School Psychologists' Interprofessional Collaboration With Medical Providers: Training, Preparedness, Attitudes, and Current Practices

By
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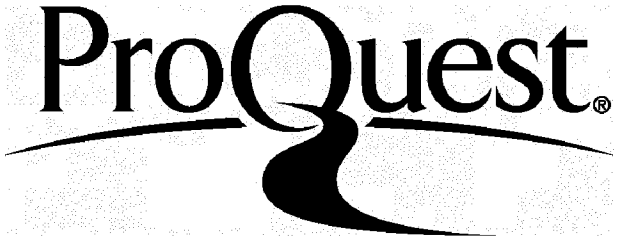

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Abstract

While previous research has pointed to the importance of interprofessional collaboration (IPC) between school psychologists and medical providers in the provision of quality mental health care for youth with chronic health conditions, little is known about current IPC practices among school psychologists. This study sought to address this need by examining school psychology trainees' and professionals' perceptions of training, preparedness, attitudes, and current practices related to IPC with medical providers. Results of a survey with trainees and professionals (n = 317) indicated that school psychology trainees and professionals report relatively low levels of training and preparedness related to IPC with medical providers, positive attitudes towards interprofessional education, and limited engagement of IPC with medical providers. Additionally, results indicated that perceptions of training and preparedness related to IPC with medical providers were associated with engagement in IPC with medical providers. Study findings demonstrate the importance of school psychology trainees' and professionals' training and preparedness in engaging in IPC with medical providers, and have implications for future training of school psychologists.

SECTION 1

Introduction

Improved access to quality mental health interventions for children and adolescents with chronic health and other medical conditions is needed (Shaw, Glaser, Stern, Sferdenschi, & McCabe, 2010). Due to the varied impacts of chronic health and other medical conditions on various aspects of youth functioning, including academic performance and social and emotional development, it has been recommended that professionals across numerous disciplines be involved in the provision of this ongoing care (Power & Bradley-Klug, 2013). School psychologists, professionals who focus on children's cognitive and social development within schools, are among the professionals whose involvement has been emphasized in the treatment of children with chronic health conditions (Power & Bradley-Klug, 2013).

In order to better serve students with chronic health conditions, it is important that school psychologists are able to promote development and wellness through the implementation of evidence-based prevention and intervention strategies (Bradley-Klug et al., 2013). Interprofessional collaboration (IPC) between school psychologists and other medical providers, such as pediatricians, physician assistants, nurses and nurse practitioners, psychiatrists, physical therapists, and occupational therapists, is an important aspect of such activities for youth with chronic health and other medical conditions (Bradley-Klug, Grier, & Ax, 2006). Specifically, when engaging in IPC, these professionals can offer each other the necessary support and knowledge in order to provide the students with a more comprehensive treatment of their physical and psychological needs (Power & Bradley-Klug, 2013).

Research has begun to examine current practices of IPC between medical providers and school psychologists. Previous research found that IPC between pediatric primary care providers (PCPs) and school psychologists is limited, with professionals in both disciplines reporting participating in this type of collaboration only a few times yearly (Bradley-Klug, Sundman, Nadeau, Cunningham, & Ogg 2010; Bradley-Klug et al., 2013). While this literature provides some information about school psychologists' collaboration with PCPs specifically, additional research is needed to better understand IPC between school psychologists and medical providers more generally since PCPS are only a small, yet important, group of providers who school psychologists should collaborate with to best address the needs of youth.

Given the need for IPC with medical providers, increased attention has been paid to IPC within school psychology training programs. In particular, certain programs include a specialization in pediatric school psychology, which train school psychologists to address the needs of youth with chronic health conditions and engage in the delivery of interprofessional care with diverse providers (Power, DuPaul, Shapiro, & Parrish, 1995; Shaw, 2003) However, it appears that only a few programs currently provide this type of training. Further, while it has been reported that many school psychology programs do not provide the needed training that would allow for school psychologists to engage in IPC to best address the needs of youth with chronic health conditions (Shaw, 2003), no empirical studies examining current training in or perceptions of preparedness in IPC with medical providers exist. As such, additional research to better understand training practices within school psychology and subsequent perceptions of preparedness to engage in IPC with medical providers has been called for (Bradley-Klug et al., 2013).

Previous research has underscored the importance of attitudes toward a behavior in subsequent engagement in that behavior (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975). Further, while participation in interprofessional education (IPE) has been found to have positive effects on attitudes towards IPE (Hammick, Freeth, Koppel, Reeves, Barr, 2007) and engagement in IPC (Reeves, Perrier, Goldman, Freeth, & Zwarenstein, 2013), to our knowledge research has not examined if attitudes towards IPE predicts IPC practices. Thus, attempts to increase IPC between school psychologists and medical providers should also consider attitudes towards IPE.

While the importance of IPC with medical providers has been established, little is known about school psychologists' training, preparedness, attitudes, and current practices regarding IPC with medical providers, as well as what factors impact engagement in IPC. Given these limited areas of knowledge, the purpose of the current study was to explore school psychology professionals' and trainees' perceptions of training, preparedness, and current practices and attitudes related to IPC with medical providers. Further, the purpose of the current study was to determine whether engagement in IPC with medical providers differs based on perceptions of previous training in and preparedness for IPC, and attitudes towards IPE with medical providers.

Review of the Literature

Relationship Between Medical and Mental Health Concerns

Between 10% and 30% of children experience a chronic health condition, including asthma, autism spectrum disorder, cancer, diabetes, HIV/AIDS, obesity, and traumatic brain injury (Clay, 2004; Phelps, 2006). Chronic health conditions, which are defined as medical conditions that last for more than three months (Shaw et al., 2010),

not only effect children physically, but also impact their emotional and social development and their academics (Brown & DuPaul, 1999; Walker, Zeller, Close, Webber, & Gresham, 1999).

With regards to academics, youth with chronic health conditions are more likely to have difficulties with school attendance, attention, alertness, and inhibition, as well as have poorer academic achievement (Shaw, Glaser, & Ouimet, 2011). Additionally, for youth with medical management routines that may interfere various aspects of daily life, additional disruptions in schools attendance and interpersonal relationships with peers might exist (Suris, Michuad, & Viner, 2004).

Youth with chronic health conditions have also been found to be at greater risk for mental health problems (Cadman, Boyle, Szatmari, & Offord, 1987; Lavigue & Fier-Routman, 1992). Specifically, in a meta-analysis of psychosocial adjustment of with youth chronic medical conditions, it was found that these children were at increased risk for anxiety, depression, and social withdrawal (Lavigue & Fier-Routman, 1992). A more recent meta-analysis found that youth with chronic medical conditions, such as chronic fatigue syndrome, fibromyalgia, cleft lip and palate, migraine/tension headaches, and epilepsy, are at higher risk for depressive symptoms in comparison to youth without medical conditions (Pinquart & Shen, 2011). Internalizing disorders, in particular, have been found to be the most common mental health conditions experienced by youth with chronic health conditions (Pao & Bosk, 2011).

Although youth with chronic health conditions may also be at risk for social difficulties (Schuman & La Greca, 1999), the experience of social difficulties is believed to differ based on the type medical condition (Martinez, Carter, & Legato, 2010). While

youth with some chronic health conditions, such as asthma and diabetes, have not been found to experience more social difficulties in comparison to peers without medical concerns, youth with neurological disorders, such as seizure disorder and spina bifida, obesity, and blood disorders have been found to have lower social functioning (Martinez, Carter, & Legato, 2010).

The relationship between health and education has been a topic acknowledged by legislation and public policy (Blake et al., 2005; Blank & Burau, 2004). For instance, the Individuals With Disabilities Education Act (IDEA; IDEA, 2004) underscores this relationship and mandates that schools provide appropriate support and accommodations for children who have medical conditions that effect their education. Other examples of legislation that underscore the relationship between health and education include the Rehabilitation Act of 1973, Section 504 (PL 93-112), which mandates that students with chronic health conditions have their education needs met, and the Preventive Health Amendments of 1992 (PL 102-531), which requires that health care and school systems coordinate to support students' with chronic health conditions reentry into school. Given the relationship between medical and mental health concerns, and the need for schools to address the needs of youth with medical conditions, collaboration and shared information between professionals, namely school psychologists and medical providers, is necessary for youth with chronic health and other medical conditions needs to be met (Wodrich, 2004). This collaboration is discussed in greater detail below.

Need for IPC

Due to the varied impacts of chronic health conditions on various aspects of youth functioning, it has been recommended that professionals across numerous disciplines be

involved in their ongoing care (Power & Bradley-Klug, 2013). Specifically, as chronic health conditions and mental health and educational issues are interrelated, patients are better served when professionals from these fields work together to better understand and treat patients (Wodrich, 2004). Moreover, several organizations in education and mental health have made appeals to increase the occurrence IPC, which occurs when "multiple health workers from different professional backgrounds work together with patients, families, careers [*sic*], and communities to deliver the highest quality of care" (Gilbert, Yan, & Hoffman, 2010). In 1985, at the Hilton Head Conference, leaders in clinical and pediatric psychology recognized the importance of collaboration between multidisciplinary systems (Tuma, 1985). As a result of this call for improvements in child-oriented, mental health care, the 1992 National Institute of Mental Health (NIMH) Task Force to Refine Clinical Training Guidelines for Services to Children and Adolescents created guidelines to prepare psychologists to coordinate services with primary care settings (Roberts et al., 1998). The National Association of School Psychologists (NASP, 1995) and the American Psychological Association (APA, 1995) also promoted increased collaboration and integration between medical and mental health providers in order to better serve the medical and mental health needs of children and adolescents. There has been a similar call for increased collaboration from the medical field (AAP Council on Children with Disabilities, 2007). Additionally, the Patient Protection and Affordable Care Act (ACA; Public Law No: 111–148, Mar 23, 2010) promotes interprofessional education and practice.

School psychologists are among the professionals whose involvement has been emphasized in the treatment of children with chronic health conditions (Power &

Bradley-Klug, 2013). Models for collaboration suggest that connecting various systems of care, such as the family, school, and health care system, promotes youth's development (Power, Shapiro, & DuPaul, 2003). When medical providers and school psychologists partner to collaborate regarding shared patients, they are believed to be able to provide each other with support and knowledge needed to provide the youth with a more comprehensive treatment of their physical and psychological needs (Power & Bradley-Klug, 2013). Additionally, collaboration between providers in multiple systems is purported to allow for engagement in a variety of activities to better address youth need, such as the development of treatment plans to manage chronic health conditions within the school setting; the refinement of individualized educational plans; the implementation of interventions to assist with school attendance, medication management, and mental health concerns; and the design and implementation of behavioral managements plans (Drotar, Palermo, Barry, 2003). Further, such collaboration also promotes consistent engagement in progress monitoring of physical and mental health symptoms (Shapiro & Manz, 2003). Finally, collaboration is believed to be beneficial because it allows for perspectives of different systems, including the school, family, and medical contexts, to be considered in the care for youth with chronic health conditions (Shapiro & Manz, 2003), allowing for a more complete understanding of the child's functioning in various settings and the ability to provide more comprehensive interventions within these different settings.

With regards to collaborative relationships between school psychologists and medical providers, each is believed to be able to successfully contribute to the care of school-age youth, with school psychologists contributing expertise in the areas of

assessment and treatment, along with their knowledge of behavioral health, academics, and the educational system, and medical providers contributing their biomedical expertise and knowledge about the treatment of chronic health conditions, including medication (Wodrich & Landau, 1999). Additionally school psychologists are important contributors for IPC because they possess various skills, such as those related to consultation, problem identification, data-based decision-making, and prevention and intervention development and implementation, that would allow them to serve as a liaison between education and medical providers to support students' medical and academic needs. Thus, school psychologists are believed to be well suited to address the needs of such students in school-based settings (Bradley-Klug, et al., 2013).

Current Practices of IPC

Although the benefits of IPC has been recognized (AACAP, 2010; Antonelli, Stille, & Freeman, 2005; Stancin & Perrin, 2014), little is know about current IPC practices between medical and mental health providers, particularly school psychologists. With regards to school psychologists, previous research has examined IPC between school psychologists and PCPs, finding that only limited IPC occurs between these professionals (Bradley-Klug et al., 2010). Specifically, Bradley-Klug and colleagues (2010) found that the majority of PCPs endorsed only collaborating with school psychologists a few times yearly. A frequently endorsed barrier to IPC with school psychologists endorsed by PCPs was related to inaccurate perception of schools psychologists' roles. Specifically, PCPs in this study noted beliefs that school psychologists were trained in the assessment of behavioral, mental health, and academic difficulties exclusively. PCPs in this study, further, believed that school psychologists

had limited training in pediatric health issues and psychopharmacology, and they were unaware of school psychologists' consultation role and training in behavioral and mental health interventions (Bradley-Klug et al., 2010). The authors concluded that such perceptions of school psychologists may discourage PCP collaboration with school psychologists and instead lead pediatric PCPs to collaborate with other school personnel, such as teachers and school nurses (Bradley-Klug et al., 2010). Bradley-Klug et al. (2010) suggest that it may be school psychologists' role to educate pediatric PCPs about their job within the mental health field and their ability to consult and collaborate with medical providers.

In a complementary study, results indicated that school psychologists' perceptions of their current collaborative practices with medical providers were examined. Bradley-Klug et al. (2013) found that the majority of school psychologists communicated with pediatric PCPs only a few times yearly. Additionally, when they did communicate with PCPs, communication was often limited to requesting or providing information about students. Similarly, a study of school mental health professionals, including school social workers, school psychologists, school counselors, and school nurses, found that, while the majority of participants engaged in collaboration with pediatric PCPs at least once yearly, the overall frequency of collaboration was limited (Arora, Conners, Biscardi, & Hill, 2016). While this study included a very limited amount of school psychologists ($n = 3$), it supported previous findings that school psychologists' IPC with PCPs is limited (Arora et al., 2016). Thus, while previous literature provides some information about one type of medical provider (i.e., PCPs) and, many have postulated that, such practices occur infrequently (Shaw & Páez, 2002; Wodrich, 2004), to our knowledge, no empirical

literature assessing IPC among school psychologists and medical providers exists.

Training for IPC

Within school psychology training programs, increasing attention has been paid to IPC with medical providers. Such programs train school psychologists to provide services related to children's mental and physical health in a variety of settings, such as hospitals, independent practices, mental health agencies, and schools (Carlson, Paavola, Talley, 1995; Power, DuPaul, Shapiro, & Parrish, 1995; Shaw, 2003). For some, graduate students specialize in pediatric school psychology, a relatively new specialization which focuses on the academic, behavioral, and mental health needs of students with chronic health conditions (Power & Bradley-Klug, 2013). Within this subspecialty, school psychology trainees are supported in learning how to provide consultation services to parents and teachers of youth with medical conditions (Sheridan et al., 2009) or to work in School-Based Health Centers (SBHCs) (Shaw, 2003), where they address the needs of youth with chronic health conditions.

The school psychology doctoral program at Lehigh University in collaboration with The Children's Hospital of Philadelphia (CHOP) is one example of a training program that emphasizes collaboration between school psychologists and medical providers (Power, Shapiro, & DuPaul, 2003). Within this program, students can obtain specialized training that focuses on providing services to children who have or are at risk for chronic health conditions and mental health disorders by connecting health, educational, and family systems. Courses within the Lehigh/CHOP program focus on delivering interventions for children with medical conditions and prevention and health promotion; practicum training experiences, further, emphasize connecting medical and

educational systems by providing training within schools and health care settings, such as primary care hospital-based clinics and various medical clinics at CHOP. Students are also required to conduct research that focuses on health problems in children and linking medical, educational, and family systems (Power, Shapiro, & DuPaul, 2003). The Lehigh/CHOP program provides an example for a training structure within school psychology that focuses on linking these various systems to increase training in interdisciplinary collaboration and pediatric school psychology.

Despite these recent shifts, it remains unclear as to what degree school psychologists are receiving training to address children's health conditions that impact their social and emotional development and academic performance. A recent study of school mental health professionals, including school social workers, school counselors, school nurses, and a small number of school psychologists, found that a large number of participants reported that they did not receive training in IPC with pediatric PCPs, though a majority of the professionals reported a strong interest in receiving this type of training (Arora et al., 2016). Since training is believed to be a crucial aspect in the promotion IPC (Bradley-Klug et al., 2013; Margison & Shore, 2009), research that focuses specifically on school psychologist's training, and subsequent preparedness, in IPC with medical providers more generally is needed (Bradley-Klug, et al., 2013).

Attitudes Towards IPC

Previous research has underscored the importance of attitudes toward a behavior in subsequent engagement in that behavior (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975). Specifically, the Theory of Reasoned Actions (TRA, Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975) suggests that an individual's behavior is predicted by their

intention to carry out the behavior, which is predicted by their attitude and beliefs about the behavior. Therefore, in order to understand how to improve IPC between school psychologists and medical providers, it may be important to consider their attitudes towards collaboration and interprofessional learning experiences.

Research regarding the relationship between interprofessional education (IPE) and attitudes towards IPE is mixed (Hammick et al., 2007). While some research has found that IPE experiences has been found to have positive effects on subsequent attitudes toward IPE (Hammick et al., 2007), other studies have found that IPE training does not affect attitudes towards IPE (Curran, Sharpe, Flynn, & Button, 2009; Shrader, Thompson, & Gonsalves, 2010). Additionally, although there is some research that suggests that IPE training predicts subsequent IPC practices (Reeves et al., 2013), to our knowledge research has not examined if attitudes towards IPE predicts IPC practices.

Related to school psychologists' IPC with medical providers, Bradley-Klug et al. (2010) found that, despite the lack of collaboration between school psychologists and PCPs, providers in both fields perceived benefits of IPC. While this study suggests that school psychologists may have positive attitudes towards IPC with PCPs, more research is needed to better understand school psychologists' attitudes towards IPE. Additionally, while research has not directly studied the relationship between attitudes towards IPE and IPC practices, given the potential influence of attitudes on behavior (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975) and the impact of IPE training experiences on IPC practices (Reeves et al., 2013), research should explore this relationship to better understand the if school psychologists' attitudes towards IPE predict their current practices of IPC with medical providers.

Statement of Purpose

While initial research examining school psychologists' engagement in IPC with medical providers has been undertaken, this research has been limited and has primarily focused on examining current practice with PCPs specifically. Additionally, there is a lack of research examining other factors that may influence school psychologists' practices related to IPC. In order to expand understanding of IPC between school psychologists and medical providers, this study sought to examine school psychologists' (i.e., current professionals and graduate students): (a) perceptions of training related to IPC with medical providers; (b) perceptions of preparedness related to IPC with medical providers; (c) attitudes toward IPE with medical providers; and (d) perceptions of current practices in IPC with medical providers. In order to better understand factors that may influence school psychologists' engagement in IPC with medical providers, this study sought to understand how theoretically related variables, such as school psychologists' perceptions of training related to IPC, perceptions of preparedness related to IPC, and attitudes related to IPE, were associated with current practices in IPC with medical providers. Further, because it has been found that newer cohorts of medical providers are more likely to engage in IPC (Sarma, Devlin, Thind, & Chu, 2012), years of experience as a predictor variable was examined. Role in the field (student or professional) was also examined as a predictor variable of current practice in IPC to explore if differences in such practices between students and professionals exist. Additionally, as the presence of SBHCs may influence IPC practices because SBHCs provide interdisciplinary services related to physical and mental health needs (Brown, 2006), their presence schools was also considered. Specifically the following questions were investigated: (1) Do

perceptions of training in IPC predict perceptions of current practices in IPC with medical providers? (2) Do perceptions of preparedness in IPC predict perceptions of current practices in IPC with medical providers? (3) Do attitudes toward IPE predict perceptions of current practices in IPC with medical providers? (4) Do these relationships differ between current professionals and trainees, and based on participants' years of experience within the field, and whether participants work in a school that has a SBHC? It is hypothesized that perceptions of training and preparedness related to IPC and attitudes toward IPE will predict perceptions of current practices in IPC.

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SECTION 2

Empirical Article

Abstract

While research has pointed to the importance of interprofessional collaboration (IPC) between school psychologists and other healthcare professionals, such as medical providers, in the provision of quality mental health care for youth with chronic health conditions, little is known about current IPC practices among school psychologists. This study examined school psychology trainees' and professionals' perceptions of training, preparedness, and current practices related to IPC with medical providers. Survey results indicated that participants ($N = 317$) endorse relatively low levels of training and preparedness and limited practice of IPC with medical providers. Additionally, results indicated that perceptions of training and preparedness were associated with current practices in IPC with medical providers. Findings demonstrate the impact of training and preparedness on subsequent engagement in IPC, and have implications for future training of school psychologists as they seek to address the needs of youth with chronic health conditions.

Keywords: school psychology; interprofessional collaboration; training; preparedness

Improved access to quality mental health interventions for children and adolescents with chronic health and other medical conditions is needed (Shaw, Glaser, Stern, Sferdenschi, & McCabe, 2010). Due to the varied impacts of chronic health conditions on aspects of youth functioning, including academic performance and social and emotional development, it has been recommended that professionals across numerous disciplines be involved in the provision of their ongoing care (Power & Bradley-Klug, 2013). School psychologists, professionals who focus on children's cognitive and social development within schools, are among the healthcare professionals whose involvement has been emphasized in the treatment of children with chronic health conditions (Power & Bradley-Klug, 2013).

In order to better serve students with chronic health conditions, it is important that school psychologists are able to promote development and wellness through the implementation of evidence-based prevention and intervention strategies (Bradley-Klug et al., 2013). Interprofessional collaboration (IPC), or teamwork with individuals from other professions (Mu & Brasic Royeen, 2004), between school psychologists and other healthcare providers, such as pediatricians, nurses and nurse practitioners, physical therapists, and occupational therapists, is an important aspect of such activities for youth with chronic health and other medical conditions (Bradley-Klug, Grier, & Ax, 2006). Specifically, IPC occurs when "multiple health workers from different professional backgrounds work together with patients, families, careers [*sic*], and communities to deliver the highest quality of care" (Gilbert, Yan, & Hoffman, 2010). When IPC occurs between school psychologists and other healthcare professions, these providers can offer each other the necessary support and knowledge to provide the students with a more

comprehensive treatment of their physical and psychological needs (Power & Bradley-Klug, 2013).

While the importance of IPC with other healthcare providers has been established, little is known about school psychologists' training, preparedness, and current practices in IPC with medical providers, as well as what factors impact engagement in IPC. Given these limited areas of knowledge, the purpose of the current study was to explore school psychology professionals' and trainees' perceptions of training, preparedness, and current practices related to IPC with medical providers.

Chronic Health Conditions

Between 10% and 30% of children experience a chronic health condition, including asthma, cancer, diabetes, HIV/AIDS, and obesity (Clay, 2004; Phelps, 2006). Chronic health conditions, defined as medical conditions that last for more than three months (Shaw et al., 2010), not only effect children physically, but also impact their emotional and social development and their academics (Brown & DuPaul, 1999). Specifically, youth with chronic health conditions are more likely to have difficulties with school attendance, attention, alertness, inhibition, and academic achievement (Shaw, Glaser, & Ouimet, 2011). Additionally, youth with chronic health conditions are at greater risk for mental health problems, including anxiety, depression, social withdrawal (Pinquart & Shen, 2011), and social difficulties (Martinez, Carter, & Legato, 2011).

Need for IPC

Due to the varied impacts of chronic health conditions on youth functioning, it has been recommended that professionals across numerous disciplines be involved in their ongoing care (Power & Bradley-Klug, 2013). Specifically, as chronic health conditions,

mental health, and educational issues are interrelated, patients are better served when professionals from these fields work together to treat patients (Wodrich, 2004). Several organizations in education and mental health, including the National Association of School Psychologists (2010) and the American Psychological Association (2015) have made appeals to increase IPC.

Models for IPC suggest that connecting various systems of care, such as the family, school, and health care systems, promotes youth's development (Power, Shapiro, & DuPaul, 2003). Thus, school psychologists' involvement has been emphasized in the treatment of children with chronic health conditions (Power & Bradley-Klug, 2013). When school psychologists and other healthcare providers partner to collaborate regarding shared patients, they provide each other with support and knowledge, allowing for a more comprehensive treatment of patients' physical and psychological needs (Power & Bradley-Klug, 2013). Additionally, IPC among these professionals is purported to allow for engagement in a variety of activities to better address youth needs, such as the development of treatment plans to manage chronic health conditions in the school setting; the refinement of individualized educational plans; the implementation of interventions to assist with school attendance, medication management, and mental health concerns; and the design and implementation of behavioral managements plans (Drotar, Palermo, Barry, 2003). Such collaboration is also believed to promote consistent progress monitoring of physical and mental health symptoms, incorporating the perspectives of the school, family, and medical providers (Shapiro & Manz, 2003).

Current Practices in IPC

Although the benefits of IPC have been recognized (Stancin & Perrin, 2014), little

is known about current IPC practices between various types of healthcare providers, particularly school psychologists and medical providers. With regards to school psychologists, previous research has examined IPC with primary care providers (PCPs), a small, yet important, group of providers who school psychologists should collaborate with to best address the needs of youth. This research has found that only limited IPC occurs between these providers (Bradley-Klug, Sundman, Nadeau, Cunningham, & Ogg, 2010). In a complementary study, results indicated that the majority of school psychologists reported communicating with PCPs only a few times yearly (Bradley-Klug et al., 2013). Similarly, a study of school mental health (SMH) professionals, including school social workers, school counselors, school nurses, and school psychologists, found limited IPC with PCPs (Arora, Connors, Biscardi, & Hill, 2016). Thus, while previous literature provides some information about one type of medical provider (i.e., PCPs) and, many have postulated that such practices occur infrequently (Shaw & Páez, 2002; Wodrich, 2004), to our knowledge, no empirical literature assessing IPC among school psychologists and medical providers exists.

Training and Preparedness in IPC

Within school psychology training programs, increasing attention has been paid to IPC with medical providers. Such programs train school psychologists to provide services related to children's mental and physical health in a variety of settings, such as hospitals and schools, and to collaborate and communicate with other providers (Power et al., 2003; Shaw, 2003). Despite these recent shifts, it remains unclear as to what degree school psychologists are receiving training to address children's health conditions that impact their social and emotional development and academic performance. A recent

study of SMH professionals, including a small number of school psychologists, found that a large number of participants reported that they did not receive training in IPC with PCPs, though a majority of the professionals reported a strong interest in receiving this type of training (Arora et al., 2016). Since training is believed to be a crucial aspect in the promotion IPC (Bradley-Klug et al., 2013; Margison & Shore, 2009), research that focuses specifically on school psychologists' training, and subsequent preparedness, in IPC with medical providers more generally is needed (Bradley-Klug, et al., 2013).

Current Study

In order to expand understanding of IPC between school psychologists and other healthcare providers, this study sought to examine school psychologists' (i.e., current professionals and graduate students): (a) perceptions of training related to IPC with medical providers; (b) perceptions of preparedness related to IPC with medical providers; and (c) perceptions of current practices in IPC with medical providers. Further, in order to better understand factors that may influence school psychologists' engagement in IPC with medical providers, this study sought to understand how theoretically related variables, such as school psychologists' training and perceptions of preparedness related to IPC with medical providers, were associated with engagement in IPC with medical providers. Further, because it has been found that newer cohorts of healthcare providers are more likely to engage in IPC (Sarma, Devlin, Thind, & Chu, 2012), years of experience within the field as a predictor variable was examined. Role in the field (student or professional) was also examined as a predictor variable of current practice in IPC to explore if differences in such practices between students and professionals exist. Additionally, because school based health centers (SBHCs) provide interdisciplinary

services related to physical and mental health needs (Brown, 2006), their presence in schools was also considered. Specifically, the following questions were investigated: (1) Do perceptions of training related to IPC with medical providers predict perceptions current practices in IPC with medical providers? (2) Do perceptions of preparedness for IPC with medical providers predict perceptions of current practices in IPC with medical providers? (3) Do these relationships differ between current professionals and trainees, based on participants' years of experience within the field, and presence of a SBHC?

Methods

Participants

Participants (N = 317) were school psychology professionals (n = 154; 48.9%) and graduate students (n = 163; 51.4%). Of the total sample, the majority were White/Caucasian, not Hispanic/Latino (n = 275; 86.8%) and 268 (84.5%) were female, reflecting the demographic characteristics of school psychologists nationally (Curtis et al., 2008). The majority of school psychology professionals reported working in school settings (n = 109; 71.7%) and reported varying degree of experience in the field. of the graduate students, 81 (49.7%) were in masters or specialist programs while 82 (50.3%) were in doctoral programs. (See Table 1.)

Measures

Training in IPC. Participants' perceptions of training experiences in IPC with medical providers were queried using a survey developed for this study based on existing literature regarding competencies for psychologists in collaborating with medical providers (Hoge, Morris, Larala, Pomerantz, & Farley, 2014; Power et al., 2003; Shaw, 2003). The survey included eight Likert-style questions, with response ranging on a five-

point scale from "No Training" to "Extensive Training." Perceptions of training in the context of graduate school, pre-doctoral internship, post-doctoral training, and continuing professional education through didactics/coursework, clinical experiences, and supervision were assessed. Participants could also respond "Not Applicable" if they did not have exposure to specific training settings (i.e., post-doctoral training). Questions focused on training in a variety of areas including provision of psychological services for students with chronic health conditions, health promotion & prevention, methods of promoting IPC, and interprofessional research. Participants' amount of training was calculated by assigning one point for each area that participants reported having over "no training" in and adding the total points in those areas. Because participants had the opportunity to respond to different questions based on exposure to different training experiences (i.e., pre-doctoral internship, post-doctoral training) an overall training score was calculated for each participant that took into account both amount of reported training and intensity of training (based on Likert scale response) by multiplying the total amount of training by intensity of training, with a potential range from 0 to 120 for trainees and 0 to 320 for professionals. Overall training scores ranged from 1.04 to 84 for trainees and 0 to 186 for professionals. Since a preliminary analysis of the relationship between training, preparedness, and current practices found that the relationship between variables did not differ dependent on the method of measuring training (amount of training, intensity of training, or overall training score), the overall training score was used since it takes both intensity and amount of training into account.

Preparedness related to IPC. Participants' perceived preparedness for participating in IPC with medical providers was queried via a survey developed for this

study and based on literature about school psychologist practices in IPC with medical providers (Hoge et al., 2014; Power et al., 2003; Shaw, 2003). Ten Likert-style questions, with response ranging on a five-point scale from "Not at all Prepared" to "Extremely Prepared," were used to assess perceived preparedness related various activities such as exchange of records, consultation, ability to generate treatment plans for collaborative care, and ability to discuss IPC with parents. A preparedness score was calculated for each participant by calculating the mean score of all items, with a potential range from 1 to 5. Participants' mean scores ranged from 1 to 5. The items demonstrated excellent internal consistency ($\alpha = .91$) within this sample.

Current practices in IPC. Participants' current practices in IPC was queried via a survey developed for this study and based on literature about school psychologists' practices in IPC with medical providers (Hoge et al., 2014; Power et al., 2003; Shaw, 2003). Fifteen Likert-style questions, with response ranging on a five-point scale from "Very Rarely" to "Very Frequently," were used to assess perceived frequency of collaboration with medical providers in various activities, including assessment and intervention for children with medical issues, prevention programing related to chronic health conditions, handling insurance issues, and generating treatment plans for collaborative care. A current practices score was calculated for each participant by calculating the mean score of all items, with a potential range from 1 to 5. Participants' mean scores ranged from 1.00 to 4.73. The items demonstrated excellent internal consistency ($\alpha = .94$) within this sample.

Demographic characteristics. Participant demographic characteristics, including gender, race/ethnicity, current role (i.e., professional or graduate student), highest

educational attainment, type of degree, years of experience in the field (if professional), and year in graduate program (if student) were queried.

Procedure

Participants were recruited by email via two methods. First, the survey was disseminated to all members of the New York Association of School Psychology (NYASP) listserv (n = 750). Members were prompted with a reminder one week later. Additionally, directors of NASP-approved School Psychology programs within the United States (n = 180) were contacted once via email and asked to disseminate the survey to their students and alumni. As it is unknown whether directors disseminated the survey, as well as to whom the survey was disseminated (e.g., current students only vs. current students and alumni), response rate was not able to be estimated. Surveys were created with and distributed via Qualtrics Survey Software. Informed consent was obtained prior to starting the survey and all responses were anonymous. Approval from the Internal Review Board was obtained prior to data collection.

Data Analysis

Descriptive and inferential statistics were calculated and analyzed. First, participants with missing data were compared to participants with complete data to analyze if there were significant differences between those two populations. Then, a MANOVA and follow up ANOVAs were conducted to determine if professionals and trainees varied in terms of training, preparedness, and current practices related to IPC. Descriptive statistics for individual types of training, preparedness, and current practices related to IPC were calculated. Finally, multiple linear regressions were performed to

assess the relationship between training, preparedness, and current practices related to IPC.

Results

Missing Data

Three hundred and seventeen participants initiated the electronic survey; 286 completed all sections of the survey. An analysis of missing data found that participants who completed the survey and did not complete the survey did not differ in terms of any demographic variables. Between 0.6% and 10% of data was missing, varying between individual questions, as we did not require participants to complete all questions in order to complete the survey. Therefore, following Newman (2014), we used each person's available items to represent each construct and pairwise deletion as necessary.

Descriptive Statistics

To test differences between trainees' and professionals' training, preparedness and current practices, we conducted a MANOVA with status (trainee or professional) as the between subject factor, and our three outcomes as interest. A *Wilks' Lambda* showed significant differences between groups, $F(3, 264) = 29.32$, $p < .001$. Follow up univariate tests showed professionals' overall training score ($M = 55.33$, $SD = 36.00$) was significantly higher than trainees' ($M = 25.68$, $SD = 20.51$), $F(1, 266) = 76.00$, $p < .01$ d=4.65. Professionals' rating of perceptions of preparedness ($M = 3.05$, $SD = .73$) was significantly higher than trainees' preparedness ($M = 2.63$, $SD = .89$), $F(1, 266) = 17.20$, $p < .01$ d=1.05. Professionals' current practice related to IPC ($M = 2.45$, $SD = .71$) was also significantly higher than trainees' ($M = 1.86$, $SD = .89$), $F(1, 266) = 40.97$, $p < .01$, d=2.51.

We then looked at the individual aspects of training, preparation, and current practices. Professionals reported the highest intensity of training in the use and side effects of psychopharmacological treatments ($M = 2.56$, $SD = .73$) while trainees reported the highest intensity of training related to methods of promoting IPC ($M = 2.59$, $SD = 1.06$). Professionals ($M = 1.40$, $SD = .67$) and trainees ($M = 1.81$, $SD = .93$) reported the lowest intensity of training in engaging in interprofessional research. (See Table 2).

Overall, participants reported being somewhat prepared to engage in various activities related to IPC ($M = 2.84$, $SD = .84$). Professionals ($M = 4.13$, $SD = .96$) and trainees ($M = 3.25$, $SD = 1.24$) felt most prepared to discuss IPC with parents and obtain written parental consent to collaborate with medical providers. Professionals ($M = 1.62$, $SD = .93$) and trainees ($M = 1.61$, $SD = .87$) reported being least prepared to handle insurance and reimbursement issues. (See Table 3).

Overall, participants reported that their current practices related to IPC occurred rarely ($M = 2.17$, $SD = .87$). The most frequently endorsed current practice related to IPC for professionals ($M = 3.38$, $SD = 1.10$) and trainees ($M = 2.31$, $SD = 1.31$) was collaboration through exchange of records. The least frequently endorsed current practice related to IPC was engaging in research and program evaluation efforts in medical settings for professionals ($M = 1.18$, $SD = .58$) and handling health insurance and reimbursement issues for trainees ($M = 1.21$, $SD = .59$). (See Table 4).

Predictors of Current Practice of IPC

A multiple linear regression was used to assess the relationship between current practices and independent variables, which included perception of training and preparedness related to IPC. The overall model was significant, $F(2, 265) = 132.36$ $p <$

.01, $R^2 = .51$. Among the predictor variables, both perception of training and preparedness significantly predicted current practice ($p < .01$).

Separate regressions were run based on role in the field (professional or trainee), years of experience in the field, and presence of a SBHC to assess if the relationship between training and preparedness as predictors of current practices differed based on these variables. The overall model was significant for both trainees, $F(2, 132) = 111.56$, $p < .01$, $R^2 = .63$, and professionals, $F(2, 130) = 24.00$, $p < .01$, $R^2 = .27$, and training and preparedness significantly predicted current practice for both trainees ($p < .01$) and professionals ($p < .01$).

Related to years experiences for professionals, the overall model was significant for participants with equal to or less than 5 years of experience, $F(2, 44) = 19.95$, $p < .01$, $R^2 = .48$, and 6-10 years of experience, $F(2, 25) = 12.05$, $p < .01$, $R^2 = .49$, and marginally significant for 11-15 years of experience, $F(2, 15) = 3.48$, $p = .06$, $R^2 = .32$. For professionals with equal to or less than 5 years of experience, preparedness significantly predicted current practice ($p < .01$) and training marginally predicted current practice ($p = .051$). For professionals with 6-10 and 11-15 years of experience, preparedness significantly predicted current practice ($p = .02$; $p = .04$, respectively) and training did not predict current practice ($p = .25$; $p = .35$, respectively). The overall model was not significant for participants with 16-20 years of experience, $F(2, 11) = 3.23$, $p = .08$, $R^2 = .37$, and more than 20 years of experience, $F(2, 23) = .31$, $p = .73$, $R^2 = .03$.

The overall model was significant for participants who worked in a SBHC, $F(2, 32) = 22.32$, $p < .01$, $R^2 = .58$, and participants who did not work in a SBHC, $F(2, 125) = 66.52$, $p < .01$, $R^2 = .52$. Additionally, there were not significant differences between the

two groups in terms of training (p = .72), preparedness (p = .98), and current practices (p = .68) related to IPC.

To determine if specific types of training experiences (i.e., graduate coursework, supervised practicum, internship training, postdoctoral training, continued education workshops, etc.) improved professionals' perceptions of preparedness and current practice of IPC, we then looked at responses of only professionals and created sum scores for location of training, across types of training. A regression with preparedness and current practices as the dependent variables and total amount of training within each location (i.e. graduate coursework, supervised practicum, internship, continuing education training workshops, and continuing education conferences) as predictor variables was significant, F (5, 119) = 17.73, p = <.01, R^2 = .43. Graduate coursework (p = .03) and internship training (p = .003) significantly predicted preparedness for IPC but not supervised practicum, continuing education workshops or conferences (ps >.10). While the overall model for current practices of IPC was significant (F(5, 117) = 6.07, p < .01, R^2 = .20), no individual type of training experience predicted current practices of IPC.

Discussion

This study sought to examine school psychology trainees' and professionals' training, preparedness, and current practices related to IPC with medical providers. Results indicated that both professionals and trainees reported relatively low levels of perceived training and preparedness related to IPC, which is consistent with previous research that reported infrequent training experiences related to IPC for SMH providers (Arora et al., 2016). This finding suggests that school psychology professionals and

trainees are not provided with sufficient training and are not sufficiently prepared to engage in IPC. Further, we found that current practices in IPC with medical providers occurred rarely, which is consistent with previous research that reported infrequent IPC between SMH providers and PCPs (Arora et al., 2016) and school psychologists and PCPs (Bradley-Klug et al., 2010; Bradley-Klug et al., 2013). The most frequent practice related to IPC was engaging in collaboration through exchange of records, which is consistent with previous research that found that school psychologists' and SMH providers main reason for communicating with PCPs is to request or provide information about students (Arora et al., 2016; Bradley-Klug et al., 2013). Overall, these findings suggest a lack of IPC between school psychologists and medical providers and expands upon past research by examining school psychology trainees' and professionals' IPC with the larger population of medical providers.

Results from the study found that school psychology trainees' and professionals' perceptions of training and preparedness related to IPC with medical providers predicted current practices in IPC. This finding is consistent with previous research that reported that, for providers who work in integrated healthcare settings, interdisciplinary training is related to IPC (Gaboury, Bujold, Boon, & Moher, 2009), though builds on previous research by examining this understudied population. This finding underscores the importance of improving this type of training in order to promote IPC engagement.

Additionally, we found that training and preparedness as predictors of current practices related to IPC differed based on professionals' years of experience within the field, which is consistent with previous research that found differences in IPC practices among medical providers based on age and years of experience (Sarma et al., 2012).

Although preparedness was found to significantly predict current practice for professionals with 0-10 years of experience, it did not predict current practice for professionals with 11-20 years or more of experience. Training related to IPC only marginally predicted current practices at 0-5 years and did not significantly predict current practice for professionals with 6-20 or more years when examined based on years of experience. These findings suggest that as professionals gain more experience in the field, their training and perceptions of preparedness related to IPC with medical providers may inform their practices to a lesser degree, and further suggests the need for continued training over time. These differences may also be a driven by differences in the number of participants for each group distributed among lower numbers of years of experience.

Additionally, despite SBHC's focus on providing interdisciplinary services (Brown, 2006), the relationship between training and preparedness and current practices of IPC did not differ based on presence of SBHC in schools. The extent of participants' involvement in the SBHCs, which may impact IPC practices, was unknown, and may have contributed to the lack of significant differences between these participants.

Finally, with regards to types of training, we found that training related to IPC within the context of graduate coursework and internship were predictive of preparedness for IPC among school psychology professionals. These findings have implications for the particular types of training in which IPC should be emphasized for trainees.

Limitations and Future Directions

Several limitations should be considered. First, while the study aimed to obtain a representative sample by attempting to distribute the survey to all school psychology trainees and alumni of NASP approved school psychology programs, it also recruited

participants via the NYASP, which may have caused participants to be more representative of school psychologists within New York. Due to this limitation, the results may not generalize to school psychologists and trainees nationwide. Additionally, response rate could not be determined as it was unknown if directors of school psychology programs disseminated the survey as well as to whom the survey was disseminated. Additionally, it is unknown who chose not to participate in the study. Despite these limitations, the demographics in terms of gender and race/ethnicity were similar to that of school psychologists nationally. Future studies should attempt to obtain a more nationally representative sample of school psychologists by recruiting participants through NASP. Third, since participants were self-selected, response bias may exist with participants who responded being more interested or knowledgeable about IPC. Fourth, the survey assessed participants' perceptions of their training and current practices related to IPC, which may differ from their actual training received and engagement in IPC. Future research may consider using more objective measures of training for IPC, such as review of courses and practicum within graduate programs and record reviews. Lastly, this study did not consider other relevant factors that might contribute to or hinder IPC. Past research has explored variables that have been found to impact IPC, including attitudes toward IPC (Arora et al., 2016). Future research should assess such relevant factors in order to better understand different variables that may contribute to infrequent IPC between school psychologists and medical providers.

Implications for School Psychologists

With the passage of the Affordable Care Act (ACA; Public Law No: 111–148) and its focus on accountable, effective, integrated care, it is ever more critical that school

psychologists are able to effectively engage in IPC with medical to promote the mental health care of youth. Results point to the importance of training and perceptions of preparedness as crucial aspects in subsequent engagement in IPC with medical providers, underscoring the importance of training and internship programs to provide additional training related to IPC. Specifically, such programs should seek to address skills that would be used in the context of IPC, including providing training related to engaging in interprofessional research and dealing with insurance, reimbursement, and health care law and regulation, particularly considering their importance in the future of health care delivery. Further, programs that train school psychologists should increase opportunities for training experiences related to IPC with medical providers in a variety of settings. For instance, training programs may seek to provide a specialization in pediatric school psychology, allowing for training that focuses on the academic, behavioral, and mental health needs of students with chronic health conditions (Power & Bradley-Klug, 2013). Within this subspecialty, school psychology trainees are supported in learning how to provide consultation services to parents, teachers, and medical providers of youth with medical conditions (Sheridan et al., 2009) or to work in SBHCs (Shaw, 2003), where they address the needs of youth with chronic health conditions. Additionally, professional development opportunities related to IPC with medical providers, such as webinars and continuing education workshops, should be developed to promote continued training in this area, with the goal of increasing IPC engagement.

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Table 1

Demographic Characteristics of Participants

Variable	*N*	%
Gender		
Female	268	84.5
Male	45	14.2
Other	0	0.0
Ethnicity		
Hispanic/Latino	17	5.4%
Non Hispanic/Latino	295	93.1%
Race		
American Indian or Alaska Native	4	1.3%
Asian	17	5.4%
Black or African American	15	4.7%
Native Hawaiian or Pacific Islander	1	.3%
White	275	86.8%
Other	10	3.2%
Degree Area		
School Psychology	237	74.8%
Educational Psychology	2	.6%
Clinical Psychology	1	.3%
Combined School and Clinical Psychology	71	22.4%
Other	3	.9%
Highest Educational Attainment		
Bachelor's Degree	73	23%
Master's Degree	105	33.1%
Specialist or Equivalent	69	21.8%
Doctorate	68	21.5%
Role in the Field		
Graduate Student in Master's/Specialist Program	81	25.6%
Graduate Student in Doctoral Program	82	25.9%
Practicing Psychology- School Setting	109	34.4%
Practicing Psychologist- Non-School Setting	21	6.6%
Researcher/Academic	9	2.8%
Other	13	4.1%
Student's Year in the Program		
1st Year	41	12.9%
2nd Year	49	15.5%
3rd Year	35	11%
4th Year	22	6.9%
Years of Experience		
= or less than 5	57	18%
6-10	32	10.1%
11-15	21	6.6%
16-20	15	4.7%
More than 20	26	8.2%
School Based Health Center		
Yes	43	13.6%
No	147	46.4%
Unsure	29	9.1%
Not applicable- Don't work in a school	94	29.7%

Table 2

Training in IPC

	Trainees (n = 150)		Professionals (n = 138)	
Area of Training	M	SD	M	SD
1. Methods of promoting interprofessional collaboration	2.59	1.06	2.32	.93
2. Medical issues that affect school performance	2.37	.83	2.52	.78
3. Assessment and interventions for children and families coping with medical issues	2.27	1.00	2.27	.84
4. Use and side effects of psychopharmacological treatment	2.19	.85	2.56	.73
5. Prevention programming related to chronic health conditions	2.00	.91	1.82	.85
6. Roles, education/training, scope of practice, values, and priorities of providers from other pediatric disciplines	1.98	.87	2.12	.84
7.Systems issues, such as insurance, reimbursement and health care law regulation and policy	1.82	.84	1.56	.72
8. Engaging in interprofessional research	1.81	.93	1.40	.68

Table 3

Preparedness in IPC

	Trainees (n = 144)		Professionals (n = 135)	
Competency	M	SD	M	SD
Discuss IPC with parents and obtain written parental consent to collaborate with medical providers	3.25	1.24	4.13	.96
Collaborate with medical providers through exchange of records	3.21	1.21	4.01	1.00
Conduct assessments for children and families coping with medical issues	2.99	1.10	3.51	1.02
Promote IPC through consulting and communicating with medical providers	2.97	1.21	3.89	1.00
Deliver interventions for children and families coping with medical issues	2.74	1.10	3.19	1.02
Collaborate with medical providers via integrated treatment or coordinated care	2.63	1.18	3.31	1.20
Address health concerns in multiple systems/settings (such as medical settings)	2.44	1.14	2.66	1.20
Provide prevention programming, including risk and protective factors related to chronic health conditions	2.32	1.13	2.33	1.08
Engage in interprofessional research and program evaluation efforts in medical settings	2.17	1.01	1.90	1.03
Handle insurance and reimbursement issues and health care law regulation and policy	1.51	.87	1.62	.93

Table 4

Current Practices of IPC

	Trainees (n = 134)		Professionals (n = 133)	
Competency	M	SD	M	SD
Collaborate with medical providers through exchange of records	2.31	1.31	3.38	1.10
Discuss IPC with parents and obtain written parental consent to collaborate with medical providers	2.27	1.33	3.32	1.15
Conduct assessments for children and families coping with medical issues	2.20	1.28	2.79	1.24
Communicate with medical providers for the purpose of requesting information about students	2.16	1.33	3.35	1.14
Deliver interventions for children and families coping with medical issues	2.07	1.20	2.67	1.20
Promote IPC through consulting with medical providers and communicating with medical providers	2.06	1.29	3.13	1.12
Communicate with medical providers for the purpose of providing information about students.	1.99	1.30	3.24	1.13
Collaborate with medical providers via integrated treatment or coordinated care	1.85	1.20	2.51	1.15
Communicate with medical providers for the purpose of developing interventions	1.84	1.17	2.70	1.18
Address health concerns in multiple systems/settings (such as medical settings)	1.77	1.10	1.78	1.05
Communicate with medical providers for the purpose of progress monitoring	1.76	1.14	2.50	1.20
Generate treatment plans for collaborative care.	1.69	1.06	1.58	.98
Provide prevention programming, including risk and protective factors related to chronic health conditions	1.56	.92	1.90	1.08
Engage in research and program evaluation efforts in medical settings	1.27	.80	1.18	.58
Handle insurance and reimbursement issues	1.21	.59	1.29	.70

SECTION 3

OPTIONAL CHAPTER

Methods

Participants

Participants (n = 317) were school psychology professionals (n = 154; 48.9%) and graduate students (n = 163; 51.4%). Of the total sample, self-identified race/ethnicity revealed that the majority were White/Caucasian, not Hispanic/Latino (n = 275; 86.8%) and 268 (84.5%) were female. These demographic characteristics are similar to characteristics of school psychologists nationally (Curtis et al., 2008). School psychology professionals reported working in school settings (n = 109; 71.7%), non-school settings (n = 21; 13.8%), research/academic settings (n = 9; 5.9%), and other settings (n = 13; 8.6%). Of the graduate students, 81 (49.7%) were in masters or specialist programs while 82 (50.3%) were in doctoral programs. Of professional participants, 57 (18%) reported equal to or less than 5 years of experience in the field, 32 (10.1%) reported 6-10 years, 21 (6.6%) reported 11-15 years, 15 (4.7%) reported 16-20 years, and 26 reported more than 20 years (8.2%). See Table 1 for complete demographic information.

Measures

Perception of Training in IPC with Medical Providers. Participants were asked about their perceptions of training experiences in IPC with medical providers. Questions regarding training were developed for this study and were based on existing literature regarding competencies for psychologists in collaborating with medical providers (Hoge, Morris, Larala, Pomerantz, & Farley, 2014; Power et al., 2003; Shaw, 2003). Eight Likert-style questions, with response ranging on a five-point scale from "No Training" to

"Extensive Training," were used to assess participants' perceptions of training related to IPC. Perceptions of training in the context of graduate school, pre-doctoral internship, post-doctoral training, and continuing professional education through didactics/coursework, clinical experiences, and supervision were assessed. Participants could also respond "Not Applicable" if they did not have exposure to specific training settings (i.e., pre-doctoral internship, post-doctoral training). Questions focused on training in the following areas: provision of psychological services for students with chronic health conditions, health promotion & prevention, methods of promoting IPC with medial providers, and interprofessional research with medical providers. Participants amount of training was calculated by assigning one point for each area that participants reported having over "no training" in and adding the total points in those areas. Because participants had the opportunity to respond to different questions based on exposure to different training experiences (i.e., pre-doctoral internship, post-doctoral training) an overall training score was calculated for each participant that took into account both amount of reported training and intensity of training by multiplying the total amount of training by intensity of training (based on Likert scale response), with a potential range from 0 to 120 for trainees and 0 to 320 for professionals. Overall training scores ranged from ranged from 1.04 to 84 for trainees and 0 to 186 for professionals. The complete scale can be found in Appendix A.

Preparedness Related to IPC with Medical Providers. Participants' perceived preparedness for participating in IPC with medical providers in a number of skill areas was queried. Questions regarding preparedness were developed for this study and based on literature about activities and skills that are used by school psychologists to

collaborate with medical providers (Hoge et al., 2014; Power et al., 2003; Shaw, 2003). Ten (10) Likert-style questions, with response ranging on a five-point scale from "Not at all Prepared" to "Extremely Prepared," were used to assess preparedness to participate in IPC with medical providers in the following areas: exchange of records, consultation, co-location in their offices, ability to generate treatment plans for collaborative care, and ability to discuss interdisciplinary collaboration with parents and obtain written parental consent to collaborate with medical providers. The ten items demonstrated excellent internal consistency ($\alpha = .91$) within this sample. A preparedness score was calculated for each participant by calculating the mean score of all items, with a potential range from 1 to 5. Participants' mean scores ranged from 1 to 5.The complete scale can be found in Appendix B.

Attitudes Related to Interprofessional Learning with Medical Providers. Participants' attitudes toward interprofessional learning with medical providers were assessed using a slightly modified version of The Readiness for Interprofessional Learning Scale (RIPLS; Parsell & Blight, 1999). The survey consists of 19 Likert questions on a five-point scales ranging from "Strongly Agree" to "Strongly Disagree." Items load onto three subscales (i.e., teamwork and collaboration, professional identity, and roles and responsibilities) that are designed to assess readiness for interprofessional learning. The scale has been found to have high content validity and an alpha coefficient of 0.9 (Parsell & Bligh, 1999). Wording of several items on the RIPLS was slightly altered to be appropriate for the participants who were surveyed. The terms "school psychologists" and "pediatric professionals" were used in place of "health-care students" to specify what type of professionals are involved in the interprofessional learning that

was queried. For example, participants were asked to rate how much they agreed/disagreed with the following statements: "Shared learning with other school psychology and pediatric students/professionals will increase my ability to understand clinical problems," "Shared learning with school psychology and pediatric students/professionals will help me to communicate better with patients and other professionals," "Team-working skills are vital for all school psychology and pediatric students/professionals to learn." An attitude towards interprofessional learning score was calculated for each participant by calculating the mean score of all items, with a potential range from 1 to 5. Participants' mean scores ranged from 1.26 to 5.00. The complete scale can be found in Appendix D.

Current Practices Related to IPC with Medical Providers. Participants' perceived current practices in related to IPC was queried. Questions regarding current practices were developed for this study and based on literature about activities that are used by school psychologists when collaborating with medical providers (Hoge et al., 2014; Power et al., 2003; Shaw, 2003). Fifteen (15) Likert-style questions, with response ranging on a five-point scale from "Very Rarely" to "Very Frequently," were used to assess perceived frequency of collaboration with medical providers in various activities. Areas of interest included assessment and intervention for children with medical issues, prevention programing related to chronic health conditions, collaboration through exchange of records, discussing IPC with parents, consultation with medical providers, integrated treatment, handling insurance and reimbursement issues, engaging in research and program evaluation efforts in medical settings, generating treatment plans for collaborative care, and communicating with medical providers to request or provide

information about students/patients, develop interventions, and monitor progress. The fifteen items demonstrated excellent internal consistency (α = .94) within this sample. A current practices score was calculated for each participant by calculating the mean score of all items, with a potential range from 1 to 5. Participants' mean scores ranged from 1.00 to 4.73.The complete scale can be found in Appendix C.

Demographic Characteristics. Participant were asked about various demographic characteristics, including gender, race/ethnicity, current role in the field of school psychology (i.e., professional or graduate student), highest educational attainment, type of degree (i.e., school psychology, educational psychology, clinical psychology, combined school/clinical psychology), years of experience in the field (if professional), and year in graduate program (if student) were included.

Procedure

Participants were recruited by email via listservs. Specifically, school psychology professionals and graduate students were recruited via two methods. First, approval was obtained with the New York Association of School Psychology (NYASP) to disseminate the survey. The survey was then disseminated to all members via their listserv (n = 750). Members were prompted with a reminder one week later. Additionally, as another method of recruitment, directors of NASP-approved School Psychology programs within the United States (n = 180) were contacted via email and asked to disseminate the survey to their students and alumni. As it is unknown whether directors disseminated the survey, as well as to whom the survey was disseminated (e.g., current students only vs. current students and alumni), response rate of this second method of recruitment was not able to be estimated.

To be eligible to complete the survey, participants had to be current professionals or graduate students within the field of school psychology. Surveys were created with and distributed via Qualtrics Survey Software. Informed consent was obtained prior to starting the survey and all responses were anonymous. Approval from the Internal Review Board at Investigator's institution was obtained prior to data collection.

Data analysis plan

Descriptive and inferential statistics were calculated and analyzed. First, participants with missing data are compared to participants with complete data to analyze if there are significant differences between those two populations. Then, a series of one-way ANOVAs were conducted to determine if professionals and trainees varied in terms of, training, preparedness, attitudes, and current practices related to IPC. Descriptive statistics for training, preparedness, attitudes, and current practices related to IPC were calculated. Finally, multiple linear regressions were performed to assess the relationship between attitudes, and current practices related to IPC and interprofessional learning.

Results

Missing Data

Three hundred and seventeen (317) participants initiated the electronic survey and 286 completed all sections of the survey, leaving 31 without complete data. An analysis of missing data found that participants who completed the survey and participants who did not complete the survey did not differ in terms of demographic variables including gender ($X^2(1, 313) = .93$, $p = .34$), ethnicity ($X^2(1, 312) = .04$, $p = .85$), role in the field ($X^2(1, 315) = .24$, $p = .62$), type of degree ($X^2(4, 314) = .6.24$, $p = .18$), years of experience in the field for professionals ($X^2(4, 151) = 7.0$, $p = .14$), and whether they

work in a School Based Health Center or not (X^2 (3, 313) = 5.88, p = .12). Listwise deletion was used to handle missing data.

Descriptive Statistics for Training, Preparedness, Attitudes, and Current Practices Related to IPC

Professionals' overall training score (*M = 55.33; SD = 36.00*), which took into account both intensity of training and amount of training, was significantly higher than trainees' (*M = 25.68; SD = 20.51*), as shown by a one-way ANOVA (F(1, 286) = 75.32, p <.01). Professionals (*M = 1.40; SD = .67*) and trainees (*M = 1.81; SD = .93*) reported the lowest intensity of training in engaging in interprofessional research. Professionals reported the highest intensity of training in the use and side effects of psychopharmacological treatments (*M = 2.56; SD = .73*) while trainees reported the highest intensity of training related to methods of promoting IPC (*M = 2.59; SD = 1.06*).

Overall, participants reported being somewhat prepared to engage in various activities related to IPC (*M = 2.84, SD = .84*). Professionals (*M = 1.62; SD = .93*) and trainees (*M = 1.61; SD = .87*) reported being least prepared to handle insurance and reimbursement issues. Professionals (*M = 4.13; SD = .96*) and trainees (*M = 3.25; SD = 1.24*) reported being most prepared to discuss interprofessional collaboration with parents and obtain written parental consent to collaborate with medical providers. A one-way ANOVA showed that professionals' rating of perception of preparedness (*M = 3.05, SD = .73*) was significantly higher than trainees' (*M = 2.63, SD = .89*) preparedness (F(1, 277) = 18.58, p <.01).

Overall, participants reported positive attitudes towards interprofessional learning (*M = 4.09, SD = .55*), indicating that they generally agreed with statements that

supported interprofessional learning. Attitudes towards interprofessional learning showed marginally significant differences between professionals and trainees ($F(1,262) = 3.82$, $p = .052$), with trainees (*M = 4.15;SD = .59*) demonstrating more positive attitudes than professionals (*M = 4.02; SD = .51*).

Overall, participants reported that their current practices related to IPC occurred rarely (*M = 2.17, SD = .87*). The most frequently endorsed current practice related to IPC for professionals (*M = 3.38; SD = 1.10*) and trainees (*M = 2.31; SD = 1.31*) was collaboration through exchange of records. The least frequently endorsed current practice related to IPC was engaging in research and program evaluation efforts in medical settings for professionals (*M = 1.18; SD = .58*) and prevention programing related to chronic health conditions for trainees (*M = 1.56; SD = .92*). Professionals' current practice related to IPC (*M = 2.45, SD = .71*) was significantly higher than trainees' (*M = 1.86, SD = .89*), as shown by a one-way ANOVA ($F(1, 266) = 40.97$, $p < .01$). Table 2 shows the mean training, preparedness, and current practices separated for professionals and trainees.

Predictors of Current Practice of IPC

A multiple linear regression was used to assess the relationship between current practices and independent variables, which included training, preparedness, and attitudes towards interprofessional learning and collaboration. The overall model was significant ($F(3, 257) = 89.92$, $p < .01$, $R^2 = .51$) and the predictors accounted for 51.2% of the variance of current practice. Among the predictor variables, training and preparedness significantly predicted current practice ($p < .01$) while attitudes towards interprofessional learning did not predict current practices ($p = .79$).

Separate regressions were run based on role in the field (professional or trainee), years of experience in the field, and whether participants work in a SBHC to assess if the relationship between training, preparedness, and attitudes as predictors of current practices differed based on these variables. The overall model was significant for both trainees ($F(3, 128) = 82.02$, $p < .01$, $R^2 = .66$) and professionals ($F(3, 125) = 16.55$, $p < .01$, $R^2 = .28$) and training and preparedness significantly predicted current practice for both trainees ($p < .01$) and professionals ($p < .01$). Attitudes towards interprofessional learning did not predict current practices for students ($p = .48$) and marginally predicted current practices for professionals ($p = .059$).

In terms of years of experiences for professionals, the overall model was significant for participants with equal to or less than 5 years of experience ($F(3, 42) = 12.64$, $p < .01$, $R^2 = .47$) and 6 – 10 years of experience ($F(3, 22) = 9.63$, $p < .01$, $R^2 = .57$). For professionals with equal to or less than 5 years of experience, preparedness significantly predicted current practice ($p < .01$), training marginally predicted current practice ($p = .06$), and attitudes did not predict current practice ($p = .93$). For professionals with 6 – 10 years of experience, preparedness significantly predicted current practice ($p = .01$), attitudes marginally predicted current practice ($p = .052$), and training did not predict current practice ($p = .59$). The overall model was not significant for participants with 11 -15 years of experience ($F(3, 13) = 1.60$, $p = .24$, $R^2 = .27$), 16 – 20 years of experience ($F(3, 10) = 3.00$, $p = .08$, $R^2 = .47$), and more than 20 years of experience ($F(3,22) = 1.52$, $p = .24$, $R^2 = .17$).

In terms of whether participants work in a SBHC, the overall model was significant for participants who worked in a school that had a SBHC ($F(3, 30) = 13.89$, p

$< .01$, $R^2 = .58$) and participants who did not work in a school that had a SBHC ($F(3, 120) = 41.64$, $p < .01$, $R^2 = .51$)[2].

Discussion

This study sought to examine school psychologists' (i.e., current professionals and graduate students): (a) training related to IPC with medical providers; (b) perceptions of preparedness related to IPC with medical providers; (c) attitudes toward interprofessional learning with medical providers; and (d) current practices in IPC with medical providers.

Overall, findings from this study expand upon existing research related to school psychologists' IPC by focusing on their training, perception of preparedness, and current practices related to IPC with medical providers and attitudes towards interprofessional education. Results of this study have implications for the training and professional development related to IPC of school psychology graduate students and professionals.

Results indicated that both professionals and trainees reported relatively low levels of training. This is consistent with pervious research that reported infrequent training experiences related to IPC for school mental health providers (Arora et al., 2016). Results also indicated that perception of preparedness related to IPC with medical providers was relatively low for both professionals and trainees. Overall attitudes towards interprofessional learning with medical providers were positive. Although this study examined attitudes towards interprofessional education with medical providers, as opposed to attitudes towards IPC practices with pediatric PCPs more generally, these findings are consistent with past research that demonstrated that school mental health providers, including school psychologists, are open to experiences related to IPC (Arora,

et al., 2016; Bradley-Klug et al., 2013). This study extends on this past research by examining attitudes towards learning experiences, which can be used to support and inform the creation of training experiences that focus on IPC. Additionally, it was found that current practices of IPC with medical providers occurred rarely, suggesting that this type of work is not a common occurrence. This is consistent with previous research that reported infrequent IPC between school mental health providers and PCPs (Arora et al., 2016) and school psychologists and PCPs (Bradley-Klug et al., 2010; Bradley-Klug et al., 2013), demonstrating the importance of focusing efforts to increase training in this area. The most frequent practice related to IPC was engaging in collaboration through exchange of records, which is consistent with previous research that found that school psychologists' and school mental health providers main reason for communicating with PCPs is to request or provide information about students (Arora et al., 2016; Bradley-Klug et al., 2013). The findings related to training, preparedness, attitudes, and current practices expand upon past research because it is the only study, to our knowledge, that examines both trainees' and professionals' IPC with the larger population of medical providers, as opposed to solely PCPs.

Results from the study examined variables that predicted current practices of IPC with medical providers. Both school psychology trainees' and professionals' training and perceptions of preparedness related to IPC with medical providers predicted current practices in IPC. Participants who reported higher levels of training and preparedness also reported more frequent IPC engagement. This finding is consistent with previous research that reported that for providers who work in integrated healthcare clinics, interdisciplinary training is related to IPC (Gaboury, Bujold, Boon, & Moher, 2009).

Attitudes towards interprofessional education with medical providers was not a significant predictor of current practices of professionals' and trainee's current practices of IPC. Additionally, the relationship between training, preparedness, attitudes, and current practices related to IPC was found to differ based on professionals' years of experience within the field, which is consistent with previous research that found differences in IPC practices among medical providers based on age and years of experience (Sarma et al., 2012). Although preparedness was found to significantly predict current practice for professionals with 0-10 years of experience, it did not predict current practice for professionals with 11-20 years or more of experience. Training related to IPC only marginally predicted current practices at 0-5 years and did not significantly predict current practice for professionals with 6-20 or more years when examined based on years of experience. Attitudes towards interprofessional education only marginally predicted current practices for professionals with 6-10 years of experience. These findings may suggest that as professionals gain more experience in the field, their training and perceptions of preparedness related to IPC with medical providers may inform their practices to a lesser degree. These differences may also be a driven by differences in the number of participants for each group distributed among lower (versus higher) numbers of years of experience. Because there were fewer participants in groups with greater years of experience, the power was lower and therefore may have impacted the examined relationship. Lastly, despite SBHC's focus on providing interdisciplinary services related to physical and mental health needs (Brown, 2006), the relationship between training, preparedness, and attitudes related to IPC and current practices of IPC with medical

providers did not differ for those who work in a school that has a SBHC and those who do not.

Limitations and Future Directions

Several limitations should be considered in the context of the findings of this study. First, while the study aimed to obtain a representative sample by attempting to distribute the survey to all school psychology trainees and alumni of NASP approved school psychology programs, it also recruited participants via the NYASP, which may have caused participants to be more representative of school psychologists within New York. Despite this limitation, the demographics in terms of gender and race/ethnicity were similar to that of school psychologists nationally. Future studies should attempt to obtain a more nationally representative sample of school psychologists by recruiting participants through NASP. Second, response rate could not be determined because it is unknown if directors of school psychology programs disseminated the survey after they were requested to. Third, since participants were self-selected there may be response bias. Participants who responded may be more interested in and/or knowledgeable about IPC since the recruitment letter indicated that the survey was about IPC medical providers. Fourth, the survey assessed participants' perceptions of their training and current practices related to IPC, which may differ from their actual training received and engagement in IPC. Future research may consider using more objective measures of training for IPC, such as review of courses and practicum within graduate programs, and engagement in IPC. Lastly, information regarding attitudes was related to attitudes towards interprofessional learning as opposed to IPC. Because this measure did not assess attitudes about the act of collaborating with medical providers it may not have

been the predictive of behavior of participating in IPC. Future research should collect information about attitudes towards IPC, as opposed to interprofessional learning.

Implications

This study may have important implications for the promotion of school psychologists' IPC with medical providers. Results point to the importance of training and perceptions of preparedness as crucial aspects that may support or hinder IPC, underscoring the importance of training programs to provide additional training related to IPC. Specifically, training should focus of skills that would be used in IPC to make trainees and professionals feel more prepared to participate in this type of work, which may include provision of psychological services for students with chronic health conditions, health promotion & prevention programing related to chronic medical conditions, methods of promoting IPC with medial providers, and interprofessional research. Programs that focus on pediatric school psychology, such as the Lehigh/CHOP program, that provides interprofessional training experiences, may be a useful method to promote this type of training.

While it was found that attitudes towards interprofessional learning experiences did not predict current practices of IPC, results indicated that participants generally had positive attitudes towards this type of learning. Interprofessional education, which involves collaborative training experiences among trainees from different fields, has been found that promote later IPC (Gaboury, Bujold, Boon, & Moher, 2009). Taking both school psychologists' positive attitude towards interprofessional learning and the positive effects of interprofessional education into account, school psychology programs should strongly consider incorporating this type of training into their programs in order to

support efforts to provide IPC within the field. Professionals' positive attitudes towards interprofessional learning experiences also suggests that professional development opportunities to promote IPC and training on this topic may be well received by school psychologists.

While this study suggests the importance of school psychologists' training and perceptions of preparedness for practices of IPC with medical providers, other factors that contribute to and hinder IPC should also be considered. Past research has explored barriers that have been found to hinder this IPC, including differences in professional jargon, culture, goals, and treatment approaches, as well as time, scheduling, and accessibility constraints, and access to information (Shaw & Woo, 2008; Wodrich, 2004). Future research should assess how training and perceptions of preparedness impact IPC practices while taking these and other barriers into account in order to better understand different variables of that may contribute to infrequent IPC between school psychologists and medical providers.

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Appendix A

Training Measure

Please respond to the following questions about the extent of your training experiences from 1 (No Training) to 5 (Extensive Training) in the following areas during various training experiences. Training refers to any experience in context of coursework or clinical experiences.

1. To what extent did you receive training about medical issues that affect school performance?
    - Medical issues include, but are not to limited to, chronic medical conditions (*asthma, cancer, diabetes, HIV/AIDS, obesity*, etc.), traumatic brain injury, genetic disorders.

Graduate Program						
		No Training	Minimal Training	Some Training	Quite a Bit of Training	Extensive Training
Graduate Coursework	N/A	1	2	3	4	5
Supervised Clinical Practica/Externship	N/A	1	2	3	4	5
Internship Program	N/A	1	2	3	4	5
ONLY FOR PROFRESSIONALS **Post-Doctoral Program**						
Didactics	N/A	1	2	3	4	5
Supervised Clinical Rotations/Experiences	N/A	1	2	3	4	5
Continuing Professional Education						
Training workshops	N/A	1	2	3	4	5
Conference Presentations	N/A	1	2	3	4	5
Other: *(specify)*	N/A	1	2	3	4	5

2. To what extent did you receive training in the use and side effects of psychopharmacological treatments?
   - Psychopharmacological treatments include but are not limited to stimulant medications for ADHD, antidepressants, and antipsychotics, and other psychotropic medications.

Graduate Program

		No Training	Minimal Training	Some Training	Quite a Bit of Training	Extensive Training
Graduate Coursework	N/A	1	2	3	4	5
Supervised Clinical Practica/Externship	N/A	1	2	3	4	5
Internship Program	N/A	1	2	3	4	5

ONLY FOR PROFESSIONALS

Post-Doctoral Program

Didactics	N/A	1	2	3	4	5
Supervised Clinical Rotations/Experiences	N/A	1	2	3	4	5

Continuing Professional Education

Training workshops	N/A	1	2	3	4	5
Conference Presentations	N/A	1	2	3	4	5
Other: *(specify)*	N/A	1	2	3	4	5

3. To what extent did you receive training in assessment and interventions for children and families coping with medical issues that affect school performance?
   - Medical issues that affect school performance include but are not limited to chronic medical conditions, traumatic brain injury, and genetic disorders.

Graduate Program

		No Training	Minimal Training	Some Training	Quite a Bit of Training	Extensive Training
Graduate Coursework	N/A	1	2	3	4	5

Supervised Clinical Practica/Externship	N/A	1	2	3	4	5
Internship Program	N/A	1	2	3	4	5

ONLY FOR PROFESSIONALS
Post-Doctoral Program

Didactics	N/A	1	2	3	4	5
Supervised Clinical Rotations/Experiences	N/A	1	2	3	4	5

Continuing Professional Education

Training workshops	N/A	1	2	3	4	5
Conference Presentations	N/A	1	2	3	4	5
Other: *(specify)*	N/A	1	2	3	4	5

4. To what extent did you receive training in prevention programming focusing on risk and protective factors related to chronic health problems, facilitation of medical treatment adherence, and parent education?

Graduate Program

		No Training	Minimal Training	Some Training	Quite a Bit of Training	Extensive Training
Graduate Coursework	N/A	1	2	3	4	5
Supervised Clinical Practica/Externship	N/A	1	2	3	4	5
Internship Program	N/A	1	2	3	4	5

ONLY FOR PROFESSIONALS
Post-Doctoral Program

Didactics	N/A	1	2	3	4	5
Supervised Clinical	N/A	1	2	3	4	5

Rotations/Experiences

Continuing Professional Education

Training workshops	N/A	1	2	3	4	5
Conference Presentations	N/A	1	2	3	4	5
Other: *(specify)*	N/A	1	2	3	4	5

5. To what extent did you receive training about the roles, education/training, scope of practice, values, and priorities of providers from other pediatric disciplines?
   - Other pediatric disciplines include but are not limited to pediatricians, physician assistants, nurses and nurse practitioners, psychiatrists, physical therapists, and occupational therapists.

Graduate Program

		No Training	Minimal Training	Some Training	Quite a Bit of Training	Extensive Training
Graduate Coursework	N/A	1	2	3	4	5
Supervised Clinical Practica/Externship	N/A	1	2	3	4	5
Internship Program	N/A	1	2	3	4	5

ONLY FOR PROFESSIONALS
Post-Doctoral Program

Didactics	N/A	1	2	3	4	5
Supervised Clinical Rotations/Experiences	N/A	1	2	3	4	5

Continuing Professional Education

Training workshops	N/A	1	2	3	4	5
Conference Presentations	N/A	1	2	3	4	5

Other: *(specify)*	N/A	1	2	3	4	5

6. To what extent did you receive training about methods of promoting interprofessional collaboration?
   - Interprofessional collaboration includes consulting with medical professionals, communicating with medical professionals, and engaging in integrated treatment with medical professionals.

Graduate Program

		No Training	Minimal Training	Some Training	Quite a Bit of Training	Extensive Training
Graduate Coursework	N/A	1	2	3	4	5
Supervised Clinical Practica/Externship	N/A	1	2	3	4	5
Internship Program	N/A	1	2	3	4	5

ONLY FOR PROFESSIONALS
Post-Doctoral Program

Didactics	N/A	1	2	3	4	5
Supervised Clinical Rotations/Experiences	N/A	1	2	3	4	5

Continuing Professional Education

Training workshops	N/A	1	2	3	4	5
Conference Presentations	N/A	1	2	3	4	5
Other: *(specify)*	N/A	1	2	3	4	5

7. To what extent did you receive training about systems issues, such as insurance, reimbursement and health care law regulation and policy?

Graduate Program

	No Training	Minimal Training	Some Training	Quite a Bit of Training	Extensive Training

Graduate Coursework	N/A	1	2	3	4	5
Supervised Clinical Practica/Externship	N/A	1	2	3	4	5
Internship Program	N/A	1	2	3	4	5

ONLY FOR PROFESSIONALS
Post-Doctoral Program

Didactics	N/A	1	2	3	4	5
Supervised Clinical Rotations/Experiences	N/A	1	2	3	4	5

Continuing Professional Education

Training workshops	N/A	1	2	3	4	5
Conference Presentations	N/A	1	2	3	4	5
Other: *(specify)*	N/A	1	2	3	4	5

8. To what extent did you receive training in engaging in interprofessional research?
    - Research activities include but are not limited to grant writing, and program evaluation.
    - Interprofessional research is research that involves professionals from different disciplines (such as medical professionals).

Graduate Program

		No Training	Minimal Training	Some Training	Quite a Bit of Training	Extensive Training
Graduate Coursework	N/A	1	2	3	4	5
Supervised Clinical Practica/Externship	N/A	1	2	3	4	5
Internship Program	N/A	1	2	3	4	5

ONLY FOR PROFESSIONALS

Post-Doctoral Program

Didactics	N/A	1	2	3	4	5
Supervised Clinical Rotations/Experiences	N/A	1	2	3	4	5

Continuing Professional Education

Training workshops	N/A	1	2	3	4	5
Conference Presentations	N/A	1	2	3	4	5
Other: *(specify)*	N/A	1	2	3	4	5

Appendix B

Preparedness Measure

Please indicate your level of preparedness to engage in the following activities from 1 (Not at all prepared) to 5 (Extremely prepared).

I am prepared to....	**Not at all prepared 1**	**Slightly prepared 2**	**Somewhat prepared 3**	**Moderately prepared 4**	**Extremely prepared 5**
1. Conduct *assessments* for children and families coping with medical issues that affect school performance.					
2. Deliver *interventions* for children and families coping with medical issues that affect school performance.					
3. Provide prevention programming, including risk and protective factors related to chronic health problems, methods to facilitate medical treatment adherence, and parent education?					
4. Collaborate with medical professionals through exchange of records.					
5. Discuss interprofessional collaboration with parents and obtain written parental consent to collaborate with medical providers.					
6. Promote interprofessional collaboration, through consulting with medical professionals and communicating with medical professionals.					
7. Collaborate with medical professionals via integrated treatment or coordinated care.					

8. Address health concerns in multiple systems/settings (such as medical settings).					
9. Handle insurance and reimbursement issues and health care law regulation and policy.					
10. Engage in interprofessional research and program evaluation efforts in medical settings.					

Appendix C

Current Practice Measure

Regarding interprofessional collaboration and current practices, please indicate the frequency with which you currently engage in the following activities from 1 (Very Rarely) to 5 (Very frequently).

	Very Rarely 1	**Rarely** 2	**Occasionally** 3	**Frequently** 4	**Very frequently** 5
1. I conduct *assessments* for children and families coping with medical issues that affect school performance.					
2. I deliver *interventions* for children and families coping with medical issues that affect school performance.					
3. I provide prevention programming, including risk and protective factors related to chronic health problems, methods to facilitate medical treatment adherence, and parent education.					
4. I collaborate with medical professionals through exchange of records.					
5. I discuss interprofessional collaboration with parents and obtain written parental consent to collaborate with medical providers.					
6. I promote interprofessional collaboration, through consulting with medical professionals and communicating with medical professionals.					
7. I collaborate with medical professionals via integrated treatment or coordinated care.					
8. I address health concerns in					

multiple systems/settings (such as medical settings).					
9. I handle insurance and reimbursement issues.					
10. I engage in research and program evaluation efforts in medical settings.					
11. I generate treatment plans for collaborative care.					
12. I communicate with medical professionals for the purpose of requesting information about students.					
13. I communicate with medical professionals for the purpose of providing information about students.					
14. I communicate with medical professionals for the purpose of developing interventions.					
15. I communicate with medical professionals for the purpose of progress monitoring.					

Appendix D

The Readiness for Interprofessional Learning Scale

The purpose of this questionnaire is to examine the attitude of students and professionals within the field of school psychology towards interprofessional learning with pediatric professionals.

	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
1. Learning with other students/professionals will make me a more effective member of a pediatric health care team.					
2. Patients would ultimately benefit if school psychology and pediatric students/professionals worked together.					
3. Shared learning with other school psychology and pediatric students/professionals will increase my ability to understand clinical problems.					
4. Communication skills should be learned with other school psychology and pediatric students/professionals.					
5. Team-working skills are vital for all school psychology and pediatric students/professionals to learn.					
6. Shared learning will help me to understand my own professional limitations.					
7. Learning between school psychology and pediatric students/professionals would improve working relationships during collaborative practice.					
8. Shared learning will help me think positively about other school psychology and pediatric students/professionals.					
9. For small-group learning to work, students/professionals need to respect and trust each other.					
10. I don't want to waste time learning with other primary care students/professionals.					
11. It is not necessary for school psychology and pediatric students/professionals to learn together.					

	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
12. Clinical problem solving can only be learnt effectively with students/professionals from my own discipline.					
13. Shared learning with school psychology and pediatric students/professionals will help me to communicate better with patients and other professionals.					
14. I would welcome the opportunity to work on small group projects with other school psychology and pediatric students/professionals.					
15. I would welcome the opportunity to share some generic lectures, tutorials, or workshops with other school psychology and pediatric students/professionals.					
16. Shared learning and practice will help me clarify the nature of patients', students' or clients' problems.					
17. Shared learning will help me become a better team worker.					
18. I am not sure what my professional role will be or currently is.					
19. I have to acquire much more knowledge and skill than other students/professionals in my own faculty/organization.					

Appendix E

Informed Consent

School Psychologists' Training, Preparedness, and Current Practices Related to Interprofessional Collaboration with Medical Professionals

You are invited to participate in a study that investigates school psychologists' training, preparedness, and current practices regarding collaboration with medical professionals. Should you choose to participate, you will be asked to complete a brief online questionnaire. The questionnaire will take about 10-20 minutes to complete.
There are no anticipated physical and/or long-term emotional risks involved as a result of taking part in this study. There are no direct benefits for participants. However, it is hoped that through your participation, researchers will learn more about the training and preparedness of school psychologist to collaborate with medical professionals to best serve children and adolescents in order to inform future training efforts.

All data obtained from participants will be kept confidential. All data will be concealed, and no one other than those involved in this research project will have access to the information provided.

Participation in this research study is completely voluntary. If at any time you wish to withdraw from the study, you may do so without prejudice. If desired you may consult with family members, colleagues, or other advisors before deciding whether to participate in the study.

If you have any questions concerning this study, please feel free to contact Jamie Levine at jl37208n@pace.edu. Questions can also be addressed to Dr. Prerna Arora, faculty advisor for this study, at parora@pace.edu or at (212) 346-1434. The Institutional Review Board (IRB) at Pace University has approved the solicitation of subjects for this study. If you have any questions or concerns, please contact the Office of Sponsored Research at 212-346- 1273.

If you chose to click yes below line, this means that you understand your rights and agree to participate in the study.

By proceeding to complete this questionnaire, I affirm that I have read and understand the above information, and have been given answers to any questions I had concerning the study:

Footnotes

[1] Three separate scores related to training were calculated: 1. Intensity of training score, which was the mean of Likert scale responses; 2. Amount of training score, which was calculated by assigning one point for each area that participants reported having over "no training" in and adding the total points in those areas; and 3. Overall training score, which was calculated by multiplying the intensity of training score by the amount of training score. All three training scores were used in preliminary analysis of the relationship between training, preparedness, attitudes, and current practices. The relationship did not significantly differ when the three different training scores were used. Because there was no significant difference, the overall training score was used since it takes both intensity and amount of training into account.

[2] Below is the ANOVA table comparing the training, preparedness, and current practices related to IPC for participants who work in a school that has a SBHC and participants who work in a school that does not have a SBHC. This demonstrates that there are not differences between the two groups.

Analysis of Variance (ANOVA) Between SBHC-Yes and SBHC-No

	df	*F*	*p*
Training	1	.13	.72
Preparedness	1	.00	.98
Attitude	1	1.08	.39
Current Practice	1	.17	.68

Table 1

Demographic Characteristics of Participants

Variable	*N*	%
Gender		
Female	268	84.5
Male	45	14.2
Other	0	0.0
Ethnicity		
Hispanic/Latino	17	5.4%
Non Hispanic/Latino	295	93.1%
Race		
American Indian or Alaska Native	4	1.3%
Asian	17	5.4%
Black or African American	15	4.7%
Native Hawaiian or Pacific Islander	1	.3%
White	275	86.8%
Other	10	3.2%
Degree Area		
School Psychology	237	74.8%
Educational Psychology	2	.6%
Clinical Psychology	1	.3%
Combined School and Clinical Psychology	71	22.4%
Other	3	.9%
Highest Educational Attainment		
Bachelor's Degree	73	23%
Masters	105	33.1%
Specialist or Equivalent	69	21.8%
Doctorate	68	21.5%
Role in the Field		
Graduate Student in Masters/Specialist Program	81	25.6%
Graduate Student in Doctoral Program	82	25.9%
Practicing Psychology- School	109	34.4%

Setting		
Practicing Psychologist- Non-School Setting	21	6.6%
Researcher/Academic	9	2.8%
Other	13	4.1%
Student's Year in the Program		
1st Year	41	12.9%
2nd Year	49	15.5%
3rd Year	35	11%
4th Year	22	6.9%
Years of Experience		
= or less than 5	57	18%
6-10	32	10.1%
11-15	21	6.6%
16-20	15	4.7%
More than 20	26	8.2%
School Based Health Center		
Yes	43	13.6%
No	147	46.4%
Unsure	29	9.1%
Not applicable- Don't work in a school	94	29.7%

Table 2

Trainees' and Professionals Training, Preparedness, Attitudes, and Current Practices Scores

	Trainees		Professionals	
Variable	M	SD	M	SD
Training	25.68	20.51	55.33	36.00
Preparedness	2.63	.89	3.05	.73
Attitudes	4.15	.59	4.02	.51
Current Practice	1.86	.89	2.45	.71

Table 3

Trainees' and Professionals' Training

	Trainees (N = 150)		Professionals (N = 138)	
Area of Training	M	SD	M	SD
Medical issues that affect school performance	2.37	.83	2.52	.78
Use and side effects of psychopharmacological treatment	2.19	.85	2.56	.73
Assessment and interventions for children and families coping with medical issues	2.27	1.00	2.27	.84
Prevention programming related to chronic health conditions	2.00	.91	1.82	.85
Roles, education/training, scope of practice, values, and priorities of providers from other pediatric disciplines	1.98	.87	2.12	.84
Methods of promoting interprofessional collaboration	2.59	1.06	2.32	.93
Systems issues, such as insurance, reimbursement and health care law regulation and policy	1.82	.84	1.56	.72
Engaging in interprofessional research	1.81	.93	1.40	.68

Table 4

Trainees' and Professionals' Preparedness

	Trainees (N = 144)		Professionals (N = 135)	
Competency	M	SD	M	SD
Conduct assessments for children and families coping with medical issues	2.99	1.10	3.51	1.02
Deliver interventions for children and families coping with medical issues	2.74	1.10	3.19	1.02
Provide prevention programming, including risk and protective factors related to chronic health conditions	2.32	1.13	2.33	1.08
Collaborate with medical providers through exchange of records.	3.21	1.21	4.01	1.00
Discuss IPC with parents and obtain written parental consent to collaborate with medical providers	3.25	1.24	4.13	.96
Promote IPC through consulting with medical providers and communicating with medical providers.	2.97	1.21	3.89	1.00
Collaborate with medical providers via integrated treatment or coordinated care	2.63	1.18	3.31	1.20
Address health concerns in multiple systems/settings (such as medical settings)	2.44	1.14	2.66	1.20
Handle insurance and reimbursement issues and health care law regulation and policy	1.51	.87	1.62	.93
Engage in interprofessional research and program evaluation efforts in medical settings	2.17	1.01	1.90	1.03

Table 5

Trainees' and Professionals' Current Practices of IPC

	Trainees (N = 134)		Professionals (N = 133)	
Competency	M	SD	M	SD
Conduct assessments for children and families coping with medical issues	2.20	1.28	2.79	1.24
Deliver interventions for children and families coping with medical issues	2.07	1.20	2.67	1.20
Provide prevention programming, including risk and protective factors related to chronic health conditions	1.56	.92	1.90	1.08
Collaborate with medical providers through exchange of records.	2.31	1.31	3.38	1.10
Discuss IPC with parents and obtain written parental consent to collaborate with medical providers	2.27	1.33	3.32	1.15
Promote IPC through consulting with medical providers and communicating with medical providers.	2.06	1.29	3.13	1.12
Collaborate with medical providers via integrated treatment or coordinated care	1.85	1.20	2.51	1.15
Address health concerns in multiple systems/settings (such as medical settings)	1.77	1.10	1.78	1.05
Handle insurance and reimbursement issues	1.21	.59	1.29	.70
Engage in research and program evaluation efforts in medical settings	1.27	.80	1.18	.58
Generate treatment plans for collaborative care.	1.69	1.06	1.58	.98
Communicate with medical providers for the purpose of requesting information about students	2.16	1.33	3.35	1.14
communicate with medical providers for the purpose of providing information about students.	1.99	1.30	3.24	1.13
Communicate with medical providers for the purpose of developing interventions	1.84	1.17	2.70	1.18
Communicate with medical providers for the purpose of progress monitoring	1.76	1.14	2.50	1.20

Table 6

Summary of Simple Regression Analyses for Variables Predicting Participants' Current IPC Practices

Variable	*B*	*SE B*	*β*
Training	0.01	<.001	0.29**
Preparedness	0.51	0.06	0.50**
Attitude	0.12	0.07	0.08

Notes: $R^2 = 0.66$
*$p < .05$, **$p < .01$.
Dependent Variable: Current Practices

Summary of Simple Regression Analyses for Variables Predicting Trainees' Current IPC Practices and Professionals' Current IPC Practices

	Trainees			Professionals		
Variable	*B*	*SE B*	*β*	*B*	*SE B*	*β*
Training	0.02	0.003	0.40**	0.01	0.002	0.23**
Preparedness	0.47	0.08	0.47**	0.34	0.09	0.35**
Attitude	0.06	0.08	0.04	0.20	0.11	0.15
R^2	0.658			0.284		

*$p < .05$, **$p < .01$.
Dependent Variable: Current Practices