

The Educational Implications of Childhood Onset Schizophrenia

by

Kyle Perreault

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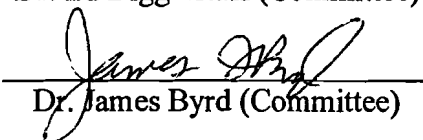
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Dr. Gary Rockwood (Chair)



Dr. Ed Biggerstaff (Committee)



Dr. James Byrd (Committee)

The Graduate School

University of Wisconsin-Stout

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The Graduate School
University of Wisconsin-Stout
Menomonie, WI

Author: Perreault, Kyle J.

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ABSTRACT

The purpose of this study was three fold. One, the study explored the available research associated with childhood onset schizophrenia. A comprehensive literature review was conducted which focused on the following areas: the history of childhood schizophrenia, the symptomatology and diagnosis of childhood schizophrenia, the etiology of childhood schizophrenia, current treatments for childhood schizophrenia, and the educational implications of childhood schizophrenia. Secondly, the study provided an understanding of the knowledge and competence that currently exists among school psychologists and school counselors regarding childhood schizophrenia. Thirdly, recommendations were made to assist school psychologists and school counselors

working with students suffering from schizophrenia to not only cope with the disease, but also succeed educationally.

The extensive research concluded that there are still many mysteries left to be uncovered regarding childhood schizophrenia, especially within the areas of etiology and treatment. This research also established that educational implications for students suffering from childhood schizophrenia are both extensive and complicated. Finally, the research yielded an underwhelming level of knowledge or understanding of childhood schizophrenia among both school psychologists and school counselors.

The Graduate School
University of Wisconsin-Stout
Menomonie, WI
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CHAPTER 1: INTRODUCTION

There are many questions that schizophrenia raises in the mental health arena today. The most discussed topics revolve around the etiology and treatment of schizophrenia. There are also debates on concretely defining schizophrenia. The uncertainty that stems from the previously mentioned topics ultimately affects those individuals that are suffering from this devastating disease. There is a wealth of information available regarding schizophrenia, but unfortunately much of it is speculation. The truth is that this is a disease which mental health professionals are relatively unfamiliar with, even in today's age of modern medicine.

Yet, even more complex issues exist within the realm of childhood onset schizophrenia. The two areas that are currently spurring the most heated debate include classification and diagnosis of childhood onset schizophrenia. The debate on whether there is a distinction between adult schizophrenia and childhood onset schizophrenia continues to wage within the mental health arena, complicated by the situation that research specific to childhood onset schizophrenia is extremely limited. Although limited, research does exist and the amount of study seems to be progressing over recent years. Amongst all of the uncertainty that encompasses this disorder, great strides have been made in the past decade by experimental psychopathologists seeking to understand the basic processes known to be dysfunctional in schizophrenia across a variety of substantive domains and levels of analysis (Lenzenweger & Dworkin, 1998).

Childhood onset schizophrenia is similar to adult schizophrenia in nature. The disorder may include characteristic symptoms such as delusions, hallucinations,

disorganized speech, grossly disorganized or catatonic behavior, alogia (limited speech), avolition (low motivation), and affective flattening (American Psychiatric Association, 2000). Though symptoms may be observed in children as young as 36 months, typically a child is not diagnosed with schizophrenia until s/he reaches grade school. Because imaginative fantasies are typical with nearly all children, it often becomes extremely difficult for mental health professionals to diagnose childhood onset schizophrenia. This results in a compounding problem behaviorally, developmentally, and educationally for students who are misdiagnosed or not diagnosed at all. More specifically, treatment is virtually impossible without diagnosis, which can result in a detriment to the student as s/he struggles with the educational environment that s/he is in.

Thankfully, schizophrenia in children is very unusual. A study done in North Dakota revealed that 1 per 10,000 females aged 2-12 years and 3 per 10,000 males in the same age range were diagnosed with schizophrenia (Burd & Kerbeshian, 1987). Nationally, it is suggested that 1 child in 10,000 can be expected to develop schizophrenia (Mash & Barkley, 1996). Regarding this study, there are two points that should be considered. First, the prevalence rate established may not accurately represent the entire United States because of possible differences between North Dakota and the United States. Second, the author suggests that the criteria of the DSM-III (edition of DSM used at the time the study occurred) when applied to children may not be sensitive enough to diagnose schizophrenia (Burd & Kerbeshian, 1987). One final note to mention regarding incidence is that, consistent with adult schizophrenia, it is more likely for males to develop childhood onset schizophrenia than females. More specifically, the rate of

incidence is 2:1; however, the onset of psychotic symptoms appears at similar ages in both males and females (Gonthier & Lyon, 2004).

Like many facets of childhood onset schizophrenia, the etiology remains a relative mystery. Researchers believe that there is a wide range of etiological components involved in the onset of this disorder including genetics, environmental factors, brain damage, and neurotransmitter abnormalities. To date, genetics seems to have the most concrete scientific backing regarding etiology. Put simply, overwhelming evidence suggests that schizophrenia is passed down through family genes. The study of neurotransmitter abnormalities is another area that contains a wealth of scientific research regarding childhood onset schizophrenia. The foundation in this area of study considers the onset of schizophrenia to be caused by an over-activity of dopamine neurons in the brain, otherwise known as the *dopamine hypothesis*. The third etiological component mentioned involves the effects that environmental factors have on the onset of schizophrenia. This area looks at how environmental factors stifle the normal and healthy development of one's concept of reality and ability to conform to appropriate social norms. The final etiological component to consider revolves around brain damage. This research ties the onset of schizophrenia to the abnormal enlargement of ventricles in the brain of those suffering from schizophrenia (Lenzenweger & Dworkin, 1988).

There are numerous educational implications associated with students suffering from childhood onset schizophrenia. For example, a theory exists within the mental health field that attempts to explain the component of the family environment and how it may influence the onset of childhood schizophrenia. According to the *disturbed family environment theory*, a child subjected to rejection or mistreatment will fail to develop an

adequate concept of reality and normal emotional responses (Huffman, Vernoy, & Vernoy, 1994). It is possible that the premise of this theory can be transferred from the family setting into the school setting with similar effects. Other areas of implication include appropriate program planning for students suffering from schizophrenia, safety procedures to protect the general student population from psychotic outbreaks, safety procedures to protect students who have schizophrenia, and precise identification of schizophrenia within those students who have the disease.

Statement of the Problem:

Schizophrenia is a very complex disease that remains relatively mysterious to today's mental health professionals. This lack of understanding is more prevalent when one considers the knowledge that today's K - 12 education professionals (teachers, counselors, and school psychologists) have about schizophrenia. Many educational professionals are unaware of pertinent and detailed knowledge regarding the nature of childhood onset schizophrenia, identification of childhood onset schizophrenia, and program planning for students with this disease.

Purpose of the Study:

The purpose of this study was to examine childhood onset schizophrenia within the context of today's educational system. After thoroughly investigating the literature on childhood onset schizophrenia, additional research is needed regarding the understanding of childhood schizophrenia in the educational setting. Therefore, this study will provide comprehensive insight about childhood schizophrenia for educational mental health professionals including school psychologists and school counselors. The researcher will describe the history of childhood schizophrenia, the symptoms and characteristics it

presents, diagnosis of childhood schizophrenia, the etiology of childhood schizophrenia, educational implications of childhood schizophrenia, and treatments for childhood schizophrenia. The study will also provide an examination of the knowledge and competence that currently exists among school psychologists and school counselors regarding childhood schizophrenia. Finally, the researcher will formulate recommendations that educational professionals may use to help students and parents cope with schizophrenia. This study will be conducted through a comprehensive review and critical analysis of research and literature, as well as data collection from school psychologists and school counselors practicing in today's schools.

Hypotheses:

There are four null hypotheses proposed in this study. They are as follows:

Ho1: There will be no statistically significant difference regarding the understanding of the diagnosis and symptomatology of childhood onset schizophrenia between a) school psychologists and school counselors; b) master's and post-master's levels of education; c) nor will there be a statistically significant interaction between profession and educational degree.

Ho2: There will be no statistically significant difference regarding the etiological understanding of childhood onset schizophrenia between a) school psychologists and school counselors; b) master's and post-master's levels of education; c) nor will there be a statistically significant interaction between profession and educational degree.

Ho3: There will be no statistically significant difference regarding the knowledge of treatments available for childhood onset schizophrenia between a) school psychologists and school counselors; b) between master's and post-master's levels of

education; c) nor will there be a statistically significant interaction between profession and educational degree.

Ho4: There will be no statistically significant difference regarding the understanding of the educational implications that exist for children with childhood onset schizophrenia between a) school psychologists and school counselors; b) master's and post-master's levels of education; c) nor will there be a statistically significant interaction between profession and educational degree.

Assumptions:

There are several assumptions that are apparent in this research:

- 1) The researcher assumes that all participants will provide complete and accurate information regarding their survey responses;
- 2) The researcher assumes that survey responses will accurately measure the questions posed in the above section;
- 3) The researcher assumes that the information researched and provided in the literature review is as accurate as possible with regard to current understanding of childhood onset schizophrenia;

Definition of Terms:

For clarity of understanding, the following terms are defined:

- 1) Alogia: Lack of additional, unprompted content present in normal speech.
- 2) Avolition: A psychological state characterized by a general lack of desire, motivation, and persistence.

- 3) Clanging: A form of speech pattern where thinking is driven by word sounds.
- 4) Gross motor therapy: Physical therapy that involves major bodily functions (i.e. walking and using hands to pick grab things).
- 5) IDEA: Individual with Disabilities Education Act. Federal act established to protect and provide appropriate educational services to individuals who suffer with disabilities (both mental and physical).
- 6) Neologisms: A creation of words that has meaning only to the individual who uses them.
- 7) Perseverate: To engage in the same behavior or thought in a repeated fashion.
- 8) Prodromal Symptom: Early symptoms indicating the onset of an attack or disease.
- 9) Tardive Dyskinesia: A neurological syndrome characterized by involuntary movements caused by the long-term use of neuroleptic drugs.

Limitations:

The findings of this study may be limited by the following:

- 1) Current research specific to childhood onset schizophrenia is rather limited compared to many other mental health disorders;
- 2) This survey is not able to detect potential biases that raters may have;
- 3) Sample size of 250 school psychologists and 250 school counselors limits the capacity to generalize this information.

CHAPTER 2: LITERATURE REVIEW

Introduction

Childhood schizophrenia is an extremely pervasive and debilitating condition that spurs monumental consequences in all facets of life for those suffering. Currently, the debate as to whether childhood onset schizophrenia is its own and separate entity from adult schizophrenia continues to wage within the halls of medicine and psychology. Although the jury is still out regarding this topic, it is evident that schizophrenia does exist within the younger population and often results in more elevated symptoms than the typical adult schizophrenia. Because of the mystery that schizophrenia encompasses and the uncertainty among expert ranks, the level of understanding that the general population has is extremely limited. This chapter provides an in-depth review of the history of childhood schizophrenia, what childhood schizophrenia is and its characteristics, diagnostic criteria of childhood schizophrenia, the etiology of childhood schizophrenia, treatment available for childhood schizophrenia, and the educational implications of childhood schizophrenia.

A Concise History of Childhood Onset Schizophrenia

The idea of diagnosing a child with schizophrenia was practically taboo until 20 to 30 years ago (Remschmidt, 2001). Even today, there is a disinclination to do so for fear of the consequences that result from giving such a pervasive label as childhood schizophrenia. Due to the infrequency of presentation and the uncertainty of diagnosis and classification, researchers have seemingly turned a blind eye to childhood schizophrenia over the years. Fortunately, recent years have provided a surge in the

interest of schizophrenia in children, especially in identifying continuities and discontinuities with the condition presenting in children and adults (Remschmidt, 2001).

Pre-nineteenth century

The search for evidence of schizophrenia, whether it be the adult form or childhood schizophrenia, is extremely difficult due to the frequent terminological and societal changes and overlaps (Remschmidt, 2001). More specifically, schizophrenia was not viewed as a categorical disorder until the end of the nineteenth century. Thus, it might have been viewed as a form of delirium, mania, dementia, imbecility, or idiocy. Because clearly defined diagnostic criteria did not exist, it was difficult to construct a notion of psychosis in juveniles or to estimate its prevalence in pre-nineteenth century accounts of insane children and young people (Remschmidt, 2001).

Nineteenth century

The initial half of the nineteenth century saw a surfacing of queries regarding unusual cases involving young lunatics in the journals of psychiatry and psychology.

Haslam's detailed account in 1809, of a disorder occurring in young persons associated with "hopeless and degrading change" is widely quoted as an early, if not the first, description of schizophrenia (as cited in Remschmidt, 2001, p 3).

Although there were a number of insane children described, it was commonly thought that madness did not occur before puberty (Remschmidt, 2001). In 1845, Esquirol formulated a framework for mania that strongly resembles schizophrenia. He described cases of mania in children, one child being reported as having taste and vision hallucinations, but a link with a progressive dementing process was not established until Morel drew attention to premature dementia in 1860 (as cited in Remschmidt, 2001).

From this point forward, the presence of psychoses in prepubescent children was accepted and recognized in the medical and psychological communities.

Twentieth century

By the early part of the twentieth century, several psychological diseases were evolving that entailed symptoms similar to what is today considered childhood schizophrenia. For example, hebephrenia was exclusive to the prepubertal period and was characterized as a change of superficial emotional conditions, beginning with mental depression, followed by odd, fantastic delusions, eccentric, silly behavior, and intense motor activity, resulting often in a rapid or gradual passage into chronic dementia or into a condition of catatonia (Remschmidt, 2001). Other types of psychoses described that resemble today's definition of childhood schizophrenia include dementia praecocissimia and dementia infantilis. In 1911, Bleuler presented the term schizophrenia for dementia praecox, which eventually enveloped many of the different types of psychoses during that time period (as cited in Remschmidt, 2001). He postulated that the majority of schizophrenia cases occurred after puberty, but that schizophrenia did in fact occur in the prepubertal period as well. However, a distinction between the adult form of the disease and the childhood form was not established.

The 1930's and 1940's brought about an increasing recognition of schizophrenia in children. There was a polarization of concepts between adult and childhood schizophrenia during this time in a variety of areas including causation, treatment, and diagnosis (Remschmidt, 2001). Two major questions regarding schizophrenia were sought out by those in the medical and psychological arenas including: 1) whether childhood schizophrenia was the same as the adult dementia praecox and 2) what

constituted the adult outcome of the childhood disorder (Remschmidt, 2001). Over the next thirty years these questions were challenged, but unfortunately the perplexing characteristics of this disease only increased the ambiguity and questions among experts. By the 1970's, the impenetrable aspects of schizophrenia resulted in a chaotic diagnostic situation in which the term was widely misused. In fact,

childhood schizophrenia had been used as a generic term to include an astonishing heterogeneous mixture of disorders with little in common other than their severity, chronicity, and occurrence in childhood. A host of different conditions had been included such as infantile autism, the atypical child, symbiotic psychosis, dementia praecoxissima, dementia infantilis, schizophrenic syndrome of childhood, pseudo-psychopathic schizophrenia, latent schizophrenia, organic psychosis, and borderline psychosis to name a few (Remschmidt, 2001, p.17).

Since the 70's, there has been an increase in research revolving around childhood schizophrenia, which has resulted in a more specific and streamlined approach. Although there has been a surge in research, unfortunately many of the questions regarding diagnosis, treatment, and etiology of childhood schizophrenia still plague medical and psychological professionals today.

What is the Symptomatology of Childhood Onset Schizophrenia?

Although the characteristics of childhood schizophrenia do not differ much from adult schizophrenia, they are some of the most baffling and obscure that exists among all of the psychological disorders. The premorbid signs of childhood schizophrenia are evident rather early in life, in that many children show delays in language, social development, and motor activity. Language or communication deficits of loose

associations, illogical thinking, and impaired conversational skills are also present in children suffering from schizophrenia. Furthermore, many of these children are socially withdrawn and lack peer relationships. In fact, children with schizophrenia present such drastic social withdrawal that, “according to a report by the National Institute of Mental Health (NIMH), if a child shows any interest in friendships, even if they fail at maintaining them, it is unlikely that they have schizophrenia” (Gonthier & Lyon, 2004, p. 804).

Dr. Sheila Cantor is a psychiatrist who has worked with schizophrenic children and has been involved with doing therapy and research for nearly her entire medical career. She has observed these children and has established a comprehensive list of symptoms that many children who are suffering from childhood onset schizophrenia may exhibit. The first symptom deals with the arousal state. Disturbances in the arousal state, during both the waking and sleeping cycles, are typically the initial “symptom” to cause parental concern (Cantor, 1988). In a study done by Cantor, it was discovered that by 36 months of age, a significantly greater number of schizophrenic children than controlled children experience difficulty falling asleep and difficulty staying asleep (Cantor, 1988). She also establishes that perseveration, or repeatedly exhibiting similar behavior, is very common among children and schizophrenia. This telltale sign can be noted by observing a child with schizophrenia as they interact in an environment with toys and games. The child will examine every toy and game with great detail, but will not actually play with anything. Inappropriate affect is another area that Cantor notes as a symptom of concern. The most common affect present would include an incongruent smile or inappropriate laugh. Both parent and nursery school teachers have provided descriptions of affected

children who appeared to be “laughing” at some “inner” joke, yet were unresponsive to external efforts to elicit a joyful response (Cantor, 1988). Fearfulness is also very evident with children suffering from this disease and quite similar to the anxiety that is associated with adult forms. Cantor establishes that often the schizophrenic child’s greatest fear seems to be not comprehending or understanding information. When children with schizophrenia verbalize, they often have a very monotonous inflection in the tone of their voices. This can be demonstrated in either an unusually loud or soft voice, but the main characteristic is that there is a lack of expression when they talk. Loose thought associations, neologisms (creating meaningless words), and clanging (thoughts driven by word sounds) can also be evident when a child with schizophrenia verbalizes. An extremely difficult symptom for parents and educators to deal with is the distinctive trait of illogical thinking. Unlike a typically normal child without schizophrenia who when corrected will shrug and accept the correct information, the schizophrenic child usually responds to corrections with an emphatic “NO!” and perseverates with his or her own concept (Cantor, 1988). Higher levels of responsivity, impaired coordination, abnormal smooth pursuit eye tracking, problems with the immune system, and poor sensory integration are all additional impairments that result from childhood onset schizophrenia (Gonthier & Lyon, 2004). These previously mentioned impairments suggest that children with schizophrenia are more responsive to stimuli than are unaffected children, are less coordinated, and that their bodies may have greater difficulty fighting off illnesses (Gonthier & Lyon, 2004). Aside from these symptoms, children also suffer from the typical positive and negative manifestations that most people think of when they picture adult schizophrenia. Paranoid manifestations include delusions, hallucinations, and

paranoid ideation. Negative symptoms encompass behaviors such as flat affect, lack of speech and concentration, and poor attention (Gonthier & Lyon, 2004).

A final symptom that becomes particularly important for education professionals and school psychologists specifically deals with the child's IQ or intellectual ability level. It has been shown that intellectual functioning deteriorates after the onset of psychosis and can continue to deteriorate for 24 to 48 months thereafter (Gonthier & Lyon, 2004). Furthermore, the areas of functioning which deteriorate most significantly involve information processing, the retention of learned information and abilities, as well as failure to efficiently acquire new information and skills (Gonthier & Lyon, 2004). Other ability areas that suffer with the onset of childhood schizophrenia but to a lesser extent include fine motor speed, attention, and short-term memory (Gonthier & Lyon, 2004). Cognitively, it has been found that 10% to 20% of children with schizophrenia have IQs in the borderline to mentally retarded (below 80) range (Gonthier & Lyon, 2004). As of yet, it has not been determined if these low ability levels are an element of the deterioration of mental functioning that results from this disorder or from other factors. One major reason for the mystery behind identifying the source for low IQs is because most children with schizophrenia were not tested prior to the onset, making it impossible to establish a baseline (Gonthier & Lyon, 2004).

Etiology of Childhood Onset Schizophrenia

To date, most of the valid etiological research has been done in three specific areas including neurotransmitters, brain damage, and genetics. There are many researchers who have proposed theories on the etiology of childhood schizophrenia involving the previously mentioned areas, or a combination of them. For example,

Weinberger proposed a neurodevelopmental model that accounts for three inescapable facts about schizophrenia:

- 1) most cases of schizophrenia have their onset in late adolescent or early adulthood, 2) stress has been found to be associated with both onset and relapse, and 3) neuroleptic medications have dramatically improved outcome in many patients (as cited in Mash & Barkley, 2003, p. 465).

One significant drawback regarding childhood schizophrenia is that the majority of the etiological suggestions are based on studies done without distinction between adult and childhood schizophrenia. Although this is viewed as a setback by many experts in the field of childhood schizophrenia, ultimately research on any form of schizophrenia is better than no research at all.

Neurotransmitter abnormalities

The long-standing research on neurotransmitters has evolved around the activity of dopamine neurons in the brain. From this research the *dopamine hypothesis* has developed which suggests that an over activity of certain neurons in the brain causes schizophrenia (Huffman, Vernoy, & Vernoy, 1994). There are two important observations that this hypothesis is based on: 1) positive symptoms of schizophrenia such as delusions can be produced by large doses of amphetamines, and 2) drugs that are effective in treating schizophrenia block the effects of dopamine in the brain (Huffman et al, 1994).

Regarding the dopamine hypothesis, there are a number of qualifiers that should be kept in mind when considering this approach:

First, antipsychotic drugs act not only on schizophrenia, but on other psychotic conditions as well. Second, not all symptoms or patients that suffer from schizophrenia respond to antipsychotic medications. Last, these drugs also act on a variety of other transmitters, although their antipsychotic action is highly correlated with the action on dopamine (Shean, 2004, p. 143).

For these reasons, a revision to the original hypothesis of dopaminergic hyperfunction has been established. It is suggested that the disorder may be caused by a more subtle dopaminergic dysfunction or by an imbalance between dopaminergic and other systems (Shean, 2004).

Brain structure

A second area of research deals with brain structure, brain functioning, and brain abnormalities. Considering brain structure, there have been studies that suggest that enlargement of the fluid-filled cavities called ventricles in the brain of schizophrenic individuals have contributed to the onset of this disease (NIMH, 1999.). In fact, the ventricles of the brains of schizophrenics are enlarged, and the thalamus can be up to 17.2% smaller than controls (Gonthier & Lyon, 2004). Because the thalamus serves as a filtering mechanism of sensory information, this may contribute to the development of more severe psychotic symptoms such as delusions and hallucinations (Gonthier & Lyon, 2004). In a study of adult offspring of schizophrenic parents and normal controls, it was found that measures of ventricular enlargement increased in a stepwise, linear fashion, with an increasing level of genetic risk for schizophrenia (as cited in Lenzenweger & Dworkin, 1998). The increase of cerebrospinal fluid has also been found in children suffering from schizophrenia. In fact, “in a sample of sibling pairs in Denmark, patients

were found to show a 100% to 300% increase in cerebrospinal fluid volume compared with their own unaffected siblings, and the degree of difference was significantly more pronounced in the left compared with the right hemisphere” (Lenzenweger & Dworkin, 1998, p. 78). Studies have also indicated that there is a decrease in metabolic activity within certain regions of the brain of those that are suffering from schizophrenia. There are also studies done at the microscopic level on schizophrenic brain tissue that indicates small changes in the distribution or number of brain cells (Lenzenweger & Dworkin, 1998). Furthermore, brain abnormalities found in children with schizophrenia have been a differentiating factor from control subjects and, in some cases, individuals with the adult-onset form of schizophrenia (Gonthier & Lyon, 2004). A recent study conducted discovered that cerebral volume, or brain mass, is decreased by 8% to 9% from that found in controls, thus resulting in the presence of negative symptoms such as flat affect, disorganized speech, and poor attention levels (Gonthier & Lyon, 2004). To date, no study has directly linked a molecular or cellular event within the brain to the etiology of schizophrenia. Thus, the idea that schizophrenia is caused entirely by problems with brain structure and brain functioning is circumstantial, but the previously mentioned components do combine to establish evidence that brain structure and brain functioning can influence the onset of childhood schizophrenia.

Genetics

The most concrete etiological component of schizophrenia is genetics. More specifically, a person who is related to someone that has schizophrenia has a far better chance of developing the disorder. For example, a monozygotic twin of a person with schizophrenia has the highest risk, 40% to 50%, of developing the illness (NIMH, 1999).

It has also been established that a child whose parent has schizophrenia encompasses about a 10% chance, compared to the 1% chance that the general population has of developing childhood schizophrenia (NIMH, 1999). An additional piece of evidence that supports the genetic claim is that, “nearly 50% of children with childhood-onset schizophrenia have at least one first degree relative with schizophrenia or a schizophrenia spectrum disorder” (Gonthier & Lyon, 2004, p. 807).

It appears today that there are two distinctly different molecular biological mechanisms for families that have several members suffering from schizophrenia: In those families where the genetic pattern most closely fits a recessive model, a tiny genetic mutation between alleles may account for the onset of schizophrenia. A second genetic pattern is seen in other families with a number of adult members, who are located somewhere on the schizophrenia spectrum. In these families, the exact genetic pattern in the family doesn't fit previously established models or, at best in some families, appears to be a variant of a dominant model (Coleman & Gillberg, 1996, p. 289).

Due to the complexities of genetic research, the precise role that genetics plays regarding its influence on childhood onset schizophrenia is still a mystery. Some researchers believe that schizophrenia is a heterogenous grouping, indicating that there may be different weightings and combinations of genetic factors, which are related to risk for different syndromes (Shean, 2004). Ultimately, genetic factors are evident in any given case and contribute to the severity, type of symptoms, and age of onset (Shean, 2004). Thus, genetics play a larger role in more severe early-onset forms of schizophrenia, whereas late-onset paranoia and positive psychotic symptoms are influenced more by

environmental factors (Shean, 2004). Kringlen regards genes as contributing factors that play a varying role in the etiology of most cases of schizophrenia (as cited in Shean, 2004). He believes that the “genetic diathesis may simply be a weakly inherited, nonspecific tendency or an additive group of traits or tendencies (e.g., anxiety proneness, introversion, irritability, and negative affect) which must be precipitated and enhanced by significant socio-environmental stressors to result in schizophrenia” (Shean, 2004, p. 102). On the other hand, Torrey denies the involvement of any psychosocial stressors, believing that all forms of schizophrenia are entirely genetic in nature (as cited in Shean, 2004). Although there is a wealth of research that supports the involvement of genetic factors in schizophrenia, changes in diagnostic practice, sampling errors, and inconsistencies in methodology have also been found as sources of error in much of this research (Shean, 2004). In total, many researchers believe that the secrets of childhood schizophrenia can be answered by genetic research, but it is evident that much more progress is needed.

Family environment

Lastly, it is important to discuss the social etiological component present in COS. More specifically, there is a theory regarding the family environment and how it may influence the onset of childhood schizophrenia. The research on this etiological aspect is far less concrete and is without the extensive scientific backing, but many researchers believe that it does play some role nevertheless. “According to the *disturbed family environment theory*, a child subjected to rejection or mistreatment will fail to develop an adequate concept of reality and normal emotional responses” (Huffman et al, 1994, p. 530). The support for this theory comes from the evaluation of *expressed emotionality*.

Researchers have discovered by measuring the level of criticism and hostility aimed at the family member with schizophrenia, as well as emotional over-involvement in his/her life, that there is greater relapse and worsening of symptoms among hospitalized patients with schizophrenia who go home to high expressed emotional families (Huffman et al, 1994).

Regarding environmental and family theories, it is important to understand that these theories are not in conflict with genetic-biological views, but rather follow the notion that genetic vulnerabilities must interact with environmental and family factors from the outset of the disease development (Shean, 2004).

Since the family is the primary mediator between the child's biological-genetic makeup and society, it is reasonable to assume that the family environment can play a role in the development of most mental disorders. After all, in most developed countries the primary family has the responsibility to socialize, nurture, and selectively foster valued aspects of personality development in the child. It makes sense that the family environment must play a role in all aspects of personality development (Shean, 2004, p. 243).

In essence, family and other environmental theories do suffer from flaws regarding interpretation, design, and execution, but ultimately serve to further the knowledge base that is required for understanding childhood schizophrenia.

Diagnosis of Childhood Onset Schizophrenia

The diagnosing of childhood schizophrenia is one of the heated debates existing in the arena of schizophrenia today. The significance of childhood onset schizophrenia

dictates that a clinical psychologist or psychiatrist performs evaluations and assessments for schizophrenia. To begin, it is important to realize that the diagnostic criterion of childhood schizophrenia is the same as it is for adult schizophrenia:

- A. Characteristic symptoms: two (or more) of the following, each present for a significant portion of time during a 1-month period (or less if successfully treated):
 - 1. Delusions.
 - 2. Hallucinations.
 - 3. Disorganized speech (e.g., frequent derailment or incoherence).
 - 4. Grossly disorganized or catatonic behavior.
 - 5. Negative symptoms (e.g., affective flattening, alogia, or avolition).
- B. Social/occupational dysfunction: for a significant portion of the time since the onset of the disturbance, one or more major areas of functioning such as work, interpersonal relations, or self-care are markedly below the level achieved prior to the onset.
- C. Duration: continuous signs of the disturbance persist for at least 6 months. This 6-month period must include at least 1 month of symptoms that meet Criterion A and may include periods of prodromal or residual symptoms.
- D. Schizoaffective and Mood Disorder exclusion: Schizoaffective Disorder and Mood Disorder with Psychotic Features have been ruled out because either (1) no Major Depressive, Manic, or Mixed Episodes

have occurred concurrently with the active-phase symptoms; or (2) if mood episodes have occurred during active phase symptoms, their total duration has been brief relative to the duration of the active and residual periods.

- E. Relationship to Pervasive Developmental Disorder: If there is a history of Autistic Disorder or another Pervasive Developmental Disorder, the additional diagnosis of Schizophrenia is made only if prominent delusions or hallucinations are also present for at least a month (or less if successfully treated) (American Psychiatric Association, 2000, p. 312).

Furthermore, other disorders such as autism and mood disorders must be ruled out, as well as any organic factors.

When diagnosing childhood schizophrenia, there are a number of obstacles that are presented to the clinician. For example, distinguishing between pathological symptoms such as delusions and imaginative fantasies typical during childhood can present one of the most prominent diagnostic dilemmas regarding childhood schizophrenia (Mash & Barkley, 1996). Another area that can make diagnosis laborious deals with language and cognitive development. Because children's language and cognition are in the process of developing, it can be difficult to discern between a normal child and one that is suffering from schizophrenia. Due to all of the different variables involved in this complex disease, it is extremely important that children feel familiar and safe with diagnosticians. "It is important that evaluators have special qualities of application, persistence, and a capacity for empathic engagement with these children"

(Goldfarb, 1961, p. 64). Also, it is important to note that diagnosis becomes easier as the child matures and his or her thinking becomes more complex (Cantor, 1988).

The importance of early identification and treatment to enhance the lives of those suffering from childhood onset schizophrenia is currently at the forefront of many researchers' agendas. More specifically, it is theorized that the earlier the identification, the better a child's chances are to lead a "normal" and productive life. Unfortunately, because the disease is so complicated and due to the stigma associated with such a label, many professionals in the medical community are hesitant in diagnosing childhood schizophrenia. In a recent study conducted by Ross and Schaeffer, a high level of frustration was detected by parents of children with schizophrenia because of the unclear and finite understanding at early stages of development (Ross & Schaeffer, 2002). Many of these parents reported telling pediatricians and school psychologists that something was seriously wrong, while the diagnosis of childhood schizophrenia was missed time and time again (Ross & Schaeffer, 2002). There appear to be two components that inhibit early identification and intervention: 1) delay in diagnosis and treatment after initiation of psychotic symptoms and 2) difficulties in identifying prodromal symptoms (Ross & Schaeffer, 2002). Regarding the delay in diagnosis and treatment after initiation of psychotic symptoms, it was discovered that, "there was on average a 2-year delay between the onset of psychotic symptoms and the diagnosis of schizophrenia with related antipsychotic administration, well beyond the 6-month window generally considered as early diagnosis and treatment in adolescent patients" (Ross & Schaeffer, 2002, p. 543). To compound the problem, children suffering from schizophrenia are usually being treated for some other disorder before the actual diagnosis and effective treatment regime

is pinpointed. This study also revealed that pediatricians, general psychiatrists, and school and private psychologists did not display adequate comfort or training in diagnosing and treating childhood schizophrenia (Ross & Schaeffer, 2002). With respect to the second component that inhibits the early identification and intervention of childhood schizophrenia, most children who develop schizophrenia have multiple symptoms and severe impairments, suggesting identification of specific prodromal or incubation stages, which are unfortunately often missed by mental health providers. The positive aspect of this study found that once a diagnosis of schizophrenia was determined and antipsychotic medications were used, a significant change was seen in baseline symptoms (Ross & Schaeffer, 2002). Furthermore, schoolwork improved, social interactions improved, and family life was brought toward a more fulfilling center (Ross & Schaeffer, 2002).

Diagnostic role of school psychologist

There are a variety of assessment batteries that may be utilized by a school psychologist to facilitate diagnosis and treatment on both the clinical and educational level. Examples of these assessments might include the Behavioral Assessment System for Children (BASC-2), Minnesota Multiphasic Personality Inventory (MMPI-2), various ability assessments, the Brief Psychiatric Rating Scale for Children (BPRS-C), the Positive and Negative Syndrome Scale for Children (Kiddie-PANSS), the Schedule for Affective Disorders and Schizophrenia for School-Age Children (K-SADS), or the Krawiecka-Manchester Scale (KMW). The BPRS-C is a popular scale that consists of 21 items that generate seven scales: behavioral problems, depression, thinking disturbance, psychomotor excitation, withdrawal-retardation, anxiety and organicity. The KIDDIE-PANSS is an inventory that seeks to identify positive symptoms (hallucinatory behavior,

delusions, and disorganized speech), as well as negative symptoms (poor rapport, emotional withdrawal, and blunted affect). It also has 16 items that make up the general psychopathology scale, which is used as a measure of control for overall psychopathology. The K-SADS is a semi-structured diagnostic interview that suggests verbal probes, but the specific questioning is contingent upon the educated decision of the examiner. Finally, the KMS is a brief assessment that includes three negative symptoms and five positive symptoms that are evaluated. In conjunction with psychological assessments, family history evaluations and brain imaging are also used to diagnose schizophrenia. Because these assessments can be useful tools with both diagnosis and treatment, it is important that school psychologists have an adequate working knowledge of them.

Treatment

In general, schizophrenia is a disease that can be effectively treated, especially if it is diagnosed early and treatment is begun before it has consumed the child. It is important to note that there should not be any confusion between treatment and permanent removal of the disease; the symptoms can be successfully controlled, but not extinguished. The best disease model to explain schizophrenia is diabetes:

Both schizophrenia and diabetes have childhood and adult forms, both almost certainly have more than one cause, both have relapses and remissions in a course which often lasts over many years, and both can usually be well controlled, but not cured, by drugs. Just as we don't talk of curing diabetes but rather of controlling its symptoms and allowing the diabetic to lead a comparatively normal life, so we should also do with schizophrenia (Torrey, 1995, p. 175).

When considering treatment, many clinicians implement a three-phase model:

- 1) During the acute phase the emphasis is on bringing acute psychotic symptoms under control through a combination of medication and inpatient care.
- 2) During the stabilization phase outpatient pharmacological and psychosocial treatment is employed with the goal of stabilizing the youth's clinical state.
- 3) During the maintenance phase the emphasis is on helping the youth to maintain a stable state through continuing multimodal treatment (Asarnow et. al., 2004, p. 184).

The intervention strategies often include a number of different approaches encompassing medical, behavioral, and therapeutic techniques. When choosing which therapeutic methods to implement, it is important to look at symptomatology and acuteness, as well as the psychological, social, and cultural needs of the child and the family. Furthermore, it has been documented that the most successful programs are multimodal treatments and include medical, behavioral, and therapeutic tactics.

Perhaps one of the most significant issues currently in childhood schizophrenia and specifically treatment of childhood schizophrenia centers on the possible relationship between earlier identification and treatment of schizophrenia and improved long-term outcome (Ross & Schaeffer, 2002). Recently, many researchers have investigated the usage of antipsychotic treatments in individuals with subclinical and/or prodromal forms of the disorder (Ross & Schaeffer, 2002). There is an emerging approach that entails aggressively tackling childhood schizophrenia with a barrage of treatments, medication leading the charge, in order to alleviate schizophrenic symptoms and improve long-term outcomes.

Medical treatments

The cornerstone to treating schizophrenia is the component of antipsychotic pharmaceuticals. Historically, antipsychotic medications have been successful in treating the positive symptoms of schizophrenia, but not the negative symptoms including withdrawal and a slowing of mental and physical reactions. They also have serious side effects including akathisia, tardive dyskinesia, and parkinsonism. Fortunately, modern pharmaceutical research has spawned a line of new medications called atypical antipsychotics, which treat both positive and negative schizophrenic symptoms. These new medications, including clozapine, olanzapine, and risperidone have proved beneficial in assisting many children with schizophrenia to live a more functional and 'normal' life. One question that is very common when discussing medication as a treatment for schizophrenia centers on how long the medication should be continued. This is a very difficult question to answer, but it is consistent that the administration of medication lasts as long as the psychotic episode lasts. Thus, the medication is discontinued after the episode has subsided. Interestingly, it has been discovered that one-quarter of individuals that have had an initial episode of schizophrenia and recovered will not get sick again and will not need medication (Torrey, 1996). However, the three-quarters who eventually relapse will again be treated with medication, often lasting for several months after recovery (Torrey, 1996).

Other medical treatments that exist include electroconvulsive therapy (ECT), psychosurgery, and hemodialysis; although psychosurgery and hemodialysis have been debunked and are all but nonexistent in schizophrenic therapy today. However, when the onset of childhood schizophrenia is acute and confusion and mood disturbances are

present, as well as the presence of catatonia from almost any underlying cause exists, the implementation of ECT is often preferred by medical professionals (Torrey, 1996).

Psychosocial treatment

A second treatment realm to consider includes psychosocial therapy. This therapy focuses on improving problem solving techniques, vocational and basic life skills training, social skills training, family interactions, stress management, and other useful strategies. Cognitive-behavioral therapy is an example of a current psychotherapy that is often used with schizophrenic individuals. This type of therapy is especially beneficial when geared toward compliance, or teaching and motivating the person to continue with treatment (WebMD Health, n.d.a.). Individual psychotherapy may be useful in reducing aggressive behaviors and providing coping skills, but not directly for reducing psychotic symptoms (Ross & Schaeffer, 2002). Additional programs that can help improve compliance with treatment include family therapy and psychoeducation. “Within family therapy, the focus is on the family and helping them understand the disorder and treatment options, developing coping strategies, strengthening problem solving, and learning to use basic communication skills more effectively” (Gonthier & Lyon, 2004, p. 808).

When researching treatment options, it is also helpful to consider the age at which the onset occurs. More specifically, therapy with younger children should include gross motor therapy. This can be helpful in encouraging the child to explore his or her environment, thus helping them develop a separate identity. Conversely, when the onset occurs in older children or teenagers, therapy that entails limit setting and is reality oriented becomes beneficial. The focus here is often to strengthen the deficient ego,

establish areas of conflict, and develop ways to effectively deal with them. The ultimate goal is to instill a healthy concept of self and to acquire appropriate self-regulation skills (Cantor, 1998).

Finally, although advances are being made regarding treatment of childhood schizophrenia, this is only part of the equation in providing the most beneficial care for those suffering from childhood schizophrenia. More specifically, there are extensive challenges involved in moving effective interventions into practice, including quality of care and medication management. There is also inconsistency regarding the adherence to treatment guidelines. For instance,

in a major survey across multiple settings involving schizophrenia, adherence tended to be better for pharmacological treatment vs. psychosocial treatment, better in rural vs. urban settings, and worse for minority patients vs. whites. These data underscore the importance of identifying effective interventions, developing strategies for disseminating effective treatments into usual practice settings, and decreasing disparities in quality of care across diverse settings and patient groups (Asarnow et al, 2004, p. 184).

Prevention

There is increasingly more attention being turned to prevention strategies due to the severity of the illness, relatively poor outcomes, and data that suggests that early intervention has potential for the prevention of onset and/or limiting severity childhood onset schizophrenia (Asarnow et al, 2004). In a recent randomized controlled study that compared needs-based supportive therapy and needs-based supportive therapy plus a specific preventive intervention emphasizing a low-dose atypical antipsychotic

medication (resperidone) combined with cognitive-behavior therapy, it was suggested that it may be possible to delay, and in some cases prevent, the progression to a first episode of psychosis in very high-risk patients (Asarnow et al, 2004). A second prevention study entails an evaluation strategy for assessing prodromal features of schizophrenia, resulting in follow-up data that depicts the presence of prodromal features as a prelude to full-blown schizophrenic disorders (Asarnow et al, 2004). Early treatment emphasizing medication in combination with psychosocial treatment is being used as a prevention strategy and outcome data is just on the horizon (Asarnow et al, 2004). Regarding the previously mentioned studies, both were done using an adult population and these approaches have yet to be applied to the youth population. Fortunately, both types of schizophrenia are similar and findings may be able to be applied to both populations.

Educational Implications of Childhood Onset Schizophrenia

There are numerous educational implications that are connected to childhood onset schizophrenia. To begin, it should be recognized that the school psychologist is a key cog in the dealings of a student with schizophrenia. Other avenues of support would include the guidance counselor, school nurse, special education teachers, and administration. As previously mentioned, it would undoubtedly be recommended that the parents of a child suffering from schizophrenic symptoms such as delusions, hallucinations, odd or eccentric behavior, unusual or bizarre thoughts, extreme moodiness, severe anxiety or fearfulness, withdrawn or isolated behavior, etc. should seek help from a clinical psychologist or psychiatrist that has the expertise in diagnosing and treating schizophrenia at the clinical level. Keeping this in mind, it should be

understood that the school psychologist is the point of reference for the child and his/her parents regarding any effects that the disease has on a child's educational experience.

Special education identification and framework

When considering the educational implications, it is important to realize that identification and qualification standards are different from those that clinical psychologists and psychiatrists use when diagnosing schizophrenia. For example, clinicians use the DSM IV-TR for identifying criteria, whereas school psychologists use the Individuals with Disabilities Education Act (IDEA) for identifying criteria and to qualify students for special education.

Special education today is guided by the Individuals with Disabilities Education Act (IDEA) of 1997, which has recently been revamped and identified as IDEA 2004. This is a federal special education law that ultimately ensures that every student receives a free and appropriate public education (FAPE). The foundation of special education law has its roots from the Rowley Standard, which states that every child has a right to receive educational benefit from public education (Wrightslaw, n.d.c.). Although IDEA is federal law, special education is governed at the state levels, but bound to IDEA through the federal dollars that are funded if these federal laws are complied with.

An individual's special education process is initiated through a referral that can be made by anyone including the student, parent, teacher, nurse, doctor, etc. Typically, the referral is a written letter that is sent to either the child's principal or special education director. The referral should be structured in a manner that includes: 1) the date, 2) indicates that the letter is in fact a referral, 3) the child's first and last name, date of birth, and school, and 4) why it is believed that the child might need special education services.

Furthermore, it is required that the school completes the referral process in 90 days which includes evaluating the child, writing an individualized education program (IEP), deciding where the child will attend school, and informing his/her parents. These evaluation components are all included in the child's IEP, which is a written plan that tells what a child will learn in a year, includes the services that the school will provide, and discusses how the interventions will be implemented. The child's IEP team typically consists of a school psychologist who manages the team, the child's regular education teacher(s), a special education teacher, school administrator, the child's parents, medical professional(s) (if necessary), and parents' lawyer (if necessary). The IEP team contemplates an array of information when making a decision about special education eligibility including background information, medical history, observational data, assessment data, and the child's past educational performance. It is mandatory that the school have a meeting to write the IEP within 30 days of deciding the child's eligibility for special education, otherwise known as an IEP meeting. There are eleven educational impairments that exist in state rules that help guide the IEP's decision including Autism, Cognitive Disability, Emotional Behavioral Disability, Hearing Impairment, Specific Learning Disability, Orthopedic Impairment, Other Health Impairment (encompassing ADHD), Significant Developmental Delay, Speech or Language Impairment, Traumatic Brain Injury, and Visual Impairment. Each disability has qualifying criteria that serves as a map to assist the IEP in making this crucial decision. If the child qualifies within an educational impairment and it is deemed that he/she should receive special education related services, their progress is continuously monitored by the IEP team and the school psychologist specifically. Furthermore, it must be ensured that the child who qualifies for

special education related services receives them, but in the least restrictive environment (LRE) possible. In other words, the maintenance of normalcy for the child is of the utmost importance. Thus, the child must be integrated into the general education setting as often as possible. Finally, it is necessary that at least once every three years, the IEP team will re-evaluate to see if the child still requires special education to gain educational benefit.

Childhood schizophrenia and special education

The description of schizophrenia and the symptoms that persist make it clear that this is a prodigious obstacle to contend with for anyone suffering from the disease, let alone a child. For this reason, schizophrenia typically automatically falls under IDEA-Part B within the Emotional Disturbance (ED) definition. Emotional disturbance means a condition exhibiting one or more of the following characteristics over a long period of time and to a marked degree that adversely affects a child's performance:

- A) An inability to learn that cannot be explained by intellectual, sensory, or health factors.
- B) An inability to build or maintain satisfactory interpersonal relationships with peers and teachers.
- C) Inappropriate types of behavior or feelings under normal circumstances.
- D) A general pervasive mood of unhappiness or depression.
- E) A tendency to develop physical symptoms or fears associated with personal or school problems.

a) The term includes schizophrenia. The term does not apply to children who are socially maladjusted, unless it is determined that they have an emotional disturbance (Jacob & Hartshorne, 2003, p. 128).

Furthermore, each individual state has its own definition and eligibility criteria for special education. Wisconsin denotes an emotional behavioral disability as:

- A) Emotional or behavioral functioning that so departs from generally accepted, age appropriate ethnic or cultural norms that it adversely affects a child's academic progress, social relationships, personal adjustment, classroom adjustment, self-care or vocational skills.
- B) The IEP team may identify a child as having an emotional behavioral disability if the child meets the definition in (A) and meets all of the following:
 - a. The child demonstrates severe, chronic and frequent behavior that is not the result of situational anxiety, stress or conflict.
 - b. The child's behavior described under (A) occurs in school and in at least one other setting.
 - c. The child displays any of the following:
 - i. Inability to develop or maintain satisfactory interpersonal relationships.
 - ii. Inappropriate affective or behavior response to a normal situation.
 - iii. Pervasive unhappiness, depression or anxiety.

- iv. Physical symptoms, pains or fears associated with personal or school problems.
 - v. Inability to learn that cannot be explained by intellectual, sensory or health factors.
 - vi. Extreme withdrawal from social interactions.
 - vii. Extreme aggressiveness for a long period of time.
 - viii. Other inappropriate behaviors that are so different from children of similar age, ability, educational experience and opportunities that the child or other children in a regular or special education program are negatively affected.
- C) The IEP team shall rely on a variety of sources of information, including systematic observations of the child in a variety of educational settings and shall have reviewed prior, documented interventions. If the IEP team knows the cause of the disability under this paragraph, the cause may be, but is not required to be, included in the IEP team's written evaluation summary.
- D) The IEP team may not identify or refuse to identify a child as a child with emotional behavioral disability solely on the basis that the child has another disability, or is socially maladjusted, adjudged delinquent, a dropout, chemically dependent, or a child whose behavior is primarily due to cultural deprivation, familial instability, suspected child abuse or socio-economic circumstances, or when medical or psychiatric diagnostic statements have been used to describe the child's behavior (Wisconsin Department of Public Instruction, n.d.b.).

Program planning

Program planning within the school setting can range across a variety of different parameters and often depends on how acute the symptoms are. For example, very young children, who are not yet exhibiting hallucinations or bizarre behaviors, may need services such as speech therapy to address language delays, physical or occupational therapy to assist with motor delays, and possibly the implementation of a behavior plan to help with inattention and acting-out behaviors (Gonthier & Lyon, 2004). Once the prodromal phase occurs and deterioration is noted in the child's social and self-care skills, other services such as social skills training and problem solving programs may become necessary for the child to maintain a basic level of functioning (Gonthier & Lyon, 2004).

Typically during the acute phase, the child is placed in an inpatient setting because of the increased possibility of harming themselves or someone else during their psychotic episodes. In most every case that is presenting the acute phase, around-the-clock care is needed to ensure proper medication administration and evaluation of possible side effects from said medication, or schizophrenic symptoms in general. However, if the child is within the acute phase and not placed in an inpatient setting and continues to attend school, certain accommodations and modifications are necessary. Examples of accommodations and modification that might be utilized include placing the child in a smaller classroom setting or alternative setting, providing the child a 'safe place' where s/he may go at any point during the school day, or modifying the child's curriculum (Gonthier & Lyon, 2004). Furthermore, it is necessary to make sure that there

is constant assistance by teachers and aids, and that stress be kept to an absolute minimum.

As the symptoms move from an acute state to stabilization and maintenance, many of the aforementioned accommodations need to be continued, but combined with other modifications and programs. More specifically, it is essential that children battling childhood schizophrenia receive training in social skills, including problem solving and anger management, as well as instruction in basic life skills during this time (Gonthier & Lyon, 2004). A final modification that is crucial for children with schizophrenia is initializing and maintaining open communication between school personnel, medical personnel, social services personnel, and the child's family.

Role of the school psychologist

Because school psychologists are generally the source that is turned to when a child is behaving in an abnormal manner at school, they become a vital component within numerous facets of the child's battle with schizophrenia. Some roles that the school psychologist may play include acting as the family's initial contact with mental health personnel, collaborating with the child's mental health provider, providing information on the disorder to school personnel, and providing basic on-site support for the child (Gonthier & Lyon, 2004). In collaboration with the child's IEP team, the school psychologist will determine the most effective educational plan available to enhance the student's educational experience. It is essential that the school psychologist understands all aspects of childhood schizophrenia because it will be his/her responsibility to implement trainings for the entire school population (teacher, nurses, secretaries, administration, and students) on things such as instruction technique, social skills,

medication administration, safety, and other aspects that come into question when working with a child with childhood schizophrenia. The school psychologist will also be the advocate for the child and his/her parents during each and every IEP meeting. Finally, aside from the family, the school psychologist is most likely to have access to each of the different aspects of the child's disability. In total, the school psychologist is in the best position to act as an advocate for the child and his/her family, assuring that s/he receives the necessary treatments and supports in the educational setting (Gonthier & Lyon, 2004).

School psychologists must realize that this disorder is very severe and pervasive, and that the professional experience working with a child suffering from childhood schizophrenia may be extremely trying. It is clear that the successful intervention can be an arduous task and relies on the partnership of a variety of mental health professionals, which may leave school psychologists feeling pessimistic and powerless against the debilitating symptoms that this disease may incur. The school psychologist must also bear in mind the possibility of relapse and be diligently monitoring students suffering from childhood schizophrenia for symptoms that resemble schizophrenia.

Conclusion

The research established in this review regarding childhood schizophrenia indicates that it is an extremely insidious disease that is compounded by the complexity it entails. It is a rare mental disease that seems to affect more males than females and can manifest itself in early childhood, but typically presents itself around the age of thirteen. Although there continue to be many questions regarding treatment, etiology, and distinction between adult and child forms, guidelines now exist that are, for the most part, reliable in diagnosing schizophrenia in children. Furthermore, cutting edge research

has provided advances on fronts including pharmacological treatment strategies, prevention strategies, and considerations to help successfully guide clinical practice. The educational implications that are coupled with childhood schizophrenia are monumental and unfortunately, often exacerbated by a lack of knowledge and inexperience from the educational staff. For this reason, it is crucial that school psychologists understand the fine details of childhood onset schizophrenia and are aware of current modern treatments, as well as educational interventions that can be implemented to benefit these children as best as possible. Furthermore, it is the school psychologist's responsibility to inform the staff and student body about childhood schizophrenia and become an advocate for these children with any situation that transpires within their educational setting.

Despite the advances, it is clear that additional research is needed on a number of fronts regarding childhood schizophrenia. The personal, social, and economical costs spawned by this disease are staggering and at the mercy of the secrets still veiled by the complexity of this disease. Luckily, researchers in the fields of medicine and psychology are becoming increasingly aware of childhood schizophrenia and are working diligently to remove its veil and unlock its secrets.

The purpose of the present study is two fold. One, the study will provide an understanding of the knowledge and competence that currently exists regarding childhood schizophrenia among school psychologists and school counselors, as well as

between master's and post master's educational levels. Two, the research will formulate recommendations that the formerly mentioned professionals may use to help students not only cope with schizophrenia, but also succeed educationally.

CHAPTER III METHODOLOGY

This chapter discussed the methodology used in this study. A description of the subjects and how they were chosen will be followed by an explanation of the instrumentation used. The procedures of how the data was collected and analyzed will also be described. Finally, the chapter concludes with an account of the methodological limitations that must be considered.

Subjects

The research subjects consisted of a pool of school psychologists and school counselors from a mix of public and private elementary, middle, and high schools. The sample included school counselors belonging to the American School Counselor Association (ASCA), as well as school psychologists who serve within the same districts as the school counselors that were surveyed. A national mailing list of school counselors that belong to ASCA was provided upon request from ASCA. Responses from 21 master's level school psychologists, 46 post-master's level school psychologists, 54 master's level school counselors, and 8 post-master's level school counselors were received.

Instrumentation

The purpose of the instrument was to gather information regarding the current understanding of childhood onset schizophrenia. The instrument used to survey the sample was designed by the researcher and investigates the differences between school psychologists and school counselors in terms of their knowledge of the following areas of childhood schizophrenia: diagnosis and symptomatology, etiology, treatment, and educational implications (see Appendix A). Subjects were asked to rate their knowledge

or competence on a scale of 1 (minimal understanding) – 4 (mastery). Part I of the survey was demographic in nature and considered the practicing profession, the respondent's degree of education, and the number of years in practice. Part II of the survey investigated the four previously mentioned areas of childhood schizophrenia by presenting four questions that centered on specific components within these four areas. Part III of the survey requested ideas and suggestions from the respondents about how children with schizophrenia can be most appropriately served. Finally, it should be noted that a means to measure the reliability and validity of this survey does not exist.

Data Collection

The survey was mailed to 250 school psychologists and 250 school counselors from elementary, middle, and high schools across the nation. The surveys were mailed between 08/15/2007-09/01/2007, and the last survey was accepted on 12/03/2007. The subjects were asked to take said survey, which took approximately 10 minutes to complete. After the survey was completed, the subjects were asked to return the survey in a prepaid addressed envelope provided by the researcher. Upon the study's completion, a letter informing of the results will be sent out to those participants who requested a follow-up summary.

Data Analysis

This study is descriptive in nature and seeks to examine childhood onset schizophrenia within the context of today's educational system. The data collected from the survey instrument was analyzed by separating subjective and statistical based questions. A two-way analysis of variance (ANOVA) was conducted to examine the differences between school psychologists and school counselors across levels of

education in terms of their knowledge of the four previously mentioned areas of childhood schizophrenia. Additionally, Tukey's Post-Hoc Analysis was used to analyze interactions that occurred. Section 3, which is subjective in nature, was analyzed for frequency of suggestions. The suggestions were analyzed by the researcher and categorized into three categories: 1) additional training related to severe mental health disorders such as childhood schizophrenia; 2) increased communication between educational professionals (teachers, school psychologists, school counselors, etc), outside agencies (mental health providers, medical professionals, social workers, etc), and parents; and 3) increased awareness and acceptance through programs that are school wide and center on severe mental health disorders.

Limitations

One limitation to this study is that out of the 250 school psychologists and 250 school counselors surveyed, only 67 school psychologists and 62 school counselors returned surveys. Therefore, results may not be representative of all school psychologists and school counselors across the nation. It should also be noted that the investigator designed the survey, therefore a means to measure the reliability and validity of the survey does not exist. Furthermore, the survey did not have a way to detect potential biases that raters could possibly have.

CHAPTER IV: RESULTS

Introduction

This chapter will provide a summary of the data collected. A description of the statistics used to analyze the data will be given in a table format. The research questions asked on this survey were analyzed to determine what variables including profession (School Psychologist vs. School Counselor), level of education (master's vs. post-master's), and years of experience that represent the highest level of competencies across the knowledge areas of diagnosis and symptomatology, etiology, treatment, and educational implications.

Descriptive statistics

The following is a synopsis of the average mean scores across the four knowledge areas for school psychologists, school counselors, and both combined. The mean scores are based on a Likert scale that ranged from 1 (minimal knowledge or competence) through 4 (mastery). Average mean scores for school psychologists included $M=2.24$ for the area of diagnosis and symptomatology, $M=1.85$ for the area of etiology, $M=1.71$ regarding the area of treatment, $M=2.23$ for the educational implications area, and an overall total of $M=2.01$. Average mean scores for school counselors included $M=1.65$ with respect to the area of diagnosis and symptomatology, $M=1.37$ for the area of etiology, $M=1.41$ regarding the area of treatment, $M=1.61$ for the area of educational implications, and an overall total of $M=1.51$. Finally, a combined total for both school psychologists and school counselors yielded an average mean score of $M=1.96$ regarding the area of diagnosis and symptomatology, $M=1.61$ for the etiological area, $M=1.56$ for

the treatment area, $M=1.93$ regarding the area of educational implications, and an overall total for both school psychologists and school counselors combined of $M=1.76$.

Ho1: There will be no statistically significant difference regarding the understanding of the diagnosis and symptomatology of childhood onset schizophrenia between a) school psychologists and school counselors; b) master's and post-master's levels of education; c) nor will there be a statistically significant interaction between profession and educational degree.

A two-way ANOVA was conducted to determine if there was a significant difference between school psychologists and school counselors and master's and post-master's concerning the understanding of the diagnosis and symptomatology of childhood onset schizophrenia. For question 1:1, pertaining to the understanding of classical positive and negative symptoms of schizophrenia, a significant difference existed between professions with school psychologists presenting a higher level of understanding ($p < .001$; school psychologist = 2.79, school counselor = 2.13) (see Tables 1 and 2), but there was not a significant difference between master's and post-master's, nor was there an interaction between profession and educational degree. With respect to question 1:2, concerning the knowledge of Dr. Sheila Cantor's research on COS and the comprehensive symptoms list that she has established, a statistically significance did not occur between school psychologists and school counselors, master's and post-master's, nor was there an interaction between profession and educational degree. Regarding question 1:3, pertaining to the level of understanding the diagnostic criteria of schizophrenia, a significant difference existed between professions with school psychologists indicating a higher level of understanding ($p < .001$; school psychologist =

2.82, school counselor = 1.98) (see Tables 1 and 2), but there was not a significant difference between master's and post-master's, nor was there an interaction between profession and educational degree. For question 1:4, regarding the level of competence with the various assessment batteries utilized to facilitate diagnosis and treatment of COS on both the clinical and educational levels, a significant difference existed between professions with school psychologists presenting an increased level of knowledge compared to school counselors ($p < .01$; school psychologist = 1.88, school counselor = 1.34) (see Tables 1 and 2), but there was not a significant difference between master's and post-master's, nor was there an interaction between profession and educational degree. Considering the aforementioned data, null hypothesis Ho1a was rejected; however, Ho1b and Ho1c failed to be rejected.

Table 1

Mean and standard deviation for the understanding of the diagnosis and symptomatology of COS.

Q1: Level of understanding regarding the classic positive and negative symptoms of schizophrenia.

Group	Master's		Post-Master's		Total	
	M	SD	M	SD	M	SD
School Psychologist:	2.67	.730	2.85	.759	2.79	.749
School Counselor:	2.04	.931	2.13	.835	2.05	.913
Total:	2.21	.920	2.74	.805	2.43	.909

Q2: Level of understanding of Dr. Shelia Cantor's research on COS and the comprehensive symptoms list that she has established.

Group	Master's		Post-Master's		Total	
	M	SD	M	SD	M	SD
School Psychologist:	1.24	.700	1.54	.887	1.45	.840
School Counselor:	1.20	.562	1.38	.744	1.23	.584
Total:	1.21	.599	1.52	.863	1.34	.734

Q3: Level of understanding of the diagnostic criteria for schizophrenia.

Group	Master's		Post-Master's		Total	
	M	SD	M	SD	M	SD
School Psychologist:	2.67	.796	2.89	.795	2.82	.796
School Counselor:	1.98	.981	2.00	.926	1.98	.967
Total:	2.17	.978	2.76	.867	2.42	.974

Q4: Level of competence with various assessment batteries utilized to facilitate diagnosis and treatment of COS on both the clinical and educational level.

Group	Master's		Post-Master's		Total	
	M	SD	M	SD	M	SD
School Psychologist:	1.81	.814	1.91	.839	1.88	.826
School Counselor:	1.30	.571	1.63	.744	1.34	.599
Total:	1.44	.683	1.87	.825	1.62	.773

Table 2

Two-way ANOVA to compare the understanding of diagnosis and symptomatology of COS between profession and educational degree.

Q1: Level of understanding of the classical positive and negative symptoms of schizophrenia.

Source	df	SS	MS	F	p
Profession:	1	9.514	9.514	13.606	.000***
Ed Degree:	1	.486	.486	.695	.406
Interaction:	1	.041	.041	.058	.810

***p<.001

Q2: Knowledge of the diagnostic research presented by Dr. Sheila Cantor.

Source	df	SS	MS	F	p
Profession:	1	.127	.127	.241	.624
Ed Degree:	1	1.465	1.465	2.780	.098
Interaction:	1	.084	.084	.160	.690

Q3: Level of understanding of the diagnostic criteria for schizophrenia.

Source	df	SS	MS	F	p
Profession:	1	12.313	12.313	15.688	.000***
Ed Degree:	1	.530	.530	.676	.413
Interaction:	1	.200	.200	.254	.615

***p<.001

Q4: Level of competence with various assessment batteries utilized to facilitate diagnosis and treatment of COS on both the clinical and educational level.

Source	df	SS	MS	F	p
Profession:	1	4.310	4.310	8.160	.005**
Ed Degree:	1	.669	.669	1.267	.263
Interaction:	1	.238	.238	.451	.503

**p<.01

Ho2: There will be no statistically significant difference regarding the etiological understanding of childhood onset schizophrenia between a) school psychologists and school counselors; b) master's and post-master's levels of education; c) nor will there be a statistically significant interaction between profession and educational degree.

A two-way ANOVA was conducted to determine if there was a significant difference between school psychologists and school counselors and master's and post-

master's concerning the etiological understanding of COS. Regarding question 2:1, pertaining to the level of understanding of etiological neurotransmitter research, a significant difference was not identified between school psychologists and school counselors, but a significant difference did exist between educational degree with post-master's level subjects expressed a higher level of understanding ($p < .01$; master's = 1.39, post-master's = 2.09) (see Table 3 and 4). Furthermore, an interaction between profession and educational level also occurred ($p < .05$) (see Table 4). Regarding this interaction, post-master's level school psychologists expressed the highest level of knowledge (see Table 3). With respect to question 2:2, concerning the level of understanding of etiological brain structure research, a significant difference was not found between school psychologists and school counselors, nor did an interaction exist between profession and educational degree; however, a significant difference did exist between educational levels in that post-master's respondents indicated a higher level of competence ($p < .01$; master's = 1.29, post-master's = 1.87) (see Table 3 and 4). For question 2:3, regarding the level of understanding of etiological genetic research, a significant difference was not detected between school psychologists and school counselors, nor did an interaction exist between profession and educational degree; however, there was a significant difference between educational levels with post-master's respondents presented higher a level of competence ($p < .05$; master's = 1.41, post-master's = 1.91) (see Table 3 and 4). Finally, regarding question 2:4, pertaining to the level of understanding of social etiological components present in COS, a significant difference was not identified between school psychologists and school counselors, nor did an interaction exist between profession and educational level; however, a significant

difference was detected between educational levels in that post-master's subjects indicated a higher level of understanding ($p < .05$; master's = 1.45, post-master's = 1.98) (see Table 3 and 4). Considering these data, null hypotheses Ho2b and Ho2c were rejected; however, Ho2a failed to be rejected.

Table 3

Mean and standard deviation for profession and level of education regarding the etiological understanding of COS.

Q1: Level of understanding of the etiology within the area of neurotransmitter research.

Group	Master's		Post-Master's		Total	
	M	SD	M	SD	M	SD
School Psychologist:	1.38	.590	2.22	.917	1.96	.912
School Counselor:	1.39	.685	1.38	.744	1.39	.686
Total:	1.39	.655	2.09	.937	1.68	.857

Q2: Level of understanding of the etiology within the area of brain structure research.

Group	Master's		Post-Master's		Total	
	M	SD	M	SD	M	SD
School Psychologist:	1.33	.730	1.96	.788	1.76	.818
School Counselor:	1.28	.686	1.38	.744	1.29	.492
Total:	1.29	.540	1.87	.802	1.53	.719

Q3: Level of understanding of the etiology within the area of genetic research.

Group	Master's		Post-Master's		Total	
	M	SD	M	SD	M	SD
School Psychologist:	1.52	.750	1.98	.745	1.84	.771
School Counselor:	1.37	.525	1.50	.756	1.39	.554
Total:	1.41	.595	1.91	.759	1.62	.709

Q4: Level of understanding of the social etiological components present in COS.

Group	Master's		Post-Master's		Total	
	M	SD	M	SD	M	SD
School Psychologist:	1.62	.865	2.02	.977	1.90	.956
School Counselor:	1.39	.564	1.75	.886	1.44	.617
Total:	1.45	.664	1.98	.961	1.67	.840

Table 4

Two-way ANOVA to compare the etiological understanding of COS between profession and educational degree.

Q1: Level of understanding of the etiology within the area of neurotransmitter research.

Source	df	SS	MS	F	p
Profession:	1	1.440	1.440	2.450	.120
Ed Degree:	1	6.692	6.692	11.383	.001**
Interaction:	1	3.397	3.397	5.778	.018*

*p<.05

**p<.01

Q2: Level of understanding of the etiology within the area of brain structure research.

Source	df	SS	MS	F	p
Profession:	1	1.052	1.052	2.467	.119
Ed Degree:	1	4.366	4.366	10.241	.002**
Interaction:	1	1.300	1.300	3.048	.083

**p<.01

Q3: Level of understanding of the etiology within the area of genetic research.

Source	df	SS	MS	F	p
Profession:	1	1.419	1.419	3.237	.074
Ed Degree:	1	2.599	2.599	5.928	.016*
Interaction:	1	.496	.496	1.130	.290

*p<.05

Q4: Level of understanding of the social etiological components present in COS.

Source	df	SS	MS	F	p
Profession:	1	1.296	1.296	2.018	.158
Ed Degree:	1	3.238	3.238	5.044	.026*
Interaction:	1	.008	.008	.013	.911

*p<.05

Ho3: There will be no statistically significant difference regarding the knowledge of treatments available for childhood onset schizophrenia between a) school psychologists and school counselors; b) between master's and post-master's levels of education; c) nor will there be a statistically significant interaction between profession and educational degree.

A two-way ANOVA was conducted to determine if there was a significant difference between school psychologists and school counselors and master's and post-master's concerning the understanding of treatments for COS. With respect to question 3:1, regarding the understanding of the three-phase model, a significant difference was not identified between school psychologists and school counselors, nor did an interaction exist between profession and educational level; however, a significant difference was detected between educational levels with post-master's level respondents endorsing a higher level of understanding ($p < .05$; master's: 1.29, post master's: 1.63) (see Tables 5 and 6). For question 3:2, pertaining to the knowledge of medical treatments utilized to control symptoms, a significant difference existed between professions with school psychologists presenting a higher level of understanding ($p < .01$; school psychologist: 1.99, school counselor: 1.45) (see Tables 5 and 6), but there was not a significant difference between master's and post-master's, nor was there a significant interaction

between profession and educational degree. With respect to question 3:3 (understanding of the psychosocial treatments implemented to control symptoms of COS) and question 3:4 (knowledge of preventative strategies to prevent and/or limit the severity of COS), a statistically significance did not occur between school psychologists and school counselors, master's and post-master's, nor was there an interaction between profession and educational degree. Considering these data, null hypotheses Ho3a and Ho3b were rejected; however, Ho3c failed to be rejected.

Table 5

Mean and standard deviation for profession and level of education regarding the knowledge of treatments available for COS.

Q1: Understanding of the three-phase treatment model.

Group	Master's		Post-Master's		Total	
	M	SD	M	SD	M	SD
School Psychologist:	1.24	.436	1.63	.826	1.51	.746
School Counselor:	1.31	.609	1.63	.744	1.35	.630
Total:	1.29	.564	1.63	.808	1.43	.694

Q2: Knowledge of medical treatments utilized to control symptoms.

Group	Master's		Post-Master's		Total	
	M	SD	M	SD	M	SD
School Psychologist:	1.86	.655	2.04	.759	1.99	.728
School Counselor:	1.41	.599	1.75	.707	1.45	.619
Total:	1.53	.644	2.00	.808	1.73	.726

Q3: Knowledge of the psychosocial treatments available to control symptoms.

Group	Master's		Post-Master's		Total	
	M	SD	M	SD	M	SD
School Psychologist:	1.81	.750	1.85	.788	1.84	.771
School Counselor:	1.39	.596	1.88	.835	1.45	.645
Total:	1.51	.665	1.85	.787	1.65	.736

Q4: Understanding of the strategies used to prevent and/or limit the severity of COS.

Group	Master's		Post-Master's		Total	
	M	SD	M	SD	M	SD
School Psychologist:	1.38	.669	1.54	.808	1.49	.766
School Counselor:	1.33	.549	1.63	.744	1.37	.579
Total:	1.35	.581	1.56	.793	1.43	.683

Table 6

Two-way ANOVA to compare the knowledge of treatments available for COS between profession and educational degree.

Q1: Understanding of the three-phase treatment model.

Source	df	SS	MS	F	p
Profession:	1	.057	.057	.124	.726
Ed Degree:	1	2.858	2.858	6.154	.014*
Interaction:	1	.032	.032	.068	.794

*p<.05

Q2: Knowledge of medical treatments utilized to control symptoms.

Source	df	SS	MS	F	p
Profession:	1	3.530	3.530	7.739	.006**
Ed Degree:	1	1.204	1.204	2.639	.107
Interaction:	1	.115	.115	.251	.617

**p<.01

Q3: Knowledge of the psychosocial treatments available to control symptoms.

Source	df	SS	MS	F	p
Profession:	1	1.738	1.738	3.455	.065
Ed Degree:	1	.726	.726	1.442	.232
Interaction:	1	.942	.942	1.873	.174

Q4: Understanding of the strategies used to prevent and/or limit the severity of COS.

Source	df	SS	MS	F	p
Profession:	1	.001	.001	.003	.959
Ed Degree:	1	.895	.895	1.921	.168
Interaction:	1	.078	.078	.168	.682

Ho4: There will be no statistically significant difference regarding the understanding of the educational implications that exist for children with childhood onset schizophrenia between a) school psychologists and school counselors; b) master's and post-master's levels of education; c) nor will there be a statistically significant interaction between profession and educational degree.

A two-way ANOVA was conducted to determine if there was a significant difference between school psychologists and school counselors and master's and post-master's concerning the educational implications that exist for a child with schizophrenia. Regarding question 4:1, pertaining to the level of competence of an educational disability evaluation for COS, a significant difference was detected between professions with school psychologists endorsing a higher competency level ($p < .001$; school psychologist = 2.33, school counselors = 1.60) (see Tables 7 and 8), but there was not a significant difference between master's and post-master's, nor was there a significant interaction between profession and educational degree. With respect to question 4:2, regarding the

ability to provide appropriate program planning for students with COS, a significant difference existed between professions with school psychologists expressing a higher level of understanding ($p < .05$; school psychologist = 2.18, school counselor = 1.73) (see Table 7 and 8). In contrast, there was not a significant difference between master's and post-master's, nor was there a significant interaction between profession and educational degree. In regards to question 4:3, considering the knowledge of state and federal identification criteria for COS, a significant difference was identified between professions with school psychologists presenting a higher level of knowledge ($p < .01$; school psychologist = 2.27, school counselor = 1.55) (see Tables 7 and 8); however, there was not a significant difference between master's and post-master's, nor did a significant interaction occur between profession and educational degree. Finally, considering question 4:4, pertaining to the preparedness for serving students with schizophrenia, a significant difference was found between professions with school psychologists indicating a higher level of competence ($p < .06$; school psychologist = 2.13, school counselor = 1.56) (see Tables 7 and 8). In contrast, there was not a significant difference between master's and post-master's, nor did a significant interaction occur between profession and education degree. Considering these data, null hypothesis Ho4a was rejected; however, Ho4b and Ho4c were not rejected.

Table 7

Mean and standard deviation for profession and level of education regarding the understanding of the educational implications of COS.

Q:1 Level of competence regarding educational disability evaluation for COS.

Group	Master's		Post-Master's		Total	
	M	SD	M	SD	M	SD
School Psychologist:	2.38	.921	2.30	.963	2.33	.944
School Counselor:	1.54	.770	2.00	.756	1.60	.778
Total:	1.77	.894	2.26	.935	1.98	.939

Q2: Level of ability to provide appropriate programming for students with COS.

Group	Master's		Post-Master's		Total	
	M	SD	M	SD	M	SD
School Psychologist:	2.14	.964	2.20	.833	2.18	.869
School Counselor:	1.69	.865	2.00	.926	1.73	.872
Total:	1.81	.911	2.17	.841	1.96	.896

Q3: Knowledge of federal and state identification criteria for COS.

Group	Master's		Post-Master's		Total	
	M	SD	M	SD	M	SD
School Psychologist:	2.19	1.03	2.30	1.03	2.27	1.02
School Counselor:	1.54	.745	1.63	.916	1.55	.761
Total:	1.72	.879	2.20	1.04	1.92	.973

Q4: Level of preparedness for serving a student with schizophrenia.

Group	Master's		Post-Master's		Total	
	M	SD	M	SD	M	SD
School Psychologist:	2.00	.894	2.20	.859	2.13	.869
School Counselor:	1.52	.771	1.88	.835	1.56	.781
Total:	1.65	.830	2.15	.856	1.86	.873

Table 8

Two-way ANOVA to compare the understanding of the educational implications of COS between profession and educational degree.

Q1: Level of competence regarding educational disability evaluation for COS.

Source	df	SS	MS	F	p
Profession:	1	10.032	10.032	13.324	.000***
Ed Degree:	1	.210	.210	.279	.598
Interaction:	1	1.368	1.368	1.816	.180

***p<.001

Q2: Level of ability to provide appropriate programming for students with COS.

Source	df	SS	MS	F	p
Profession:	1	3.105	3.105	4.066	.046*
Ed Degree:	1	.408	.408	.535	.466
Interaction:	1	.323	.323	.422	.517

*p<.05

Q3: Knowledge of federal and state identification criteria for COS.

Source	df	SS	MS	F	p
Profession:	1	9.598	9.598	11.505	.001**
Ed Degree:	1	.238	.238	.285	.594
Interaction:	1	.003	.003	.004	.951

**p<.01

Q4: Level of preparedness for serving a student with schizophrenia.

Source	df	SS	MS	F	p
Profession:	1	4.084	4.084	5.965	.016*
Ed Degree:	1	1.316	1.316	1.922	.168
Interaction:	1	.122	.122	.177	.674

*p<.05

Section III Analysis

Section III of the survey was subjective in nature and analyzed for frequency of suggestions. Out of the 129 surveys received, 26 were returned with suggestions and recommendations that school psychologists, school counselors, and other educational professionals can implement to benefit students with schizophrenia. The suggestions returned fell into three main categories: 1) mental health trainings that are specific to more extreme and pervasive mental health disorders; 2) increased communication between educational professionals, mental health professionals, and parents; and 3) increased understanding and school wide acceptance among educational staff.

Summary

Overall, the results of this research suggest the following conclusions with respect to childhood onset schizophrenia and the educational setting. Two-way ANOVA analyses were conducted to examine the knowledge and competence of childhood schizophrenia that currently exists among school psychologists and school counselors, resulting in the rejection of six of the twelve hypotheses proposed.

The first hypothesis rejected (H_{01a}) stated that there is no statistically significant difference between school psychologists and school counselors regarding the understanding of diagnosis and symptomatology of COS. A two-way ANOVA indicated that the rating level provided by school psychologists was significantly higher than the level of understanding indicated by school counselors regarding classical positive and negative symptoms of COS, diagnostic criteria for schizophrenia, and the various assessment batteries utilized to facilitate diagnosis and treatment of COS on both the clinical and educational levels.

The second hypothesis rejected (Ho2b) stated that there is not a statistically significant difference between master's and post-master's with respect to the level of etiological understanding of COS. To the contrary, responses provided by subjects yielded the notion that post-master's education level professionals have an increased etiological understanding of schizophrenia compared to master's education level professionals regarding neurotransmitter research, brain structure research, genetic research, and the social etiological components present in COS.

The third hypothesis rejected (Ho2c) postulated that there is no statistically significant interaction between profession and educational degree in terms of the level of understanding of the diagnostic criteria for schizophrenia. This hypothesis was refuted because a significant interaction was identified between profession and educational degree in the area of etiological neurotransmitter research.

The fourth hypothesis rejected (Ho3a) stated that there is no statistically significant difference between school psychologists and school counselors pertaining to the understanding of current treatments for COS. To the contrary, items endorsed by subjects indicated a higher level of understanding among school psychologists compared to school counselors regarding the knowledge of medical treatments utilized.

The fifth hypothesis rejected (Ho3b) proposed that there is not a statistically significant difference between master's and post-master's pertaining to the understanding of current treatments for COS. In contrast to this hypothesis, a significant difference was identified between master's and post-master's education levels regarding the three-phase treatment model.

The sixth rejected (Ho4a) suggested that there is not a statistical difference between school psychologists and school counselors with respect to the understanding of the educational implications that exist for students with COS. A two-way ANOVA determined a higher level of competence among school psychologists compared to school counselors regarding educational disability evaluation for COS, appropriate programming for students with COS, federal and state identification criteria for COS, and preparedness for serving a student with schizophrenia.

Finally, with respect to Section III, subjects provided recommendations that fell into three categories: 1) mental health trainings that are specific to more extreme and pervasive mental health disorders; 2) increased communication between educational professionals, mental health professionals, and parents; and 3) increased understanding and school wide acceptance among educational staff.

CHAPTER V: DISCUSSION

Introduction

This chapter presents a summary of the information obtained in the literature review, as well as the research that was conducted regarding the understanding of childhood schizophrenia in the educational setting. The areas investigated include the diagnosis and symptomatology of childhood schizophrenia, the etiology of childhood schizophrenia, treatments for childhood schizophrenia, and the educational implications of childhood schizophrenia. The results of this investigation indicated that levels of competence vary considerably across two variables when it comes to the previously mentioned domains: profession and educational degree. Lastly, the chapter offers recommendations to professional school psychologists and school counselors who work with children suffering from schizophrenia.

1. Diagnosis and Symptomatology of Childhood Schizophrenia.

Regarding diagnosis of childhood schizophrenia, it is important to understand the difference between a clinical diagnosis and the special education identification criteria. The significance of childhood schizophrenia dictates that a clinical psychologist or psychiatrist performs evaluations and assessments, ultimately clinically diagnosing schizophrenia. The guidelines for clinically diagnosing childhood schizophrenia are the same as those used for diagnosing the adult form, which can be found in the DSM-IV-TR. Because of the monumental repercussions tied to a diagnosis of childhood schizophrenia, many clinicians are hesitant of labeling children with such a diagnosis. This is one of the heated debates existing in the arena of schizophrenia today. This debate includes the majority group of clinicians buying into the existence of childhood

schizophrenia, with a smaller group feeling that the diagnosis of childhood schizophrenia is premature and therefore not clinically appropriate.

The second aspect of diagnosis pertains to the educational world and is specific to identification for special education. As previously mentioned, this is done by the school psychologist regarding his/her state's special education qualification criteria. Because it is the responsibility of school psychologists to be the lead on all special education evaluations, it seems to make natural sense that they would have more training and be more knowledgeable in the clinical and educational diagnosis of schizophrenia. This was confirmed by the research, as school psychologists endorsed items that yielded main effects for both the level of understanding of the diagnostic criteria for schizophrenia, as well as the level of competence with various assessment batteries utilized to facilitate diagnosis.

There was also a significant difference between school psychologists and school counselors regarding a survey question that pertained to symptomatology. This question was concerned with the level of understanding of the classical positive and negative symptoms of schizophrenia. There are a variety of symptoms that occur with the onset of childhood schizophrenia that are generalized in the aforementioned symptomatic categories. Positive manifestations include delusions, hallucinations, and paranoid ideation. Negative manifestations entail symptoms such as flat affect, lack of speech and concentration, and poor attention. Similar to the questions centering on diagnosis, school psychologists expressed a better understanding of these symptoms than the school counselors whom were surveyed. Considering that school psychology programs are laden with courses and experiences that instruct students to identify, understand, and

categorize abnormal or atypical behavioral tendencies, it is not a surprise that school psychologists would endorse higher ratings within this area compared to school counselors.

2. Etiology of Childhood Schizophrenia.

There are three main areas of research regarding the etiology of childhood schizophrenia involving genetics, neurotransmitters, and brain damage. Also existing is research on the influence of family environment and childhood schizophrenia, which is far less scientific but important nevertheless. Genetics provides the leading scientific research for both forms of schizophrenia, but unfortunately geneticists still have a long way to go in uncovering the precise role that genetics plays in the onset of schizophrenia. The primary research involving neurotransmitter abnormalities centers on the *dopamine hypothesis*. Simply put, this hypothesis states that an over activity of certain neurons in the brain causes schizophrenia. Also, studies that revolve around brain damage and brain functioning have found a variety of abnormalities with individuals suffering from schizophrenia compared to control groups. Finally, regarding the family environment's influence on the onset of childhood schizophrenia, theories such as the *disturbed family environment theory* view environmental stressors such as mistreatment or rejection to account for the onset of schizophrenia. The underlying feeling with many schizophrenic researchers today regarding etiological components is that there may not be one absolute factor that causes the onset of schizophrenia, but rather a combination of factors that invoke this disease.

The information gleaned from this research indicated that competencies pertaining to the four areas of etiological research are primarily attributed to a

professional's educational degree, or more specifically the breadth and depth of his/her educational preparation. Considering the design and purpose of a master's degree versus a post-master's degree this evidence seems to make logical sense. More specifically, the purpose of a master's program is to prepare a school psychologist or school counselor to function appropriately in a practical setting as quickly as possible. In other words, master's programs in school psychology and school counseling are focused primarily on the practical nature of the profession rather than more underlying and in-depth topics like theory or the etiology of the disease.

3. Treatments for Childhood Schizophrenia.

The treatment of childhood schizophrenia usually involves a three-phase model including an acute phase, a stabilization phase, and a maintenance phase. Typically, the treatment strategies implemented are dictated by the phase that the child is in. In the acute phase where symptoms are extremely intense, psychotropic medications in combination with inpatient care and possibly electroconvulsive therapy are implemented. As the symptoms lessen in intensity and the child moves through phases, their medications are often curtailed and psychosocial therapies can be implemented. These psychosocial therapies can become very helpful in teaching both the child with schizophrenia and his/her parents medication compliance techniques, appropriate behaviors, and healthy family dynamics. In conclusion, there is not a specific treatment regimen that works for every child with schizophrenia, nor will every child benefit equally from today's treatments. Furthermore, it should be understood that today's treatments can be effective in controlling schizophrenic symptoms, but will not extinguish them.

There are several claims that can be suggested from the data garnered from this research regarding treatment of childhood schizophrenia. To begin, it is interesting to note that considering the understanding of the three-phase treatment model, educational degree seemed to be the variable that yielded the highest level of awareness. One might propose that although school psychologists and school counselors have not identified it as the three-phase model, but a variation of this model is often employed in the practical setting to help students work through emotional and behavioral problems and situations. Secondly, the relatively little understanding between professions and educational degrees regarding both psychosocial treatments ($M = 1.65$), as well as strategies to implement to prevent and or limit the severity of childhood schizophrenia ($M = 1.43$), was alarming. More specifically, these are the strategies that can actually be employed in the school setting by school psychologists and school counselors to aide a student with schizophrenia to have success in school both behaviorally and academically. In other words, these strategies are things that mental health educational professionals actually have control over. It is unfortunate that there is such little understanding of psychosocial treatments and interventions because they can be applicable and helpful to students experiencing a variety of intense emotional and/or behavioral disorders.

4. Educational Implications of Childhood Schizophrenia..

The educational implications tied to children suffering from schizophrenia are both extensive and complicated. As previously mentioned, it is important to recognize that the school psychologist is the key individual in all dealings involving the schizophrenic child's educational experience. Keeping this in mind, other areas of assistance can be found from guidance counselors, the school nurse, special education

teachers, and administration. Because childhood schizophrenia is such an incapacitating disease, it typically is automatically identified within the scope of special education. This provides a wealth of program planning that can help to enhance the child's educational experience.

When considering program planning for the schizophrenic child, there are a variety of options to draw from, depending on the severity of the child's symptoms. Similar to the treatment of schizophrenia, there is not a specific protocol or set of related services that are implemented for each child that has schizophrenia. On the other hand, there are various related services that are often used for assisting these students including alternative classroom settings, curriculum modifications, social skills therapy, behavioral procedures, and medication protocols. Finally, it is important to realize that ensuring a positive and beneficial education for a schizophrenic child is only acquired if educational professionals are on the same page and collaboratively work together to fulfill this goal.

Regarding the data gathered through this research, information provided by subjects indicated that school psychologists endorsed higher levels of understanding compared to school counselors across all measures of educational implication. Because school psychologists are responsible for leading special education evaluation teams including evaluation and educational criteria, as well as creating appropriate programming for students identified with an educational disability, it seems logical that they would endorse a higher level of competence compared to school counselors. Moreover, a student with schizophrenia would more than likely qualify for special education; therefore, a school psychologist would be more apt to work with said student than a school counselor, who's primary responsibilities are to the general education population.

A final point to consider is a broad perspective regarding the data collected from this research as a whole. It is true that childhood schizophrenia is a very uncommon disorder and educational professionals' exposure is quite infrequent, but it seems moderately alarming how unfamiliar educational professionals are about this insidious disease. More specifically, competency levels amongst both school psychologists and school counselors were generally low across all of the areas surveyed, plus many respondents indicated a need for additional training in the subjective section (Section III) of the survey. It would appear that more training is definitely needed for mental health educational professionals concerning childhood onset schizophrenia specifically, but probably other extremely pervasive mental health disorders as well. The dilemma seems to be how to fit trainings that pertain to low incidence disorders (i.e.: childhood schizophrenia) into the already overloaded and under-funded educational professional's schedule and training budget. One assertion to consider is that trainings which center on childhood onset schizophrenia would provide information and helpful strategies that could be applicable to several mental health disorders that are extreme in nature and difficult to program for because of severe emotional and behavioral tendencies. In other words, psychosocial treatments and therapies that benefit children with schizophrenia are quite consistent with treatments and therapies used to help children suffering from other mental health disorders. By considering this viewpoint, it seems to make good sense to develop in-services or trainings that better develop competencies for educational mental health professionals in the area of severe mental health disorders such as childhood onset schizophrenia. Moreover, if one focuses primarily on the bleak and daunting traits of the

disease alone, it appears rather unfortunate that there is so little understanding of this disease on all fronts measured.

Recommendations

To better prepare and assist school psychologists and school counselors in working with children that are suffering from childhood schizophrenia, the following recommendations are made as a result of the research.

1. It is recommended that the school psychologist and school counselor collaborate with all educational professionals involved with the schizophrenic child, as well as all medical and psychological professionals involved.
 2. It is recommended that the school psychologist and school counselor use a multimodal method of observations, assessments, interviews, and medical and psychological reviews to monitor the child.
 3. It is recommended that the school psychologist and school counselor educate all staff and student body about childhood schizophrenia including characteristics of the disease, safety issues, and ways that they can assist the child.
 4. It is recommended that the school psychologist and school counselors maintain an advocate role for both the child and his/her parents.
 5. It is recommended that the school psychologist and school counselor utilize a variety of intervention strategies when implementing a program plan.
 6. It is recommended that more research be done related to appropriate and beneficial educational intervention strategies regarding childhood schizophrenia.
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7. It is recommended that more trainings pertaining to severe mental health disorders be made available and are easily accessed for mental health professionals serving in the educational setting.
8. It is recommended that both school psychologists and school counselors seek out additional training regarding childhood onset schizophrenia, as well as other extremely pervasive and often debilitating mental health disorders.
9. It is recommended that trainings be aligned with continuing education requirements and be easily accessed (i.e.: video conferencing or online opportunities).

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Appendix A: Survey

This project has been reviewed by the UW-Stout IRB as required by the Code of Federal Regulations Title 45 Part 46

Purpose: To establish an understanding of the current competencies among school psychologists and school counselors regarding childhood onset schizophrenia and program planning for childhood onset schizophrenia.

- I. Demographic questions:
1. Current practicing profession
 School Psychologist
 School Counselor
 2. Educational degree
 Master: MA
 Educational Specialist: Ed S
 Doctorate: Ph D
 3. Number of practicing years
 0-5
 6-10
 11-20
 21+

II. Your opinions regarding your understanding of childhood onset schizophrenia:
What level characterizes your understanding of childhood onset schizophrenia? Please, mark an X in the () that reflects your opinion.

1) Understanding of the diagnosis and symptomatology of childhood onset schizophrenia.	Minimal Understanding / Knowledge / Competence	Mastery
	1.....2.....3.....4	
1a) Level of understanding regarding the classic positive and negative symptoms of schizophrenia.	().....().....().....()	
1b) Level of knowledge of Dr. Sheila Cantor's research on childhood onset schizophrenia and the comprehensive symptoms list established which is specific to the disease.	().....().....().....()	
1c) Level of understanding of the diagnostic criteria for schizophrenia.	().....().....().....()	
1d) Level of competence with the various assessment batteries utilized to facilitate diagnosis and treatment of childhood onset schizophrenia on both the clinical and educational levels.	().....().....().....()	

2) Understanding the etiology of childhood onset schizophrenia.	Minimal Understanding	Mastery
	1.....2.....3.....4	
2a) Understanding of the etiology within the area of neurotransmitter research.	().....().....().....()	
2b) Understanding of the etiology within the area of brain structure research.	().....().....().....()	
2c) Understanding of the etiology within the area of genetic research.	().....().....().....()	
2d) Understanding of the social etiological	().....().....().....()	

components present in childhood onset schizophrenia.	
3) Knowledge of treatments available for childhood onset schizophrenia.	Minimal Understanding / Knowledge Mastery 1.....2.....3.....4
3a) Understanding of the three-phase treatment model.	().....().....().....()
3b) Knowledge of the various medical treatments utilized to control symptoms of childhood onset schizophrenia.	().....().....().....()
3c) Knowledge of the psychosocial treatments implemented to control symptoms of childhood onset schizophrenia.	().....().....().....()
3d) Understanding of the preventative strategies available to prevent and / or limit the severity of childhood schizophrenia.	().....().....().....()
4) Understanding of the educational implications of childhood onset schizophrenia.	Minimal Understanding / Knowledge / Competence Mastery 1.....2.....3.....4
4a) Indicate your level of competence regarding educational disability evaluation for childhood onset schizophrenia.	().....().....().....()
4b) Level of ability to provide appropriate program planning for students with childhood onset schizophrenia.	().....().....().....()
4c) Knowledge of federal and state identification criteria for childhood onset schizophrenia.	().....().....().....()
4d) Based on your competencies of childhood onset schizophrenia, indicate your level of preparedness for serving a student with schizophrenia.	().....().....().....()

III. Please provide suggestions regarding ideas that school psychologists, school counselors, and other educational professionals can implement to benefit students with schizophrenia.