended to alter the electrochemical functioning of the central nervous system. Specifically, at the cellular level, these pharmaceutical agents bind with the chemical receptors of the nerve cell thereby increasing or decreasing the cell's ability to send and/or receive electrochemical messages (Kral, LaRosa, Brown, & Kubiszyn,

2006). Thus, the intent of psychotropic medication is to alter the electrochemical processes within the brain.

Prescribing psychotropic medication to school age children for the treatment of psychopathology presents many challenges, some of which are problems inherent in psychotropic medications for both children and adults while others are unique to the treatment of childhood mental illness. Specifically, problems that can arise from prescribing psychotropic medication for the treatment of childhood mental illness include drug side effects, variability of effectiveness, scarcity of empirical data to support use with children, medication management, and communication limitations.

Drug side effects. Many children experience a wide range of side effects when taking psychotropic medications (Marsh & Barkley, 2003). Although these side effects vary from child-to-child and drug-to-drug they typically range from dry mouth, diarrhea, headaches, and weight loss or gain to diabetes, psychoses, potentially fatal lowered white blood cell count, the induction of mania (Kral, LaRosa, Brown, Kubiszyn, 2006), and increased risk of suicidal ideation (Reinemann, Stark, Molnar, & Simpson, 2006).

Variability of effectiveness. The effectiveness of using psychotropic medication to treat childhood mental illness varies from child-to-child and often changes over time. Just as disorders are expressed differently for every child, these drugs tend to work differently for every child. Although a psychotropic drug may be extremely effective for one child, for another child with the same condition, it may have no effect or result in unpleasant or dangerous side effects. Additionally, medication that worked for a child at one stage in their life may not work for them as they mature and enter a new developmental stage (Brown & Sammons, 2002).

Scarcity of empirical data. There is a scarcity of empirical data supporting the use of some psychotropics with a pediatric population (Walkup, Labellarte, & Ginsburg, 2002). Until recently, research was not conducted on the safety or efficacy of

psychotropic medications for the treatment of childhood mental illness, rather clinical trials of medications were conducted with adults but prescribed off-label to the pediatric population. Not until the year 2000 did the U.S. Food and Drug Administration (FDA) mandate safety and efficacy research for any *new* drug intended for use with a pediatric population. Thus, it is common for medications to be prescribed off-label for the treatment of childhood mental illness even though the drug is not specifically approved for the use with a pediatric population or for a specific disorder (Carlson, 2008; Kral, LaRosa, Brow, & Kubiszyn, 2006). There also is a dearth of research on the long-term effects of pediatric use of psychotropic medication on the developing brain (Riddle, Kastelic, Frosch, 2001).

Medication management. In order for psychotropic medications to be most effective in treating childhood mental illness, it is vital that the medication be taken as prescribed (e.g., correct dosage, time of day, without missing doses, etc.). This can be very difficult for young children who often rely on their caregivers to manage their medication. Thus, parental attitudes toward psychotropic medication may influence the extent to which a young child complies with a medication treatment plan (Brown & Sammons, 2002) and learns strategies for self-management. Furthermore, research indicates that young children comply with their medication treatment plan better than adolescents. This may be due to the fact that adolescents may be solely responsible for deciding whether to take their medication, managing their daily dose, and prescription refills and renewals, whereas a young child may depend on their parents' compliance (Hamrin, McCarthy, & Tyson, 2010).

Communication limitations. The prescription of psychotropic medication for childhood mental illness can be problematic because children may have difficulty describing the physiological or psychological changes they experience while taking the medication (Kral, LaRosa, Brown, & Kubiszyn, 2006). This creates a need for increased

monitoring and communication between the child's caregivers (i.e., parent, teacher, doctor) in order to evaluate the effects of treatment.

As evidenced by the complexities described above, psychotropic treatment does not guarantee improved outcomes for children. A large body of literature suggests that the effects of medication, both intended and unintended, should be monitored closely within all settings and be shared with the prescribing doctor (e.g., Brown & Sammons, 2002; Carlson, 2008; MTA Cooperative Group, 2004; Riddle, Kastelic, & Frosch, 2001).

Psychosocial treatments. Numerous studies provide evidence that behavior and cognitive therapies may be efficacious in the treatment of many childhood mental illnesses (Albano & Kendall, 2002; Kendall, 1992, 2000; Kaslow & Thompson, 1998; Chambless & Hollon, 1998; Costello et al., 2002; Knell, 1993; Miklowitz et al., 2000). Behavior therapy (BT) involves using strategies derived from behavioral principles of classical and operant conditioning such as reinforcing desired or extinguishing negative behavior. Cognitive therapy (CT) involves identifying and altering dysfunctional ideas, cognitions, and attitudes. Thus producing enduring emotional and behavioral change. Cognitive-Behavioral Therapy (CBT) is a combination of BT and CT and aims to teach the child adaptive coping strategies while unlearning dysfunctional behaviors and thoughts (March, 2002). BT, CT, and CBT can be conducted individually or in groups within the school, family, or community settings (Beck, 1995; Bedrosian & Bozicas, 1994; Beutler et al., 1987; Epstein, Schlesinger, & Dryden, 1988; Freeman, Schrodt, Gilson, & Ludgate, 1993). Additionally, research indicates that these therapies are effective for patients of diverse cultural, socio-economic, and educational backgrounds (Beck, 1995; Persons, Burns, & Perloff, 1988).

In order to meet the needs of individuals with varied social-emotional and behavioral problems, there are many types of BT, CT, and CBT. The therapeutic strategy chosen for treatment depends on a number of child factors (e.g., type of social-

emotional/behavioral problem, level of cognitive functioning, etc.) as well as the setting in which it is being implemented (e.g., school-based classroom setting, community-based setting, etc.). For instance, behavioral and cognitive interventions for children with ADHD often include behavior management strategies such as token reinforcement systems, daily teacher report cards, and self-monitoring paired with reinforcement (DuPaul, Stoner, & O'Reilly, 2008) while behavioral interventions for children with anxiety often include systematic desensitization, contingency management, and modeling (Ramirez, Feeney-Kettler, Flores-Torres, Kratochwill, & Morris, 2006). There is also a large and growing body of evidence that CBT is effective in treating a number of childhood anxiety disorders (e.g., Albano & Kendall, 2002; Kazdin & Weisz, 1998; Kendall, 1992, 2000; Ollendick, 2006).

Although the empirical support for psychosocial therapy is increasing, there are a number of challenges in its use for the treatment of childhood mental illness. Within child factors that are related to poor response to psychosocial therapies include low cognitive functioning, poor insight, and comorbid conditions (McKay, Taylor, & Abramowitz, 2010). Notably, it is vital that a sound diagnosis is made in order to accurately conceptualize the child's problems and effectively identify the most appropriate form of therapy for the child. As discussed earlier, accurate diagnosis requires the integration and interpretation of various sources of data from multiple settings. Also, treatment plans must be tailored to the child's individual needs. For instance, therapy should be modified to address the specific symptoms and problems in social-emotional and behavioral functioning (Beck, 1995). However, when clinicians modify an evidence-based therapy for an individual child's needs, the treatment, while still empirically informed, may revert back to an "experimental" practice (McKay et al., 2010). In addition to the challenges associated with making accurate diagnoses and creating effective treatment plans, in order to obtain optimal results these treatments

should be consistently reinforced in every setting within which a child functions which requires extensive training and communication (Glickman, 2009). Another challenge in the effective implementation of psychosocial therapy is the importance for children to have repeated "real-life" opportunities to practice the skills learned in therapy, which requires that the child's caregivers and teachers are knowledgeable about these strategies, and prompt youth to practice. In fact, DuPaul, Stoner, and O'Reilly (2008) assert the treatment is most effective when implemented at the point of performance in order for authentic practice to occur.

Another challenge in using psychosocial therapies to treat childhood mental illness is that although they are effective for many children, they are not effective for all children and it is vital that progress is monitored in order to evaluate effectiveness so that ineffective treatment methods and/or those with adverse side effects can be adjusted (Hoffmann, 2009). Intensive monitoring requires that data be collected in multiple settings including a variety of school environments (Carlson, 2008). Thus, communication and collaboration of the various adults in the child's environment is vital.

Combination treatments. Although psychotropic medication and psychosocial therapy are empirically supported stand-alone treatments for childhood mental illness, many researchers posit that treatment programs are most effective when they integrate pharmacological and psychosocial interventions (Brown, 2005; March, 2002; Phelps, Brown, & Power, 2002; Reinemann, Stark, Molnar, & Simpson, 2006). March (2002) purports three reasons for combining medication with psychotherapy: 1) more than one treatment presents an increased 'dose' which may result in faster and enhanced outcomes; 2) comorbidity often necessitates more than one treatment to address the different symptoms associated with more than one condition; and 3) more than one treatment may augment results especially when each treatment provides partial response.

Despite the support for a combined treatment approach, there are a number of challenges for effective implementation. Due to the multiple factors that are manipulated simultaneously in a combination approach to treatment (i.e., biochemical brain function, behavioral, and environmental factors), it can be difficult to evaluate the unique impact of each individual intervention. Although evaluating multiple factors simultaneously presents difficulty, it is essential to do so. The effects, both intended and unintended, of each intervention must be measured in order to evaluate whether they are being implemented with proper fidelity, intensity, and whether or not the child is making adequate progress (Schwartz & Davis, 2008). Thus, sensitive progress monitoring procedures are vital to the effectiveness of combination treatments to childhood mental illness. Another challenge to the effective implementation of a combination approach to the treatment of childhood mental illness is that this approach typically involves multiple professionals providing services. For instance, a pediatrician or pediatric psychiatrist may prescribe psychotropic medication, a private therapist may conduct psychosocial therapy, a school psychologist may provide additional psychosocial therapy, and the parent and/or teacher may implement behavior modification strategies. Without collaboration, these uncoordinated interventions will likely be implemented inconsistently and in isolated settings potentially decreasing the effectiveness of treatment.

System Level Interdisciplinary Collaboration for Mental Health Promotion for All Children

The literature described previously in this chapter provides the context for the critical need for collaboration between those responsible for promoting the mental health of children. The potential negative impact that untreated childhood mental illness has on academic performance and lifelong social-emotional wellbeing, the complexities in making accurate diagnoses of childhood mental illness due to overlapping symptoms and normal variability in child development, the unpredictability of treatment effects such

as psychotropic drug side effects in child populations, and the expectation that children function in diverse settings provide the context leading to the need for interdisciplinary collaboration. This section will summarize the literature on interdisciplinary collaboration as it relates to supporting youth with mental health problems.

As early as the 1960s there was concern about the segregation of community health and human services (Adelman & Taylor, 2010) and, since the 1990s, leaders within the fields of education, psychology, behavioral health, and medicine have identified the need for interdisciplinary collaboration (e.g., American Academy of Pediatrics Council on Children with Disabilities, 2007; American Psychological Association, 1995; Bradley-Klug et al., 2010; Hardiman, Curcio, & Fortune, 1998; Huberty, 2008; Kral, LaRosa, Brown, Kubiszyn, 2006; March et al., 2007; Nastasi, 2004; National Advisory Mental Health Council's Workgroup on Child and Adolescent Mental Health Intervention Development and Deployment, 2001; Riddle, Kastelic, & Frosch, 2001; Walsh, Brabeck, & Howard, 1999). Interdisciplinary collaboration refers to a process where members of diverse disciplines engage in interpersonal interaction in order to achieve a common goal (Berg-Weger & Schneider, 1989). Bornstein (2003) describes five core components of interdisciplinary collaboration that have been identified in the professional literature including a) interdependence, b) newly created professional activities, c) flexibility, d) collective ownership of goals, and e) reflection on the collaborative process.

Interdependence is described as the reciprocal interactions of professionals necessary for achieving shared goals. Newly created professional activities refer to professional behaviors that emerge through collaboration (e.g., consultation meetings, reciprocal communication, etc.), which had not been happening prior to collaboration occurring. Flexibility involves compromise as well as sharing of knowledge and expertise to the extent where professional roles are blurred. When there is collective

ownership of goals each professional involved in the interdisciplinary collaboration shares responsibility for achieving goals (Bronstein, 2003). Collective ownership of goals has been discussed at length in the professional literature as an essential component in effective collaboration (Mattessich & Monsey, 1992). Finally, reflecting on the process of interdisciplinary collaboration requires that each professional critically consider and engage in discussions about the collaborative relationship (Bronstein, 2003). When considering the core components of interdisciplinary collaboration, it is important to understand the current model of mental health and education service delivery, the public health prevention model.

Public health prevention model. In recent years, there has been a shift toward a public health prevention model of mental health service delivery (U. S. Department of Health and Human Services [USDHHS], 1999) which has expanded the concept of mental health service delivery beyond that of assessment, diagnosis, and treatment for individuals experiencing severe impairment, to include mental health promotion and mental illness prevention for all. The public health prevention model, also referred to as Response to Intervention (RTI) or Multi-Tiered Systems of Support (MTSS) in educational settings, conceptualizes multiple layers of prevention (i.e., primary, secondary, and tertiary prevention/intervention), ranging in intensity, to address risk factors which will reduce disorders and promote healthy outcomes (Kazak, 2006; Reschly, 2008; Tilly, 2008).

Primary prevention. Primary prevention includes efforts that target all children and families (Kazak, 2006). In the community, primary prevention includes efforts such as well-check doctors visits and providing information on positive parenting practices to all parents (e.g., informational pamphlets in the doctors office, public service announcements, etc.). In schools, these efforts include providing high-quality academic

and social-emotional curriculum and instruction to all students (Reschly, 2008; Tilly, 2008).

Secondary prevention. Secondary prevention/intervention is more intensive than primary prevention and is targeted toward at-risk populations (Kazak, 2006). These preventions may include efforts such as parenting classes for parents of children with challenging behaviors and head start programs available to children of low-income and minority families. In schools, these efforts may include small group academic instruction (e.g., targeting reading instruction for struggling readers) or small group social skills instruction for youth experiencing difficulty making friends (Reschly, 2008; Tilly, 2008).

Tertiary prevention. Tertiary prevention/intervention includes efforts that involve the most intensive level of support and are intended for children already experiencing significant difficulties (Kazak, 2006). In schools these supports may include an individualized academic or behavior intervention and individual counseling (Reschly, 2008; Tilly, 2008). Community efforts that fall into the tertiary category may include prescribing psychotropic medication to youth experiencing impairing social-emotional/behavior problems and/or providing community-based individual/family therapy (e.g., Cognitive Behavioral Therapy, Applied Behavior Analysis, Parent-Child Interaction Therapy, etc.).

In general, the call for collaboration is stronger now than ever due to the multi-component preventative approach adopted by both education and health care systems, which is beyond the capacity of any one professional or discipline to handle (Mitchell & Crittenden, 2000). Simply put, the public health prevention model involves layering supports in a continuum according to the individual's needs. As such, this is a cost-effective and efficient method of organizing and distributing resources (Kazak, 2006). This shift to a prevention and early intervention-oriented practice involving multiple

layers of intervention both within school and community settings provides even more impetus for interdisciplinary collaboration (Nastasi, 2004).

Necessity for collaboration between school psychologists and community-based mental health professionals. Specific to the field of school psychology, collaboration is widely recognized in the literature as being integral to the profession (NASP Guidelines for the Provision of School Psychological Services, 2008) because in order to address the academic, social-emotional, and medical needs of children coordination across health care, education, and community systems is required (Power, 2000). In fact, in *School Psychology: A Blueprint to Training and Practice III*, Ysseldyke and colleagues (2006) assert "the ability to work constructively and collaboratively with diverse agencies and individuals is indispensible for school psychologists" (p. 15).

Best practices for collaboration involve employing a group problem solving process whereby a multidisciplinary team works together to systematically identify and analyze a problem, create and implement the least-restrictive plan, and evaluate the efficacy of the plan, making adjustments and repeating the process, when necessary (Tilly, 2008). When executed with integrity, this process increases the likelihood that students are provided with interventions (e.g., intensive instruction, behavioral supports, psychosocial therapy, medication, etc.) that align with the presenting problem and result in the desired outcome (Ysseldyke et al., 2006).

Roles of community-based mental health professionals. Community-based mental health professionals (CBMHPs) including psychiatrists, psychologists, neurologists, licensed mental health counselors, therapists, social workers, mental health case managers, and pediatricians who work for either a public or private organization have important and diverse roles in improving outcomes for children with mental illness. In addition to mental health problems, many of these professionals treat other conditions as well (e.g., pediatricians and neurologists address physical health

problems). For the purpose of this study, these professionals are only considered CBMHPs when they are addressing mental health problems of youth.

CBMHPs have many significant roles that benefit from collaboration with school psychologists. Among many other services pediatricians often provide screening, early identification, and diagnosis of mental health concerns in children. Often pediatricians will refer patients with specific and/or severe symptoms to specialists such as psychiatrists and neurologists. Neurologists, psychiatrists, and private psychologists often conduct diagnostic assessment, develop treatment plans, and make educational recommendations. Psychiatrists as well as pediatricians and other medical doctors conduct medication evaluations and prescribe medication to treat childhood mental illness. Also, many private psychologists and licensed mental health counselors implement treatment plans such as individual and/or group psychosocial therapy for children with mental health problems and their families. Social workers and mental health case managers often work with children with mental illness and their families to identify community resources and coordinate community services. Clearly, CBMHPs have diverse, yet often overlapping, roles in supporting children with mental illness.

Unique roles of school psychologists. Shaw (2003) posits that school psychologists have many important roles that benefit from collaboration with CBMHPs. When in collaboration with pediatricians or pediatric psychiatrists, school psychologists can serve as a liaison between educational and medical systems. With knowledge of these systems, school psychologists are able to inform medical staff about policies and functions of the educational system, educational personnel about that of the medical system, and serve as an advocate for children and families (Drotar, 1995). In addition to serving as a school-medical system liaison, school psychologists are also poised to serve as an educator to other educational personnel and parents. School psychologists have the skills necessary to provide professional development and consultation

regarding the assessment, treatment, and progress monitoring of students with mental illness. Also, they are well equipped to provide parent education classes and private consultation in an effort to assist families find additional community-based mental health services (Shaw, 2003). Another appropriate role of the school psychologist is to complement the work of community-based psychologists and counselors by providing counseling to students on issues such as psychotropic medication management (Sabbeth & Stein, 1990), pregnancy (Peak & Hauser McKinney, 1996), and crisis counseling (Poland, 1989). Furthermore, Shaw (2003) proposes that school psychologists are in a unique position to collaborate with interdisciplinary professionals taking on a case manager role to coordinate services. As Stock and colleagues (1997) describe, it is often inefficient and even counterproductive to have multiple therapies without coordination. This coordination of services is vital to creating efficient treatment plans that avoid redundant services and maximize the amount of instructional time children receive.

Incidence of youth receiving services from school psychologists and CBMHPs. Recent research has made an effort to estimate the number of youth receiving treatment for mental health problems. The literature is clear that most mental health problems in youth go undiagnosed and do not receive treatment (i.e., only 29-49% of children with mental health problems receive treatment; Kataoka, Zhang, & Wells, 2002). Furthermore, higher rates of youth receiving mental health treatment are associated with more severe mental health problems (Kataoka et al., 2002). Less clear, however, is the proportion of youth receiving services in school- and community-based settings due to a dearth of data on the use of mental health services by youth (Hazen et al., 2004) and due to the variability of methods used across studies, prohibiting comparisons. One study conducted by Pandiani and colleagues (2005) found that more than 5% of youth received community-based treatment for mental health

problems. The Great Smokey Mountain Study found that 21% of youth sampled received mental health services during the first year of the study and 68% reported having received services sometime prior to the study (Farmer, Burns, Philip, Angold, & Costello, 2003). Findings from another study of mental health services received by a sample of high-risk youth suggest that almost 95% of the portion of the sample with a diagnosed mental health problem reported receiving outpatient community-based treatment at some point during their lifetime and almost 85% of these youth reported receiving school-based treatment (Hazden, Hough, & Landsverk, 2004). It is noteworthy that these data, gleaned from a high-risk sample of youth, may exceed the rates that youth from the general population receive mental health services. Although findings across these epidemiologic studies are inconsistent, of primary importance is the data indicating that youth with mental health problems receive mental health treatment from both school- and community-based professionals.

In general, the majority of schools that provide a continuum of mental health services (i.e., a tiered system of positive behavior supports and social-emotional interventions) will likely meet the social-emotional needs of the majority of students (Doll & Cummings, 2008). However, there will likely be a small number of students within each school who require support beyond the scope of resources available. These students with the most significant dysfunction will thus benefit from the additional support of community-based mental health professionals (CBMHPs; Doll & Cummings, 2008).

Collaboration between school psychologists and CBMHPs. There is a dearth of research examining collaboration between school psychologists and CBMHPs in the professional literature and until recently the degree of collaboration between school psychologists and CBMHPs was unknown. In a preliminary investigation of the collaborative practices of school psychologists in the state of Florida Walsh (2011) collected and analyzed survey data from 80 members of the Florida Association of

School Psychologists between the ages of 27 and 64 (M=48.4, SD=10.5). Findings from this study suggest very low rates of collaboration between school psychologists and CBMHPs. Specifically, although most school psychologists (~80%) reported serving more than 1,000 students during the 2010-2011 school year, one third of school psychologists did not collaborate with CBMHPs and almost half of school psychologists only collaborated between 1 and 4 times (Walsh, 2011). These rates are particularly low considering that up to 20%, and maybe more, of the school-age population has a mental health problem (Doll & Cummings, 2008; US Department of Health and Human Services, 1999). Also, a significant relationship was found in communication frequency and the number of professional development hours the school psychologist received related to mental health. Specifically, school psychologists who received more than 10 hours of professional development on the topic of youth mental health during the 2010-2011 school year communicated significantly more frequently with CBMHPs than those who did not receive any professional development on this topic (Walsh, 2011).

This preliminary study had several significant limitations. These limitations included a small and restricted sample. Specifically, this study employed a small sample of school psychologists (n=80) who were members of the Florida Association of School Psychologists. As a result, the data gathered in this study may not represent the practices of other school psychologists in the state of Florida who are not members of the state professional organization or school psychologists practicing outside of the state of Florida. Furthermore, additional research is needed to determine the extent to which the Walsh (2011) findings generalize to school psychologists across the country. Another limitation of the Walsh (2011) study involved a problematic survey item yielding inconsistent response formats. Specifically, one survey item asked respondents to estimate the percentage of students served with various mental disorder diagnoses. Some respondents wrote an exact percentage, which was the preferred response,

others wrote a percentage range, and others left the items entirely blank. Due to these inconsistencies assumptions were necessary in order to manipulate these data for analysis. Therefore, results were interpreted with caution.

Benefits of collaboration between school psychologists and CBMHPs. Collaboration between school psychologists and CBMHPs has the potential to generate unique and powerful benefits for children with mental illness. First and foremost, school psychologists and CBMHPs are in prime positions to collect data on a child's social-emotional functioning across diverse settings (Kubiszyn, 1994). Shared data has the potential to increase the efficacy and accuracy of the diagnosis and to assist with the identification of evidence-based treatments for both community and school settings. Additionally, collaboration has the potential to result in both increased treatment integrity and increased capacity to monitor treatment.

*Collection and sharing of data***.** Collaboration between school psychologists and CBMHPs is beneficial because it has the potential to result in more comprehensive data collection. School psychologists are in a key position to collect data on the social-emotional and behavioral functioning of children (Christ, 2008). Because children spend much of their time in school, that is where a child's behavior can be observed in the natural environment and in both structured and unstructured settings. School psychologists are well equipped to collect these data based on training (i.e., data-based decision making) and are in a position to play an integral role in collecting data using multiple methods from a variety of settings and sources (i.e., educational record reviews, rating scales from teachers and parents, interviews, psychoeducational assessments, observations in multiple academic and social settings-both structured and unstructured). Furthermore, CBMHPs with expertise in particular domains of childhood mental illness are in an ideal position to collect condition-specific data. When shared and integrated through collaboration, these data collected by school psychologists and CBMHPs can

lead to a comprehensive, enhanced, and accurate understanding of a child's strengths, limitations, and dysfunction (Carlson, 2008; HaileMariam, Bradley-Johnson, & Johnson, 2002).

Effective treatment linked to accurate diagnosis. By integrating data collected from multiple sources, across settings, using a variety of methods practitioners gain a comprehensive knowledge of a child's cognitive and social-emotional strengths, weaknesses, and dysfunction, resulting in accurate identification of the problem and diagnoses (Batsche, Castillo, Dixon, & Forde, 2008). Due to the fact that mental illnesses require different treatment approaches, increasing the accuracy of diagnosis is a considerable benefit of collaboration because it increases the likelihood that a treatment plan is linked to the child-specific problem. Through collaboration, school psychologists and CBMHPs can increase the specificity with which they describe a problem that a child experiences. This, in turn, will increase the likelihood that a treatment plan will be developed that is tailored to a child's specific need. In fact, 85% of school psychologists believe that collaboration with CBMHPs will improve students' mental health outcomes (Walsh, 2011).

Weaving resources. Considering that school- and community-based mental health resources are limited, it behooves school- and community-based professionals to align and coordinate resources not only to avoid the duplication of services but more importantly to meet the diverse needs of youth experiencing mental health problems, which in some cases, are likely beyond the scope of resources accessible by any one school psychologist or CBMHP. By integrating resources, services can be provided in a cost-effective and efficient manner resulting in the ability to meet the needs of more students and/or allocating increased resources to preventative care (Center for Mental Health in Schools at UCLA, 2011).

Increased treatment integrity. Another reason that collaboration between CBMHPs and school psychologists is beneficial is the potential to increase treatment integrity. Although many treatments are effective only when they are carried out as intended, there are many barriers for children, caregivers, and teachers in doing so. Collaboration between school psychologists and CBMHPs has the potential to increase treatment integrity because coordinated efforts can provide children and their families with more comprehensive supports. School psychologists are in a position to provide initial and ongoing psychoeducational support to students, their teachers, and caregivers linking the community-based support with school and home supports. In other words, collaboration increases the probability that interventions are carried out the way they were intended. Examples include explaining the importance of treatment compliance, trouble-shooting barriers to treatment compliance, and explaining the evidence base for treatment (Power, Kendall, & Krain, 2003). By engaging in collaboration, school psychologists and CBMHPs will be able to encourage students to implement their treatment plan as intended whether it is taking the prescribed dose of medication at the proper time of day, employing cognitive/behavioral strategies in specific situations, or both.

In addition to encouraging students to implement their treatment plan as intended, collaboration between school psychologists and CBMHPs will also help parents and teachers implement interventions with consistency and accuracy (i.e., administration of medication, implementation of classroom behavior plans, etc.). School psychologists are in a prime position to collect data on intervention implementation integrity. Collaborating with CBMHPs will make school psychologists aware of the specific components of the established interventions. With this awareness, school psychologist can collect data, or teach others to collect data, on whether the intervention

is being implemented by the teacher, parent, child, or other responsible parties as it was intended.

Increased capacity to monitor treatment effects. Collaboration between school psychologists and CBMHPs will allow for increased capacity to monitor the effects of intervention (Carlson, 2008). Walsh (2011) found that 53% of school psychologists report that a benefit of collaboration with CBMHPs as an increased capacity to assess student progress across different settings. Monitoring treatment effects is important because of the variability of treatment effects among children with mental illness. School psychologists will be able to use the initial assessment data as a baseline for a child's social-emotional and academic functioning and, in cooperation with teachers and other school personnel, will be able to continue to collect data to monitor student progress as well as any unintended side effects. Without effective collaboration with CBMHPs, school psychologists may not be aware of target behaviors or treatment specifics, and thus will not be informed enough to collect relevant data and expand the capacity for monitoring the effects of intervention into the school setting. As children spend significant amounts of time in the school setting, the inability to monitor the effects of interventions in this setting not only presents an enormous missed opportunity, but could actually hinder effective treatment and extend the time needed to determine the most appropriate interventions.

Collaboration between school psychologists and CBMHPs who prescribe psychotropic medication is critical for effectively monitoring medication effects. Although school psychologists are skilled in evaluating the academic and social-emotional functioning of youth, interpreting these data considering the impact of medication dosage, side effects, and other environmental variables often requires coordinated efforts (Shaw & Woo, 2008). By collecting frequent data on the effects of medication and sharing the results with medical professionals and parents, collaboration between

CBMHPs and school psychologists enable informed decisions about a child's psychotropic treatment to be made. This potentially decreases the length of time it takes to find an effective psychotropic treatment plan and may decrease the negative side effects. Additionally, by collecting frequent data on the effects of psychosocial therapy and sharing it with the child's community-based therapist, the therapist will be in a position to make more informed decisions about whether the therapy is working or if it needs to be adjusted to better meet the needs of the individual child.

Miscellaneous benefits. Collaboration between school psychologists and CBMHPs also has a number of miscellaneous benefits, including a decrease in duplication of services. For instance, if a child is already receiving psychosocial therapy in a community based setting, a school psychologist may reinforce the therapy through ongoing, yet brief, conversations with the student during non-instructional times rather than pulling the student from valuable instructional time to receive redundant psychosocial therapy. This collaboration frees up school psychologists to provide services to others, increases student instructional time, and reduces redundancy. Walsh (2011) found that 56% of school psychologists endorsed that a benefit of collaboration with CBMHPs was avoiding the duplication of services. Also, this collaboration allows for school psychologists to gain awareness about current practices, best practices, and empirically supported practices that occur in community-based settings while informing CBMHPs about those practices occurring in school-based settings. This mutual awareness allows both school-based and community-based practitioners to provide improved services to children and families as they will be able to anticipate and problem-solve with a more comprehensive understanding of the various environments and systems in which a child is expected to function (Adelman & Taylor, 1999). Moreover, through collaborative efforts, school-based and community-based practitioners are able to build on the resources of one another and provide enhanced integrated services to

children. In fact, Walsh (2011) found that 48% of school psychologists reported that the opportunity to share resources is a benefit to collaboration with CBMHPs. It has been suggested by national policymakers that limited school and community resources could be leveraged through the collaborative and coordinated efforts of school psychologists and CBMHPs (Doll & Cummings, 2008).

It is well known that many interacting systems influence a child's social-emotional and academic development, and that collaboration among them may optimize outcomes for children (Adelman & Taylor, 1999). Cross-disciplinary professional organizations such as the National Association of School Psychologists (1995), the American Psychological Association (1995), the American Academy of Pediatricians (2007), the Accreditation Council for Graduate Medical Education (Cubic & Gatewood, 2008), and the American Psychological Association Practice Organization (2009), emphasize that interrelated solutions require collaboration (Adelman & Taylor, 2010). It has been suggested that collaboration can improve access to services, increase support for learning and for addressing barriers to learning, create opportunities for learning and development, and generate new approaches to strengthen connections between family, school, and community settings. Appropriate and effective collaboration and teaming are critical factors in promoting well-being and self-sufficiency (Adelman & Taylor, 2010).

***Barriers to collaboration*.** Despite these benefits school psychologists spend a relatively small portion of their time engaged in collaboration (Reschly & Wilson, 1995) which could occur more often (Davis, Montford, & Read, 2005; Nastasi, 2004). However, there are many barriers that prevent collaboration from occurring. As described by Adelman and Taylor (2010), "schools are located in communities but often are islands with no bridges to the mainland" (p. 217). Coordination is inadequate between school and community settings (Doll & Cummings, 2008) and school-based and community-based practitioners typically function in isolation of the other (Doll &

Cummings, 2008). Walsh (2011) found that more than 50% of school psychologists surveyed said that barriers to collaboration include that there is not enough time to collaborate with CBMHPs and that CBMHPs are not accessible. Furthermore, 48% of school psychologists reported that obtaining parent permission to share information with CBMHPs was an obstacle to collaboration.

Related collaboration literature. Although there is a scarcity of research on the collaboration between school psychologists and CBMHPs, there are a number of studies that have investigated collaborative practices across educational and health systems with the goal of promoting the social/emotional, behavioral, and academic well-being of children. The following section provides a brief overview of findings from this research.

A guide to the Walsh (2011) study, Bradley-Klug and colleagues (2010) investigated the communication and collaboration between pediatricians and school personnel (e.g., teachers, school psychologists, school nurses, guidance counselors, etc.). More specifically, they surveyed a national sample of pediatricians belonging to the American Academy of Pediatricians (n=570) to examine the frequency of their communication and collaboration with school personnel, their preferred methods of communication, and their perceptions of the barriers and benefits of collaboration with school personnel. For the purpose of differentiating between communication and collaboration, they operationally defined communication as a one-time, unidirectional sharing of information regarding patient status whereas collaboration was defined as the ongoing, bi-directional sharing of information by two or more people who are working together in planning and problem-solving to promote positive outcomes for a third party. Results of this study suggest that although the majority of respondents (75%) ranked collaboration with school personnel as very beneficial, communication and collaboration between pediatricians and schools does not occur very often. Fifty-four percent of pediatricians reported communicating with school personnel a few times per year or

less. Additionally, 60% of respondents reported that they were collaborating with school personnel, however, most respondents (38.3%) reported only collaborating with school personnel a few times per year. Phone calls and written reports were identified as the preferred methods of communication (37% and 22.2%, respectively). More than 50% of the respondents reported that the purpose of communicating with school personnel is to request patient information, provide diagnostic information, and discuss an intervention or treatment plan. Also, statistically significant relationships were found between the age of the respondent and the frequency of collaboration as well as between years of practice and the frequency of collaboration.

Findings from this study indicate that pediatricians with more applied experience were more likely to collaborate than less experienced pediatricians. Reported benefits of collaboration included improved patient outcomes, cross-disciplinary problem-solving, assessing patient progress across settings, sharing resources, avoiding duplication of services, and feeing valued for expertise. Reported barriers to collaboration included not having enough time in the day, finding school personnel inaccessible, not being able to obtain reimbursement for collaborating, not knowing with whom to collaborate, differing views on child development, compliance with the Health Insurance Portability and Accountability Act (HIPAA), and the belief that collaboration was not beneficial to their practice. Additional statistically significant relationships were found between these barriers and whether or not the respondents engaged in collaboration with school personnel.

In a companion study conducted by Bradley-Klug and colleagues (2013), a nationally representative sample of 340 school psychologists were surveyed in an effort to investigate the collaborative practices of school psychologists with pediatric professionals (e.g., physicians, physician's assistant, nurse, nurse technician, case manager, and medical secretarial staff) on behalf of students with chronic health

conditions. Findings indicate that most (86%) of school psychologists collaborate with pediatric professionals a few times a year or less. Data also suggest that school psychologists are most likely to contact the physician (~60%) followed by the nurse (~30%). Consistent with the extant literature, school psychologists identified a number of benefits (e.g., improved student outcomes, share resources, avoid duplication of services, etc.) and barriers (e.g., personnel are inaccessible, lack of time, HIPAA and FERPA, etc.) to collaboration with pediatric personnel. Limitations of these companion studies were that responses may have been influenced by participants' perceptions of social desirability and inaccurate retrospective reporting. Additionally, due to the low response rates (29% and 34%, pediatricians and school psychologists, respectively) the sample may not be representative of all pediatricians or school psychologists.

Gerdes, Yuen, Wood, and Frey (2001) examined the strength of collaborative relationships between doctors (i.e., primary care providers (PCPs)) and mental health providers (MHPs). Specifically, they analyzed factors such as type, timing, and frequency of collaboration as well as trust and communication between parties. They analyzed data collected from a survey of primary care providers (n=325) within an integrated health care system located in central Pennsylvania. Results of this study indicate that 46% of PCPs communicated with MHPs periodically but 10% reported having no communication with MHPs. Forty-two percent of PCPs were likely to have an established relationship with a MHP whereas 31% were unlikely to have an established relationship. Additionally, after referring a patient to a MHP, 84% of PCPs reported receiving a written report and 46% reported phone or email communication about the patient. Results from a factor analysis of PCP responses revealed that relationship quality, PCP attitudes about managing mental health conditions, and the frequency of PCP/MHP collaboration were the three primary dimensions of collaboration. Limitations of the study were that the survey return rate may have been higher for PCPs with an

interest in mental disorders, and the measures of collaboration were not externally validated.

Another study conducted by Yung and colleagues (2004) surveyed public mental health professionals (n=105) and private psychiatrists (n=103) in Melbourne, Australia in order to assess their collaborative practices, identify potential barriers to collaboration, and outline opportunities to increase collaboration. Results showed that both public and private professionals supported the concept of collaboration, however, private psychiatrists were generally less supportive of collaboration than public mental health professionals. Both groups indicated that barriers to collaboration include difficulty communicating, confusion of roles and responsibilities, and different treatment approaches.

A study by Darlington and colleagues (2005) utilized a self-administered, cross-sectional survey to examine the factors that impact collaboration between child protection services and mental health services on behalf of children having a parent with mental illness in Queensland, Australia. They found that although 63% of mental health professionals reportedly contacted child protection agency on behalf of a child, most (90%) had done so fewer than 6 times. This indicated that although there is a moderate amount of interagency communication occurring, bi-directional collaboration seems to be lacking. Principle components analysis and multivariate analysis of variance (MANOVA) identified factors that impacted attitudes toward collaborative practices: trust, positive regard for the other professional, and training. The same procedure identified gaps in interagency processes, inadequate resources, lack of knowledge of professional domains and boundaries, unrealistic expectations, and confidentiality as potential barriers to collaboration.

A similar study conducted by Drabble (2007) surveyed 350 professionals in child welfare and substance abuse treatment fields in California to find the similarities and

differences in values and perceived capacity for collaboration. Findings suggested that similarities (e.g., priorities for services) and differences (e.g., planning and measurement of outcomes) in value systems may respectively facilitate or hinder interdisciplinary collaboration. Findings also indicated that professionals working in organizations with a strong history of collaboration were more likely to report the occurrence of collaborative practices than those with weaker records of intersystem collaboration.

Investigations of collaborative school-based teaming have revealed important methods for effective collaborative partnerships (Damore & Murray, 2009; Fleming & Monda-Amaya, 2001; Villa, Thousand, Meyers, & Nevin, 1996). Fleming and Monda-Amaya (2001) used a Delphi procedure to assess critical factors that support collaborative efforts. Data collected from 109 individuals who were identified as experts in teaming suggest that the success of any partnership is dependant on superior communication regarding key variables, including team member roles, prioritized goals, trust and respect, clearly understood procedures, internal evaluations of outcomes, and modifications of outcomes when needed (Fleming & Monda-Amaya, 2001).

More recent data collected by Damore and Murray (2009) assessing the perceptions of educators engaged in collaborative teaching found that interpersonal communication skills and procedural factors were perceived as important for effective partnerships. This study utilized a convenience sample of 20 elementary schools throughout the city of Chicago where surveys were randomly distributed to 200 teachers.

Investigations of the general collaborative practices of school psychologists have identified a number of barriers. These barriers include impaired communication (Drotar, Palmero, & Barry, 2004), different educational and mental health diagnostic systems (Shaw & Woo, 2008), the use of profession-specific vocabulary (i.e., jargon; Foy & Earls, 2005; Shaw, Clayton, Dodd, & Rigby, 2004), lack of proper training, physical distance, a

scarcity of time, integration of data from multiple sources with diverse perspectives (Carlson, 2008), and rights to privacy (Nastasi, Varjas, Moore, & Bernstein, 2003).

Although these studies provide insight into the obstacles to collaboration in general, they do not address the system-wide challenges in improving collaboration between school psychologists and CBMHPs on behalf of students with mental illness. The following section addresses principles of system change and their application in promoting school-community collaboration.

Policy for an institutionalized system of school-community collaboration. Although there are many barriers that make collaboration between individual school psychologists and CBMHPs difficult, an even greater challenge is to establish and institutionalize an integrated system of collaboration (Center for Mental Helath in Schools at UCLA, 2011). An institutionalized and integrated system of collaboration is such that collaboration is a core value of all stakeholders within the system (e.g., school- and community-based professionals, parents, students, etc.) and instead of occurring haphazardly through the isolated efforts of committed professionals, collaboration becomes a normative "way of work". Within an infrastructure that promotes collaboration, there are systematic supports in place to foster new connections and maintain collaboration even when one collaborative partnership ends. In other words, collaboration becomes a key component to the functioning of the system rather than a rarity relying on the sole actions of individual professionals.

Systems of collaboration will not be created by the collaborative efforts of committed school psychologists and CBMHPs alone. Instead, a formalized agreement of all stakeholders (e.g., school psychologists, CBMHPs, parents, teachers, principals, other educational service providers, local/state/federal politicians, the professional associations of the educators, psychologists, and healthcare providers, community advocates, students, etc.) formally outlining the roles, responsibilities, and procedures of

the partnership is required to effectively establish a working relationship (Center for Mental Health in Schools at UCLA; 2011). Although personal relationships between professionals can positively affect the collaborative partnership, these relationships should not form the foundation of an institutionalized system of collaboration as personal relationships may change over time whereas working relationships founded on clear roles, responsibilities, and shared goals tend to be more stable.

Policy advocates at the Center for Mental Health in Schools at UCLA (2011), warn against a number of practices that may damage collaborative efforts. Specifically, policies that mandate collaboration but do not provide systemic supports for initiating and maintaining these professional relationships may not only hinder current collaborative efforts but may also undermine future efforts. These systemic supports for collaboration include leadership that establishes infrastructure, allocates time and resources, and incentives for collaboration. They caution that when professionals are required to come together without also receiving additional support for collaboration (e.g., support from professional leadership, additional time and resources for collaborative practices, etc.) often little more than "collabo-babble", or engaging in fruitless discussion for the sake of meeting to fulfill the mandate, is accomplished.

Establishing a school-community infrastructure for collaboration: Implementing change. A strong infrastructure designed to facilitate school-community collaboration is critical for systemic collaboration to be achieved (Center for Mental Health in Schools at UCLA; 2011). Similar to any system change effort, a key feature of developing this infrastructure is a highly motivated and competent leadership team skilled in providing guidance and support to the diverse professionals engaging in collaboration (Hall & Hord, 2006). The role of the leadership team may take on many forms including but not limited to facilitating the generation of a shared vision/mission/beliefs, involving all key stakeholders, allocating resources, using data to

inform decisions, building collective capacity for interdisciplinary collaboration and modeling the use of structured planning and problem solving, and maintaining a systems perspective (i.e., focus on the healthy functioning of the system as a whole while attending to each component part). In addition to empowering a leadership team, other key facets of implementing systems change include involving all key stakeholders, developing a shared mission, vision, and goals, using data to create a sense of urgency for the change initiative, engaging in group problem-solving to make data-based decisions, approaching change from a systems perspective, and building the capacity of all key stakeholders (Hall & Hord, 2006).

Involving key stakeholders. It is critical for all stakeholders (e.g., school psychologists, CBMHPs, educators, administrators, parents, students, state and local politicians and policy-makers, etc.) to be involved in aspects of the implementation of an infrastructure for interdisciplinary collaboration. The involvement of key stakeholders facilitates "buy in" and builds consensus for collaboration. Efforts that are made without involving key stakeholders often encounter resistance, problems with the feasibility of implementation, and ultimately fail (Hall & Hord, 2006). It is critical to have the leadership (e.g., school, district, state, national) invested in the initiative for collaboration in order to ensure that resources are allocated adequately for effective change. It is important to have those who are expected to implement the collaborative practices (e.g., school psychologists and CBMHPs) involved in developing and shaping the change effort in order to design a feasible plan that considers their willingness to implement the change, their abilities and the needed support (Hall & Hord, 2006).

Developing a shared mission, vision, and goals. Developing and reaffirming a clear vision, mission, and goals are critical in keeping an initiative aimed at creating a system of collaboration between school- and community-based professionals focused on

achieving the goals. Once determined, it is recommended that this vision be publicly stated, and periodically reviewed in order to reaffirm the effort.

Data-based decisions. Data-based decision making involves a structured approach to collect data in order to learn about an area of interest. Specifically, multiple methods of data collected from multiple sources can be used to 1) assess the present capacity of an individual/system (e.g., needs assessment), 2) monitor progress (i.e., formative evaluation), 3) determine the fidelity with which a plan/program/intervention is implemented, 4) set a goal, and/or 5) evaluate the outcome/effect of a program/intervention (i.e., summative evaluation). Data-based decision making is a vital component of problem-solving and is critical for all other principles of systems change such as understanding/identifying a shared vision/mission/beliefs/values, involving key stakeholders, maintaining a systems perspective, identifying and strengthening leadership, building consensus and creating a sense of urgency (Hall & Hord, 2006).

Structured planning and problem solving. Structured planning and problem solving is closely linked to data-based decision making. But it is distinguished from data-based decision making as it involves not only using data to prioritize goals to make decisions but also using structured steps when identifying and analyzing a problem, developing an intervention plan/program, and evaluating the plan/program. Engaging in structured planning and problem solving involves employing a commonly shared method of developing an action plan and identifying who will do what, when and for how long. It involves creating a timeline for an intervention/program, setting a goal to measure progress against, and a clearly defined action plan for holding stakeholders accountable for their responsibilities (Hall & Hord, 2006).

Systems perspective. Maintaining a systems perspective is important because it is necessary to understand the reciprocal nature of systems (i.e., each system impacts the other systems) in order to understand the numerous factors that may be facilitators

and/or barriers to building an infrastructure to collaboration. It is also vital to maintain a systems perspective in order to understand that when making any change a system may go through a period of less efficient functioning in order to achieve optimal functioning. In other words, the start-up phase of developing an infrastructure for collaboration may require more resources than the status quo. However, once school psychologists and CBMHPs are effective collaborators resources will be conserved (Hall & Hord, 2006).

Building capacity. Capacity building involves providing professional learning and development opportunities in order to increase the skills of school psychologists and CBMHPs in order to increase effectiveness in achieving the prioritized goals of implementing a collaborative infrastructure. It also involves aligning and integrating a number of facilitators to change (e.g., human/financial resources, schedules, time, etc.) by using time and resources differently. Without increasing the collective capacity, the most well intended efforts often fail. Furthermore, it is essential for the component parts within the system to function efficiently and effectively (Hall & Hord, 2006).

In summary, realizing a systems level infrastructure for interdisciplinary collaboration will be achieved through the dedication and commitment of strong leaders with an understanding of the educational and mental health care systems and an ability to apply systems change principles to influence the professional practices of school psychologists and CBMHPs. The data collected in the current study, along with other data sources, will be used to inform policy decisions and engage in structured planning and problem solving in order to shape the development and implementation of an infrastructure for interdisciplinary collaboration. The following section will discuss the need for training in interdisciplinary collaboration in order to build school psychologists' capacity to work in partnership with CBMHPs.

Training in interdisciplinary collaboration. ***Pre-service training.***

Interdisciplinary collaboration formally emerged in the professional literature in the 1970s and although it receives wide support within stated policies across diverse disciplines, there are very few medical, behavioral health, or education training programs requiring trainees to take interdisciplinary coursework or fulfill interdisciplinary practica assignments (Mitchell & Crittenden, 2003). One exception to the paucity of graduate training programs with a formalized emphasis on interdisciplinary collaboration is the Health Sciences Partnerships in Interdisciplinary Clinical Education (HSPICE), housed within the University of Washington Health Sciences Center. Students in this program engage in diverse educational experiences requiring coursework and practica experiences in cross-disciplinary teamwork resulting hands-on experience working with diverse practitioners, establishing and maintaining working relationships, negotiating rolls and shared goals, and resolving interpersonal conflicts within the working relationship. Trainees gain experience with the process of collaboration and the content skills needed for effective collaborative partnerships while working with faculty mentors to overcome complex barriers of interdisciplinary collaboration. Through these coursework and practica experiences, trainees develop an appreciation for interdisciplinary collaboration (Mitchell & Crittenden, 2003).

The National Association of School Psychologists (NASP), the largest and most representative professional organization in the field of school psychology, has developed a number of policy documents and guiding principles for best-practices in graduate preparation in school psychology designed to provide a national standard for graduate education in school psychology (National Association of School Psychologists, 2010a; National Association of School Psychologists, 2010b). School psychological services have been organized into 10 domains and includes the second domain of Consultation and Collaboration. These policy statements, emphasize the importance of collaboration,

in general, and outline the knowledge and skills school psychologists must have related to collaboration. However, these policies lack a specific focus on the content and the process skills necessary for interdisciplinary collaboration and do not include specific recommendations for requiring school psychology trainees to engage in interdisciplinary collaboration coursework or practica assignments.

Ongoing job-embedded professional development. Professional development, specifically ongoing job-embedded professional development, has been identified as a critical element necessary for educators to enhance, renew, and improve their practices (Hirsh, 2009). Walsh (2011) found that school psychologists who received more than 10 hours of professional development on the topic of mental health in youth communicated with CBMHPs significantly more than school psychologists who received none. Job-embedded professional development refers to learning opportunities that are grounded in the educators' day-to-day practices (Croft, Coggshall, Dolan, Powers,& Killion, 2010). Traditional methods of professional development often required that educators simply complete a number of continuing education hours each year, often focusing on topics that were unrelated to their professional roles and responsibilities. Unlike traditional methods, job-embedded professional development involves providing educators with high-quality professional learning that has a direct connection to their professional roles and responsibilities (Croft et al., 2010). This method of professional development is considered best-practice and has been encouraged in recent federal legislation (e.g., School Improvement Fund regulations (U.S. Department of Education, 2010b); Race to the Top grant application (U.S. Department of Education 2010a); etc.). Despite the growing support for job-embedded professional development, many questions remain regarding how to create systems for implementing this type of professional development for non-instructional school personnel and how this type of

professional development might be used to foster systems of collaboration between school psychologists and CBMHPs in order to improve outcomes for youth.

Summary

Considering the benefits of interdisciplinary collaboration, the preliminary data suggesting a lack of collaborative practices between school psychologists and CBMHPs (Walsh, 2011), and the dearth of research on this type of collaboration in the professional literature, the current study aims to collect data from a large nationally representative sample of school psychologists in order to investigate their current practices and experiences communicating and collaborating with CBMHPs on behalf of students with mental health problems. The goal of this study is to gain a better understanding of the collaborative practices between school psychologists and CBMHPs as well as the perceived benefits and barriers in order to develop strategies for maximizing communication and collaboration, which can in turn be implemented by school psychologists and trainers of school psychology.

Chapter Three

Methods

This chapter describes the methods that were used to address the research questions investigated in the current study. First the research design, participants, materials needed for the study, and procedures to carry out the study will be described. Then the statistical analyses that were used to answer the research questions will be reviewed.

Research Design

The purpose of this study was to build upon a similar investigation conducted by Walsh (2011). Although informative, this former study was limited by a relatively small and restricted sample of school psychologists who were members of the Florida Association of School Psychologists (FASP). In order to expand the sample, the current study surveyed members of 11 state school psychology professional organizations. Additionally, the initial Walsh (2011) survey contained a question that was problematic because the data obtained were questionable and difficult to interpret. The current study addressed this limitation by rewording the problematic survey item and piloting this item for clarity. Finally, in an effort to modify the survey to make it easier for respondents to understand and complete, several survey items were restructured and some were removed. These decisions followed the guidelines for constructing survey questionnaires set forth by Dillman and colleagues (2009) and will be discussed in detail later in this chapter.

The current study used a sample survey research methodology which is a widely used and recognized research tool allowing for detailed and personal information about

large populations to be obtained with a known level of accuracy. Sample survey research involves administering a standardized questionnaire to a portion, or sample, of the population of interest in order to make general statements about the practices, perceptions, and attitudes of the population (Rea & Parker, 2005). There are many advantages to survey research including, but not limited to, the ability to infer information about an entire population by obtaining data from a selected small portion of the larger populations, collecting data in a timely manner, and collecting quantitative data. Experts of research methods posit that when conducted with integrity survey research is considered scientifically sound research methodology (Dillman, Smyth, & Christian, 2009).

Survey research methods are used frequently in order to gather information on the professional practices, perceptions, and training of school psychologists. One of the most well known studies employing survey research methodology within the field of school psychology is the National Study of School Psychology conducted by the National Association of School Psychologists (NASP) Research Committee (Curtis et al., 2008). This survey is administered to a sample of NASP members every 5 years in order to gain information related to demographic characteristics, employment conditions, and the professional practices of school psychologists across the U.S. These data are used to inform decisions made by legislators and policy makers, state credentialing agencies, school psychology training programs, and employers of school psychologists (Curtis et al., 2008). Beyond the National Study, many other researchers have conducted survey research in order to answer research questions related to advancing the field of school psychology (e.g., Bradley-Klug et al., 2010; Lewis, Truscott, & Volker, 2008; Sullivan & Long, 2010; Carlson et al., 2006). In sum, survey research has a long history within the social sciences and within school psychology in particular. When conducted with integrity, survey research is a cost effective research method promising

to glean information pertaining to the professional practice and perceptions of school psychologists, which is invaluable for making pre-service training and professional development decisions aimed at furthering the profession of school psychology.

Rea and Parker (2005) describe five methods of collecting survey data including, mail-out, web-based, telephone, in-person interviews, and intercepts. Web-based surveys were used in order to collect data for the current study. Web-based surveys are advantageous because they facilitate relatively quick and cost-effective data collection from a large sample. Also, respondents are able to complete questionnaires at times that are convenient to them (Rea & Parker, 2005). Considering the research questions and the advantages of survey research methodology, this design was identified as an appropriate method of data collection.

Participants

Three-thousand one-hundred fifty members from 11 state school psychology professional organizations from across the U.S. were recruited for participation in this study. During the planning phase of this study, several steps were taken in order to evaluate whether recruiting at least 1,000 school psychologists would result in adequate power (>.80). Specifically, guidelines from prior survey research within the field of school psychology and recommendations from the survey research literature were reviewed and a power analysis was conducted. A review of past survey research in the field of school psychology suggested variability in survey response rates. Despite some studies yielding response rates of more than 70% (e.g., Curtis et al., 1999; Curtis et al., 2002; Reschly & Wilson, 1995) other studies yielded rates of approximately 40% (e.g., Castillo et al., 2011). Furthermore, response rates of 33% and 34% were obtained in recent surveys of FASP and NASP members, respectively (Walsh, 2011; Bradley-Klug, 2013). Due to the variability of response rates in school psychology survey research,

when planning this study sample sizes were considered for response rates ranging from 20% to 50%.

Additionally, when planning this study it was determined that estimating a medium effect size may have been an overestimation of the population effect size but a small effect size may have been an underestimation (i.e., it is likely that the population effect size is somewhere in between small and medium). In light of this, a power analysis was conducted using Cohen's (1988) guidelines for a 4 group ANOVA, a follow-up 2 group comparison, and a multiple regression containing 2 predictor variables with both a small and medium effect size in order to determine the range of minimum returned surveys which would likely result in adequate power (>.80). Based on these figures, the minimum number of recruited participants was calculated for 20% and 50% response rates. The variety of possibilities regarding the effect size and response rate which were likely to result in adequate power are presented in Table 1.

Table 1
Number of Returned Surveys Needed to Obtain Adequate Power Depending on Effect Size and Response Rate

	4 group ANOVA (alpha 0.05)	Follow-up 2 group comparison (alpha 0.01)	Regression with 2 predictor variables (alpha 0.05)	50% response rate	20% response rate
Small effect	1096	1172	481	2,344*	5,860*
Medium effect	180	190	67	380*	950*

Note. *Number of mailed surveys

A review of these power analyses suggested that a sample of 1,000 recruited participants may be somewhat underpowered for a small effect but would have ample power for a medium/small or medium effect. Therefore, while planning this study the goal for the minimum number of recruited participants was at least 1,000; however, after state approvals were obtained the actual number of recruited participants was 3,150 resulting in 372 returned surveys (response rate of 12%), 327 of which were usable.

Including an incentive (e.g., an opportunity to participate in a random drawing to receive a nominal gift card) has been shown to increase survey response rates considerably (Church, 1993; Dillman, Smyth, & Christian, 2009). Therefore, participants were given an opportunity to participate in a random drawing to receive one of five $10.00 gift certificates with the aim of obtaining a sufficiently large sample. The incentive procedure will be discussed in greater detail later in this chapter.

Recruitment. The following section will describe the method of recruiting participants for this study. Participants were recruited by obtaining a sample of school psychologists who met the inclusionary criteria set below and who belonged to a geographically representative sample of state associations of school psychology. Most, if not all, states have a professional association of school psychologists. Although there is great variability in size, organization, structure, and influence of state organizations, most maintain an active membership database and some allow researchers to access the membership directory in order to conduct approved studies. Of the states that allow access to members for research purposes most permit participant recruitment for approved studies by one of three methods: 1) provide researchers with a random sample of participant mailing addresses, 2) send all state organization members an email with the survey cover letter and link to an electronic survey, or 3) post a link to an electronic survey on the state organization website. Given the need to calculate response rate, only the first and second methods of recruitment from state organizations were considered viable options. However, the state organizations that approved this study only allowed recruitment via email. Therefore, the response rate was calculated by dividing the number of completed surveys by the number of emails sent and multiplying the quotient by 100. The research coordinator from each state organization reported to the PI the exact number of members who received recruitment emails.

Furthermore, in order to accurately estimate the response rate the cover letter for the survey explicitly stated not to forward the study link to any other school psychologist.

Inclusionary criteria. The criteria for inclusion of the current study involved the following: Respondents must be 1) "regular member" of state organizations (i.e., those members who are currently working as and credentialed as a school psychologist); 2) members whose primary employment was reported to be full-time in a public, private, or faith-based preschool, elementary school, middle/junior high school, and/or high school; and 3) members whose primary employment was reported to be within the United States. All genders, ethnicities, and age participants were included in order to obtain a sample that is representative of the population of school psychologists in the United States.

Exclusionary criteria. The criteria for exclusion in the current study involved the following: Respondents must not be 1) student members of state organizations; 2) members whose primary employment was reported to be outside of the school setting; or 3) members whose primary employment was reported to be in a country other than the United States. State members that meet any of the exclusionary criteria were not included in this study.

Sample Demographic Characteristics

Sample demographic characteristics are presented and compared to the 2009-2010 NASP membership data in Table 2 (Castillo et al., 2011). The usable total sample was comprised of 327 respondents between the ages of 24 and 69 (M=43, SD=12.02). The sample of school psychologists in the current study approximates the national sample.

Table 2
Comparison of Demographic Characteristics of Current Study Sample of School Psychologists (N=327) and a National Sample of NASP Members (N=1,748)

Variable	Current Study		NASP Members (%)
	n	%	
Gender			
Male	53	16%	26%
Female	243	74%	74%
Not Reported	31	9%	
Ethnicity			
Hispanic or Latino	9	3%	3.0%
Not Hispanic or Not Latino	281	86%	NA
Not Reported	37	11%	NA
Race			
American Indian or Alaska Native	1	.003%	.8%
Asian	0	0%	.9%
Black or African American	4	.012%	1.9%
Native Hawaiian or Other Pacific Islander	0	0%	NA
White	287	88%	92.6%
Other	1	.003%	.8%
Not Reported	34	10%	

Note. NA represents when data were not available for the NASP sample. The categories of ethnicity from the NASP study differ from those of the current study, which follow the 2010 US census categories.

Materials

Cover letter. A cover letter explaining the purpose of the current study, detailing the estimated time to complete the survey, describing the completion incentive, and providing the PI's contact information was emailed to participants with a link to the electronic survey. More specifically, the cover letter began by explaining the purpose of the survey and made a request for the school psychologists assistance. Then the letter described how and why the respondent was selected for participation. Following this description, the letter explained that the survey should take approximately 10 minutes to complete, that participation is voluntary and confidential, and that the study was approved by the state organization and the USF IRB. Additionally the phone number for the USF IRB study contact was provided. Finally, participants were thanked for their participation and the completion incentive was described. Recruited participants were sent an email from their state organization with the cover letter information and a link to the electronic survey in the body of the email (Appendix A). Furthermore, the cover letter explicitly stated not to forward the study link to any other school psychologist. This

cover letter was developed following the guidelines set out by Dillman and colleagues (2009).

Communication and Collaboration (CC) survey. The Communication and Collaboration (CC) survey (Appendix B) was designed to investigate the current practices and experiences of practicing school psychologists in the United States relative to their communication and collaboration with CBMHPs on behalf of students with mental health problems. The CC survey was developed and subsequently revised through an iterative process under the guidance of an expert panel comprised of dissertation committee members, graduate students in school psychology, field-based school psychologists and CBMHPs, and based upon the recommendations made by Dillman and colleagues (2009). Specifically, the PI of this study developed the CC survey by modifying the survey used in the initial investigation of collaborative practices of school psychologists and CBMHPs in the state of Florida (Walsh, 2011) which adapted a similar survey designed by Bradley-Klug and colleagues (2010) used to assess the collaborative practices of pediatricians and school personnel. In addition, survey design and measurement experts were consulted. When developing the survey used in the Walsh (2011) study, two think-aloud cognitive interviews were conducted with potential survey respondents to evaluate whether the questions were interpreted as intended and to identify wording, question order, visual design, and navigation problems in the complete questionnaire. When necessary, revisions were made to questions and response options.

The original survey was modified after reviewing the guidelines for creating survey questionnaires (Dillman et al., 2009) and considering the limitations of the Walsh (2011) survey. These modifications are discussed in detail below. After revisions were made, two think-aloud cognitive interviews were conducted with the modified items and the entire survey was piloted with a school psychologist and a CBMHP to assess the

clarity of questions and response options. Feedback on the approximate length of time required to complete the survey was also requested. When necessary, additional revisions were made to questions and response options.

The CC survey consisted of 24 open- and closed-response format questions divided into four sections: communication with CBMHPs, collaboration with CBMHPs, demographic information, and school information. The order of the questions on the survey followed guidelines set forth by Dillman and colleagues (2009), which included grouping similar questions together and selecting initial questions that are interesting and reflect the purpose of the survey as it had been explained to the respondent on the cover letter.

The first section of the CC survey contained 3 multiple-choice questions eliciting information on school psychologists' communication with CBMHPs. A definition of the term communication was provided at the beginning of the section: 'Communication refers to a one-time, unidirectional sharing of information on behalf of students.' Examples included a phone call or a letter sent to a CBMHP. Respondents were directed to indicate with which CBMHPs they have communicated during the 2011-2012 school year (e.g., psychiatrists, pediatricians, neurologists, psychologists, social workers, counselors, case managers, and other) as well as how often (e.g., one to four times a year, five to nine times a year, once a month, two to three times a month, once a week, and more than once a week) and for what purposes they communicated with CBMHPs on behalf of students.

The second section of the CC survey contained 6 multiple-choice questions assessing school psychologists' collaborative practices with CBMHPs. In order to differentiate the items in this section from the previous section, a definition of the term collaboration was provided: 'Collaboration refers to the ongoing, bi-directional sharing of information by two or more people who are working together in planning and problem-

solving to promote positive outcomes for a student or students.' An example of collaboration included when ongoing consultation occurs between a school psychologists and a CBMHP to coordinate treatment and/or intervention efforts. Similar to the communication section, respondents were directed to indicate with which CBMHPs they collaborated during the 2011-2012 school year (e.g., psychiatrists, pediatricians, neurologists, psychologists, social workers, counselors, case managers, and other) as well as how often (e.g., one to four times a year, five to nine times a year, once a month, two to three times a month, once a week, and more than once a week) and for what purpose they collaborated with CBMHPs on behalf of students. Finally, respondents' perceptions of the benefits and barriers of collaboration with CBMHPs were assessed.

The third section of the CC survey contained 11 questions pertaining to professional background and demographic characteristics. Respondents were asked to report data regarding their gender, year of birth, race, ethnicity, training, and students served. The fourth section of the CC survey contained 4 questions pertaining to characteristics of the school or schools served by the school psychologist. Specifically, respondents were asked to report data such as the number of schools served and the Title 1 status of the schools served. The demographic and school information sections were used to assess whether collaborative practices differ as a function of the training and experience of the school psychologist, the socio-economic status of the student population served by the school psychologist, the number of students served by the school psychologist, and the geographic characteristics of the community in which the students reside (i.e., urban, suburban, rural). Also, this section assessed whether the frequency of collaboration between school psychologists and CBMHPs can be predicted by the percentage of students the school psychologist serves with externalizing or internalizing mental health problems. Respondents were also offered the opportunity to

provide additional comments or feedback regarding collaboration between school psychologists and CBMHPs at the end of the survey. These responses were recorded verbatim in the study database.

One item in the fourth section of the survey was modified from the Walsh (2011) study because it yielded inconsistent response formats (e.g., some respondents wrote an exact percentage, others wrote a percentage range, and others left the items entirely blank) and due to the size of the sample the response categories were collapsed in order to conduct the statistical analyses. In order to obtain consistent responses the item was modified (e.g., reworded in simpler terms) and additional instruction pertaining to this item was provided to respondents. The item in the Walsh (2011) study read, "Please estimate the percentage of students you currently serve with a mental disorder diagnosis of: ___ADHD, ___Anxiety, ___ Depression, ___PDD, ___Bipolar Disorder, ___ Schitzophrenia, ___ Other, Please specify:_____". This item was reworded for the current study to read, "Please estimate the percentage of students you currently serve with internalizing and externalizing problems. (Please estimate to the closest whole percentage point and DO NOT provide a percentage range. The sum of percentages should equal the total percent of students with a mental health problem reported on item 17. Items left blank will be considered to indicate 0%.) ___ % of students served with primarily internalizing symptoms (e.g., depressive mood, social withdrawal, anxious and inhibited reactions, and somatic problems); ___% of students served with primarily externalizing symptoms (e.g., aggressive, acting out, disruptive, defiant, antisocial, oppositional, and hyperactive behavior)."

Dillman and colleagues (2009) suggest constructing a questionnaire that respondents will perceive to be short and easy to complete. In fact, brief questionnaires with easy-to-answer items organized in strategic formats can improve response rates (Dillman, Sinclair, & Clark, 1993). Therefore, several items in the first and second section of the survey used in

the Walsh (2011) study were simplified and restructured in an effort to maximize the response rate. One item from the previous survey that was omitted from this proposed study asked, "To what extent do you agree or disagree with this statement: "Collaboration between school psychologists and CBMHPs is critical to the overall school success (i.e., academic performance, social relationships, and emotional well-being) of students with mental health problems." Response options included, " ___ Strongly agree, ___Somewhat agree, ___Neither agree nor disagree, ___ Somewhat disagree, ___Strongly disagree". This item was removed because it did not inform the current research questions.

Additionally, a number of items from the previous survey pertaining to the purpose of communication and collaboration have been consolidated into 2 questions (i.e., one question regarding the purposes of communication and one question pertaining to the purposes of collaboration). To do so, the format of the question was changed from a forced choice format to a multiple response option format. For example, the Walsh (2011) survey contained 5 items investigating the purposes of communication which asked respondents to report the frequency they engaged in communication for the following purposes: to provide information, obtain information, inform the development of interventions, plan for progress monitoring, and make a community referral. This question format resulted in data that were not necessary for answering the research questions and lengthened the survey considerably. Additionally, this item format did not allow for respondents to write-in alternative purposes for communication and collaboration, which may have narrowed the findings. Therefore, these items were condensed and the current survey included two items related to the purposes of communication and collaboration (i.e., one item related to communication and one item related to collaboration). The revised item asked, " During the 2011-2012 school year, for what purposes did you communicate with CBMHPs on behalf of students with mental health problems? (mark all that apply)." Response choices included, "to provide information (e.g., copy of IEP, grades, etc.), to obtain information (e.g., obtain information regarding treatment,

diagnosis, medication dosage, etc.), to inform the development of interventions, to plan for progress monitoring, and to make a referral for community-based treatment." Also, respondents were provided the option to write-in alternative responses if a response option did not exist (e.g., Other, (please specify):_____). This revision was made to the items pertaining to the purposes of collaboration as well.

Dillman and colleagues (2009) also suggest minimizing the use of matrices in survey questionnaires, as they can be overwhelming and cumbersome for respondents, which may result in a reduced response rate. Therefore, the matrix in section 4 of the Walsh (2011) survey has been removed and items formerly in the matrix are now presented in standard format (see Appendix B).

Procedures

Approval to conduct the study was obtained from the University of South Florida (USF) Institutional Review Board (IRB) prior to commencement of data collection. This assisted in ensuring that all possible and necessary precautions were taken to protect human research participants. Approval from each participating state organization was obtained as well. Approval requirements varied from one state school psychology organization to another with some states providing approval based on an informal email request and other states requiring notice of USF IRB approval, a research summary, cover letter, and a hard copy of the survey itself. All state procedures were followed when obtaining state approval. Also, notations were made of each state's approval requirements, which are reported in Table 3.

Table 3
State Approval Requirements

State	Informal Email Request	USF IRB Approval	Research Summary	Cover Letter	Hard Copy of Survey
Connecticut	✓				
Arkansas	✓				
New Jersey	✓				
Wyoming	✓				
Delaware	✓			✓	✓
Massachusetts	✓	✓	✓	✓	✓
New York	✓	✓	✓	✓	✓
Kentucky	✓	✓	✓	✓	✓
North Dakota	✓	✓	✓	✓	✓
South Dakota	✓	✓	✓	✓	✓
Colorado	✓	✓	✓	✓	✓

Leadership from 49 state school psychology associations were contacted via email in order to request approval for this study. Leadership from the Florida Association of School Psychology (FASP) was not contacted because FASP members were recruited previously for the Walsh (2011) study. In the initial email to the leadership of state school psychology associations the PI explained the purpose of the study, requested approval to distribute the survey to members, and inquired about the organizations' approval process. A second follow-up email was sent approximately 2 weeks after sending the initial email to any state organizations that did not respond. Of the state associations contacted, 14 states did not participate in this type of research (Alaska, Arizona, California, Georgia, Hawaii, Illinois, Iowa, Missouri, Nevada, Oregon, Pennsylvania, Rhode Island, Texas, Utah), 24 did not respond to the request for approval (Alabama, Idaho, Indiana, Kansas, Louisiana, Maine, Maryland, Michigan, Minnesota, Mississippi, Montana, Nebraska, New Hampshire, New Mexico, North Carolina, Ohio, Oklahoma, South Carolina, Tennessee, Vermont, Virginia, Washington, West Virginia, Wisconsin), and 11 approved this study (Arkansas, Colorado, Connecticut, Delaware, Kentucky, Massachusetts, New Jersey, New York, North Dakota, South Dakota, Wyoming). Table 3 summarizes each state's approval requirements. All states granting approval for this study were included in this research in order to maximize the sample size. The geographical representation of the 11 states

was weighted toward the Northeast (5 states) but also includes representation from the South (2 states) and Midwest/Mountain West (4 states).

In the fall of 2012, upon receipt of IRB and state approvals, the CC survey was emailed to participants via email. Participants received an email from their state organization with the cover letter information and a link to the electronic survey in the body of the email. One follow-up reminder email was sent to participants 3 weeks after sending the initial email. The research coordinator from each state organization reported the number of members who received the recruitment email. These data were used to calculate the response rate. The submitted electronic survey was considered as consent to participate. Survey data were downloaded into an Excel spreadsheet.

Participants were given an opportunity to participate in a random drawing to receive one of five $10.00 gift certificates to www.amazon.com. At the end of the survey participants were prompted to send the PI an email with the words “survey completed” in the subject of the email. One hundred twenty-six participants (34% of survey respondents) sent an email to the PI to enter in the drawing. Participant email addresses were recorded in a separate incentive database and the email correspondence was deleted. Upon completion of data collection, 5 participants were selected at random using the random selection function in excel. The 5 selected participants were contacted by email and sent electronic gift cards. Following the distribution of gift cards, the database with participants’ email addresses was deleted.

Upon completion of data collection a frequency count summarizing the missing data was generated. These missing data were analyzed to determine if the missing values are from respondents who are systematically different from respondents who provided complete data. A determination about how to use missing data was made based on this initial analysis. Data were analyzed using the Statistical Analysis System (SAS; Cody, 1997).

Review of Data Analysis Plan

In order to answer the research questions of the current study, the data were analyzed using the following procedures:

Research question 1. What is the frequency of communication and collaboration between school psychologists and CBMHPs on behalf of students with mental health problems?

To address the communication component of this research question, responses to item 2 which asked "During the 2011-2012 school year, how often have you communicated with CBMHPs on behalf of students?" were examined. To address the collaboration component of this research question, responses to item 5 which asked "During the 2011-2012 school year, how often have you collaborated with CBMHPs on behalf of students?" were examined. Descriptive statistics are reported in the following chapter. Specifically, mean, mode, standard deviation, skewness, kurtosis, and percentage of respondents who select each response category are reported for each variable. To calculate the mean for the communication and collaboration variables, frequencies were represented by the following values: 0=Never, 1=One to Four Times a Year, 2=Five to Nine Times a Year, 3=Once a Month, 4=Two to Three Times a Month, 5=Once a Week, 6=More than Once a Week. Confidence intervals were calculated around the means and the percentage of respondents who select each response category.

Research question 2. With which type of CBMHPs are school psychologists communicating and collaborating?

To address the communication component of this research question, responses to item 1 which asked "During the 2011-2012 school year, with which community-based mental health professionals have you communicated on behalf of students with mental health problems?" were examined. To address the collaboration component of this

research question, responses to item 4 which asked “During the 2011-2012 school year, with which CBMHPs have you collaborated on behalf of students with mental health problems?” were examined. Response options included, “psychiatrists, pediatricians, neurologists, psychologists, social workers, counselors/therapists, and case managers”. Additionally, respondents were able to write an alternative response if a fixed-response did not exist for their response (e.g., Other, please specify:_____). This alternative protected against limitations in survey design (Rea & Parker). Descriptive statistics are reported in the following chapter. Specifically, the modes as well as the percentage of respondents who select each response category are reported. Additionally, confidence intervals were calculated around these percentages.

Research question 3. What is the nature and purpose of communication and collaboration between school psychologists and CBMHPs?

To address the communication component of this research question, responses to items 3 which asked “During the 2011-2012 school year, for what purposes did you communicate with CBMHPs on behalf of students with mental health problems?” were examined. Response options included, “to provide information, to obtain information, to inform the development of interventions, to plan for progress monitoring, and to make a referral for community-based treatment”. Again, respondents were able to write in alternative responses if a fixed-response option did not exist.

To address the collaboration component of this research question, responses to item 7 which asked “During the 2011-2012 school year, what purposes did you collaborate with CBMHPs on behalf of students with mental health problems?” were examined. Response options included, “to jointly develop interventions, to progress monitor an intervention/treatment effect, to evaluate interventions, to modify interventions”, or respondents were able to write in alternative responses if a fixed-response option does not exist. Descriptive statistics are reported in the following

chapter. Specifically, the modes as well as the percentage of respondents who select each response category are reported. Additionally, confidence intervals were calculated around these percentages.

Research question 4. What do school psychologists perceive as the benefits and barriers of collaboration with CBMHPs?

To address the perceived benefits component of this research question, responses to item 8 which asked "What are the benefits of collaboration with CBMHPs?" were examined. Response options included, "improved student physical health outcomes, improved student mental health, behavior, and academic outcomes, avoiding duplication of services, opportunity for cross-disciplinary problem-solving, to learn different methodology and techniques, to share resources, feeling valued for the expertise offered, assessing student progress across different settings, increase parent involvement", or respondents were able to write in alternative responses if a fixed-response option did not exist.

To address the barriers component of this research question, responses to item 9 which asked "What are the barriers to collaboration with CBMHPs?" were examined. Response options included, "there is not enough time, CBMHPs are not accessible, obtaining parent permission to collaborate, differing views on child development and mental health services, it is not beneficial to the interventions or progress monitoring of students, lack of information about which CBMHPs work with students, high rate of CBMHP turnover", or respondents were able to write in alternative responses if a fixed-response option did not exist.

Descriptive statistics are reported in the following chapter. Specifically, the modes as well as the percentage of respondents who select each response category are reported. Additionally, confidence intervals were calculated around these percentages.

Research question 5. Does the frequency of communication/collaboration between school psychologists and CBMHPs relate to professional characteristics of the school psychologist (e.g., highest degree earned by the school psychologist, ongoing professional development, the years of experience of the school psychologist)?

Highest degree earned. To address this research question, participants were sorted into subgroups based on highest degree earned (e.g., Masters, Specialist, and Doctorate) reported on item 14. Descriptive statistics are reported in the following chapter. Specifically, the modes as well as the percentage of respondents who selected each response category are reported. Additionally, confidence intervals were calculated around these percentages. To address the communication and collaboration components of this question, frequency data are reported for items 2 and 5, respectively. For the purpose of analysis, communication and collaboration frequencies were represented by the following values: 0=Never, 1=One to Four Times a Year, 2=Five to Nine Times a Year, 3=Once a Month, 4=Two to Three Times a Month, 5=Once a Week, 6=More than Once a Week. The mean responses for the communication and collaboration frequencies were calculated for each subgroup. Subgroup means and confidence intervals are reported. To determine if the frequency of communication and collaboration differ depending on the graduate training of school psychologists, differences in mean scores were compared using an ANOVA and a Welch's ANOVA. Data were screened for outliers and possible violations of the assumptions underlying ANOVA.

Ongoing professional development. To address this research question, participants were sorted into subgroups based on the number of hours of professional development (i.e., 0 hours, 1-5 hours, 6-10 hours, more than 10 hours) reported on item 20. Descriptive statistics are reported in the following chapter. Specifically, the modes as well as the percentage of respondents who select each response category are

reported. Additionally, confidence intervals were calculated around these percentages. To address the communication and collaboration components of this question, frequency data are reported for items 2 and 5, respectively. For the purpose of analysis, communication and collaboration frequencies were represented by the following values: 0=Never, 1=One to Four Times a Year, 2=Five to Nine Times a Year, 3=Once a Month, 4=Two to Three Times a Month, 5=Once a Week, 6=More than Once a Week. The mean responses for the communication and collaboration frequencies were calculated for each subgroup. Subgroup means and confidence intervals are reported. To determine if the frequency of communication and collaboration differ depending on the ongoing professional development of school psychologists, differences in mean scores were compared using an ANOVA, a Welch's ANOVA, and an ANOVA controlling for the other professional characteristic variables. Follow-up Tukey tests were conducted for all significant group differences. The mean differences, confidence intervals around these differences, and effect sizes are reported. Data were screened for outliers and possible violations of the assumptions underlying ANOVA.

Years of experience. To address this research question, participants were sorted into subgroups based on number of years of experience (e.g., 1-5, 6-10, more than 10) reported on item 15. Descriptive statistics are reported in the following chapter. Specifically, the modes as well as the percentage of respondents who select each response category are reported. Additionally, confidence intervals were calculated around these percentages. To address the communication and collaboration components of this question, frequency data are reported for items 2 and 5, respectively. For the purpose of analysis, communication and collaboration frequencies were represented by the following values: 0=Never, 1=One to Four Times a Year, 2=Five to Nine Times a Year, 3=Once a Month, 4=Two to Three Times a Month, 5=Once a Week, 6=More than Once a Week. The mean responses for the communication and

collaboration frequencies were calculated for each subgroup. Subgroup means and confidence intervals are reported. To determine if the frequency of communication and collaboration differ depending on the years experience of school psychologists, differences in mean scores were compared using an ANOVA, a Welch's ANOVA, and an ANOVA controlling for other professional characteristic variables. The mean differences, confidence intervals around these differences, and effect sizes are reported. Data were screened for outliers and possible violations of the assumptions underlying ANOVA.

Primary role. To address this research question, participants were sorted into subgroups based on the primary professional role of the school psychologist which was reported on item 17. Descriptive statistics are reported in the following chapter. Specifically, the modes as well as the percentage of respondents who select each response category are reported. Additionally, confidence intervals were calculated around these percentages. To address the communication and collaboration components of this question, frequency data are reported for items 2 and 5, respectively. For the purpose of analysis, communication and collaboration frequencies were represented by the following values: 0=Never, 1=One to Four Times a Year, 2=Five to Nine Times a Year, 3=Once a Month, 4=Two to Three Times a Month, 5=Once a Week, 6=More than Once a Week. The mean responses for the communication and collaboration frequencies were calculated for each subgroup. Subgroup means and confidence intervals are reported. To determine if the frequency of communication and collaboration differ depending on the primary professional role of school psychologists, differences in mean scores were compared using an ANOVA, a Welch's ANOVA, and an ANOVA controlling for the other professional characteristic variables. Follow-up Tukey tests were conducted for all significant group differences. The mean differences, confidence intervals around these differences, and effect sizes are reported. Data were screened for outliers and possible violations of the assumptions underlying ANOVA.

Research question 6. Does the frequency of communication/collaboration between school psychologists and CBMHPs relate to school characteristics (e.g., the socio-economic status of the student population served by the school psychologist (i.e., Title 1 funding), the number of students served by the school psychologist, the number of schools served by the school psychologist, and the type of community where the majority of the students served by the school psychologist reside (e.g., urban vs. rural))?

Socio-economic status of the student population served. To address this research question, participants were sorted into two subgroups based on the socio-economic status of the students they serve (i.e., whether they serve no Title 1 schools or at least one Title 1 school) which were reported on item 24. Descriptive statistics are reported in the following chapter. Specifically, the modes as well as the percentage of respondents who select each response category are reported. Additionally, confidence intervals were calculated around these percentages. To address the communication and collaboration components of this question, frequency data are reported for items 2 and 5, respectively. For the purpose of analysis, communication and collaboration frequencies were represented by the following values: 0=Never, 1=One to Four Times a Year, 2=Five to Nine Times a Year, 3=Once a Month, 4=Two to Three Times a Month, 5=Once a Week, 6=More than Once a Week. The mean responses for the communication and collaboration frequencies were calculated for each subgroup. Subgroup means and confidence intervals are reported. To determine if the frequency of communication and collaboration differ depending on the socio-economic status of the student population served by the school psychologist, differences in mean scores were compared using an ANOVA. Follow-up Tukey tests were not conducted because the ANOVA yielded no significant group differences. Data were screened for outliers and possible violations of the assumptions underlying ANOVA.

Number of students served. To address this research question, participants were sorted into subgroups based on number of students served by the school psychologist (e.g., less than 500, 500-999, 1000-1,500, more than 1,500 students) reported on item 16. Descriptive statistics are reported in the following chapter. Specifically, the modes as well as the percentage of respondents who select each response category are reported. Additionally, confidence intervals were calculated around these percentages. To address the communication and collaboration components of this question, frequency data are reported for items 2 and 5, respectively. For the purpose of analysis, communication and collaboration frequencies were represented by the following values: 0=Never, 1=One to Four Times a Year, 2=Five to Nine Times a Year, 3=Once a Month, 4=Two to Three Times a Month, 5=Once a Week, 6=More than Once a Week. The mean responses for the communication and collaboration frequencies were calculated for each subgroup. Subgroup means and confidence intervals are reported. To determine if the frequency of communication and collaboration differ depending on the number of students served by the school psychologist, differences in mean scores were compared using an ANOVA and a Welch's ANOVA. Follow-up Tukey tests were not conducted because no significant group differences were obtained. Data were screened for outliers and possible violations of the assumptions underlying ANOVA.

Number of schools served. To address this research question, participants were sorted into subgroups based on number of schools served by the school psychologist (e.g., 1-2 schools, 3-4 schools, 5-6 schools, more than 6 schools) reported on item 23. Descriptive statistics are reported in the following chapter. Specifically, the modes as well as the percentage of respondents who select each response category are reported. Additionally, confidence intervals were calculated around these percentages. To address the communication and collaboration components of this question, frequency

data are reported for items 2 and 5, respectively. For the purpose of analysis, communication and collaboration frequencies were represented by the following values: 0=Never, 1=One to Four Times a Year, 2=Five to Nine Times a Year, 3=Once a Month, 4=Two to Three Times a Month, 5=Once a Week, 6=More than Once a Week. The mean responses for the communication and collaboration frequencies were calculated for each subgroup. Subgroup means and confidence intervals are reported. To determine if the frequency of communication and collaboration differ depending on the number of schools served by the school psychologist, differences in mean scores will be compared using an ANOVA and a Welch's ANOVA. Follow-up Tukey tests were not conducted because results of the ANOVAs did not yield significant group differences. Data were screened for outliers and possible violations of the assumptions underlying ANOVA.

Type of community where students reside. To address this research question, participants were sorted into subgroups based on the type of community where the majority of the students served by the school psychologist reside (e.g., urban, suburban, rural) reported on item 22. Descriptive statistics are reported in the following chapter. Specifically, the modes as well as the percentage of respondents who select each response category are reported. Additionally, confidence intervals were calculated around these percentages. To address the communication and collaboration components of this question, frequency data are reported for items 2 and 5, respectively. For the purpose of analysis, communication and collaboration frequencies were represented by the following values: 0=Never, 1=One to Four Times a Year, 2=Five to Nine Times a Year, 3=Once a Month, 4=Two to Three Times a Month, 5=Once a Week, 6=More than Once a Week. The mean responses for the communication and collaboration frequencies were calculated for each subgroup. Subgroup means and confidence intervals are reported. To determine if the frequency of communication and

collaboration differ depending on the type of community where the majority of the students served by the school psychologist reside, differences in mean scores will be compared using an ANOVA and a Welch's ANOVA. Follow-up Tukey tests were not conducted. Data were screened for outliers and possible violations of the assumptions underlying ANOVA.

Research question 7. Is the frequency of collaboration between school psychologists and CBMHPs predicted by the percentage of students served by the school psychologists with externalizing and internalizing problems?

To address this research question, responses to item 18 which asked respondents to "Please estimate the percentage of students you currently serve with internalizing and externalizing problems" were examined. As previously discussed, this item was modified from the Walsh (2011) study in order to obtain a consistent response format as well as avoid needing to collapse the categories for analysis. Descriptive statistics are reported in the following chapter. Specifically, mean, standard deviation, skewness, and kurtosis are reported. To address the collaboration component of this question, frequency data are reported for items 2 and 5, respectively. For the purpose of analysis, collaboration frequencies were represented by the following values: 0=Never, 1=One to Four Times a Year, 2=Five to Nine Times a Year, 3=Once a Month, 4=Two to Three Times a Month, 5=Once a Week, 6=More than Once a Week. A multiple regression was conducted to predict the frequency of collaboration from the proportion of the student population with internalizing and externalizing problems. The obtained and adjusted R^2 values, raw regression coefficients, standardized coefficients, and squared semipartial correlations are reported. Data were screened for outliers (i.e., box plots were examined for outliers in descriptive data and residuals were examined for outliers in inferential statistics) and possible violations of the assumptions underlying regression.

Chapter Four

Results

The results of the statistical analyses conducted to answer the research questions are presented in this chapter. Descriptive statistics are presented for research questions 1-4. Specifically, for the first research question the means, standard deviations, skewness, kurtosis, ranges, and percentages are presented. For the second, third, and fourth research questions, percentages and confidence intervals were calculated. To answer the fifth and sixth research questions, ANOVAs and follow-up Tukey tests were conducted to analyze the differences in group means to determine whether frequency of communication and collaboration between school psychologists and CBMHPs differs based upon a number of professional characteristics and school variables of the school psychologist. To answer the seventh research question, a multiple regression was conducted to analyze the extent to which the frequency of collaboration between school psychologists and CBMHPs is predicted by the percentage of students the school psychologist serves with internalizing and externalizing problems.

Data Screening

Three hundred seventy-two surveys were returned out of a possible 3,150 yielding a 12% return rate. Forty-five surveys were excluded from data analysis because the respondents indicated that they do not currently work in schools (e.g., students, retired, district administrator, etc.). The final dataset yielded a useable total sample of 327 surveys.

Research Question 1

What is the frequency of communication and collaboration between school psychologists and CBMHPs on behalf of children with mental health problems? For the purpose of this study, communication was defined as 'a one-time, unidirectional sharing of information on behalf of students' and collaboration was defined as 'the ongoing, bi-directional sharing of information by two or more people who are working together in planning and problem-solving to promote positive outcomes for a student or students'. These definitions were provided on the survey prior to questions pertaining to communication and collaboration. To address the communication component of this research question, the frequencies of the responses to item 2, which asks "During the 2011-2012 school year, how often have you communicated with CBMHPs on behalf of students?" were examined. To address the collaboration frequency component of this research question, the frequencies of responses to item 5, which asks "During the 2011-2012 school year, how often have you collaborated with CBMHPs on behalf of students?" were examined. To calculate the mean for the communication and collaboration variables, frequencies were represented by the following values: 0=Never, 1=One to Four Times a Year, 2=Five to Nine Times a Year, 3=Once a Month, 4=Two to Three Times a Month, 5=Once a Week, 6=More than Once a Week. Of the 327 usable returned surveys, 44 surveys were missing data related to communication frequency and 25 surveys were missing data related to collaboration frequency. The missing responses appeared to be missing at random and surveys with complete data did not appear to differ systematically from those with missing data.

Descriptive statistics of communication and collaboration frequencies are provided in Table 4. The distribution of communication frequency scores has a positive skew (sk=1.41) and is platykurtic (ku=-0.35). The scores ranged from 1 to 6 with a mean of 2.54 and a standard deviation of 1.41. The distribution of collaboration frequency

scores also has a positive skew (sk=0.66) and is platykurtic (ku=-0.37). The scores ranged from 0 to 6 with a mean of 1.85 and a standard deviation of 1.56.

Table 4
Descriptive Statistics of Communication and Collaboration Frequencies

	n	*M* & 95% C.I.	*SD*	*Sk*	*Ku*	*Range*
Communication	283	2.54 2.38-2.79	1.41	0.72	-0.35	1-6
Collaboration	302	1.85 1.67-2.02	1.56	0.66	-0.37	0-6

Note. The scale of the communication and collaboration frequency score is as follows: 0=Never, 1=One to Four Times a Year, 2=Five to Nine Times a Year, 3=Once a Month, 4=Two to Three Times a Month, 5=Once a Week, 6=More than Once a Week.

The percentage of respondents who selected each communication and collaboration frequency response category as well as confidence intervals around these percentages are presented in Table 5. These data indicate that all respondents communicated and seventy-seven percent (77.1%) of school psychologists collaborated with CBMHPs at least once (i.e., endorsed either one to four times a year, five to nine times a year, once a month, two to three times a month, once a week, or more than once a week) during the 2011-2012 school year. Additionally, five to nine times during the 2011-2012 school year was the most frequently endorsed communication response category (i.e., 32.6% of school psychologists reported communicating with CBMHPs between five and nine times a year) and one to four times during the 2011-2012 school year was the most frequently endorsed collaboration response category (i.e., 24.8% of school psychologists reported collaborating with CBMHPs between one and four times a year).

Table 5
Percentages and 95% Confidence Intervals of Communication and Collaboration Frequencies

	Never	One to four times a year	Five to nine times a year	Once a month	Two to three times a month	Once a week	More than once a week
Communication (*n*=283)	0.0*	27.6 22.4-32.8	32.6 27.1-38.0	10.6 7.0-14.2	21.2 16.4-26.0	.04 .01-.06	.05 .02-.07
Collaboration (*n*=302)	22.9 18.1-27.6	24.8 20.0-29.7	23.2 18.4-28.0	11.2 7.7-14.8	11.3 7.7-14.8	5.0 2.5-7.4	1.7 .2-3.1

Note. * Confidence Intervals were not computed when the sample percentage was zero.

Research Question 2

With which type of community-based mental health professionals are school psychologists communicating and collaborating? To address the communication component of this research question, responses to item 1, which asks "During the 2011-2012 school year, with which community-based mental health professionals have you communicated on behalf of students with mental health problems?" were examined. To address the collaboration component of this research question, responses to item 4 which asks "During the 2011-2012 school year, with which CBMHPs have you collaborated on behalf of students with mental health problems?" were examined. Response choices included psychiatrists or pediatric psychiatrists, pediatricians, neurologists or pediatric neurologists, psychologists, social workers, counselors/therapists, and/or case managers. Respondents also could write in another type of CBMHP.

The percentage of respondents who reported communicating and collaborating with each type of CBMHP as well as confidence intervals around these percentages are presented in Table 6. Simply put, school psychologists communicate with CBMHPs much more frequently than they collaborate. Although these data indicate that respondents communicate and collaborate with different types of CBMHPs, they most commonly communicate and collaborate with community-based counselors and therapists (i.e., 73.9% of school psychologists communicate and 56.4% collaborate with

community-based counselors and therapists). Additionally, school psychology respondents communicate and collaborate with neurologists the least (i.e., 26.1% of school psychologists communicate and 9.5% collaborate with neurologists). Approximately 50% of respondents reported communicating with community-based psychologists, psychiatrists, case managers, and social workers and fewer than 40% of respondents cited communicating with pediatricians. Between approximately one-quarter and one-third of respondents reported collaborating with psychologists, psychiatrists, case managers, and social workers and fewer than 17% of respondents reported collaborating with pediatricians. Between approximately 2% and 6% of respondents indicated that they communicate and collaborate with other CBMHPs including behavior therapists and applied behavior analysts, physicians assistants, nurse practitioners, child advocates, general family doctors, and community-based mental health liaisons.

Table 6
Percentage of School Psychologists Communicating and Collaborating with Various CBMHPs (n= 326)

Types of CBMHPs	Communication Percentages & 95% C.I.	Collaboration Percentages & 95% C.I.
Counselor/Therapists	73.9 69.2-78.7	56.4 51.1-61.8
Psychologists	55.5 50.1-60.9	39.0 33.7-44.3
Psychiatrists/Pediatric Psychiatrists	50.3 44.9-55.7	25.7 21.0-30.5
Case Managers	46.3 40.9-51.7	33.7 28.6-38.9
Social Workers	45.7 40.3-51.1	35.3 30.0-40.5
Pediatricians	39.9 34.6-45.2	16.6 12.5-20.6
Neurologists/Pediatric Neurologists	26.1 21.3-30.8	9.5 6.3-12.7
Others	5.5 3.0-8.0	2.2 0.6-3.7

Research Question 3

What is the nature and purpose of communication and collaboration between school psychologists and community-based mental health professionals? To address the communication component of this research question, responses to item 3 which asks "During the 2011-2012 school year, for what purposes did you communicate with CBMHPs on behalf of students with mental health problems?" were examined. Response choices included, "to provide information about a student, to obtain information about a student, to inform the development of interventions, to plan for progress monitoring, and to make a referral for community-based treatment". To address the collaboration component of this research question, responses to item 7 which asks "During the 2011-2012 school year, with which community-based mental health professionals have you collaborated on behalf of students with mental health problems?"" were examined. Response choices included, "to jointly develop interventions, to progress monitor intervention/treatment effects, to evaluate interventions, and to modify interventions". The percentage of respondents who reported communicating and collaborating for various purposes as well as confidence intervals around these percentages are presented in Tables 7 and 8, respectively.

Table 7
Percentage of School Psychologists Communicating with CBMHPs for Various Purposes (n=326)

Purpose of Communication	Percentages & 95% C.I.
Obtain information	81.9 77.7-86.1
Provide information	70.0 65.0-74.9
Make a referral for community-based treatment	44.2 38.8-49.6
Inform the development of interventions	39.0 33.7-44.3
Plan for progress monitoring	18.4 14.2-22.6

Table 8
Percentage of School Psychologists Collaborating with CBMHPs for Various Purposes (n=326)

Purpose of Collaboration	Percentages & 95% C.I.
Jointly develop interventions	46.3 41.2-52.0
Progress monitor intervention/treatment effects	36.8 31.6-42.1
Modify interventions	33.1 28.0-38.2
Evaluate interventions	29.1 24.2-34.1

These data indicate that, of the school psychologists who communicated with CBMHPs during the 2011-2012 school year, 82% did so in order to obtain information and 70% did so in order to provide information. Additionally, of these respondents, between 29% and 46% collaborated with CBMHPs in order to jointly develop coordinated interventions, progress monitor, and evaluate or modify interventions.

Research Question 4

What do school psychologists perceive as the benefits and barriers of collaboration with community-based mental health professionals? To address the perceived benefits component of this research question, responses to item 8 which asks "What are the benefits of collaboration with CBMHPs?" were examined. The response choices for the benefits component of this question include, "that there are no benefits, improved student physical health outcomes, improved student mental health outcomes, improved student behavioral outcomes, improved student academic outcomes, avoiding duplication of services, opportunity for cross-disciplinary problem-solving, opportunity to share resources, feeling valued for the expertise you offer to other professionals, assessing student progress across different settings, and increased parent involvement". Respondents also were able to write in other benefits. To address the barriers component of this research question, responses to item 9 which asks "What are the barriers to collaboration with CBMHPs?" were examined. The response choices for the

barriers component of this research question include, “no barriers, not enough time, CBMHPs are not accessible, obtaining parent permission to collaborate, differing views on child development, differing views on mental health services, it is not beneficial to the interventions or progress monitoring of students, lack of information about which CBMHPs work with students, high rate of CBMHP turnover”, and respondents were able to write in another barrier to communication. The percentage of respondents who reported the benefits and barriers to collaboration with CBMHPs as well as confidence intervals around these percentages are presented in Tables 9 and 10, respectively.

Table 9

Percentages of School Psychologists' Perceptions of Benefits of Collaboration with CBMHPs (n=326)

Types of Benefits	Percentages & 95% C.I.
Improved student mental health outcomes	77.6 73.1-82.1
Improved student behavioral outcomes	76.4 71.8-81.0
Improved student academic outcomes	63.5 58.3-68.7
Opportunity for cross-disciplinary problem-solving	61.0 55.8-66.3
Assessing student progress across different settings	55.2 49.8-60.6
Increase parent involvement	54.3 48.9-59.7
Opportunity to share resources	51.2 45.8-56.7
Avoiding duplication of services	40.8 35.5-46.1
Opportunity to learn different methodology and techniques	35.9 30.7-41.1
Feeling valued for the expertise you offer to other professionals	26.7 21.9-31.5
Improved student physical health outcomes	23.6 19.0-28.2
Other	4.0 1.9-6.1
No benefits	0.3 0.0-0.9

Table 10
Percentages of School Psychologists' Perceptions of Barriers to Collaboration with CBMHPs (n=326)

Types of Barriers	Percentages & 95% C.I.
Not enough time	54.9 49.5-60.3
CBMHPs are not accessible	45.7 40.3-51.1
Obtaining parent permission to collaborate	37.7 32.5-43.0
High rate of CBMHP turnover	31.9 26.8-37.0
Lack of information about which CBMHPs work with students	23.6 19.0-28.2
Differing views on mental health services	15.3 11.4-19.3
Other	10.4 7.1-13.8
Differing views on child development	8.6 5.6-11.6
No barriers	4.6 2.3-6.9
It is not beneficial to the interventions or progress monitoring of students	0.3 0.0-0.9

These data indicate that most school psychologists perceive improved student mental health (78%), behavioral (76%), and academic outcomes (64%) are benefits of collaboration with CBMHPs. Many school psychologists perceive the opportunity for cross-disciplinary problem solving (61%), assessing student progress across settings (55%), increasing parent involvement (54%), and having the opportunity to share resources to be benefits of collaboration as well. Some school psychologists perceive avoiding the duplication of services (41%), opportunities for learning different methodology (36%), feeling valued for the expertise they offer (27%), and improved student physical health outcomes (24%) to be benefits. Although benefits of collaboration were widely endorsed, 1 respondent (.3% of sample) indicated that there are no benefits.

Most respondents indicated that barriers to collaboration include that there is not enough time to collaborate (55%) and that CBMHPs are not accessible (46%). Many school psychologists also indicated that obtaining parent consent to collaborate (38%) and the high rate of CBMHP turnover (32%) inhibit collaboration. Collaboration not

being beneficial to interventions or progress monitoring was only cited by one respondent as an obstacle.

Research Question 5

Does the frequency of communication and collaboration between school psychologists and community-based mental health professionals relate to professional characteristics of the school psychologist? To address this research question, multiple analyses were conducted. First, participants were sorted into subgroups based on a variety of professional variables reported on items 14, 15, 17, and 20 in order to conduct a separate one-way ANOVA for each professional variable of interest. The distributions of communication and collaboration frequency scores, items 2 and 5, respectively, were examined separately for school psychologists within each subgroup. For the purpose of analysis, communication and collaboration frequencies are represented by the following values: 0=Never, 1=One to Four Times a Year, 2=Five to Nine Times a Year, 3=Once a Month, 4=Two to Three Times a Month, 5=Once a Week, 6=More than Once a Week.

The data were screened for violations of independence, equal variances, and normality. For each ANOVA conducted, the assumption of independence was supported by the fact that school psychologists completed the survey independently. Despite the fact that the distributions deviated from normality, the ANOVAs were considered to be robust to a violation of the normality assumption based on a sufficiently large sample size. While examining for normality, the data were screened for outliers but none were identified (i.e., scores did not fall outside of the 0-6 rating scale range). All groups had unequal variances. Because the larger groups had the smaller variances and the smaller groups had the larger variances, making the ANOVA somewhat liberal, the Welch version of the ANOVA was also conducted to guard against a violation of the equal variances assumption.

Also, prior to conducting the one-way ANOVAs, the data were checked to make sure that the variables were not related. Interrelationships among predictors were found. However, the degree of relationship was relatively small. Therefore, when significant results were found conducting an ANOVA and a Welch's version of an ANOVA, a third follow-up ANOVA holding constant the other professional characteristics was conducted in order to control for professional characteristics other than the variable of interest. When significant results were obtained in all three types of ANOVA (i.e., an ANOVA, Welch's version, and an ANOVA controlling for other factors) follow-up Tukey tests were conducted. The following sections summarize the findings from these analyses.

Question 5a. *Does the frequency of communication and collaboration between school psychologists and community-based mental health professionals relate to the graduate training of the school psychologist?* To address this research question, participants were sorted into subgroups based on highest degree earned (e.g., Masters, Specialist, and Doctorate) reported on item 14. The distributions of communication and collaboration frequency scores were examined separately for school psychologists with (1) a Masters, (2) an Educational Specialist, and (3) with a Doctoral degree. A summary of descriptive statistics for each group is provided in Tables 11 and 12. An Educational Specialist Degree, or its equivalent, was the highest degree earned by most respondents. Specifically, an Educational Specialist Degree was the highest degree earned by approximately 73% of respondents, a Doctoral Degree was the highest degree earned by 19% of respondents, and a Masters Degree was the highest degree earned by 8% of respondents.

Table 11
Descriptive Statistics of Communication Frequencies by Degree Earned

Degree	*n*	*M* *95% C.I.*	*SD*	*Sk*	*Ku*	*Range*
Masters Degree	23	2.739 2.097-3.381	1.484	0.401	-0.825	1-6
Educational Specialist Degree	199	2.573 2.368-2.778	1.465	0.713	-0.445	1-6
Doctoral Degree	52	2.462 2.124-2.799	1.212	0.815	0.254	1-6

Note. The scale of the communication and collaboration frequency score is as follows: 0=Never, 1=One to Four Times a Year, 2=Five to Nine Times a Year, 3=Once a Month, 4=Two to Three Times a Month, 5=Once a Week, 6=More than Once a Week.

Table 12
Descriptive Statistics of Collaboration Frequencies by Degree Earned

Degree	*n*	*M* *95% C.I.*	*SD*	*Sk*	*Ku*	*Range*
Masters Degree	30	1.833 1.244-2.422	1.577	0.633	0.018	0-6
Educational Specialist Degree	212	1.892 1.676-2.107	1.589	0.652	-0.423	0-6
Doctoral Degree	54	1.870 1.484-2.257	1.415	0.570	-0.420	0-5

Note. The scale of the communication and collaboration frequency score is as follows: 0=Never, 1=One to Four Times a Year, 2=Five to Nine Times a Year, 3=Once a Month, 4=Two to Three Times a Month, 5=Once a Week, 6=More than Once a Week.

Analysis of variance. In order to determine if the frequency of communication and collaboration with CBMHPs differed reliably depending on the graduate training of the school psychologist, differences in mean scores between groups were compared by conducting a one-way ANOVA and a one-way version of Welch's ANOVA for communication and collaboration frequencies. Welch's version of the ANOVA was conducted due to the violation of equal variances. Significant results were not obtained for either the ANOVA or Welch's version. In other words, the highest degree earned by the school psychologist did not seem to have a significant effect on school psychologists frequency of communication or collaboration with CBMHPs. A summary of the ANOVA and Welch's ANOVA results is presented in Table 13 and 14.

Table 13
ANOVA Summary Table for Frequency of Communication by Highest Degree Earned

		ANOVA			*Welch's ANOVA*		
Variable	*n*	*df*	*F*	*p*	*df*	*F*	*p*
Highest Degree Earned	273	2	0.31	0.73	2	0.34	0.71
Error		271			53		

*p<.05

Table 14
ANOVA Summary Table for Frequency of Collaboration by Highest Degree Earned

		ANOVA			*Welch's ANOVA*		
Variable	*n*	*df*	*F*	*p*	*df*	*F*	*p*
Highest Degree Earned	295	2	0.02	0.98	2	0.02	0.98
Error		293			67		

*p<.05

Question 5b. *Does the frequency of communication and collaboration between school psychologists and community-based mental health professionals relate to the ongoing training of the school psychologist?* To address this research question, participants were sorted into subgroups based on the number of hours of professional development (i.e., 0 hours, 1-5 hours, 6-10 hours, and more than 10 hours) received in the 2011-2012 school year related to mental health problems of children and adolescents, reported on item 20. The distributions of communication and collaboration frequency scores were examined separately for school psychologists who (1) did not receive professional development on this topic, (2) those who received between 1 and 5 hours, (3) those who received between 6 and 10 hours, and (4) those who received more than 10 hours during the 2011-2012 school year. A summary of descriptive statistics for each group is provided in Tables 15 and 16. Most respondents (approximately 45%) indicated that they received between one and five hours of professional development related to mental health problems of children and adolescents during the 2011-2012 school year and approximately 25% of respondents indicated that they received between six and ten hours of professional development on this topic. Approximately 16% of respondents reported that they received more than ten hours of professional development. However, approximately 13% of respondents reported that

they did not receive any professional development related to mental health problems of children and adolescents during the 2011-2012 school year.

Table 15
Descriptive Statistics of Communication Frequencies by Hours of Professional Development

Hours of Professional Development	*n*	*M & 95% C.I.*	*SD*	*Sk*	*Ku*	*Range*
None	33	2.333 1.827-2.840	1.429	0.803	-0.345	1-6
One-five hours	116	2.259 2.023-2.493	1.279	0.972	0.292	1-6
Six-ten hours	66	2.879 2.519-3.238	1.463	0.582	-0.520	1-6
More than 10 hours	45	3 2.570-3.430	1.430	0.341	-0.638	1-6

Note. The scale of the communication and collaboration frequency score is as follows: 0=Never, 1=One to Four Times a Year, 2=Five to Nine Times a Year, 3=Once a Month, 4=Two to Three Times a Month, 5=Once a Week, 6=More than Once a Week.

Table 16
Descriptive Statistics of Collaboration Frequencies by Hours of Professional Development

Hours of Professional Development	*n*	*M & 95% C.I.*	*SD*	*Sk*	*Ku*	*Range*
None	40	1.525 1.018-2.032	1.585	1.091	0.461	0-6
One-five hours	126	1.516 1.262-1.749	1.325	0.657	-0.368	1-5
Six-ten hours	67	2.388 2.008-2.768	1.557	0.414	-0.391	0-6
More than 10 hours	47	2.383 1.923-2.843	1.568	0.385	-0.784	0-6

Note. The scale of the communication and collaboration frequency score is as follows: 0=Never, 1=One to Four Times a Year, 2=Five to Nine Times a Year, 3=Once a Month, 4=Two to Three Times a Month, 5=Once a Week, 6=More than Once a Week.

Analysis of variance. In order to determine if the frequency of communication and collaboration with CBMHPs differed reliably depending on the ongoing training of the school psychologist, differences in mean scores between groups were compared by conducting a one-way ANOVA and a one-way version of Welch's ANOVA for communication and collaboration frequencies. As previously discussed, Welch's version of the ANOVA was conducted due to the violation of equal variances. Significant ANOVA and Welch's ANOVA results were found for both communication and collaboration frequencies. Therefore, a third ANOVA was conducted controlling for the other professional characteristic variables in order to ensure that the significant findings

were not the result of an interrelationship between predictor variables. Again, significance results were obtained for communication and collaboration frequencies. Summaries of the results of the ANOVA, the Welch's ANOVA, and the ANOVA controlling for other factors are presented in Tables 17 and 18.

Table 17
ANOVA Summary Table for Frequency of Communication by Hours of Professional Development

		ANOVA			*Welch's ANOVA*			*ANOVA controlling for other factors*		
Variable	*n*	*df*	*F*	*p*	*df*	*F*	*p*	*df*	*F*	*p*
Hours of Professional Development	259	3	4.89	0.0025*	3	4.75	0.0039*	3	3.87	0.009*
Error		256			96			249		

*p<.05

Table 18
ANOVA Summary Table for Frequency of Collaboration by Hours of Professional Development

		ANOVA			*Welch's ANOVA*			*ANOVA controlling for other factors*		
Variable	*n*	*df*	*F*	*p*	*df*	*F*	*p*	*df*	*F*	*p*
Hours of Professional Development	279	3	7.93	<0.0001*	3	7.57	0.0001*	3	8.23	<0.0001*
Error		276			106			269		

*p<.05

Follow-up tests for communication frequency. Cohen's η^2 was calculated to be .05, indicating a small effect of communication frequencies based on number of hours of professional development (Cohen, 1992). The results of the one-way ANOVA [F(3, 256)= 4.89, p=0.0025], Welch's version of the ANOVA [F(3, 96)=4.75, p=0.0039], and the ANOVA controlling for other factors [F(3,249)=3.87, p=0.009] each suggest rejection of the null hypothesis and indicate that at least one pair of population group means differ. A follow-up Tukey test of all pairwise comparisons was conducted. The mean differences and confidence intervals around these differences are provided in Table 19. Examination of Table 19 shows that school psychologists who received six to ten hours of professional development on the topic of youth mental health during the 2011-2012 school year communicated significantly more frequently with CBMHPs than those who received one to five hours of professional development on this topic. Specifically, the mean communication frequency score of school psychologists who received between six

and ten hours of professional development was 0.62 points higher than that of school psychologists who received between one and five hours of professional development on this topic. Additionally, school psychologists who received more than ten hours of professional development on the topic of youth mental health during the 2011-2012 school year communicated significantly more frequently with CBMHPs than those who received between one and five hours of professional development on this topic. The mean communication frequency score of school psychologists who received more than ten hours of professional development was 0.74 points higher than that of school psychologists who received between one and five hours of professional development on this topic.

Table 19
Pairwise Hours of Professional Development Comparisons of Communication Frequency Scores

Comparison	*Mean Difference*	*95% Tukey CI*
One to five hours- no hours	-0.075	-0.775-0.626
Six to ten hours – no hours	0.546	-0.212-1.302
More than 10 hours- no hours	0.667	-0.147-1.480
Six to ten hours- one to five hours	0.620*	0.073-1.168
More than ten hours- one to five hours	0.741*	0.118-1.365
More than ten hours- six to ten hours	0.121	-0.565-0.808

*p<.05

Follow-up tests for collaboration frequency. Cohen's η^2 was calculated to be .08, which indicates a small effect of collaboration frequencies based on number of hours of professional development (Cohen, 1992). The results of the one-way ANOVA [F(3, 276)= 7.93, p<0.0001], Welch's version of the ANOVA [F(3, 106)=7.57, p=0.0001], and the ANOVA controlling for other factors [F(3, 269)= 8.23, p<0.0001] each suggest rejection of the null hypothesis indicating that at least one pair of population group means differ. A follow-up Tukey test of all pairwise comparisons was conducted. The mean differences and confidence intervals around these differences are provided in Table 20. Examination of Table 20 shows that four pairs of group means differed. First, school psychologists who received six to ten hours of professional development on the

topic of youth mental health during the 2011-2012 school year collaborated significantly more frequently with CBMHPs than those who did not receive any professional development on this topic. Specifically, the mean collaboration frequency score of school psychologists who received between six and ten hours of professional development was 0.86 points higher than that of school psychologists who did not receive any professional development on this topic. Second, school psychologists who received more than ten hours of professional development on the topic of youth mental health during the 2011-2012 school year collaborated significantly more frequently with CBMHPs than those who did not receive any professional development on this topic. Again, the mean collaboration frequency score of school psychologists who received more than ten hours of professional development was 0.86 points higher than that of school psychologists who did not receive professional development on this topic. Third, school psychologists who received between six and ten hours of professional development on the topic of youth mental health during the 2011-2012 school year collaborated significantly more frequently with CBMHPs than those who received between one and five hours of professional development on this topic. The mean collaboration frequency score of school psychologists who received between six and ten hours of professional development was 0.87 points higher than that of school psychologists who received between one and five hours of professional development on this topic. Fourth, school psychologists who received more than ten hours of professional development on the topic of youth mental health during the 2011-2012 school year collaborated significantly more frequently with CBMHPs than those who received between one and five hours of professional development on this topic. Again, the mean collaboration frequency score of school psychologists who received more than ten hours of professional development was 0.87 points higher than that of school

psychologists who received between one and five hours of professional development on this topic.

Table 20
Pairwise Hours of Professional Development Comparisons of Collaboration Frequency Scores

Comparison	*Mean Difference*	*95% Tukey CI*
One to five hours- no hours	-0.009	-0.695-0.677
Six to ten hours – no hours	0.863*	0.108-1.619
More than 10 hours- no hours	0.858*	0.045-1.671
Six to ten hours- one to five hours	0.872*	0.301-1.444
More than ten hours- one to five hours	0.867*	0.221-1.513
More than ten hours- six to ten hours	-0.005	-0.724-0.714

*p<.05

Question 5c. *Does the frequency of communication and collaboration between school psychologists and community-based mental health professionals relate to the years of experience of the school psychologist?* To address this research question, participants were sorted into subgroups based on the number of years (i.e., 1-5 years, 6-10 years, more than 10 years) of post-degree experience in school psychology, reported on item 16. The distributions of communication and collaboration frequency scores were examined separately for school psychologists who (1) had between 1 and 5 years experience, (2) those who had between 6 and 10 years experience, and (3) those that had more than 10 years experience. A summary of descriptive statistics for each group is provided in Tables 21 and 22. Most respondents (approximately 52%) indicated that they have more than 10 years experience working as a school psychologist and approximately 26% of respondents reported having between one and five years of experience. Fewest respondents (approximately 22%) reported having between six and ten years of experience as a practicing school psychologist.

Table 21
Descriptive Statistics of Communication Frequencies by Years Experience in School Psychology

Years Experience	*n*	*M & 95% C. I.*	*SD*	*Sk*	*Ku*	*Range*
One to five years	70	2.329 2.017-2.640	1.305	0.852	0.082	1-6
Six to ten years	61	2.557 2.212-2.903	1.348	0.866	0.147	1-6
More than ten years	143	2.685 2.438-2.932	1.494	0.580	-0.689	1-6

Note. The scale of the communication and collaboration frequency score is as follows: 0=Never, 1=One to Four Times a Year, 2=Five to Nine Times a Year, 3=Once a Month, 4=Two to Three Times a Month, 5=Once a Week, 6=More than Once a Week.

Table 22
Descriptive Statistics of Collaboration Frequencies by Years Experience in School Psychology

Years Experience	*n*	*M & 95% C.I.*	*SD*	*Sk*	*Ku*	*Range*
One to five years	80	1.500 1.200-1.800	1.350	0.855	0.348	0-6
Six to ten years	65	1.984 1.607-2.363	1.526	0.490	-0.716	0-5
More than ten years	151	2.040 1.777-2.303	1.637	0.555	-0.537	0-6

Note. The scale of the communication and collaboration frequency score is as follows: 0=Never, 1=One to Four Times a Year, 2=Five to Nine Times a Year, 3=Once a Month, 4=Two to Three Times a Month, 5=Once a Week, 6=More than Once a Week.

Analysis of variance. In order to determine if the frequency of communication and collaboration with CBMHPs differs reliably depending on the years of experience of the school psychologist, an ANOVA and a Welch's version of an ANOVA were conducted as previously described. Significant results were not obtained when comparing the differences in communication frequencies for either ANOVAs. However, significant results were obtained when comparing the differences of collaboration frequencies for both the ANOVA and the Welch's version. In other words, school psychologists' years of experience did not seem to have a significant effect on school psychologists' frequency of communication with CBMHPs but this did appear to have a significant effect on the frequency of collaboration. Therefore, a third ANOVA examining differences in collaboration frequencies between groups was conducted controlling for the other professional characteristic variables in order to ensure that the significant findings were not the result of an interrelationship between predictor variables. However, significant results were not obtained for this ANOVA suggesting that the

significant results previously obtained in the ANOVA and Welch's ANOVA may be explained by a relationship between years experience and the other professional characteristic variables rather than a relationship between years experience and collaboration frequency. Therefore, a follow-up Tukey test was not conducted. Summaries of the results of the ANOVAs, the Welch's ANOVAs, and the ANOVA controlling for other factors are presented in Tables 23 and 24.

Table 23
ANOVA Summary Table for Frequency of Communication by Years Experience

		ANOVA			*Welch's ANOVA*		
Variable	*n*	*df*	*F*	*p*	*df*	*F*	*p*
Years of Experience	273	2	1.49	0.23	2	1.59	0.21
Error		271			142		

*p<.05

Table 24
ANOVA Summary Table for Frequency of Collaboration by Years Experience

		ANOVA			*Welch's ANOVA*			*ANOVA controlling for other factors*		
Variable	*n*	*df*	*F*	*p*	*df*	*F*	*p*	*df*	*F*	*p*
Years of Experience	295	2	3.40	0.0348*	2	3.94	0.0215*	2	1.21	0.300
Error		293			156			269		

*p<.05

Question 5d. *Does the frequency of communication and collaboration between school psychologists and community-based mental health professionals relate to primary role of the school psychologist?* To address this research question, participants were sorted into subgroups based on the primary professional role, which were reported on item 17. The distributions of communication and collaboration frequency scores were examined separately for school psychologists whose primary roles are (1) special education evaluations and reevaluations/504 Plan development, (2) intervention planning and implementation, (3) student-focused or organization/system-focused consultation, and (4) delivery of professional development for school staff and/or presentations for parents. A summary of descriptive statistics for each group is provided in Tables 25 and 26. Most respondents (approximately 73%) reported their primary role as conducting special education evaluations and 504 Plan development.

Far fewer respondents reported their primary role as intervention planning and implementation (approximately 15%) and student-focused or organization/system-focused consultation (approximately 10%). Fewest respondents (approximately 1%) reported their primary role as the delivery of professional development for school staff and/or presentations for parents.

Table 25
Descriptive Statistics of Communication Frequencies by Primary Role of the School Psychologist

Primary Role	*n*	*M* & 95% C.I.	*SD*	*Sk*	*Ku*	*Range*
Special education evaluations/504 Plan development	201	2.448 2.255-2.641	1.389	0.811	-0.219	1-6
Intervention planning and implementation	42	2.548 2.111-2.984	1.400	0.765	-0.113	1-6
Student-focused or organization/system-focused consultation	28	3.321 2.804-3.839	1.335	0.263	-0.381	1-6
Delivery of professional development	3	3.667 -2.585-9.918	2.517	-0.586	.	1-6

Note. The scale of the communication and collaboration frequency score is as follows: 0=Never, 1=One to Four Times a Year, 2=Five to Nine Times a Year, 3=Once a Month, 4=Two to Three Times a Month, 5=Once a Week, 6=More than Once a Week.

Table 26
Descriptive Statistics of Collaboration Frequencies by Primary Role of the School Psychologist

Primary Role	*n*	*M* & 95% C.I.	*SD*	*Sk*	*Ku*	*Range*
Special education evaluations/504 Plan development	218	1.780 1.572-1.988	1.560	0.755	-0.163	0-6
Intervention planning and implementation	46	1.696 1.305-2.086	1.314	0.596	-0.443	0-5
Student-focused or organization/system-focused consultation	29	2.862 2.337-3.388	1.382	-0.259	-0.847	1-5
Delivery of professional development	3	2.667 -4.922-10.256	3.056	0.935	.	1-6

Note. The scale of the communication and collaboration frequency score is as follows: 0=Never, 1=One to Four Times a Year, 2=Five to Nine Times a Year, 3=Once a Month, 4=Two to Three Times a Month, 5=Once a Week, 6=More than Once a Week.

Analysis of variance. In order to determine if the frequency of communication and collaboration with CBMHPs differs reliably depending on the primary role of the school psychologist, differences in mean scores between groups were compared by conducting a one-way ANOVA and a one-way version of Welch's ANOVA for the purposes previously described. Significant results were not obtained when comparing the differences in communication frequencies for either ANOVAs. However, significant

results were obtained when comparing the differences of collaboration frequencies for both the ANOVA and Welch's version. In other words, school psychologists primary professional role did not seem to have a significant effect on school psychologists' frequency of communication with CBMHPs but this did appear to have a significant effect on the frequency of collaboration. Therefore, a third ANOVA examining differences in collaboration frequencies between groups was conducted controlling for the other professional characteristic variables in order to ensure that the significant findings were not the result of an interrelationship between predictor variables. Again, significant results were obtained. Summaries of the results of the ANOVAs, the Welch's ANOVAs, and the ANOVA controlling for other factors are presented in Tables 27 and 28.

Table 27
ANOVA Summary Table for Frequency of Communication by Professional Role

		ANOVA			*Welch's ANOVA*		
Variable	*n*	*df*	*F*	*p*	*df*	*F*	*p*
Professional Role	273	3	3.83	0.0103*	3	3.20	0.08
Error		270			9		

*p<.05

Table 28
ANOVA Summary Table for Frequency of Collaboration by Professional Role

		ANOVA			*Welch's ANOVA*			*ANOVA controlling for other factors*		
Variable	*n*	*df*	*F*	*p*	*df*	*F*	*p*	*df*	*F*	*p*
Professional Role	295	3	4.83	0.0027*	3	4.85	0.0272*	3	4.58	0.0038*
Error		292			9			269		

*p<.05

Follow-up tests for collaboration frequency. Cohen's η^2 was calculated to be .05, indicating a small effect of collaboration frequencies based on years of experience of the school psychologist (Cohen, 1992). The results of the one-way ANOVA [F(3, 292)= 4.83, p<0.0027], Welch's version of the ANOVA [F(3, 9)=4.85, p=0.0272], and the ANOVA controlling for other factors [F(3, 269)= 4.58, p=0.0038] each suggest rejection of the null hypothesis and indicate that at least one pair of population group means differ. A follow-up Tukey test of all pairwise comparisons was conducted and the mean

differences and confidence intervals around these differences are provided in Table 29. Examination of Table 29 shows that two pairs of population group collaboration frequency means differed. First, school psychologists whose primary professional role consisted of engaging in either student-focused or system-focused consultation collaborated significantly more frequently with CBMHPs than those whose primary role consisted of engaging in special education evaluation and 504 Plan development. Specifically, the mean collaboration frequency score of school psychologists whose primary role was consultation was 1.08 points higher than that of school psychologists whose primary role was to conduct special education evaluations and to develop 504 Plans. Second, school psychologists whose primary professional role consisted of engaging in consultation collaborated significantly more frequently with CBMHPs than those whose primary role consisted of engaging in intervention planning and implementation. Specifically, the mean collaboration frequency score of school psychologists whose primary role was consultation was 1.17 points higher than that of school psychologists whose primary role was to plan and implement interventions.

Table 29
Pairwise Primary Role Comparisons of Collaboration Frequency Scores

Comparison	*Mean Difference*	*95% Tukey CI*
Intervention planning and implementation- Special education evaluations/504 Plan development	-0.084	0.723-0.554
Student-focused or organization/system-focused consultation- Special education evaluations/504 Plan development	1.082*	0.304-1.860
Delivery of professional development- Special education evaluations/504 Plan development	0.887	-1.401-3.174
Student-focused or organization/system-focused consultation- Intervention planning and implementation	1.166*	0.233-2.100
Delivery of professional development- Intervention planning and implementation	0.971	-1.374-3.316
Delivery of professional development- Student-focused or organization/system-focused consultation	-0.195	-2.582-2.191

*p<.05

Summary of research question 5 findings. Numerous statistical analyses were conducted in order to answer this research question. Specifically, an ANOVA and a Welch's version of the ANOVA were used to compare differences in communication and collaboration frequencies as they relate to a variety of professional characteristics (i.e., the graduate and ongoing training, the years experience, and the primary professional role of the school psychologist). When significant results were obtained for these first two ANOVAs, a third ANOVA was conducted controlling for other professional characteristics. In sum, there were three patterns of significant results obtained: 1) some variables examined resulted in significance for all ANOVAs conducted (i.e., the ANOVA, Welch's version, and the ANOVA controlling for other professional characteristics); 2) some variables examined resulted in significance only for the ANOVA and the Welch's ANOVA; 3) still other variables did not result in any significant findings. Table 30 summarizes the pattern of significant results for all professional characteristics examined.

Table 30
Summary of Significant ANOVA Results for Each Variable

		ANOVA	Welch's ANOVA	ANOVA controlling for other factors	Significant results not obtained
Communication	Graduate training				✓
	Ongoing training	✓	✓	✓	
	Years experience				✓
	Primary role				✓
Collaboration	Graduate training				✓
	Ongoing training	✓	✓	✓	
	Years experience	✓	✓		
	Primary role	✓	✓	✓	

Research Question 6

Does the frequency of communication and collaboration between school psychologists and community-based mental health professionals relate to the school characteristics of the school psychologist? This research question was addressed using similar analyses and procedures as those used to address research question 5. First,

participants were sorted into subgroups based on a variety of school characteristics reported on items16, 12, 13, and 24 in order to conduct 8 one-way ANOVAs for each variable of interest. The distributions of communication and collaboration frequency scores, items 2 and 5, respectively, were examined separately for school psychologists within each subgroup. For the purpose of analysis, communication and collaboration frequencies are represented by the following values: 0=Never, 1=One to Four Times a Year, 2=Five to Nine Times a Year, 3=Once a Month, 4=Two to Three Times a Month, 5=Once a Week, 6=More than Once a Week.

The data were screened for violations of independence, equal variances, and normality. For each ANOVA conducted, the assumption of independence is supported by the fact that school psychologists completed the survey independently. Despite the fact that distributions deviated from normality, the ANOVAs were considered to be robust to a violation of the normality assumption based on a sufficiently large sample size. While examining for normality, the data were screened for outliers but none were identified (i.e., scores did not fall outside of the 0-6 rating scale range). All groups had unequal variances. For the student socio-economic status variable, it was assumed that the unequal variance violations made the analyses more conservative because the larger groups tended to have larger variances (Stevens, 2007). However, for the number of students served, number of schools served, and the community type, the larger groups had the smaller variances and the smaller groups had the larger variances, making the ANOVA somewhat liberal. Therefore, for these analyses, the Welch version of the ANOVA was also conducted to guard against a violation of the equal variances assumption.

Also, prior to conducting the one-way ANOVAs, the data were checked to make sure that the variables were not related. Although interrelationships among predictors were found, the degree of relationship was relatively small. Therefore, the analysis plan

involved conducting another ANOVA controlling for school characteristics other than that of interest whenever the first two ANOVAs resulted in significance; however, since no significant results were obtained for the ANOVA or Welch's ANOVA follow-up, ANOVAs controlling for other factors were not conducted. The following sections describe the findings from the analyses conducted to address this research question.

Question 6a. *Does the frequency of communication and collaboration between school psychologists and community-based mental health professionals relate to the socio-economic status of the student population served by the school psychologist?* To address this research question, participants were sorted into subgroups based on the socio-economic status of the students they serve (i.e., whether they serve no Title 1 schools or at least one Title 1 school) which were reported on item 24. The distributions of communication and collaboration frequency scores were examined separately for school psychologists who (1) serve no Title 1 schools or (2) those who serve at least one Title 1 school. A summary of descriptive statistics for each group is provided in Tables 31 and 32. Approximately 71% of respondents serve at least one Title 1 school and 29% of respondents did not serve any Title 1 schools.

Table 31
Descriptive Statistics of Communication Frequencies by SES of Student Population

SES of Student Population	*n*	*M & 95% C.I.*	*SD*	*Sk*	*Ku*	*Range*
No Title 1 schools	76	2.711 2.394-3.027	1.38	0.602	-0.303	1-6
At least one Title 1 school	183	2.492 2.266-2.698	1.414	0.766	-0.316	1-6

Note. The scale of the communication and collaboration frequency score is as follows: 0=Never, 1=One to Four Times a Year, 2=Five to Nine Times a Year, 3=Once a Month, 4=Two to Three Times a Month, 5=Once a Week, 6=More than Once a Week.

Table 32
Descriptive Statistics of Collaboration Frequencies by SES of Student Population

SES of Student Population	*n*	*M & 95% C.I.*	*SD*	*Sk*	*Ku*	*Range*
No Title 1 schools	83	2.004 1.711-2.360	1.485	0.532	-0.418	0-6
At least one Title 1 school	196	1.806 1.591-2.022	1.530	0.678	-0.288	0-6

Note. The scale of the communication and collaboration frequency score is as follows: 0=Never, 1=One to Four Times a Year, 2=Five to Nine Times a Year, 3=Once a Month, 4=Two to Three Times a Month, 5=Once a Week, 6=More than Once a Week.

Analysis of variance. In order to determine if the frequency of communication and collaboration with CBMHPs differs reliably depending on the socio-economic status of the students served, differences in mean scores between groups were compared by conducting a one-way ANOVA for communication and collaboration frequencies. For this variable, Welch's version of the ANOVA was not conducted because it was assumed that the unequal variance violations made the ANOVA more conservative as the larger groups tended to have larger variances. Significant results were not obtained. In other words, the socio-economic status of the students served did not seem to have a significant effect on school psychologist's frequency of communication or collaboration with CBMHPs. A summary of the ANOVA results is presented in Table 33 and 34.

Table 33
ANOVA Summary Table for Frequency of Communication by SES

Variable	*n*	*df*	*F*	*p*
Socio-economic status of students served	258	1	1.30	0.26
Error		257		

*p<.05

Table 34
ANOVA Summary Table for Frequency of Collaboration by SES

Variable	*n*	*df*	*F*	*p*
Socio-economic status of students served	278	1	1.34	0.25
Error		277		

*p<.05

Question 6b. *Does the frequency of communication and collaboration between school psychologists and community-based mental health professionals relate to the number of students served by the school psychologist?* To address this research question, participants were sorted into subgroups based on number of students served by the school psychologist (e.g., <500, 500-999, 1000-1,500, >1,500) reported on item 16. The distributions of communication and collaboration frequency scores were examined separately for school psychologists who (1) serve less than 500 students, (2) serve between 500 and 999 students, and (3) serve between 1,000 and 1,500 students,

and those who serve more than 1,500 students. A summary of descriptive statistics for each group is provided in Tables 35 and 36. Most respondents (approximately 29%) served between 500 and 999 students, closely followed by approximately 28% of respondents who served less than 500 students and approximately twenty-five percent of respondents who served more than 1,500 students. Fewest respondents (approximately 18%) served between 1,000 and 1,500 students.

Table 35
Descriptive Statistics of Communication Frequencies by Number of Students Served

Number of Students Served	*n*	*M* & 95% C.I.	*SD*	*Sk*	*Ku*	*Range*
Less than 500 students	78	2.474 2.158-2.791	1.402	0.982	0.172	1-6
Between 500 and 999 students	79	2.494 2.169-2.818	1.449	0.610	-0.680	1-6
Between 1,000 and 1,500 students	48	2.625 2.182-3.068	1.525	0.899	-0.096	1-6
More than 1,500 students	69	2.710 2.388-3.032	1.341	0.402	-0.650	1-6

Note. The scale of the communication and collaboration frequency score is as follows: 0=Never, 1=One to Four Times a Year, 2=Five to Nine Times a Year, 3=Once a Month, 4=Two to Three Times a Month, 5=Once a Week, 6=More than Once a Week.

Table 36
Descriptive Statistics of Collaboration Frequencies by Number of Students Served

Number of Students Served	*n*	*M* & 95% C.I.	*SD*	*Sk*	*Ku*	*Range*
Less than 500 students	87	1.747 1.423-2.071	1.519	0.808	-0.222	0-6
Between 500 and 999 students	85	1.906 1.567-2.245	1.571	0.461	-0.766	0-6
Between 1,000 and 1,500 students	51	1.961 1.514-2.407	1.587	0.786	0.198	0-6
More than 1,500 students	73	1.959 1.593-2.325	1.567	0.582	-0.315	0-6

Note. The scale of the communication and collaboration frequency score is as follows: 0=Never, 1=One to Four Times a Year, 2=Five to Nine Times a Year, 3=Once a Month, 4=Two to Three Times a Month, 5=Once a Week, 6=More than Once a Week.

Analysis of variance. In order to determine if the frequency of communication and collaboration with CBMHPs differs reliably depending on the number of students served, differences in mean scores between groups were compared by conducting a one-way ANOVA and a one-way version of Welch's ANOVA for communication and collaboration frequencies. Welch's version of the ANOVA was conducted due to the violation of equal variances. Significant results were not obtained for either the ANOVA or Welch's version. In other words, the number of students served by the school

psychologist did not seem to have a significant effect on school psychologist's frequency of communication or collaboration with CBMHPs. A summary of the ANOVA and Welch's ANOVA results is presented in Table 37 and 38.

Table 37
ANOVA Summary Table for Frequency of Communication by Number of Students Served

		ANOVA			*Welch's ANOVA*		
Variable	*n*	*df*	*F*	*p*	*df*	*F*	*p*
Number of students served	273	3	0.44	0.73	3	0.46	0.71
Error		270			138		

*p<.05

Table 38
ANOVA Summary Table for Frequency of Collaboration by Number of Students Served

		ANOVA			*Welch's ANOVA*		
Variable	*n*	*df*	*F*	*p*	*df*	*F*	*p*
Number of students served	295	3	0.33	0.81	3	0.33	0.98
Error		292			149		

*p<.05

Question 6c. *Does the frequency of communication and collaboration between school psychologists and community-based mental health professionals relate to the number of schools served by the school psychologist?* To address this research question, participants were sorted into subgroups based on number of schools served by the school psychologist (e.g., 1-2, 3-4, 5-6, and more than 6 schools) reported on item 25. The distributions of communication and collaboration frequency scores were examined separately for school psychologists who serve (1) one to two schools, (2) three to four schools, (3) five to six schools, and (4) more than 6 schools. A summary of descriptive statistics for each group is provided in Tables 39 and 40. Most respondents (approximately 61%) served one to two schools during the 2011-2012 school year, approximately 22% served three to four schools, 9% served more than six schools, and 8% served five to six schools.

Table 39
Descriptive Statistics of Communication Frequencies by Number of Schools Served

Number of Schools Served	*n*	*M* & 95% C.I.	*SD*	*Sk*	*Ku*	*Range*
One to two schools	158	2.620	1.452	0.686	-0.442	1-6
		2.392-2.848				
Three to four schools	56	2.375	1.356	0.956	0.219	1-6
		2.012-2.738				
Five to six schools	21	2.381	1.360	1.070	0.870	0-6
		1.762-3.000				
More than six schools	24	2.708	1.268	-0.095	-1.265	1-5
		2.173-3.244				

Note. The scale of the communication and collaboration frequency score is as follows: 0=Never, 1=One to Four Times a Year, 2=Five to Nine Times a Year, 3=Once a Month, 4=Two to Three Times a Month, 5=Once a Week, 6=More than Once a Week.

Table 40
Descriptive Statistics of Collaboration Frequencies by Number of Schools Served

Number of Schools Served	*n*	*M* & 95% C.I.	*SD*	*Sk*	*Ku*	*Range*
One to two schools	169	1.982	1.556	0.557	-0.545	0-6
		1.746-2.219				
Three to four schools	61	1.607	1.520	0.969	0.423	0-6
		1.217-1.996				
Five to six schools	23	1.696	1.460	0.968	0.654	0-5
		1.064-2.327				
More than six schools	26	1.962	1.280	-0.171	-0.832	0-4
		1.445-2.479				

Note. The scale of the communication and collaboration frequency score is as follows: 0=Never, 1=One to Four Times a Year, 2=Five to Nine Times a Year, 3=Once a Month, 4=Two to Three Times a Month, 5=Once a Week, 6=More than Once a Week.

Analysis of variance. In order to determine if the frequency of communication and collaboration with CBMHPs differs reliably depending on the number of schools served by the school psychologist, differences in mean scores between groups were compared by conducting a one-way ANOVA and a one-way version of Welch's ANOVA for communication and collaboration frequencies. Significant results were not obtained for either the ANOVA or Welch's version. In other words, the number of schools served by the school psychologist did not seem to have a significant effect on school psychologist's frequency of communication or collaboration with CBMHPs. A summary of the ANOVA and Welch's ANOVA results is presented in Table 41 and 42.

Table 41
ANOVA Summary Table for Frequency of Communication by Number of Schools Served

		ANOVA			*Welch's ANOVA*		
Variable	*n*	*df*	*F*	*p*	*df*	*F*	*p*
Number of schools served	258	3	0.62	0.60	3	0.65	0.59
Error		255			57		

*p<.05

Table 42
ANOVA Summary Table for Frequency of Collaboration by Number of Schools Served

		ANOVA			*Welch's ANOVA*		
Variable	*n*	*df*	*F*	*p*	*df*	*F*	*p*
Number of schools served	278	3	1.05	0.37	3	1.04	0.38
Error		275			63		

*p<.05

Question 6d. *Does the frequency of communication and collaboration between school psychologists and community-based mental health professionals relate to the type of community where the majority of the students served by the school psychologist reside?* To address this research question, participants were sorted into subgroups based on the type of community where the majority of their students reside (i.e., urban, suburban, rural) reported on item 22. The distributions of communication and collaboration frequency scores were examined separately for school psychologists who serve the majority of students from (1) urban communities, (2) suburban communities, and (3) rural communities. A summary of descriptive statistics for each group is provided in Tables 43 and 44. Most respondents (approximately 50%) served students who resided in suburban communities while approximately 26% served students who resided in urban communities and 24% served students who resided in rural communities during the 2011-2012 school year.

Table 43
Descriptive Statistics of Communication Frequencies by Community Type

Community Type	*n*	*M & 95% C.I.*	*SD*	*Sk*	*Ku*	*Range*
Urban	66	2.576 2.223-2.929	1.436	0.662	-0.413	1-6
Suburban	130	2.562 2.316-2.807	1.414	0.750	-0.251	1-6
Rural	63	2.523 2.177-2.871	1.378	0.694	-0.390	1-6

Note. The scale of the communication and collaboration frequency score is as follows: 0=Never, 1=One to Four Times a Year, 2=Five to Nine Times a Year, 3=Once a Month, 4=Two to Three Times a Month, 5=Once a Week, 6=More than Once a Week.

Table 44
Descriptive Statistics of Collaboration Frequencies by Community Type

Community Type	*n*	*M 95% C.I*	*SD*	*Sk*	*Ku*	*Range*
Urban	71	1.944 1.569-2.319	1.585	0.516	-0.585	0-6
Suburban	140	1.843 1.585-2.101	1.542	0.650	-0.375	0-6
Rural	68	1.868 1.526-2.210	1.413	0.732	0.151	0-6

Note. The scale of the communication and collaboration frequency score is as follows: 0=Never, 1=One to Four Times a Year, 2=Five to Nine Times a Year, 3=Once a Month, 4=Two to Three Times a Month, 5=Once a Week, 6=More than Once a Week.

Analysis of variance. In order to determine if the frequency of communication and collaboration with CBMHPs differs reliably depending on the type of community where the majority of students reside differences in mean communication and collaboration frequency scores between groups were compared by using procedures previously described (i.e., by conducting a one-way ANOVA and a one-way version of Welch's ANOVA). Again, significant results were not obtained for either the ANOVA or Welch's version indicating that type of community where the majority of students served by the school psychologist reside did not seem to have a significant effect on school psychologists' frequency of communication or collaboration with CBMHPs. A summary of the ANOVA and Welch's ANOVA results is presented in Table 45 and 46.

Table 45
ANOVA Summary Table for Frequency of Communication by Community Type

		ANOVA			*Welch's ANOVA*		
Variable	*n*	*df*	*F*	*p*	*df*	*F*	*p*
Community type of students served** Error	258	2 256	0.02	0.98	2 136	0.02	0.98

*p<.05

Table 46
ANOVA Summary Table for Frequency of Collaboration by Community Type

		ANOVA			*Welch's ANOVA*		
Variable	*n*	*df*	*F*	*p*	*df*	*F*	*p*
Community type of students served**	278	2	0.10	0.90	2	0.10	0.91
Error		276			148		

*p<.05

Summary of research question 6 findings. Numerous statistical analyses were conducted in order to answer this research question. Specifically, an ANOVA and a Welch's version of the ANOVA were used to compare differences in communication and collaboration frequencies as they relate to a variety of school characteristics of the school psychologist (i.e., the socio-economic status of the students served by the school psychologist, the number of students served and the number of schools served by the school psychologist, and the type of community in which the majority of students served by the school psychologist reside). However, none of the school characteristic variables examined resulted in significant findings.

Research Question 7

Is the frequency of communication and collaboration between school psychologists and community-based mental health professionals predicted by the percentage of students served by the school psychologist with externalizing and internalizing problems? To address this research question, responses to item 18 which asked respondents to "Please estimate the percentage of students you currently serve with internalizing and externalizing problems" were examined. Five responses were omitted from data analysis for the mental health problem variable because responses exceeded 100. Because percentages cannot exceed 100 these responses indicated that the question was misinterpreted by the respondent. Descriptive statistics are presented in Table 47. The percentage of students with each disorder approximates estimates of the prevalence of each disorder in the pediatric population.

Table 47
Descriptive Statistics of the Percentage of Students Served with a Mental Health Problem

	n	*M*	*SD*	*Sk*	*Ku*	*Range*
Mental Health Problem (diagnosed or undiagnosed)	278	18.158	17.508	2.272	6.326	1-100
Internalizing Problems	281	35.548	22.812	0.317	-0.666	0-98
Externalizing Problems	280	48.657	26.562	-0.295	-0.947	0-100

To address the collaboration component of this question, frequency data were examined on item 5. Correlations between predictor variables are presented in Table 48. These data do not suggest collinearity.

Table 48
Correlations between Internalizing Disorders, Externalizing Disorders, and Collaboration Frequency

	Internalizing	Externalizing	Collaboration Frequency
Internalizing	1.000	-	-
Externalizing	-0.106	1.000	-
Collaboration Frequency	0.036	0.023	1.000

*p<.05

A multiple regression analysis was conducted predicting collaboration frequency scores from the percentage of students school psychologists serve with internalizing and externalizing mental health problems. The obtained R^2 value was 0.0016 suggesting about 0.16% of the variance in collaboration frequency scores was accountable by the set of predictors. This was not statistically significant F(2, 277)=.22, *p*=.81. The adjusted R^2 value was -0.0057. The root mean square error was 1.526, which indicated that predictions of collaboration frequencies may be different from the true values by about 1.526 points. The regression data suggest that neither predictor is significantly related to collaboration frequency. These data are presented in Table 49.

Table 49
Collaboration Regression Data

	Parameter estimates	Standard error	*t*-values	*p*-values	B-values *(standardized estimate)*	Uniqueness values (squared semipartial)
Intercept	1.707	0.250	6.83	<.0001	-	-
% Internalizing	0.002	0.004	0.53	0.5932	0.032	0.0010
% Externalizing	0.002	0.003	0.44	0.6628	0.026	0.0007

Note. R^2 is not significant.

The residuals were screened for outliers and possible violations of the assumptions underlying regression. Outliers were screened for using studentized

residuals and Cook's D. The most extreme studentized residual was 2.824 and the most extreme Cook's D value was 0.053, which suggests that it did not have undo influence on the regression analysis. An examination of a scatterplot of the residuals with the predicted values revealed no violations of the linearity or homoscedasticity assumptions, and the distribution of the residuals was found to be normal (sk=0.644, ku=-0.333).

Summary

Findings of this study indicate that almost all school psychologists communicated and approximately three quarters of school psychologists collaborated with CBMHPs at least once during the 2011-2012 school year. Although school psychologists most commonly communicate and collaborate with community-based counselors and therapists, they communicate and collaborate with neurologists the least. School psychologists cited obtaining and providing information as the most common purposes for communicating with CBMHPs. Despite some school psychologists reporting that they collaborate with CBMHPs for the purposes of developing coordinated interventions, progress monitoring, and evaluating and modifying interventions, most do not collaborate for these purposes.

Findings from this study indicate that school psychologists perceive a number of benefits and barriers to collaboration with CBMHPs. Specifically, improved student mental and behavioral health, as well as improved academic outcomes were benefits endorsed most frequently. Also, having the opportunity for cross-disciplinary problem solving, assessing student progress across settings, increasing parent involvement, and having the opportunity to share resources are benefits that were also endorsed by some school psychologists. Although benefits of collaboration were widely endorsed, a very small minority of respondents indicated that there are no benefits. Most school psychologists indicated that barriers to collaboration include insufficient time to

collaborate and inaccessibility of CBMHPs. Additional barriers included obtaining parent consent to collaborate and the high rate of CBMHP turnover.

Regarding group differences in communication and collaboration frequency scores, three significant results were obtained. The first significant results obtained indicate that there is a significant difference in communication frequency depending on the number of hours of professional development related to mental health in youth that school psychologists received in the 2011-2012 school year. The second significant results obtained suggest that there was a significant difference in collaboration frequency depending on the number of hours of professional development related to mental health in youth that school psychologists received in the 2011-2012 school year. The final significant results obtained indicated that there is a significant difference in collaboration frequency depending on the primary professional role of the school psychologist.

No significant group differences of communication or collaboration frequencies were found for the highest degree earned by the school psychologist, the years experience of the school psychologist, the socio-economic status of the student population, the number of students served by the school psychologist, the number of schools served by the school psychologist, or the community type where the majority of students reside. Furthermore, no significant group differences of communication frequency were found related to the primary role of the school psychologist. Significant results were not obtained for predicting collaboration frequency by the percentage of students with internalizing and externalizing problems.

Chapter Five

Discussion

This study explored the communication and collaboration practices of school psychologists with CBMHPs on behalf of students with mental health problems. Specifically, data were obtained regarding the purposes for communicating with CBMHPs, school psychologists' perceptions of the benefits and barriers to collaboration, the frequency of communication and collaboration between school psychologists and CBMHPs, how these frequencies relate to specific professional and school characteristic variables, and whether they are predicted by the percentage of students served with internalizing and externalizing mental health problems. Within this chapter the results of the current study are discussed and compared to the findings from a pilot study (Walsh, 2011). First, the findings from each research question will be summarized and discussed in light of previous findings and then a discussion of strategies to promote collaboration, limitations, and future directions will follow.

Research Questions 1 & 3: Frequency and Purpose of Communication and Collaboration

Findings from this study indicate that communication with CBMHPs occurs more frequently and by more respondents than collaboration. Despite findings from this study indicating that all school psychology respondents communicated and more than three-quarters collaborated with CBMHPs at least once during the 2011-2012 school year, rates of communication and collaboration are very low considering the substantial numbers of students that respondents serve (i.e., ~42% of school psychologists reported

serving more than 1,000 students during the 2011-2012 school year). Specifically, this study found that approximately 61% of respondents communicated fewer than 9 times per year, almost 50% of respondents collaborated fewer than four times per year, and 33% did not collaborate with CBMHPs at all during the 2011-2012 school year. These findings mirror those from the Walsh (2011) study, which suggested that almost all school psychologist surveyed communicated and two-thirds collaborated with CBMHPs at least once during the 2010-2011 school year; however, rates of communication and collaboration were very low tending to only occur between one and four times a year.

With respect to the specific purposes of communication with CBMHPs, the findings from the current study indicate that during the 2011-2012 school year, most respondents communicated with CBMHPs for the purpose of providing (70%) or obtaining (82%) information. However, far fewer respondents collaborated with CBMHPs for the purpose of developing coordinated interventions (46%), progress monitoring (37%), and evaluating or modifying interventions (29% and 33%, respectively). These findings are consistent with the interdisciplinary collaboration literature indicating that although there are many benefits of collaboration, it occurs infrequently given the considerable number of students each school psychologist typically serves (Shaw & Woo, 2008).

There are many factors that may contribute to the low frequency of communication and collaboration reported in this study. These low rates may be due to the lack of ongoing training on the topic of youth mental health received by school psychologists. This explanation is supported by the findings from the current study as well as those from the Walsh (2011) study identifying significantly higher rates of communication and collaboration for school psychologists who received more professional development on the topic of youth mental health than those who received fewer hours or no professional development on this topic. The extant literature is

consistent with these findings indicating that the lack of training is an obstacle to collaborative practices (Carlson, 2008). Beyond the simple explanation of a lack of training, it is possible that the type and quality of professional development available to school psychologists influences the frequency of their communication and collaboration with CBMHPs. Specifically, ongoing job-embedded professional development where school psychologists are provided structured learning opportunities that are grounded in their day-to-day practices as, described by Croft and colleagues (2010), has the potential to result in improved systems of collaboration between school psychologists and CBMHPs.

Another possible explanation for the low frequency of communication and collaboration between school psychologists and CBMHPs may be that these rates vary based on the school psychologist's perceptions of the benefits of collaboration. This suggestion is supported indirectly by social psychology research indicating that when social norms are activated (e.g., an individual's perception about the benefits of collaboration) favorable conduct may result (e.g., collaboration; Cialdini, 2003). However, an investigation of this nature was beyond the scope of the current study. Therefore, future research is needed to explore the specific relationship between school psychologists' perceived benefits and the rates of collaboration. Research on the degree to which school psychologists' perceptions of the benefits of communication and collaboration with CBMHPs serve as moderators between the barriers to communication and collaboration and the frequency with which they occur is also warranted.

Another potential explanation for the low rates of communication and collaboration is that schools and school districts may not have institutionalized systems of school-community collaboration (Center for Mental Health in Schools at UCLA, 2011). This explanation is similar to other findings indicating that professionals working in organizations with an established record of collaboration and institutionalized systems of

support were more likely to engage in collaborative practices than those with haphazard systems collaboration (Drabble, 2007). Again, future research is needed in order to examine whether the frequency of communication and collaboration with CBMHPs differs based on the presence of established infrastructure for collaboration in schools and school districts.

Finally, another plausible explanation supported by the data collected in both the current study as well as the Walsh (2011) study is that there are systemic barriers to communication and collaboration that prevent this type of cross-disciplinary collaboration. Obstacles to communication and collaboration will be discussed in detail later in this chapter.

Research Question 2: Types of CBMHPs with whom School Psychologists Communicate and Collaborate

Data indicate that respondents communicate and collaborate with a wide variety of CBMHPs, including psychiatrists, pediatricians, neurologists, psychologists, social workers, counselors and therapists, and case managers. Specifically, respondents reported communicating (74%) and collaborating (56%) most with community-based counselors and therapists. Also school psychologists reported communicating and collaborating with pediatricians, psychiatrists, psychologists, and case managers, with approximately 50% reporting communication and between 20% and 40% reporting collaboration with these types of CBMHPs. School psychologists reported communicating (26%) and collaborating (10%) with neurologists the least. These data are consistent with the findings from the Walsh (2011) study.

There are a number of possible explanations for why school psychologists are more likely to communicate and collaborate with community-based counselors and therapists as compared to other CBMHPs. First, collaboration between these professionals may be initiated because school psychologists and community-based

counselors/therapists share similar educational and professional training. For example, like school psychologists, community-based counselors/therapists often have pre-service as well as ongoing training in mental health problems in youth, social-emotional/behavioral interventions, an ecological approach to child development, and may even have had training in the importance of and strategies for interdisciplinary collaboration. In order to evaluate this potential explanation additional research is needed. Second, school psychologists and community-based counselors/therapists may be more willing to collaborate with one another because they share common language for discussing mental health problems in youth. This hypothesis is supported by the extant literature suggesting that discipline specific professional terminology may impede interdisciplinary collaboration (Foy & Earls, 2005; Shaw, Clayton, Dodd, & Rigby, 2004). Therefore, those professionals sharing professional terminology may be more likely to communicate and collaborate than those who do not.

Conversely, there are several plausible explanations for the relatively low rates of communication and collaboration between school psychologists and psychiatrists, pediatricians, and neurologists. The professional literature posits that differences in educational and medical diagnostic systems as well as decision-making processes may hinder collaboration (Shaw & Woo, 2008). Current educational models tend to view social-emotional and behavioral problems within an environmental context. However, an underlying assumption of the traditional medical model places heavy emphasis on problems originating within a child (Shaw & Woo, 2008). For instance, it is likely that pediatricians, neurologists, and psychiatrists guided by a traditional medical model may address a child presenting attention problems by evaluating the child for ADHD and prescribing medication. However, practitioners who are guided by an ecological perspective, such as many school psychologists, may react to the same youth by evaluating not only the specific problem behaviors related to attention but also assessing

the environmental factors that may contribute to the presenting problems (e.g., lack of structure in the classroom or home, lack of clear expectations, inconsistent responding to desired and undesired behavior, instructional methods that do not match learning style, etc.). These fundamental differences in approaches to social-emotional and behavior problems in youth may result in frustration when engaging in interdisciplinary communication and collaboration.

Another possible explanation is that psychiatrists, pediatricians, and neurologists may be unaware of school psychologists' training, may not know with whom to communicate, and therefore may not initiate or reciprocate contact with school psychologists. This hypothesis may be indirectly supported by findings from a survey of pediatricians conducted by Bradley-Klug and colleagues (2010) indicating that pediatricians do not know which school professionals with whom to communicate and they lack the awareness of school psychologists' training which may impede communication between pediatricians and school psychologists. Furthermore, it is possible that this finding may apply to partnerships between other medical professionals and school psychologists as well. Additional research is needed to explore this relationship further.

Research Question 4: Perceived Benefits and Barriers to Collaboration

School psychologists cited numerous benefits as a result of collaboration with CBMHPs. Most school psychologists perceive improved student mental health, behavioral, and academic outcomes to be benefits of collaboration with CBMHPs. Between one-quarter and one-half of school psychologists surveyed perceive the opportunity for cross-disciplinary problem solving, assessing student progress across settings, increasing parent involvement, and having the opportunity to share resources to be benefits of collaboration as well. Other benefits reported included avoiding the duplication of services, opportunities for learning different methodology, feeling valued

for the expertise offered, and improved student physical health outcomes. Despite the data indicating that the majority of school psychologists perceive important benefits of collaboration with CBMHPs, almost half of school psychologists surveyed did not engage in such collaboration or did so infrequently.

A number of factors may hinder these interdisciplinary partnerships and contribute to low rates of collaboration between school psychology respondents and CBMHPs. Specifically, approximately half of school psychologists indicated that there is not enough time to collaborate and that CBMHPs are not accessible. Moreover, many school psychologists reported that obtaining parent consent to collaborate and the high rate of CBMHP turnover impede collaboration. These barriers were also cited by respondents in the Walsh (2011) study and are consistent with the extant literature on barriers to interdisciplinary collaboration (Carlson, 2008; Drotar, Palmero, & Barry, 2004; Foy & Earls, 2005; Nastasi, Varjas, Moore, & Bernstein, 2003; Shaw, Clayton, Dodd, & Rigby, 2004; Shaw & Woo, 2008).

School psychologists may not communicate or collaborate frequently with CBMHPs due to a lack of time for collaboration. Considering that many school psychologists serve over 1,000 students, often across multiple schools, they may be overloaded with professional work obligations consuming all of their daytime work hours and even many hours of personal time at night and on the weekends. Due to these demands and the lack of protected time set aside for collaboration within a school psychologist's work day, school psychologists with intentions for collaboration may not collaborate because they run out of time to do so. Policy advocates at the Center for Mental Health in Schools at UCLA (2011) posit that without the provision of systemic supports for initiating and maintaining professional relationships, collaborative efforts may be hindered and future efforts may be impeded. Specifically, allocation of time and resources for collaboration are cited as being extremely important for establishment of

collaborative partnerships.

Furthermore, CBMHPs may be inaccessible to school psychologists due to differences in the work schedules of these professionals. Because the school day begins early, many school psychologists make phone calls in the early morning (e.g., between 7:00 am and 9:00 am) or after school (between 2:00 pm and 5:00 pm). However, CBMHPs may work more traditional work hours of 9:00 am- 5:00 pm. Therefore, CBMHPs may not be available for early morning calls and they may work with clients in the afternoons. Also, CBMHPs may return phone calls in the early evening after school psychologists' workdays have ended. In short, these differences in schedule may not allow for direct contact between school psychologists and CBMHPs. Another reason that CBMHPs may not be accessible to school psychologists is because either the CBMHPs do not share their contact information with school personnel or caregivers of youth being served by CBMHPs do not share the community-based provider's contact information with the school psychologist. Caregivers may be reluctant to disclose this information to school psychologists or other school personnel for fear that an identified mental health problem may result in negative stigma or discrimination for their child.

Another reason school psychologists may not communicate and collaborate with CBMHPs frequently, in spite of the benefits associated with collaboration, is due to difficulty obtaining parental permission to share information with CBMHPs. Specifically, federal laws intended to protect the confidentiality of students and their families (Family Educational Rights and Privacy Act, 2013; FERPA) and patients (Health Information and Portability Accountability Act of 1996; HIPAA) require that caregivers provide written consent for school personnel to provide individual student information to CBMHPs and for CBMHPs to provide patient information to school personnel. Because obtaining parent consent in writing can be difficult, particularly when consent must be given not

only to school personnel but also to CBMHPs, this important privacy protection may have the unintended side effect of hindering interdisciplinary collaboration.

Although the low rates of communication and collaboration may be explained by these obstacles, relationships between communication and collaboration frequencies and barriers were not explored in the current study. Therefore, future research is needed in order to determine which, if any, of the barriers reported relate to communication and collaboration frequencies. As part of this process, it will be important to identify barriers that serve as moderators between school psychologist's perceptions of collaboration benefits and collaboration frequencies.

Research Question 5: Frequency of Collaboration Related to Professional Characteristics of the School Psychologist

Several significant findings were obtained relative to communication and collaboration frequencies as they relate to professional characteristics of the respondents. Simply put, there are significant differences in communication and collaboration frequencies depending on the number of hours of professional development related to mental health in youth that respondents received in the 2011-2012 school year. Also, there is a significant difference in collaboration frequency depending on the primary role of the school psychologist.

Hours of professional development. The current study shows that hours of professional development relates to the frequency of communication between school psychology respondents and CBMHPs. School psychologists who received six to ten hours of professional development communicated more frequently with CBMHPs than those who received one to five hours. In addition to significant group differences in communication frequencies, there is a significant difference in collaboration frequency depending on the number of hours of professional development related to mental health in youth that school psychologists received in the 2011-2012 school year. Specifically,

school psychologists who received six to ten hours of professional development collaborated more frequently with CBMHPs than those who did not receive any professional development on this topic, and more than those who received between one and five hours. These findings reinforce those of the Walsh (2011) study, which found that school psychologists who received more than 10 hours of professional development on this topic communicated more frequently with CBMHPs than those who received no hours of professional development on this topic.

There are several potential explanations for this finding. First, it is possible that through professional development school psychologists have attained a greater understanding of the implications that mental health problems have on child development, which in turn may result in an increased sense of urgency for communication and collaboration. Second, through professional development school psychologists may have become aware of the potential benefits of interdisciplinary collaboration related to serving students with mental health problems, which may increase the frequency of their communication and collaboration practices. Third, school psychologists may have gained strategies for engaging in effective interdisciplinary collaboration and methods for overcoming obstacles to establishing and maintaining interdisciplinary professional relationships.

Despite these findings showing more frequent communication and collaboration for those receiving between 6 and 10 hours of professional development compared to none or even between one and five hours, additional research is needed on the relationship between professional development and communication and collaboration practices of school psychologists. Intuitively, adding more professional development hours should at some point reach a point of diminishing returns, where each additional marginal hour of professional development correlates to smaller and smaller increases in the frequency of communication and collaboration. Additional research is needed to

determine the point of diminishing returns and estimate the marginal benefit of each additional hour of professional development.

Additional research is also needed regarding the causality of this relationship. It is unknown whether receiving more professional development on the topic of youth mental health results in increases in communication and collaboration frequencies or whether higher frequencies of communication and collaboration with CBMHPs leads school psychologists to seek professional development on this topic. It is possible that the relationship between attending more professional development and more frequent communication and collaboration may be mediated by another variable altogether. For instance, school psychologists who are interested in the topic of mental health in youth or who value social-emotional wellness may seek out professional development on the topic and may collaborate with CBMHPs more frequently.

Primary role of the school psychologist. There is a significant difference in collaboration frequency depending on the primary professional role of the school psychologist. Respondents whose primary professional role consisted of engaging in either student-focused or system-focused consultation collaborated more frequently with CBMHPs than those whose primary role consisted of engaging in special education evaluation and 504 Plan development, as well as those whose primary role consisted of engaging in intervention planning and implementation. This finding cannot be compared to findings from the Walsh (2011) study as data on this variable were not collected in the pilot study.

One reason that school psychologists who engage in consultation, whether student-focused or system-focused, seem to collaborate more than school psychologists who engage in evaluation and intervention as their primary role may be that a major component of consultation is collaboration. Because consultation typically involves facilitating a problem solving process among key stakeholders (i.e., teachers, parents,

students, school personnel, community-based professionals, etc.) and a key component of effective collaboration is involving key stakeholders, collaboration may be a natural outcome of consultation (Hall & Hord, 2006). Therefore, school psychologists who engage in consultation as their primary role may also have higher rates of collaboration. When considering the possible explanations for these findings it is important to explore further the professional tasks and responsibilities that are associated with each type of professional role. As discussed previously, however, data from the current study cannot determine causality of this relationship. Therefore, additional research is warranted in order to further explore this relationship.

Variables resulting in no significant difference. Group differences in communication frequencies related to the primary role of the school psychologist were not significant. Additionally, no significant group differences in communication or collaboration frequencies were found related to the graduate training or years of experience of the school psychologist.

It is possible that significant results were not obtained because school psychologists' rates of communication and collaboration with CBMHPs does not differ based on these professional characteristics. Alternatively, if the population effect is small then the lack of significance may be due to an insufficient sample size (Gall, Borg, & Gall, 1996). Future research with a larger sample size is warranted to evaluate these relationships further.

Research Question 6: Frequency of Communication and Collaboration Related to School Characteristics of the School Psychologist

None of the relationships between school characteristics and communication and collaboration frequencies examined resulted in significant findings. This finding may simply indicate that school psychologists' rate of communication and collaboration with CBMHPs does not differ based on these school characteristics (socio-economic status

of the students served by the school psychologist, the number of students served by the school psychologist, the number of schools served by the school psychologist, and the community type where the majority of students reside). Alternatively, as previously stated it is possible that the population effect is small and the lack of significance is due to an inadequate sample size (Gall et al., 1996). Therefore, future research is needed to evaluate these relationships further.

Research Question 7: Predictors of Collaboration

Significant results were not obtained in the current sample for predicting communication and collaboration frequency by the percentage of students with internalizing and externalizing problems. Examination of non-significant predictors suggests a positive relationship between the number of students served by the school psychologist with internalizing and externalizing problems and more frequent collaboration between school psychologists and CBMHPs. Due to inconsistent response formats yielded in the Walsh (2011) study resulting in the need to make assumptions about the data, this survey item was modified for the current study. Therefore results cannot be compared. A review of the data from the current study revealed that the modification of this item appeared to be effective as consistent response formats were obtained and the percentages of students reported to have mental health problems mirrored prevalence estimates of the general population.

One possible reason collaboration rates were not predicted by the percentage of students served with internalizing and externalizing mental health problems is that the type of mental health problem may not influence school psychologists' rates of collaboration with CBMHPs. However, it is also possible that the percentage of students with internalizing and externalizing disorders does in fact predict school psychologists' collaboration frequency, but only has a small population effect. If this is the case then the sample from the current study may not have been large enough to detect

significance (Gall et al., 1996). As such, additional research is warranted to investigate these relationships further.

Implications for Practice: Strategies to Promote Collaboration between School Psychologists and CBMHPs

Findings from the current study emphasize the need for school psychologists to increase communication and collaboration with CBMHPs. Also, these findings point to a number of strategies which may facilitate this increase in interdisciplinary collaboration efforts. Strategies include creating a multifaceted system-level infrastructure facilitating interdisciplinary collaboration and reducing barriers to collaboration such as allocating time and resources, launching local outreach campaigns to establish professional relationships with CBMHPs, and developing relationships with parents in order to encourage their consent for collaboration.

System-level infrastructure for collaboration. Findings indicate a number of obstacles to interdisciplinary collaboration such as a lack of time and resources for school psychologists to engage in collaborative efforts. As suggested by Policy advocates at the Center for Mental Health in Schools at UCLA (2011), a fundamental strategy in increasing these types of professional partnerships is to provide system-level supports in education that would create an infrastructure including sufficient time and resources for establishing and maintaining professional partnerships between school and community mental health professionals. Hall and Hord (2006) recommend that school change efforts be led by highly motivated and competent leaders and supported by key stakeholders who have a systems perspective and maintain a shared mission, vision, and goals. Consistent with this recommendation, collaborative efforts between school and community mental health professionals should be led and supported by stakeholders who share a mission, vision and goal of integrated school and community mental health efforts. Another essential component for fostering a system of

collaboration involves building the capacity of school psychologists by providing ongoing professional development opportunities on the topic of youth mental health and collaboration.

Leadership. It will be essential that school leaders, including district superintendents, principals, and supervisors of psychological services, value and promote a system-wide mission for integrating mental health efforts. Considering that many school psychologists reported not having enough time to collaborate with CBMHPs, it is important for school leadership and supervisors of psychological services allocate and protect time for school psychologists to engage in collaborative practices (e.g., community outreach, make phone calls, write emails or letters, conduct video conferencing, etc.). School psychologists may not have enough time to collaborate with CBMHPs because of high student-to-school psychologist ratios (Curtis et al., 2002), traditional special education eligibility responsibilities (e.g., assessment, IEP meetings, and report writing; Curtis et al., 2002; Hosp & Reschly, 2002), burden of paperwork or daily meetings, or a lack of time management within the school setting (Curtis et al., 2004). Although additional research is warranted in this area, school administrators and supervisors of psychological services can take immediate steps in order to secure and protect time for the school psychologist to engage in interdisciplinary collaboration. Strategies might include school administrators reducing student-to-school psychologist ratio by hiring additional school psychologists or reducing the number of schools that school psychologists serve (Curtis, et al., 2002) and releasing the school psychologist from other tasks (e.g., bus duty, lunch duty, etc.). Also, it will be important for school leaders to schedule and protect school psychologists' weekly interdisciplinary collaboration time by reminding school personnel, students, and parents that they cannot schedule other meetings or tasks during this time. School psychologists may find it helpful to post a visual reminder (e.g., weekly schedule) or to block off the allocated

collaboration time in their electronic calendar. Additionally, school leaders may want to consider adopting e-health technology (e.g., video conferencing, e-chat, etc.; American Telehealth Association, 2011) and training school-based mental health professionals in their use in order to promote collaborative efforts without having to leave the school building.

Clear vision, mission, and goals for collaboration shared by key stakeholders. It is critical for all stakeholders (e.g., school- and community-based mental health professionals, teachers, administrators, parents, students, state and local politicians and policy-makers, etc.) to share a goal for increasing collaboration between school and community mental health professionals in order to support students with mental health problems. Therefore, district and school leaders must facilitate "buy in" and build consensus among stakeholders for collaboration. Essential in creating an infrastructure for interdisciplinary collaboration is the development and affirmation of a clear vision, mission, and goals for increasing collaborative efforts that is shared among key stakeholders. Furthermore, it is recommended that school leaders publicly state, and periodically review, the goals for collaboration in order to maintain support for collaborative efforts.

Systems perspective. It is critical for school leaders to understand the need for, and the barriers to, system level integrated mental health efforts through collaboration. Because there is a great need for mental health services for youth and school and community resources are scarce, it is vital for leaders to support efficient models of mental health service delivery such as the public health prevention model as described by the U.S. Department of Health and Human Services (1999). The public health prevention model, also referred to as Response to Intervention (RTI) or Multi-Tiered Systems of Support (MTSS) in educational settings, conceptualizes multiple layers of prevention and intervention (i.e., primary, secondary, and tertiary

prevention/intervention), ranging in intensity, to address risk factors which will reduce disorders and promote healthy outcomes (Kazak, 2006; Reschly, 2008; Tilly, 2008). It is recommended that school leaders prioritize this tiered continuum of supports in order to optimize the mental health and well being of youth.

Primary prevention (tier 1) efforts targeting all children and families should include the provision of high-quality behavior and social-emotional preventions (i.e., positive behavior supports) for all students. Secondary prevention/intervention (tier 2), which is more intensive than primary prevention and targeted toward at-risk populations should include small group behavior and social-emotional intervention for youth at risk for developing mental health problems. Tertiary prevention/intervention (tier 3) efforts involve the most intensive level of support, should be provided to children experiencing significant difficulties, and should include individualized intervention for youth experiencing mental health problems (e.g., Cognitive Behavioral Therapy, Applied Behavior Analysis, Parent-Child Interaction Therapy, etc.). The public health prevention model approaches the organization and provision of resources from a systems perspective by offering a continuum of population-focused mental health preventions/interventions resulting in a cost-effective and efficient method of meeting the mental health needs of students in schools.

By implementing an efficient system of mental health service delivery within the school setting, school-based mental health professionals will free-up professional time for interdisciplinary collaboration. Through this model, school psychologists' primary professional role may shift to that of the consultant for problem solving individual student and system level issues rather than of the "tester" for special education placement. Considering that findings from the current study suggest that school psychologists who engage in consultation as their primary role collaborate with CBMHPs more than those whose primary role is to conduct evaluations for special education program planning, the

public health prevention model discussed above has the potential not only to lead to the efficient provision of mental health supports in schools but it may also facilitate collaborative efforts. Nastasi (2003) and Nastasi, Moore, and Varjas (2004) discuss the importance of participatory/partnership-based models of public health in promoting the school psychologist's role as a leader in the provision of mental health services in school settings. An important question for the profession is whether school psychologists are willing and able to assume this leadership role. If not, this represents a lost opportunity for school psychologists to positively impact the overall well-being of children and transition school psychologists from the "tester" role that has defined the profession for decades to more of a leadership/consultant role in providing mental health services to children (Nastasi, 2003; Nastasi et al., 2004).

Building capacity through professional development. Findings from the current study support the need for ongoing professional development on topics related to youth mental health as school psychologists who received more hours of professional development communicated and collaborated more than those who received fewer hours. School psychologists, supervisors of school psychological services, and other educational leaders should advocate for professional development topics specifically related to youth mental health and collaboration with CBMHPs. Professional development should follow a best-practice model outlined by Croft and colleagues (2010), providing educators with learning opportunities that are grounded in their day-to-day practices. Applying this recommendation to increase collaborative efforts of school-based mental health professionals, professional development opportunities might involve providing school psychologists with school specific strategies for engaging in collaboration with CBMHPs and offering one-on-one coaching for implementing these strategies during the school psychologist's allocated collaboration time. In addition to job-embedded professional development opportunities, national and state professional

conferences (e.g., National Association of School Psychologists Annual Convention, Collaborative Family Healthcare Association Annual Convention, etc.) are ideal venues for providing school-based mental health professionals with ongoing training.

In addition to developing a system-level infrastructure for collaboration, other strategies have emerged from the findings of the current study. Specifically, these findings point to actions that individual school psychologists can take including engaging in local and parent outreach initiatives.

Local outreach. Considering that many school psychologists indicated that CBMHPs are inaccessible, it is important for school psychologists to launch a local outreach campaign prior to needing to collaborate on behalf of a student with the goal of determining the most effective method of communication with each community-based professional. Local outreach initiatives might include, but are not limited to, visiting community-clinics in order to make face-to-face introductions, sending introductory materials (e.g., email blasts or mailing information cards) to local agencies, hosting a district-wide mental health meet-and-greet/information session, joining local community-based mental health organizations, and writing about the potential benefits of collaboration for professional journals as well as local publications. During these initial interactions, school psychologists can provide CBMHPs with multiple methods for contacting the school psychologist (e.g., office and cell phone numbers, email, school phone number, etc.) as well as information highlighting the ways that their training can support the community-based efforts. School psychologists can also inquire about the training and work of the CBMHPs and investigate opportunities for collaboration.

Parent outreach. Considering that many school psychologists reported that obtaining parent permission to discuss the student with CBMHPs hinders collaboration, it may be helpful for school psychologists to establish and maintain rapport with parents of the students they serve. When doing so, it is important to consider cultural issues

related to perceptions of education as well as mental health in order to reduce potential barriers to collaboration. Additionally, it may be advantageous to educate parents about the importance and benefits of interdisciplinary collaboration and build trust between parents and school psychologists in order to encourage them to share information related to the mental health and CBMHPs serving their children. Also, in order to address the difficulty obtaining parent permission for collaboration it is suggested that school psychologists keep the required FERPA and HIPAA consent forms for sharing of educational and health information in a convenient and easily accessible location. Thus, when an opportunity for collaboration arises, the school psychologist can immediately begin the process of obtaining parental consent.

Limitations

The small sample size is a significant limitation of this study. During the planning phase of this study it was proposed that the population effect falls somewhere between a small/medium and medium effect. Although 327 usable surveys were returned, which is well within the expected range of responses (i.e., 20%-50% of 1,000 recruited participants would have resulted in 200-500 returned surveys), it is possible that significant results were not obtained in many of the statistical analyses because the population effect is actually small. In fact, according to a power analysis conducted using Cohen's (1988) guidelines for a 4 group ANOVA and for a multiple regression containing 2 predictor variables with a small effect size and an alpha level of 0.05, approximately 1,096 surveys would likely result in adequate power. Also, according to Cohen's (1988) guidelines for a multiple regression containing 2 predictor variables with a small effect size and an alpha level of 0.05, approximately 481 surveys would likely result in adequate power. Therefore, if the population effect is small then a sample of 327 may not have been large enough to obtain significance. In order to maximize the

sample size members from all state organizations that approved this study were emailed surveys and incentives were offered to all participants.

Another significant limitation that relates to the small sample size is the low response rate of this study. During the planning phase of this study it was proposed that a 20% to 50% response rate would be obtained. Despite offering incentives to all recruited participants only a 12% response rate was obtained (i.e., of 3,050 school psychologists recruited for participation in this study 368 surveys were returned and only 327 were usable). This response rate is considerably lower than the proposed rate. If a larger response rate was obtained then it is possible that the sample size may have been large enough for significance to be detected.

Another limitation of this study is the disproportionate geographic representation. Despite requesting participation from 49 states across the US, only 11 provided approval for this study. Furthermore, of the 11 participating state organizations the Northeastern US was disproportionately represented by 5 states. Due to these limitations the results of this study should be interpreted accordingly.

Additionally, this study has several potential limitations that must be considered when interpreting the results. Because this study relies on self-report data from a sample of selected members of state organizations, there is the possibility that the responses provided by participants may not reflect actual communication and collaboration practices. Also, it is possible that respondents misunderstood a question or questions and responded in a manner that does not reflect their actual practices, perceptions, or beliefs. Furthermore, respondents may have formulated the assumption the investigator desires communication and collaboration with CBMHPs and as a result respondents may have overestimated their actual practices. An effort was made to minimize the likelihood of this occurring by stating that the survey is anonymous as well

as by piloting the survey with practicing school psychologists before collecting data from the entire sample.

Another potential limitation is the possibility that the school psychologists who belong to the state organization and who are recruited for participation in this study may not accurately represent the larger sample of school psychologists in the United States (i.e., there may be something systematically different between the collaborative practices of school psychologists who are members of the state professional organizations and those who are not). However, a review of respondent demographic data reveals that the sample mirrors the demographic composition of NASP members, which is the largest database of school psychologist demographic data in the US. Another potential limitation for consideration is that individuals who chose to respond to the survey may differ from those who did not. For example, it is possible that school psychologists who responded to the survey are more interested in and value collaboration with CBMHPs more than individuals who do not respond. In light of these potential limitations, the results of the study should be interpreted accordingly.

Future Directions

Because this is the first large-scale study to examine the frequency and nature of communication and collaboration between school psychologists and CBMHPs on behalf of youth with mental health problems, further research is warranted in order to confirm and further investigate the current findings. This study should be replicated with a larger more geographically representative sample in order to confirm findings and build a body of support for interdisciplinary collaboration of this nature. Another direction for future research is to explore the perceptions and experiences of CBMHPs related to communication and collaboration with school-based mental health professional. A companion study surveying CBMHPs may provide critical information necessary to understand and ameliorate other barriers to implementing system-level interdisciplinary

collaboration on behalf of students with mental health problems. This information, integrated with findings from the current study, could provide critical insight into system-level strategies for interdisciplinary collaboration for improved outcomes for youth with mental health problems.

Conclusion

There is a great need for communication and collaboration between school psychologists and CBMHPs. Collaboration has the potential to result in a myriad of benefits for youth with mental illness (e.g., increase early identification and intervention of mental illness through the sharing of data from multiple sources and across settings, coordinate school and community resources, etc.). Although the benefits of collaboration between school psychologists and CBMHPs are well documented and almost universally accepted, this study finds that communication and collaboration between these two groups of professionals occurs infrequently. Additionally, findings from the current study suggest that although school psychologists perceive many benefits to interdisciplinary collaboration there are barriers, such as a lack of time, resources, and the need to obtain parent permission, that hinder this ongoing partnership. Although both school psychologists and CBMHPs are not discrete professions and they likely have overlapping areas of expertise they each are in unique positions to offer insight on individual students, which when combined, have the potential to significantly enhance student outcomes.

Sadly, events in recent years in the United States, specifically several school shootings and incidents of students harming others in school settings, have served as grim reminders of the need to improve mental heath services in schools, including screening, identification, prevention, and intervention. A critical component in improving these services and addressing the problem of violence in schools is improving the communication and collaboration between mental health disciplines.

This study is an important step in better understanding the barriers to collaboration and identifying effective strategies in fostering ongoing professional partnerships that will help improve the mental health of youth in schools. When combined with future research, new strategies can be developed that effectively promote increased levels of collaboration, which should result in more effective interventions and improved mental health of students in schools.

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Appendices

Appendix A: Survey Cover Letter

Interdisciplinary Collaboration for Youth Mental Health: A National Study
eIRB # 8005

October 6, 2012

Dear School Psychologist,

I am writing to ask for your help in understanding the degree of collaboration that occurs between school psychologists and community-based mental health professionals (e.g., psychiatrists, licensed mental health counselors, etc.) on behalf of students with mental disorders. The most effective way of learning about this collaboration is by asking school psychologists to share information about their professional practices, thoughts, and opinions. I am contacting you because you are a member of your state professional organization of school psychology.

The questions should only take 5-10 minutes to complete. Your responses are voluntary and will be kept confidential. There is no risk to taking this survey and you are free to withdraw at any time. If you have any questions about this survey of school psychologists, please contact Audra Walsh, the principal investigator, by telephone at 727.599.3624 or by email at audrawalsh@gmail.com. This research has been reviewed and approved by the University of South Florida Institutional Review Board, and if you have any questions about your rights as a participant in this research, you may contact the Board by telephone at 813.974.5638. Also, your state association of school psychologists has approved this survey.

As a way of saying thank you for your help, at the end of the survey you will have the chance to enter to win one of five $10 gift cards to Amazon.com. Taking a few minutes to share your professional practices, thoughts, and opinions about collaborating with community-based mental health professionals allows us to gain critical insight into the degree of collaboration between school psychologists and community-based mental health professionals.

Click the following link to begin the survey:
https://www.surveymonkey.com/s/CommunicationCollaborationCBMHPs

Please **DO NOT** forward this survey to other individuals, as this may invalidate response rates. I hope you enjoy completing the questionnaire and I look forward to receiving your responses.

Many Thanks,

Audra St. John Walsh
Doctoral Candidate in School Psychology
University of South Florida
audrawalsh@gmail.com
727.599.3624

Kathy L. Bradley-Klug, Ph.D., NCSP
Associate Chair, Dept.
of Psychological & Social Foundations
Associate Professor, School
Psychology Program
University of South Florida

Appendix B: Communication and Collaboration Survey

Communication and Collaboration with Community-Based Mental Health Professionals

If you worked in a school full or part-time, during the 2011-2012 school year please continue. If you **DID NOT work in a school setting**, please **DISCONTINUE** at this point, check the box below, and return the survey in the enclosed return envelope.

☐ I did not work in a school during the 2011-2012 academic year.

CBMHPs refers to "**C**ommunity-**B**ased **M**ental **H**ealth **P**rofessionals". Examples of CBMHPs are non-school based pediatric psychiatrists, pediatricians, psychologists, social workers, licensed mental health counselors, & case managers. In addition to mental health problems, many of these professionals treat other conditions. For the purpose of this survey, these professionals are only considered CBMHPs when they are addressing mental health problems. Examples of services commonly provided by CBMHPs are diagnostic assessment, individual or group psychotherapy, psychotropic medication evaluations, etc.

PLEASE RESPOND TO THE FOLLOWING ITEMS BASED ON THE **2011-2012 SCHOOL YEAR.**

PART 1: Communication with Community Based Mental Health Professionals

For the purpose of this survey, **COMMUNICATION** refers to a one-time, unidirectional sharing of information on behalf of students (e.g., a phone call or a letter sent to or from the CBMHP).

For the purpose of this survey, the term **mental health problems** refers to social, emotional, and/or behavioral problems a student presents in or outside of school (i.e., these problems include, but are not limited to, diagnosed mental disorders such as ADHD, anxiety, and autism and also include, but are not limited to, non-diagnosed disorders such as symptoms of inattention, anxiousness, irritability, and social skills deficits).

Students with learning disabilities, intellectual disabilities, or physical health problems may experience co-occurring mental health problems, however, learning disabilities, intellectual disabilities, or physical health problems alone do not constitute mental health problems (e.g., a student that sees a neurologist for seizures but does not experience any social, emotional, and/or behavioral problems would not be considered to have a mental health problem).

PLEASE USE THE ABOVE DEFINITION OF COMMUNICATION TO ANSWER QUESTIONS 1-3.

1. **During the 2011-2012 school year, with which Community-Based Mental Health Professionals (CBMHPs, see bold box above) have you communicated on behalf of students with mental health problems? (mark all that apply)**
   - ☐ I **HAVE NOT** communicated with CBMHPs **(If not, skip to item 4)**
   - ☐ Psychiatrists or pediatric psychiatrists
   - ☐ Pediatricians
   - ☐ Neurologists or pediatric neurologists
   - ☐ Psychologists
   - ☐ Social workers
   - ☐ Counselors/Therapists
   - ☐ Case managers
   - ☐ Other (please specify): _____

2. **During the 2011-2012 school year, how often have you communicated (see definition above) with CBMHPs on behalf of students with mental health problems? (mark only one)**

- ☐ One to four times a year
- ☐ Five to nine times a year
- ☐ Once a month
- ☐ Two to three times a month
- ☐ Once a week
- ☐ More than once a week

3. **During the 2011-2012 school year, for what purposes did you communicate with CBMHPs on behalf of students with mental health problems? (mark all that apply)**
   - ☐ To provide information (e.g., copy of IEP, grades, etc.)
   - ☐ To obtain information (e.g., obtain information regarding treatment, diagnosis, medication dosage, etc.)
   - ☐ To inform the development of interventions
   - ☐ To plan for progress monitoring
   - ☐ To make a referral for community-based treatment
   - ☐ Other (please specify):_____
   - ☐ Other (please specify):_____
   - ☐ Other (please specify):_____
   - ☐ Other (please specify):_____

PART 2: Collaboration with Community Based Mental Health Professionals

For the purpose of this survey, **COLLABORATION** refers to the ongoing, bi-directional sharing of information by two or more people who are working together in planning and problem-solving to promote positive outcomes for a student or students (e.g., ongoing consultation between the school psychologist and a CBMHP to coordinate treatment/intervention efforts).

PLEASE USE THE ABOVE DEFINITION OF COLLABORATION TO ANSWER THE FOLLOWING QUESTIONS.

4. **During the 2011-2012 school year, with which CBMHPs have you collaborated on behalf of students with mental health problems? (mark all that apply)**
   - ☐ I **HAVE NOT** collaborated with CBMHPs during the 2011-2012 school year **(If not, skip to item 8)**
   - ☐ Psychiatrists or pediatric psychiatrists
   - ☐ Pediatricians
   - ☐ Neurologists or pediatric neurologists
   - ☐ Psychologists
   - ☐ Social workers
   - ☐ Counselors/Therapists
   - ☐ Case managers
   - ☐ Other (please specify): _____

5. **During the 2011-2012 school year, how often have you collaborated with CBMHPs on behalf of students with mental health problems? (mark only one)**
   - ☐ One to four times a year
   - ☐ Five to nine times a year
   - ☐ Once a month
   - ☐ Two to three times a month
   - ☐ Once a week
   - ☐ More than once a week

6. **For students with which category of mental health problems do you collaborate with CBMHPs most frequently? (mark only one)**
   - ☐ Internalizing problems (e.g., depressive mood, social withdrawal, anxious and inhibited reactions, and somatic problems)
   - ☐ Externalizing problems (e.g., aggressive acting out, disruptive, defiant, antisocial, oppositional, and hypteractive behavior)

7. **During the 2011-2012 school year, for what purposes did you collaborate with CBMHPs on behalf of students with mental health problems? (mark all that apply)**
   - ☐ To jointly develop interventions
   - ☐ To progress monitor an intervention/treatment effect
   - ☐ To evaluate interventions
   - ☐ To modify interventions
   - ☐ Other (please specify):_____
   - ☐ Other (please specify):_____
   - ☐ Other (please specify):_____
   - ☐ Other (please specify):_____

8. **What are the benefits of collaboration with CBMHPs? (mark all that apply)**
   - ☐ There are no benefits to collaboration with CBMHPs **(If checked, continue on to item 9)**
   - ☐ Improved student physical health outcomes
   - ☐ Improved student mental health outcomes
   - ☐ Improved student behavior
   - ☐ Improved student academic outcomes
   - ☐ Avoiding duplication of services
   - ☐ Opportunity for cross-disciplinary problem-solving
   - ☐ Opportunity to learn different methodology and techniques
   - ☐ Opportunity to share resources
   - ☐ Feeling valued for the expertise you offer to other professionals
   - ☐ Assessing student progress across different settings
   - ☐ Increase parent involvement
   - ☐ Other (please specify):_____
   - ☐ Other (please specify):_____
   - ☐ Other (please specify):_____

9. **What are the barriers to collaboration with CBMHPs? (mark all that apply)**
   - ☐ There are no barriers to collaboration with CBMHPs **(If checked, continue on to item 10)**
   - ☐ There is not enough time
   - ☐ CBMHPs are not accessible
   - ☐ Obtaining parent permission to collaborate
   - ☐ Differing views on child development
   - ☐ Differing views on mental health services
   - ☐ It is not beneficial to the interventions or progress monitoring of students
   - ☐ Lack of information about which CBMHPs work with students
   - ☐ High rate of CBMHP turnover
   - ☐ Other (please specify): _____
   - ☐ Other (please specify): _____
   - ☐ Other (please specify): _____

PART 3: Demographics

PLEASE RESPOND TO THE FOLLOWING ITEMS BASED ON THE **2011-2012 SCHOOL YEAR.**

10. **Gender:**
    - ☐ Female
    - ☐ Male
    - ☐ Transgender

11. **Year in which you were born: 19_____**

12. **Ethnicity: (mark only one)**
    - ☐ Hispanic or Latino
    - ☐ Not Hispanic or Latino

13. **Race: (mark all that apply)**
    - ☐ American Indian or Alaska Native
    - ☐ Asian
    - ☐ Black or African American
    - ☐ Native Hawaiian or Other Pacific Islander
    - ☐ White
    - ☐ Other (please specify):_____

14. **What is the highest degree you have earned?**
    - ☐ Masters (e.g., M.A., M.S., MBA)
    - ☐ Specialist or equivalent (e.g., CAGS, M.A. +30, etc.)
    - ☐ Doctorate (e.g., Ph.D., Psy.D., Ed.D.)

15. **How many years of experience (post-degree) do you have in school psychology?**
    - ☐ 1-5 years
    - ☐ 6-10 years
    - ☐ 10+

16. **Which of the following activities best represents your PRIMARY role as a school psychologist? (mark only one)**
    - ☐ Special education evaluations and reevaluations/504 Plan development
    - ☐ Intervention planning and implementation
    - ☐ Student-focused or organization/system-focused consultation
    - ☐ Delivery of professional development for school staff and/or presentations for parents

17. **In total, how many students do you serve (i.e., sum of total student population at all schools you serve)?**

- ☐ <500
- ☐ 500-999
- ☐ 1000-1,500
- ☐ 1,500+

18. **Please estimate the percentage of the <u>total students in the schools you currently serve</u> with a mental health problem (diagnosed or undiagnosed).**

_____ % of total students in the schools you currently served with a mental health problem

19. **<u>Of these students with mental health problems</u>, please estimate the percentage of students with internalizing and externalizing problems**

_____ % of students with **<u>internalizing</u>** problems (e.g., depressive mood, social withdrawal, anxious and inhibited reactions, and somatic problems)

_____% of students with **<u>externalizing</u>** problems (e.g., aggressive, acting out, disruptive, defiant, antisocial, oppositional, and hyperactive behavior)

<u>* *Please note: the sum of internalizing and externalizing problems above should equal 100%</u>

20. **Please estimate the percentage of the <u>total students in the schools you currently serve</u> who receive mental health services from CBMHPs:**

- ☐ 0%
- ☐ 1%-20%
- ☐ 21%-40%
- ☐ 41%-60%
- ☐ 61%-80%
- ☐ 81%-100%

21. **During the 2011-2012 school year, approximately how many hours of professional development did you receive in mental health problems related to children and adolescents? (mark only one)**
    - ☐ 0 hours
    - ☐ 1-5 hours
    - ☐ 6-10 hours
    - ☐ 10+ hours

PART 4: Schools

PLEASE RESPOND TO THE FOLLOWING ITEMS BASED ON THE **2011-2012 SCHOOL YEAR.**

22. **In which state are you employed (e.g., NJ, FL)?** _____

23. **In which type of community do the majority of the students you serve reside? (mark only one)**
    - ☐ Urban
    - ☐ Suburban
    - ☐ Rural

24. **How many schools do you currently serve?**
    - ☐ 1-2 schools
    - ☐ 3-4 schools
    - ☐ 5-6 schools
    - ☐ 6+ schools

25. **Do your schools receive Title 1 funding? (mark only one)**
    - ☐ No, none of the schools I serve receive Title 1 funding.
    - ☐ Yes, 1 or more of the schools I serve receives Title 1 funding.

Any additional comments/feedback you have regarding collaboration between school psychologists and CBMHPs would be greatly appreciated.

_____

_____

_____

_____

_____

Thank you for your time and completion of this survey!

ENTER TO WIN AN AMAZON.COM GIFT CARD

As a token of appreciation, please enter to win one of five $10 gift cards to Amazon.com.

To enter, please send an email to audrawalsh@gmail.com with the words "survey completed" in the subject of the email. Five winners will be randomly selected and emailed a gift card.

Appendix C: USF IRB Approval Letter

USF
UNIVERSITY OF SOUTH FLORIDA

DIVISION OF 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) 974-5618

May 22, 2012

Audra Walsh
Psychological and Social Foundations

RE: **Expedited Approval** for Initial Review
IRB#: Pro00008005
Title: Interdisciplinary Collaboration for Youth Mental Health: A National Study

Dear Audra Walsh:

On 5/21/2012 the Institutional Review Board (IRB) reviewed and **APPROVED** the above referenced protocol. Please note that your approval for this study will expire on 5/21/ 2013.

Approved Items:
Protocol Document(s):

Protocol	5/16/2012 1:35 PM	0.01

***Data collection cannot begin until the letter of support (from NASP) is received thru the eIRB Amendment process.

Consent/Assent Documents:

Name	Modified	Version
Waiver of Informed Consent Documentation granted on the Adult ICF		

It was the determination of the IRB that your study qualified for expedited review which includes activities that (1) present no more than minimal risk to human subjects, and (2) involve only procedures listed in one or more of the categories outlined below. The IRB may review research through the expedited review procedure authorized by 45CFR46.110 and 21 CFR

56.110. The research proposed in this study is categorized under the following expedited review category:

(7) Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

Your study qualifies for a waiver of the requirements for the documentation of informed consent as outlined in the federal regulations at **45 CFR 46.117 (c)**: An IRB may waive the requirement for the investigator to obtain a signed consent form for some or all subjects if it finds either: (1) That the only record linking the subject and the research would be the consent document and the principal risk would be potential harm resulting from a breach of confidentiality. Each subject will be asked whether the subject wants documentation linking the subject with the research, and the subject's wishes will govern; or (2) That the research presents no more than minimal risk of harm to subjects and involves no procedures for which written consent is normally required outside of the research context..

As the principal investigator of this study, it is your responsibility to conduct this study in accordance with IRB policies and procedures and as approved by the IRB. Any changes to the approved research must be submitted to the IRB for review and approval by an amendment.

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,

John A. Schinka, Ph.D.

John Schinka, PhD, Chairperson
USF Institutional Review Board

Cc: Various Menzel, CCRP
USF IRB Professional Staff

USF
UNIVERSITY OF SOUTH FLORIDA

DIVISION OF 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) 974-5618

October 3, 2012

Audra Walsh
Psychological and Social Foundations
400 4th Avenue South
Unit 202
St. Petersburg, FL 33701

RE: **Approved** Amendment Request
IRB#: MS2_Pro00008005
Title: Interdisciplinary Collaboration for Youth Mental Health: A National Study

Dear Ms. Walsh:

On 10/2/2012 the Institutional Review Board (IRB) reviewed and approved your Amendment by expedited review procedures.

The submitted request has been approved **from date:** 10/2/2012 **to date:** 5/21/2013 for the following:

1. Change in study location: 11 letters of support have been obtained from state organizations approving this research. State approvals include: New York, Massachusetts, Colorado, Kentucky, Connecticut, South Dakota, North Dakota, Wyoming, Arkansas, Delaware, and New Jersey.
2. Change in consent form: Only electronic surveys will be used for data collection. The e-survey cover letter has been modified. First, the survey link has been added. Second, the sentence stating, "you are one of only a small number of school psychologists that have been selected to help in this research, and as such, your feedback is extremely valuable." has been deleted. Third, the sentence "There is no risk to taking this survey and you are free to withdraw at any time." has been added. The second and third modifications were made at the request of the state associations.

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,

John Schinka, Ph.D.

John Schinka, PhD, Chairperson
USF Institutional Review Board