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Prevalence of Language Disorders Among Children with Severe Behavioral Problems Referred for a Psychiatric Evaluation by a Large Urban School District

by

Brenda J. Curtwright

A dissertation submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy
Department of Special Education
College of Education
University of South Florida

Co-Major Professor: Ann Cranston-Gingras, Ph.D.
Co-Major Professor: Arthur M. Guilford, Ph.D.
Robert Dedrick, Ph.D.
Amaya Ramos, M.D.
Daphne Thomas, Ph.D.

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Dedication

This research is dedicated to Lewis Jr., Lewis III, and Alexandria (sweetstuff) to inspire you to pursue your dreams and to always remember that all things are possible with God. I love you all so much. This research is also dedicated to "Pop" my father, Henry Lewis Benton (1913-1977) and "Ma" my mother, Rosamond Virginia Benton (1919-2003) who taught me so much including the value of how far hard work, commitment, love of family, and faith in God can carry you. Thank you and I love you with all my heart. You are always with me.

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ABSTRACT

This study investigated the language skills and behavior characteristics of 63 students with severe behavior disorders who were referred for a neuropsychiatric evaluation between 2001 and 2005. Archival data were retrieved by chart review for this study and was used to answer the following questions: 1) What is the prevalence of language disorders in children referred for a psychiatric evaluation? 2) Do behavioral symptoms vary among children with and without a language disorder? and 3) What is the initial area of concern identified by the caretakers of children with language and behavior disorders? The study revealed: (1) prevalence rates of language disorders in children with severe behavior was 57%; (2) behavioral symptoms did not vary significantly among children with and without language disorders; and (3) no relationship existed between parent initial area of concern about their child and communication. Study results support the need for teacher education about the high prevalence of language disorders in children with severe behavioral problems in school populations.

Chapter 1

Introduction

Statement of the Problem

Language disorders often present with behavioral disorders in children. However, language disorders are often masked by significant behavioral problems and go unassessed. A language disorder can be defined as impaired comprehension and/or use of spoken, written and/or other symbol system. The disorder may incorporate (1) the form of language (phonology, morphology, and syntax), (2) the content of language (semantics), and/or (3) the function of language in communication (pragmatics) in any combination (American Speech-Language-Hearing Association, 2001). Toppelberg and Shapiro (2000), in their 10 year review of empirical studies of language disorders, found undiagnosed language disorders in community and psychiatric settings to be common. They also found that the identification of language disorders was helpful in preventing compounded long term behavior problems in children.

In their review of the research Toppelberg and Shapiro (2000) identified common factors related to the significance of identifying language disorders in children with behavioral problems: 1) early language disorders predicted disruptive behavior problems and concurrent and future psychiatric disorders with Attention Deficit Disorder and Anxiety Disorder being common; 2) mixed expressive and receptive

language disorders, phonological disorders, and low overall language functioning were predictive of worse behavioral outcomes; and 3) the presence of receptive language disorders with behavior disorders to be a high risk factor for psychiatric comorbidity and increased social incompetence.

Achenbach and Rescorla (2001) described internalizing behavior as problems associated within the self and characterized by: anxiousness, depression, withdrawal, somatic complaints, and social problems. Internalizing behavior is distinctly different from externalizing behavior, which they define as involving conflicts with other people and presents as: attention problems, rule breaking behavior, and aggressive behavior characteristics. The characteristics of children with language and coexisting behavior disorders have been described in the literature.

Children with language delays and behavioral disorders use shorter utterances, have significantly poorer topic maintenance, and inappropriate responses (McDonough, 1989), and reveal significant problems in numerous areas, including auditory memory, comprehension, semantic expression, and syntactic expression (Mack & Warr-Leeper, 1992). However, teachers and related school personnel have often not been made aware of the relationship between language delays and behavioral disorders. Gallagher (1999) in her review of literature on the interrelationships among children's language, behavior, and emotional problems, found children with behavioral and emotional problems had overlapping language disorders that were substantial in areas of vocabulary, comprehension, expression, and pragmatics. Gallagher (1999) noted little has been done in schools to identify these children despite evidence of high prevalence and

negative outcomes associated with overlapping language disorders and behavioral disorders.

Rationale

Teachers are often the first people to identify children with severe behavior characteristics. They are also often the first school personnel to identify language disorders in students. However, teachers are often unaware of the relationship between language and behavior (Gallagher, 1999). Therefore, there is a critical unmet need of children with co-occurring language disorders and behavioral disorders in school populations (Gallagher, 1999). The relationship between co-existing language functioning and behavior disorders has long been investigated in the literature in clinical settings (Camaratta, Hughes, & Ruhl, 1988), but has not been investigated often in school populations. The way educators deal with student behavioral problems is noted as being critically important to the field of special education (Forness, 2003). Behavior and emotional disorders are often misidentified in special education as learning disabilities and related disorders (Redden, Forness, Ramey, Ramey, & Brezausek, 2002). This study examined the prevalence of the co-existence of language disorders in children with behavioral disorders who were referred by teachers to an outpatient psychiatric center. The outpatient center was hired by the school to perform neuropsychiatric evaluations on children with severe behavior for the purpose of making a diagnoses and providing recommendations for educational planning.

Most studies have examined students in clinic or hospital settings with limited studies investigating children representing school populations (Cullinan & Epstein,

2001). No study could be found that examined the comorbidity of children in school populations using empirically based behavior checklists (e.g., The Child Behavior Checklist-CBCL/1.5 to 5 and 6-18 years, Achenbach $ Rescorla, 2001) and a standardized categorical classification system (e.g., The Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition Text Revision - DSM-IV-TR; American Psychiatric Association, 2000) to classify clinical levels of behavior. This study also looked at how caretaker perception differed in terms of their child's initial problems associated with prevalence of language disorders in children referred for a psychiatric evaluation.

Research Questions

The purpose of the present study was to expand the base of research about coexisting language disorders and behavior disorders in school age children referred for psychiatric services. Three questions were examined: 1) What is the prevalence of language disorders in children referred for a psychiatric evaluation? 2) Do behavior problems vary among children with and without language disorders? 3) What is the initial area of concern identified by the caretakers of children with language and behavior disorders?

Hypotheses

The following hypotheses were formulated to respond to the three questions: 1. School age children referred to the outpatient clinic for psychiatric problems likely will have a high prevalence rate of language disorders; 2. Behavioral symptoms will be most significant in children with co-existing language disorders and behavior disorder as compared to children with behavior disorders alone; and 3. Caretakers initial area of concern about their children's behavior will be in the area of communication skills.

Significance

Children with language disorders and behavior disorders tend to have worse social competence and higher levels of hyperactivity than children with language disorders or behavior disorders alone (Toppelberg & Shapiro, 2000). This study improves on other studies in that it examined a cohort of students only referred by schools, thus the sample is of a school-based population; and this study eliminated the inclusion of students with mental retardation (MR), pervasive developmental disorders (PDD), and Autism as was not done in other similar studies (Baltaxe & Simmons, 1988; Camarata, Hughes, & Ruhl, 1988; Gualtieri, Koviath, & Van Bourgondien, 1983). The Continuity of Care Program only evaluated children referred by the schools. The implications for this study support the need for teacher education about the coexistence of language disorders and behavior disorders.

Limitations

Study results should be interpreted with caution due to the following study limitations. A limitation of this study is that it was completed by chart review which only delineates correlational relationships between variables. A second limitation was that the author of the study completed language evaluations which may raise questions as to the objectivity of language test score results and interpretations. Lastly, a third limitation was the fact that all the children in the study had severe behavioral problems. Perhaps study results would be different if children with mild or moderate behavioral disorders were included in the study.

Organization of the Study

The study consisted of descriptions of the relationship between the variables of language disorders and behavior disorders. Data describing psychological status included intelligence quotient (I.Q.) and externalizing and internalizing broadband scores on the Child Behavior Checklist (CBCL) (Achenbach & Rescorla, 2001). Other variables that were examined included family dynamics and history of the child's language skills. Illustrations were used to provide a richer view of the complexity of children with behavior and language disorders. The illustrations in the study were not aligned to any research question or hypothesis.

Definition of Terms

The following definitions are provided to give the reader an understanding of how the author defined terms used in this study.

Behavior Problems. The problems experienced (e.g., significant academic delays, hyperactive, impulsive, moodiness, disorganized thoughts, tantrums, and disruptive behavior) experienced by children in their educational environment.

Externalizing Behavior. According to Achenbach and Rescorla (2001) childhood behaviors marked by: Attention problems (e. g., acts young, fails to finish, can't concentrate, can't sit still, confused, daydreams, impulsive, poor schoolwork, inattentive, and stares); rule-breaking behavior (e. g., drinks alcohol, lacks guilt, breaks rules, lies, cheats, prefers older kids, runs away, sets fires, sex problems, steals at home, steals outside home, swearing, and uses drugs). Aggressive Behavior (e.g., argues a lot, mean, demands attention, destroys own things, destroys others' things, disobedient at school/home, gets in fights, attacks people, screams a lot, stubborn, mood changes, sulks, teases a lot, temper, threatening others, and is loud).

Internalizing Behavior According to Achenbach and Rescorla (2001) childhood behaviors marked by: anxiousness (e.g., cries a lot, fears, must be perfect, feels unloved, feels worthless, nervous, fearful, self-conscious, worries); withdrawn (e.g., enjoys little, rather be alone, won't talk, secretive, shy, timid, lacks energy, sad, withdrawn); and somatic complaints (e.g., nightmares, feels dizzy, overtired, aches, headaches, nausea, eye problems stomach, vomiting).

Language Disorder. Impaired comprehension and/or use of spoken written and/or other symbol system. The disorder may incorporate (1) the form of language (phonology, morphology, syntax), (2) the content of language (semantics), and/or (3) the function of language in communication (pragmatics) in any combination. Language in this study was measured by one of these methods: the Clinical Evaluation of Language Fundamentals-Third and Fourth Editions, Preschool Language Scale-Third and Fourth Editions, Expressive One Word Picture Vocabulary Test (EOWPVT), or the Receptive One Word Picture Vocabulary Test (ROWPVT), parent interview about their child's language skills for children with limited oral language (e.g., Receptive-Expressive Emergent Language Third Edition (REEL-3), language sampling, and the Mean Length of Utterance (MLU) analysis (a measure applied to children's language to gauge syntactic development). The average length of the child's utterances is calculated in morphemes. A morpheme is the smallest, meaningful unit of language (Hegde, 1994). In this study a language disorder was characterized by language that was one standard deviation below the mean of 100 or more for standardized testing or one year below that expected for the child's chronological age for a language sample.

Chapter 2

Literature Review

Overview

Studies show that problem behavior is often the direct result of etiologies linked to the existence of comorbid psychiatric and developmental disabilities, with linguistic concomitant disabilities presenting with psychopathology being the most noted into the literature. However, in order to understand the effects of coexisting language and behavior disorders it is first necessary to understand its individual components of language development, language disorders, and behavior disorders. Understanding these components, corresponding theoretical constructs, and teaching strategies indicates the evolving nature of the field based on new findings and research. This literature review is organized under the following headings: Language Development: Language Disorders; Language Intervention Theories; Behavior Disorders; Language and Behavior Disorders; and Summary.

Language Development

Theorists such as Piaget, Skinner, and Chomsky have provided contexts with which to understand language development. Piaget (1954) believed language was a component of a child's cognition and that children were active learners in their environments. Skinner (1957) who brought forth the operant learning theory, also

known as behaviorism, also believed that language learning was shaped by environmental influences. Skinner believed that language was learned behavior formed through interaction with other persons, and emphasized the important role parents play in modeling and reinforcing grammatical structures. Children were considered to be passive learners under this theory. Chomsky's (1957) theory, known as the Standard Theory of Grammar, proposed that children were born with a language acquisition device that develops over time. Chomsky's theory encompassed ideas that children are able to produce sentences that they had never heard before and that language was not a function of behavioral learning or cognition. Language theory helped to form an understanding of the practical applications of language learning which is commonly defined by Bloom and Lahey's 1978 definition.

Bloom and Lahey's Language Development and Language Disorders book in 1978, provided a synthesis of research findings in normal language development and practical approaches to assessment and treatment. Prior to that time few books linked research and practice together. To date Bloom and Lahey's model of linguistic theory which describes language as being composed of content, form, and use is still highly referenced in the literature. According to Bloom and Lahey (1978) language is a code used that symbolizes meaning about the world through the use of arbitrary symbols. Language is comprised of the combination of what is known as content, form, and use. Content describes what is known about the subject in communication. Form represents phonology, the units of sound; morphology, the ways in which units of meaning are changed through the addition of grammatical markers; and syntax, the way units of

meaning are joined together to form sentences. Use comprises the reasons why people speak and how individuals choose language forms for reaching goals. This use of language also involves the speaker deciding which form of language to use based on the context of the situation at hand.

Toppelberg and Shapiro (2000) broke language into four domains: phonology, grammar, semantics, and pragmatics which they noted has its own units and involves reception and expression, encoding, and decoding, comprehension and production, that follow an expected developmental course. Scholars in multiple fields study language including linguists who subscribed to the teachings of Noam Chomsky, Jerome Bruner and Roger Brown, who studied grammar and phonology, content, and use, respectively (Toppelberg & Shapiro, 2000). Developmental psychologists and psycholinguists also study language. Multiple factors influence language development. Language develops when the precursors of content, form, and use are integrated (Bloom & Lahey, 1978). The components of language begin in the first year of infancy (Bloom & Lahey, 1978).

The developmental trajectory of language, based on a study of 1,800 normally developing children who were rated with the Communicative Developmental Inventory found: babbling typically begins between the ages of six and ten months; word comprehension develops by eight to ten months; the production of words begins at 12 to 13 months; word combinations begin between 14 and 24 months alongside a very strong relationship between vocabulary; with grammatical development accelerating between 24 to 30 months (Fenson, Dale, Reznick, Bates, Thai, & Pethick, 1994). Language forms as infants interact with their environments.

Infants as young as one month old have the capacity to tune into the speech behaviors in the environment, which enable them to discriminate between speech and no speech sounds. Simultaneously, infants also learn of social and affective aspects of the context and origins of language use as they gaze and vocalize exchanges with caregivers in the first few months of life. Infants develop the precursors of language form, which involves the perception and production of sounds and intonation contours and the order of words, in the second year of their lives. Most normally developing children have mastered their native language by the age of three. Although a range of variability in the timing of the sequence was found in large populations, the order of acquisition of language was stable (Fenson et al., 1994).

Most children have a vocabulary of 50 words by the age of two years old, have begun to master tenses by the age of three, and have developed a vocabulary of 8,000 words or more by the time they have begun kindergarten (McCormick, Loeb, Schiefelbusch, 1997). Further, language skills form the foundation for later academic skills such as: written language acquisition; the ability to compose narratives; comprehension of figurative language; and problem solving (Nippold, 1998). Several factors have been identified to impact on the development of language. According to McCormick et al. (1997) biological preparation; nurturance, sensorimotor experiences, and linguistic experiences influence language development.

Biological preparation refers to the neuromotor capabilities, attentional and perceptual abilities, and desire to interact with others that most babies are born with. The left cerebral hemisphere is the area where oral, visual, and written language,

temporal or linear-ordered perception, arithmetic abilities, and reasoning skills are formed. The right hemisphere processes spatial, non-speech sounds, and musical abilities. In addition to structural biological characteristics that impact language development, sensory capabilities in areas of sensory and perceptual capabilities also play a role in language development. Children as early as 30 months spend one third of their wakening hours visually scanning their environments (Rose, 1981). Language is also shaped by caregivers teaching their infants turn-taking skills; sound imitation; and mutuality (Sameroff & Fiese, 1988).

Caregivers operate in the zone of proximal development, which represents the distance between actual and potential development (Vygotsky, 1978). Another term used to describe this activity is scaffolding whereby the caregiver provides a support for the infant's emerging language skills. Nurturance provides a foundation for later developing social knowledge, which is a component of language (Dore, 1986). In games such as "peek-a-boo," which occur routinely between caregiver and infant, children learn that communication has predictable structure. Subsequently they learn that others are responsive to the signals they produce through their vocalizations and gestures. A nurturing environment is one in which the infant or young child can evoke a response from others (McCormick et al., 1997). Infants and young children also learn language skills through sensorimotor experiences that they acquire through exploring their environments. Linguistic input that has been linked to increased language learning is the less complicated style of spoken language that mothers use when talking to babies, known as motherese (Papousek, & Haekel, 1989). Adults use "motherese" to

obtain and hold the infant's attention (Snow, 1984). Adults also use expansions and extensions to communicate with their children both which help to increase the child's language learning.

Language expansions occur when a child says a word or a phrase such as "mommy here" and the parent expands the utterance and says "Yes, mommy is here." This exercise reaffirms the child's utterance and his or her understanding of the situation. Language extensions occur when the parent adds additional information to the child's utterance, whereby the child says, "Daddy here?" and the adult responds "no, daddy is at the store." Language acquisition in children encompasses many factors that are linked to early socialization. One must first have an understanding of how language is formed to understand the difficulties associated with its acquisition (McCormick et al., 1997).

Language Disorders

A language disorder is a disruption in the development of native language (Bloom & Lahey, 1978). Children with language disorders are unable to use codes to represent knowledge about the world in context. Children with a language disorder have language that is different than the language skills of same age children with no language disorder, or they may have language that is similar to their same age peers without a language disorder, but that has developed at a slower rate. According to Lahey (1988) there are several terms to describe a language disorder that are used interchangeably including: language delay, language disorder, language disability, specific language

disability, specific language disorder, and deviant language. However, none of the terms are able to pinpoint if the disorder is due to late development or a qualitative or quantitative difference in language skills (Lahey, 1988). Therefore, in lieu of whichever label is used to describe a child's language skills the one common variable across all definitions is that they all refer to language that is different, but not higher than, those children of the same chronological age No other assumptions should be made about a child regardless of what term is used to describe a language disorder (Johnson, 1996). Language disorders may refer to language that is delayed in areas of content, form and use.

A child is delayed in the content of language, or semantics, when they present with clear articulation of sounds, grammatically correct words and sentences, and socially appropriate utterances that are nonsensical (Lahey, 1988). The child's ideas, concepts, and knowledge do not make sense, thus they present with a delay in content. An example of a delay in content would be if a child was asked to "tell me about your day at school" and he or she said, "I am five years old." Another example is asking a child "Tell me what happened to the boy in the story I just read to you?" and the child responds by saying, "I like stories." When a child presents with content that makes sense and is age appropriate, and can express their thoughts about the world around them, but is slower than their same age peers in areas of: articulation, phonology, morphology, prosody, or are nonverbal, they may have a disorder of form.

A child with disrupted language form, or phonology/morphology/syntax, wants to communicate that they want a cookie but will not use their words to make the request.

A child with a delay in form may take his or her mother's hand and pull her over to the snack cabinet and utter a sound such as "um um!" and point to the cabinet where the cookies are located. The child with a delay in form has a desire for the item, however, their method of communicating is unconventional and primitive which is commonly seen in nonverbal and preverbal children (Johnson, 1996). Children can display a disruption in content and form. Children may present with disorders of language that are satisfactory in content and form, but delayed in the area of use. A child with a delay in language use may have age appropriate vocabulary and knowledge about the world and good form indicated by age appropriate phonology, morphology, syntax and prosody that are typical for the child's culture, yet they have problems considering the needs of their communication partner.

Children with delays in language use, or pragmatics, may have deficiencies in several areas including: difficulty in assuming the roles of the speaker and listener, not initiating communication; not responding readily to the communication attempts of other people; problems with selecting, introducing, maintaining, and changing topics; challenges with conversational turn taking; an inability to ask for clarification when needed; and a general inability to adapt their communication to the interest and/or needs of those around them (Prutting & Kirchner, 1983). Children who have language delays may exhibit delays in content, form, or use, or may exhibit delays across a combination of all three domains. In addition to the dimensions of content, form, and use, language disorders are commonly referred to by the terms receptive and expressive language disorder. A child with a receptive language disorder may find it difficult to learn the

months of the year or may be unable to follow a multi-step command such as, "go to your room, get your shoes, and bring them to me." A child with an expressive language delay may not use age appropriate vocabulary words or use grammatical markers correctly (Heward, 2006). Children may experience a receptive or expressive delay or both simultaneously which is referred to as a mixed receptive and expressive language delay. It is very important that language differences in the area of dialectal variation not be mistaken for language delays.

Children learn the patterns of communication of their communities prior to enrolling in school (Heward, 2006). Therefore, prior to entering school, a child will be exposed to different dialects with their own rule governed systems which may influence their language form. Many regional dialects are noted in the literature including: Appalachian, English, New York dialect, Central Midland, and Southern English as well as sociocultural dialects including Black English and Latino English (Owens, 2006). A language delay may lead to problem behavior due to children not being understood by their same age peers.

Audet, Burke, Hummel, Maher, and Theadore (1990) found that children with language disabilities exhibited variability in challenging behaviors that included acting out in a physically aggressive manner, such as kicking, hitting, or biting. They also found that young children with minimal expressive communicative ability demonstrated both aggressive and solitary behaviors. Benner, Nelson, and Epstein (2002), in a review of 26 studies of the language skills of children with emotional and behavioral disorders, found that prevalence rates of language disorders of children with behavior disorders to

be 71%. They found that the prevalence rates varied according to clinical settings and public school settings. The overall mean prevalence was 66% in clinical settings whereas it was higher in public school settings at 88%. Their overall findings indicated that children with behavioral disorders will typically have significant language disorders and are broad based including pragmatic, receptive, and expressive disorders. The results of their review indicated that high comorbidity rates exist between antisocial behavior and language disorders.

Language Intervention Theories

Language intervention programs between the 1950s through the 1970s emphasized theories within behavioral paradigms relying on shaping and drill oriented procedures with some focusing on teaching sentence structure. Most of the early intervention work was controlled by the clinician who decided what would be learned (Fey, 1986). In the 1970s language teachings reflected an emphasis on children's cognitive abilities. Language learning experiences were viewed as extensions of sensorimotor concepts and it was believed that children learned language best when they had something to talk about; this belief was referred to as the cognitive hypothesis (Cromer, 1974). This was later referred to as cognitive determinism by Schlesinger (1977). In the 1980s empirical data supported the relationship between language learning and cognition through studies that found correlations between early symbolic play and first word acquisition. Symbolic play was also found to correlate with emerging word combinations. Further, object permanence was found to be related to

development of language terms such as “all gone,” “find,” and “more.” Bandura theorized a concept of social learning and the importance of social interaction in language learning (Bandura, 1977). He postulated that language learning was based on the four principles of: attention, retention, motor reproduction, and motivation.

Bandura proposed a process called abstract modeling where a child learns about language structure by observing various situations and accompanying verbalizations. In the 1970s language intervention focused on the child being an active learner and the emphasis of working with pragmatics came to the forefront. At this time methods began to revolve around making language intervention more naturalistic (Bruner, 1983) and programs adapted Bloom and Lahey’s (1978) psycholinguistic model of form, content, and use. In the 1980s Chomsky’s linquistic theory was revisited and clinicians also were heavily influenced by cognitive development and used scripted events in intervention (Nelson, 1986). Behavioral theories were also used, but combined with naturalistic methods (Kaiser, Yoder, & Keetz, 1992). In the 1990s Vygotskian’s theory that stressed the value of social interaction was revisited, by special educators and language clinicians. Also, in the 1990s working memory and language were found to be related (Gathercole & Baddeley, 1993). Current trends in theory affect the methods used by clinicians and teachers to treat language disorders.

The Socialist Interactionist Theory states that social, linguistic, maturational, and cognitive factors modify one another to form language, but that social interaction is a major factor in forming language. The theory also states that parents and caregivers teach language that is learned through motherese, expansions (adding onto a child’s

language utterance, but not changing meaning), and extensions (extending the length of the child's utterance by adding new information). The child is considered to be not only an active participant in this theory, but someone who guides their own learning if the adults are receptive to their cues (McCormick, et. al., 1997). The implementation of the Socialist Interactionist Theory to address language disorders suggests that a child's language disorder creates difficulty assimilating and organizing information.

This theory supports strategies that are heavily based on caregiver interaction (Tannock & Girolametto, 1992) such as: child-oriented techniques to provide the child chances for joint attention at his or her level and following the child's lead in play; interaction-promoting techniques where the caregiver learns to take one turn at a time and uses waiting techniques to allow the child time to respond, signals for turns, and decreases giving the child directives. The caregiver, over time, decreases giving directions and evens out initiating and responding behaviors in the child. Another strategy utilizing this model includes language-modeling techniques. This strategy has caregivers talk about what the child is doing (describing what they see) and talk about what the caregiver is doing (self-talk) using simple language that expands on the child's sentences after the child's utterance or time of joint attention. Other theories include the Functional Theory (Karmiloff-Smith, 1979; Bates & MacWhinney, 1979), which hypothesizes that children learn language through interactions.

The Functional theory states that it is not necessary that language be taught formally because experiences are best gained through natural contexts. The application of the Functional Theory of language disorders involves the teacher

understanding the principles of competition and the need to reinforce structures and functions. In this model, it is believed that the child decreases the activation from competing forms of language input when they receive input from another competing form. This model also supports the need for language learning to occur in meaningful contexts in order to enhance learning. Expansions and recasts, correctly restating a child's incorrect language form, are recommended strategies used to correct errors in this model. A child who makes more than one error that results in unclear sentence meaning should be questioned by asking "What?" rather than using recasts or expansions. Once meaning is learned by the child, a recast or expansion can be provided. The Rare event cognitive comparison theory (Nelson, 1987) subscribes to the idea that children are active language learners who have a rare event learning mechanism (RELM).

The RELM is driven by cognitive forces. In this theory the child must interact with a proficient language user with whom he or she has some level of relationship with to make gains. The application of the RELM is based on how a child's interaction affects his or her language learning. Under this models approach, language evaluations mostly require that audiotape or videotape samples of caregiver-child or sibling-child interaction be used. The interaction between the child and their communicative partner need to be assessed within the context in which they occurred. Following the child's lead is considered most effective in this model. In a study by Camarata, Nelson, and Camarata (1994) recasts were used with four children with language disorders who were randomly assigned different areas of language to learn taking into account their

language ability. They found that conversational-recast approaches to be the most effective methods in teaching language intervention. Then there is Vygotskian Theory that states that children's language learning is based on problem solving under adult guidance.

In the application of the Vygotskian Theory to language disorder, it is critical to determine where a child is functioning with support, also known as dynamic assessment, which is compared to the child's ability without assistance. The dynamic assessment is used to determine if a child would benefit from language intervention. The child who makes minimal gains is considered to be the child who would benefit the most from language intervention. It is considered that the first child may not be ready to learn and the second child may be in the process of learning on his or her own. Bain and Olswang (1995) found that children who responded best to language intervention responded less to cuing (e.g., cues such as sentence completion) as opposed to children who needed more supportive cuing. It is suggested that when clinicians use the Vygotskian Theory to drive treatment that they do not view errors as things that need fixing, but rather as part of the process of learning. Chomsky's theory of language acquisition has undergone revision's with the latest being presented in his book Lectures in Government and Binding (Chomsky, 1982), which is now known as the principles and parameters model.

The principals and parameters model stipulates that language is learned through limited evidence from the environment, but through an innate universal grammar that is genetically determined. This model is applicable to language disorders by viewing

impairment as “wrong” or an “intermediate” grammar that is different from the adult language. The goal of language intervention would be to inspire the child to select the “right” or “input” language which could be presented as language models by the clinician or teacher. These language models could be presented during play time, reading exercises, or in one-on-one language therapy sessions.

Language theory is consistently being updated by incorporating new ideas and data that influence their bases. Similarities and differences exist among the theories that distinguish them from one another. These theories help researchers and practitioners understand the factors that underlie language disorders.

Behavior Disorders

A child with a behavior disorder is often characterized by higher scores on standardized measures of externalizing and internalizing behavior that indicate greater problems than the norm for their culture and age group. Behavior disorders are numerous and include: schizophrenic disorder; affective disorder; anxiety disorder; or other sustained disorders of conduct or adjustment affecting a child and his or her educational performance (Federal Register, February 10, 1993, p. 7938). Common psychopathologies that present in children with behavior disorders include: Tourettes Syndrome; Obsessive Compulsive Disorder (OCD); Attention Deficit Disorder with Hyperactivity in the three variants, the most common one is combined type; ADHD predominantly inattentive type; and ADHD predominantly hyperactive /inattentive type (DSM-IV-TR); Oppositional Defiant Disorder (ODD), and Conduct Disorders (CD).

Students with underlying psychopathology may demonstrate atypical behaviors in classroom environments that include: self injurious behavior; uncontrolled motor or vocal tics; use of socially unacceptable words; excessive need for things to be "just right" or "perfect"; needing to repeat routine activities; inattentiveness or hyperactivity; temper tantrums; deliberately hurting people, or starting fights. Teachers and related educational personnel, such as speech-language pathologists, are often puzzled with what to do with students who are not attentive, act out chronically, and are unresponsive to various forms of positive reinforcement.

Historically, terms such as severely emotionally disturbed or emotionally disturbed were used in the literature to describe children with severe behavior. In the definition of behavioral disorders (U.S. Department of Education, 1999) the term emotionally disturbed is used interchangeably with behavioral disorders. The term behavioral disorders, of late, has been considered to be a term associated with higher teacher expectations for students as compared to the term emotional disorders and thus is more often used (Heward, 2006). The term behavior disorders (BD) is used for this study and encompasses the term emotional disturbance (ED) which often refers to children with the same or similar characteristics in the literature.

Cullinan and Epstein (2001) recommended varying methods of studying characteristics of behavior disorders in groups, beyond the dimensional observational checklists often used in school systems. They reported that behavior disorders in the schools are equivalent to psychiatric disorders diagnosed with the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR). Cullinan and Epstein (2001)

found that children with behavior disorders experienced high rates of comorbidity within the behavior disorders domain to include a combination of the following characteristics at any one time: an inability to learn, relationship problems, inappropriate behaviors, unhappiness or depression, and physical symptoms, or fears. Cullinan and Epstein (2001) acknowledged that there is limited knowledge and research on students with behavior disorders due to there being few ways to quantify the incidence of behavior disorders among school-age children. This would provide implications for appropriate educational experiences for students with a behavioral disturbance. Cullinan and Epstein (2001), in a study looking at the comorbidity among students with emotional disturbance (ED), determined that many students with emotional disorders had multiple disorders presenting challenges for teachers who serve them.

Language Disorders and Behavior Disorders

Most studies about coexisting language functioning and behavioral disorders in children are found in medical literature where they are usually referred to as studies of comorbidity of language disorder in children with psychiatric disorders or visa versa. Comorbidity is the term used to describe two separate conditions that co-occur with greater than chance frequency (Caron & Rutter, 1991). Studies of children seen in psychiatric settings have similarly high levels of language disorder as children in speech and language clinics have high levels of psychopathology (Cantwell & Baker, 1991). Cantwell and Baker (1991) found comorbidity of language disorders and psychiatric disorders to be 70% in a study of 600 children (Cantwell & Baker, 1991). They also

found psychiatric prevalence was 50% for any diagnosis, 26% for behavioral disorders, and 20% for emotional disorders. A four year follow-up study of 300 of the children revealed a significant increase in psychiatric prevalence from 50% in the original study to 60% ($p < .0001$). Cantwell and Baker (1991) stressed the importance of a need for heightened awareness of the high comorbidity of these disorders among professionals who work with these children.

In another longitudinal study 56 children with a language disorder and 43 children without language disorder were evaluated for psychopathology with the Total Child Behavior Checklist (TCBC) at ages four through eight years old. Study results revealed that children with scores in the clinical range were more likely to be children with language disorders (11%) versus those without language disorders (2%) at age four years old. Further, the level of psychopathology increased significantly by the time the child turned eight years old (from 11% to 32%) which was not detected in the children without a language disorders. The authors noted the increase as being associated with a decrease in I.Q. Conversely, children in psychiatric settings have high rates of language disorders that have been found to go undiagnosed (Cohen, Davine, Horodezky, Lipsett, & Isaacson, 1993).

Cohen et al. (1993) studied 399 children in a mental health center in Toronto and found language disorders in 53% with nearly half being undiagnosed. The children with language disorders were found to have higher psychiatric symptoms and significantly higher externalizing and internalizing scores. The lack of obvious expressive language problems in these children with externalizing behaviors was found to be misleading for

parents and professionals because the behavior becomes the focus as opposed to the underlying receptive language disorders (Cohen et al.). Population studies reveal a high prevalence of comorbid language disorders among children with psychiatric disorders.

In a large scale study that investigated language and psychiatric disorders in children, Beitchman,Young, Johnson and Wilson (1997) followed one in three kindergartners in Canada (n=4,965) for more than 14 years. The study broke the children in the study into language clusters to correlate with language categories in the DSM-IV including mixed receptive-expressive disorder and receptive disorder, but did not account for I.Q. which is required in the DSM-IV (Toppelberg & Shapiro, 2000). In the study, Beitchman et al. (1997) began studying children at the age of five years old and followed up with them at ages 12.5 and 19 years of age. The study results revealed that children who were impaired at age five had a psychiatric diagnosis in 43% of the cases, and had an increased risk of more than 11 times for emotional disorders in girls and two times for ADHD in boys when compared to unimpaired children. Children at age five years old demonstrated significant differences at age 12.5 years of age in reports of externalizing and internalizing symptoms according to teacher ratings. Children with receptive impairment had the lowest level of social competence. Impairment at age five was determined to be a strong predictor of psychosocial outcome at age 19 (Beitchman, Wilson, Brownlie, Walters, & Lance, 1996).

Research on co-existing language functioning and behavioral disorders in medical and speech-language pathology clinics have supported the need of studying language early in the life of a child with behavior problems (Toppelberg & Shapiro,

2000). However, professionals who work with children are often unaware of the increased behavior problems with language disorders in children (Cantwell & Baker, 1991). While negative factors identified in research over the past 30 years have been associated with comorbid language and psychiatric disorders in children, a problem exists in that they cannot be generalized to children in ethnic and linguistic minority groups (Toppelberg & Shapiro, 2000). For example, only seven out of twenty six studies reported on language skills and behavior identified the ethnicity of participants (Benner, Nelson, & Epstein, 2002). Most of these studies identified the racial make up of the sample without identifying prevalence of language and behavioral disorders by ethnic group.

Summary

To address components that underlie understanding the prevalence of language disorders within a child with behavior disorders several factors were identified in the literature review including: language theory and the developmental trajectory of language development; the characteristics of language delays and methods in which they are treated and how they have evolved over the years; research studies on coexisting language and behavior disorders in the schools; and studies on coexisting language and behavior disorders in clinical settings.

It is important to understand language development in order to comprehend the difficulties of language acquisition including its theories, definition, and developmental trajectory. The work of theorists such as Piaget, Skinner, and Chomsky describe

constructs for the way language has been believed to have been developed. Theorists such as Piaget, Skinner, and Chomsky believed language was a factor of cognition, the environment, and genetics, respectively. Language development was discussed in the context of the trajectory of its developmental cycle to provide a picture of the normally developing child. Language disorders were defined and treatment methods used over the years were identified to reflect how treatment improved over the years. Changes in the treatment of language disorders are evidence that language theory and models are always being updated to incorporate new ideas and influences. Behavior disorders were discussed within the context of internalizing and externalizing behavior which is one way of quantifying characteristics that was used in this study's analyses.

More studies on language disorders and behavior disorders were found in psychiatric research journals than educationally related journals. Research representing clinical samples revealed that children with behavior disorders often have co-existing language disorders. Research shows that children with behavior problems in schools may have underlying language disorders that may be unaddressed and unknown to teachers. Research on language and behavior disorders were outlined with a dearth of studies identified.

Overall, the literature review revealed how multiple factors contribute to understanding co-existing language and behavior disorders and how these factors are always evolving based on the incorporation of new theoretical constructs and research findings.

Chapter 3

Method

Introduction

This study used a causal comparative design to examine the relationship between problem behavior and language disorders in children with severe behavior referred for a psychiatric evaluation by a large urban school district. This method section is organized under the following sections: Study Purpose; Research Questions; Description of the Continuity of Care Program for Children with Severe Behavior; Participants; Measures; Procedures; Research Compliance; Overview of Research Questions; Confidentiality; and Summary.

Study Purpose

This research study identified the prevalence of language disorders in children with behavior disorders; compared externalizing and internalizing scores on the Parent's Report Form of the Child Behavior Checklist (Achenbach & Rescorla, 2001) to determine if behavior varied among children with and without language disorders; and analyzed caretaker's answers on the COCP's family history questionnaire to determine if communication was an area of initial concern over other factors such as medical and behavioral issues.

Research Questions

The research study answered the following questions: 1) What is the prevalence of language disorders in children referred for a psychiatric evaluation? 2) Do behavior problems vary among children with and without language disorders? 3) What is the initial area of concern identified by the caretakers of children with language and behavior disorders?

Continuity of Care Program for Children with Severe Behavior

The study was conducted to look at the co-existence of language and behavior problems among children served in a specialized program for children with severe behavior problems in collaboration with the local school district. The sample of children used in this study was not a typical school sample as all children had severe behavioral problems. The program, known as The Continuity of Care Program (COCP) was operated by a state university department of psychiatry Child Development Center. The COCP was designed to provide recommendations to the local school district for educational planning for children with severe behavior problems who were doing poorly in school. The sole referral source for the COCP program was the local school district. The program provided comprehensive neuropsychiatric care to children including an initial assessment, six month follow-up, and one year follow-up appointment, all financed by the school district and free of charge to caregivers.

Children referred to the COCP had been referred by their school's child study team (CST). Every school in the local school district had a CST which is typically comprised of teachers, psychologists, and social workers who come together to develop strategies to help improve student behavior. The CST, in the local school district, referred students to the COCP to assist in educational planning.

The COCP neuropsychiatric evaluation was comprised of a child psychiatrist's examination of organic injury to the brain, neurological soft signs of brain damage, and other characteristics of psychopathology to explain atypical behavior. The neuropsychiatric examination included: a) a questionnaire to be completed by the child's caretaker that documented the current symptoms that matched DSM-IV-TR diagnoses; b) a neurodevelopmental evaluation that included measures of body image, hemisphere specialization, and neuropsychological function related to academic achievement; c) a language evaluation to rule out language as a major factor for the problem behavior; and d) a review of psychological testing including intelligence quotient (I.Q.) and parent/teacher behavioral questionnaires such as the Child Behavior Checklist (CBCL). The psychiatrist utilized clinical judgment guided by the Diagnostic and Statistical Manual of Mental Disorders Text Revision (DSM-IV-TR), a categorical system of classification to diagnose psychiatric disorders to render a diagnosis. Common DSM-IV-TR classifications diagnosed in the study sample included: attention-deficit and disruptive behavior disorders; mood disorders; depressive disorders; bipolar disorders; anxiety disorders; and tic disorders. Lastly, the psychiatrist compiled findings and discussed cases in a collaborative format with other COCP team

personnel that included a speech language pathologist who is the study author, psychiatric resident, educational specialist, and school psychologist.

Subsequent to the assessment a multidisciplinary report was generated by the COCP that was given to the referral source with a diagnosis, teacher recommendations, and parent recommendations for medical care such as medication, if needed. The program also provided someone from the COCP to go to the referral school to review the report. The COCP was responsible for ongoing neuropsychiatric management including monitoring of medication up through the 2002-2003 school year. The COCP staff was also responsible for consultation with the child's school at any time through the school year.

Participants

Children were referred to the COCP because of complex behavior exhibited at school. In the four year time span the study encompassed more than 180 children who were treated at the COCP. Data were collected for this study on all students referred to the COCP, but reduced to 63 children's charts after exclusion criteria of autism; pervasive developmental delay; intelligence scores below 70; deafness; severe brain injury; absence of English language proficiency, and absence of a language assessment were applied. Further, 13 of the 63 children did not have CBCLs due to either missing data or because the child was outside the age criteria for the assessment. Therefore, study question number two that evaluated test scores on the CBCL, analyzed data for 50 participants as compared to study questions one and three that analyzed data for 63

participants. The sample was not randomly selected because the study analyzed data from all consecutively referred children in need of a neuropsychiatric evaluation for educational planning purposes.

Reasons for referral were vast, for children in the study, and included lack of communication, physical aggression toward others, disruptiveness, lack of compliance with school personnel, problems with paying attention, problems learning, and fearfulness. Participants in this study ranged from three years to eighteen years of age. Age range groups were formed as follows: 3 years old; 4-11 years old; and 12-18 years old. Table 1 shows the age categories of children in the study as well as gender, race, and grade level and a Chi Square Analysis of Independent Means.

TABLE 1

Demographic Features of Study Sample

Demographic Features of Study Sample

Feature	Language Disorders N	Language Disorders %	No Language Disorders N	No Language Disorders %	x^2
Number of children	36	100	27	100	
Age					.007*
3 years	2	6	0	0	
4-11 years	34	94	18	67	
12-18 years	0	0	9	33	
Gender				22	
Boys	31	86	20	74	
Girls	5	14	7	26	
Race					.55
Caucasian	17	47	13	48	
African American	12	33	9	33	
Hispanic	5	14	1	4	
Mixed Race	1	3	2	7	
Other	1	3	2	7	
Grade Level					.003*
Not enrolled	1	3	0	0	
PK	9	25	1	4	
K	6	17	3	11	
1-3	14	38	8	30	
4-5	5	14	4	15	
6-8	0	0	7	26	
9-12	0	0	4	15	
Missing Data	1	3	0	0	

Note N = 63.
Note * = $p<.05$.

Children ages 4-11 years of age, 3 years of age, and 12-18 years of age represented 94%, 2%, and 0% of the sample of children with language disorders, respectively. Children ages 4-11 years of age, 12-18 years of age, and 3 years of age represented 67%, 33%, and 0% of the sample of children without language disorders, respectively. Boys in the sample of children with language disorders outnumbered girls by over a six to one ratio with boys representing 86% of the sample and girls accounting for only 14% of the sample. Boys in the sample of children without language disorders outnumbered girls by a lesser degree than the language impaired group with boys outnumbering girls by approximately a three to one ratio. Boys in the non-language disordered group represented 74% of the sample and girls represented 26% of the sample.

Race was made up of diverse groups with children in the language and non-language disordered group being comprised of similar racial profiles. In both the language and non-language disordered group, Caucasian children made up the largest group, 47 and 48 children, respectively. African American children made up 33% of both the language and non-language impaired group. However, Hispanics were three times as likely to be in the language impaired group where they comprised 14% of the group as compared to the non language disordered group where they made up 4% of the group. Children who were from the Mixed Race made up 3% of the group of children with language disorders and 7% of children with no language disorders. Children from Other Races represented 3% of children with language disorders and 7% of children with no language disorders.

Most children in the study were in first to third grade in both the language and no language disordered group. The largest group children with language disorders were in the first through third grade (38%) followed by children in pre-kindergarten (25%), and children in kindergarten (17%). The largest group of children without language disorders was also in the first through third grade (30%); however the second largest group of children in the no language disordered group was in the 6-8th grade (26%); followed by an equal percentage of children in the 4-5th (15%) and 9-12th grades (15%).

Results were analyzed using a chi square analysis of independence. This analyses revealed significance for age: $df = 2$ (p=.007) and grade level: $df = 6$ (p=.003).

Measures

Children's language was assessed with instruments that were best suited to their needs based on information obtained in the file review and direct observation of the child during the neuropsychiatric evaluation. Factors analyzed by the study author who was also the speech language pathologist who assessed language skills in the study, included: age, developmental level, and level of communication ability. Standardized language testing was administered to children who demonstrated the ability to attend to testing and who had the ability to use spoken language to express their wants and needs. Children who demonstrated an inability to attend due to hyperactivity or who did not have the communication skills to express their wants and needs were evaluated through questionnaires administered to the child's caretakers about the child's language skills or language sampling methods. The instrument used to measure parent perception of their

child's communication ability was the Receptive-Expressive Emergent Language Test-Fourth Edition (REEL-3). The REEL-3 is an instrument that measures expressive and receptive language skills in children ages birth to three years old. The test has 66 questions in the expressive language domain and 66 questions in the receptive language domain. Language sampling was another method used to collect information about a child's expressive language skills whereby a running record of the language production of children during the clinic visit was obtained. The language sample was analyzed for content, form, and use. An analysis of the mean length of utterance (MLU) was utilized to compare to standards of same age peers. The MLU is a criterion-reference measure, specific to language analysis, and has gained increased support in the process of the identification of language disorders (e.g., Aram, Morris, & Hall, 1993). MLU, used in children up to a developmental age of five years eleven months, was obtained by counting the morphemes from a spontaneous speech sample and then dividing by the number of morphemes. A morpheme is the smallest meaningful unit of language. The MLU is often used to compare a child's sentence length to that of same age peers to determine if a child's expressive language production is age appropriate. Children who were either not enrolled in school or who were not identified as having a problem in communication by the school were evaluated with the Clinical Evaluation of Language Fundamentals Screener – Third and Fourth edition (CELF-3 and CELF-4 Screener). While the majority of children who fail the CELF-3 and CELF-4 screeners are found to have language disorders (80-97% across age categories) the test's purpose is designed to identify students who may need in depth assessment of their language abilities.

Standardized tests of language used in the study included: the Clinical Evaluation of Language Fundamentals – Third and Fourth Editions (CELF-3 and CELF-4); the Preschool Language Scale Third (PLS-3) and Fourth Editions (PLS-4); the Expressive One Word Picture Vocabulary Test (EOWPVT) and the Receptive One Word Picture Vocabulary Test (ROWPVT). All tests used in the study were standardized and had high levels of reliability and validity (see Appendix C) with the exception of the analysis of language samples. Language test scores were reviewed with the COCP team by the SLP, a report was written to summarize results, and the report was forwarded to the COCP program director for incorporation into a multidisciplinary report. The multidisciplinary report was then placed in the patient's chart. The parent version of the Child Behavior Checklist (CBCL) was a broad-spectrum rating scales included in patient charts. Behavior was measured in the externalizing and internalizing behavior domains for this study.

The Child Behavior Checklist (Achenbach & Rescorla, 2001) was utilized to assess externalizing problems (behaviors directed toward others) and internalizing problems (behaviors directed towards oneself). The CBCL is a parent-completed measure designed to provide standardized descriptions of the behavioral problems in children. The CBCL uses internalizing and externalizing domain scores to quantify behavior problems. The seven-day test-retest reliability of the parent administered CBCL was .65 to .75 for the problem scales. The CBCL also has content, criterion, and construct validity (Achenbach & Rescorla, 2001).

The Child Behavior Checklist (CBCL) was used to assess competencies, adaptive functioning, and problems in children's behavior. The CBCL is completed by parents, parent-surrogates, and others who see children in their natural environments, such as the home. The CBCL is scored on a three point scale (e.g., 0=not true; 1=somewhat or sometime; 2=very true or often) and consists of 120-problem behavior and 20 social competence items. The CBCL was completed by the caretakers of the children in this study which typically consisted of the child's mother, father, or both. The CBCL was scored by a licensed school psychologist on 50 of the 63 children included in the study. The CBCL utilizes T scores to quantify behavior with a mean score of 50. Scores that range from 60 to 63 on the CBCL are considered to fall in the "borderline" category for clinical behavior. Scores above 63 were considered to be in the clinical range for significant problem behavior. This study used T scores to examine if children with language and without language disorders exhibited clinically significant scores on the CBCL. Raw scores on the CBCL were not available for comparison and were not included within the scope of this study.

An outpatient center parent questionnaire was used to assess caretaker perception of the first problem they noticed in their child. The IQ in the study was measured by a school psychologist using various assessment instruments such as the WISC-R, the Stanford-Binet (4^{th} ed.), the UNIT, and the C-TONI. The Wechsler Intelligence Scale for Children (WISC) is an intelligence test for children ages 6-16 that can be completed without reading or writing. The Stanford-Binet is a standardized tests that assesses intelligence and cognitive abilities in children and adults aged 2-23. The Comprehensive

Test of Nonverbal Intelligence (C-TONI) is an intelligence test for children ages 6-18. The C-TONI eliminated bias to gender, ethnicity, and language. Lastly, the Universal Nonverbal Intelligence Test (UNIT) is an intelligence test with nonverbal administration and response formats.

Procedures

Medical and school records of children referred for severe behavioral problems were examined and three illustrations were identified to add a richer perspective of study participants. Illustrations selected for this study represented typical children with language disorders and behavioral disorders.

Data were extracted from the charts including: language disorders status, behavior rating scores from the Child Behavior Checklist (CBCL), familial information, and reason for referral, gender, language developmental history, and age. Data were extracted from charts in accordance with institutional review board (IRB) guidelines to allow for patient confidentiality.

The study also utilized a retrospective, descriptive research design. The design allowed for the description of the prevalence of language disorders among children referred to the COCP. A retrospective design was selected because it allowed a confidential investigation of rich data representing a cohort of school age children, with severe behavior, who had been referred for psychiatric disorders.

A data sheet was developed to record information from the chart review. The tool's content validity was established by means of a check by an educational

psychologist, developmental specialist, and speech-language pathologist who was the author of this study. This author developed the data collection instrument and gave it to an educational psychologist and developmental specialist (independent of each other) to determine if it captured relevant issues of behavior and language. Suggestions offered by the educational psychologist and developmental specialist to improve the instrument were made prior to the instrument being used in this study. Each data sheet was numbered consecutively with a log of the patient's name and corresponding number that was kept separately in an independent location to assure confidentiality.

Psychiatric diagnoses were made by the licensed child psychiatrist who had eight years of experience with the population studied. The language diagnoses were made by a licensed speech language pathologist (SLP), the author of this study, who had experience with the population studied. All children were seen by the SLP unless it was determined by chart records or caretaker interview that they were not proficient in English. In cases where the child was not proficient in English a recommendation was made by the COCP SLP back to the school to have a bilingual SLP test the student. The COCP SLP evaluated children in the study directly following the psychiatric evaluation with the exception of times where language samples were collected from the child during the psychiatrists' assessment. This usually occurred when a child demonstrated a short attention span or was upset about the environment and appeared anxious to work with the SLP. Subsequent to the psychiatrist's parent interview and child interview without the parent present the SLP would ask the child to come to her office to engage in testing. Most children in the study eagerly accompanied the SLP, but some children

did not want to come despite being offered token reinforcers such as stickers. In these cases standardized language testing was not completed and the expressive language sample collected in the psychiatrist's office sufficed as a measure of the child's performance. No reliability and validity data on assessing language skills through language sampling were available and are not reported in this study as a result.

Students were selected from each school year between 2001-2005. Information for this study was collected through chart review which provided sufficient information through non-intrusive methods. Records reviewed in the chart included: reason for referral, an intake interview between the caretakers and the psychiatrist, I.Q. testing; behavior language testing, and the CBCL. All records produced by the schools when received by the outpatient clinic became a part of the child's permanent chart. A staff child psychiatrist of the outpatient clinic diagnosed each child. The COCP's speech-language pathologist assessed language functioning and provided a report that became a record that was added to the student's chart. Ultimately, data from the charts of the student's referred for severe behavior problems were included in the study on a Microsoft Excel Spreadsheet and transferred to SPSS 14.0 for analysis.

Caretaker concerns were comprised of qualitative data where the caretaker completed a family history on a Parent Questionnaire at the outpatient center. The answers to the question, "What made you think something might be wrong?" were completed by 63 caretakers. Caregiver responses were analyzed and coded into categories of medical, communication, behavioral, and other categories by two observers independent of one another. Data were collected, reduced, analyzed through charting

of themes, interpreted, and categorized as caretaker's initial area of concern about their child. Reliability was assessed through using percentage of agreement between observers. The percentage of agreement between observers of caregiver's responses was .91.

Research Compliance

Study procedures were approved by the University of South Florida's (USF) Institutional Review Board (IRB) and the Department of Psychiatry's research committee. Procedures for the Protected Health Information (PHI) and Health Insurance Portability and Accountability Act (HIPAA) and the Department of Psychiatry were followed.

Overview of Research Questions

The following is an overview of the statistical analyses that helped to answer the research questions for this study.

1. What is the prevalence of language disorders in children referred for a psychiatric evaluation? The study reported prevalence for receptive, expressive, and mixed language disorders classifications.
2. Do behavior problems vary among children with and without a language disorder? An independent t test and a frequency count were utilized to determine the number of children with and without language disorders who were above or below the clinically significant range on the CBCL. The

frequency count determined if students with language disorders had a higher number of severe behavioral problems than children without language disorders.

3: What is the initial area of concern identified by the caretakers of children with and without language disorders? Chi square measures determined if a relationship existed between caretakers initial area of concern and language disorders.

Confidentiality

All data collected were kept confidential and not linked to the patient or the medical record. The investigator signed a confidentiality form as is required for this study (Appendix A).

Summary

The study conducted an archival chart review of records of 63 children with severe behavior referred from a large urban school district for a neuropsyhiatric evaluation. Data from the children's appointments with the COCP, a special collaboration between the department of psychiatry at a local state university and the school district, were analyzed for this study. Medical and school records of children referred for severe behavioral characteristics were examined. Data were extracted from the charts including: behavior rating scores from the Child Behavior Checklist (CBCL), familial information, reason for referral, gender, race, language developmental history,

and age. Data were extracted in compliance with IRB standards to allow for patient confidentiality. Analysis of data collected included descriptive characteristics of demographics, familial data from family history forms, externalizing and internalizing scores, psychiatric diagnoses, and language disorders diagnosis from the patient's initial appointment at the outpatient center. Analysis of illustrations included information on patient follow-up appointments. Non-parametric and parametric tests were well suited for this research study due to the small to moderate sample size. Illustrations of three of the children in the study were included to add a richer description of study children.

Research compliance was established both through the University of South Florida and the IRB and HIPAA procedures were followed. Study data participant names were kept anonymous to protect their identity and the principal investigator signed and adhered to a confidentiality statement.

Chapter 4

Results

Introduction

To describe study results the following sections are reported to answer and study questions: Prevalence, Caretaker Concerns; Illustrations; and Summary.

Prevalence

Prevalence data were collected for this study using multiple language tests. Each test was suited to detect the existence of a language disorder. Table 2 is a summary of frequencies and percentages for children in the study with receptive language disorders, expressive language disorders, mixed receptive-expressive language disorders, and no language disorders.

TABLE 2

Frequency and percentage of the prevalence of language disorder versus no language disorder among 63 children referred for a psychiatric evaluation.

Prevalence of Language Disorder vs. No Language Disorder		
Domain	Frequency	Percentage
Receptive Language Disorder	1	1
Mixed Receptive Expressive Language Disorder	34	53.9
Expressive Language Disorder	1	1
Total number of Children without A language disorder	27	42.9
Total	63	100

Note N = 63.

Externalizing and Internalizing Information. Table 3 shows the number and percentage of children's normal, borderline, and clinical externalizing and internalizing broadband scores on the CBCL.

TABLE 3

Frequency, percentages, and Chi Square test of independence of externalizing and internalizing behavior scores of 50 children referred for a psychiatric assessment stratified by language disorders and no language disorders.

CBCL Externalizing and Internalizing Broadband T Scores by Language Groups

	Language disorders		No Language disorders		Total		
	N	%	N	%	N	%	x^2
Externalizing Scores (N=50)							.42
Normal (<60)*	5	17	2	10	7	14	
Borderline (60-63)**	3	10	2	10	5	10	
Clinical (>63)***	22	73	16	80	38	76	
Total	30	100.0	20	100.0	50	100.0	
Internalizing Scores (N=50)							.70
Normal (<60)*	9	30	12	60	21	42	
Borderline (60-63)**	5	17	1	5	6	12	
Clinical (>63)***	16	53	7	35	23	46	
Total	30	100.0	20	100.0	50	100.0	

**T* scores below 60 are in the normal range (Achenbach and Rescorla, 2001, p 25).
***T* scores of 60 to 63 are in the borderline range (Achenbach and Rescorla, 2001, p 25).
****T* scores above 63 are in the clinical range (Achenbach and Rescorla, 2001, p 25).

An analysis of CBCL continuous scores using descriptive statistics was completed. CBCL broadband externalizing T scores ranged from a low of 50 to a high of 86. The mean externalizing score was 69.64, standard deviation was 9.13; skewness was -.35, and kurtosis was -.69. An investigation of CBCL broadband internalizing scores identified the range of scores to be from 41 to 89. The mean score for internalizing behavior was 63.20, standard deviation was 10.26, skewness was .54, and kurtosis was .13.

An independent t test was utilized to compare internalizing and externalizing scores of children with language disorders and without language disorders who exhibited severe behavior. The independent t test was used for this analysis because it allowed for the determination if there was a significant difference between two independent groups, children with language disorders and children without language disorders, with respect to the mean scores on the CBCL. The analysis involved two variables. The predictor variable was the language disorders or no language disorders group, which was measured on a nominal scale and could assume two values: a language disorders group and a no language disorders group. The criterion variable was behavior scores on the CBCL, which was measured on a continuous scale (using CBCL T scores).

TABLE 4

Comparison of means on CBCL Broadband Scores in 50 children referred for a psychiatric assessment stratified by language disorders and behavior disorders (BD) and BD alone.*

CBCL Mean t Scores by Language Groups

	N	Mean	SD	t	df	*p*	Effect Size
Externalizing Scores							
Language	30	69.03	9.22	-.57	48	.57	.42
No Language	20	70.55	9.16				
Internalizing Scores							
Language	30	64.87	10.72	1.4	48	.16	.13
No Language	20	60.70	9.05				

*t test of independent means
Note N=50

This analysis failed to reveal a significant difference between the two groups on externalizing scores, t (48) = -.57; p = .57. The analysis also failed to reveal a significant difference between the two groups on internalizing scores, t (48) = 1.4; p = .16. The sample means shows that subjects with language disorders achieved scores on the CBCL which were quite similar to those shown by subjects without language disorders for externalizing broadband scores (for language disorder group, M = 69.03, SD = 9.22; for no language disorder group, M = 70.55, SD = 9.16). The sample means also shows that subjects with language disorders demonstrated scores on the CBCL which were quite

similar to those shown by subjects without language disorders on the CBCL for internalizing broadband scores (for language disorder group, M = 64.87, SD = 10.72; for no language disordered group, M = 60.70, SD = 9.05).

Effect sizes (Cohen, 1992) were calculated for the broadband factors of the CBCL (Achenbach & Rescoria, 2001). The means for each of the language disorders and no language disorders groups were compared to each other for each externalizing and internalizing broadband score domains. The effect sizes are presented in Table 4. Using Cohen's (1992) criteria, effect sizes for both broadband domains were small indicating that study results cannot be generalizable to the population.

Caregiver Concerns

Caregiver initial concerns were collected for this study. Table 5 depicts the number and percentages of parent initial concerns.

Table 5

Frequency counts, percentages, and Chi Square test of independence of caregivers' initial concerns of children referred for a psychiatric evaluation (n=63).

	Caregiver Initial Area of Concern				
	Language Disorders		No Language Disorders		
	N	%	N	%	x^2
Area of Concern					60
Communication	10	28	3	11	
Behavior	17	47	16	59	
Medical	2	6	2	8	
Other	7	19	6	22	
	36	100	27	100	

A descriptive analysis of caregiver concerns indicates that parents identified communication more than two times as often in children with language disorders (28%) as compared to children without language disorders (11%). Concerns about communication (28%) were indicated second to concerns about behavior (47%) in children with language disorders. Communication was the third concern of caretakers

in children with no language disorders behind behavior which was the primary concern (59%) and "other" which was the second concern (22%).

Chi square analyses, with language and no language disorder as the independent variable, were conducted to determine if there was a relationship between caretaker initial concerns and language. The chi-square test of independence was appropriate to use as classification variables, language disorders groups and caretaker initial area of concern, were on a nominal level of measurement. An analysis of the distribution of frequencies among the categories of caretaker concerns about their children's behavior with the Chi-square test for independence revealed no significant relationship between caretaker initial concern and incidence of language disorder.

Illustration Overview

Children with behavioral problems and coexisting language disorders present with significant challenges. They often times demonstrate externalizing behavior that masks their language disorders. As a result of the child's language disorders going unaddressed these children develop subsequent academic problems in school such as reading problems that affect all academic areas. These children fall further behind in school and are often placed in special education programs as a result of the combination of behavior and academic problems they experience. In an effort to add a richer perspective of this phenomenon three illustrations identified in Table 6 below are provided. These illustrations identify the profiles of students with severe behavior based on their referral for a neuropsychiatric evaluation at the COCP.

TABLE 6

Socio-demographic and Psych-educational Characteristics of Study llustrations.

Illustration Summary

Case	Name	Age	Race	Grade	Family Structure	Reason for referral
1	Sam	4	Caucasian	N/E*	Father, stepmother, ten-year-old step-sister, and six-year-old half brother.	High activity and short attention span.
2	John	7	African American	1st	Grandmother (adoptive mother), uncle, and 15 year old step sister.	Poor academic achievement, discrepancy between verbal and nonverbal IQ.
3	James	11	Caucasian	5th	Married Parents sister, and maternal grand-mother.	Magical thinking, anxiety, processing tics, aggressiveness.

*Not enrolled

The three illustrations were selected through the process of purposeful sampling (Patton, 1990). Purposeful sample is a method of selecting cases that are information-rich with respect to the qualitative aspect of the study. Illustrations were selected through homogenous sampling to provide a detailed look of participants with behavior and language disorders. The illustrations selected were typical of children referred to the COCP in that most children referred had severe behavior problems and were subsequently determined to have language disorders.

All three illustrations were referred to the outpatient clinic for a neuropsychiatric evaluation. The names of the children in the illustrations have been changed to protect their identity. All cases had language testing completed with a standardized global language test. All cases had a CBCL completed by their caretaker.

Specifically, there were three children, one who was not enrolled in school, but was seeking enrollment; one in the 1st grade; and one in the 5th grade. Each participant was determined to have a language disorder based on standardized test scores assessed by the study author. One of the three cases was in some type of special education designation, and one case was not enrolled, but seeking enrollment in elementary school (which was the reason for the referral to the COCP team). None of the cases had received psychiatric or language services at the time of their COCP team evaluation. All three cases were males. Language skills were not indicated as problems in any of the three cases (n=0) by school personnel. However, it should be noted that in many other cases lack of communication skills were indicated as reasons for referral usually in combination with other behavioral problems.

Illustrations

Illustration no. 1: Sam. Sam was a 4-1/2 year-old Caucasian male who was not enrolled in school. He resided with his father, stepmother, ten-year-old stepsister, and six-year-old half brother. Sam had a history of neglect and had lived in foster care after being removed from the home of his biological mother and her abusive husband. While in the care of his mother, Sam sustained significant neglect. He was left alone for long periods of time and he was undernourished. Sam's school's child study team requested

an evaluation to determine suggestions that could be implemented in the school and home environment to help Sam. On the Child Behavior Checklist for ages 1.5 to 5 (CBCL/1.5-5) Sam's father reported internalizing problems that equated to a broad band T-Score of 51 and externalizing problems of 54. Neither internalizing nor externalizing scores indicated at risk or clinical scores for behavior disorder. Sam's nonverbal intelligence score on the Differential Ability Scales (DAS), Upper Preschool Level, was a standard IQ score of 85 meaning he had a below average I.Q.

The COCP team evaluated Sam's language and psychiatric status. On the Preschool Language Scale – Fourth edition (PLS-4) Sam obtained a receptive score of 84, expressive score of 81, and total language score of 81. Sam's receptive and expressive language skills were moderately delayed. He demonstrated satisfactory play, gesture, and vocabulary skills for his age level. However, he demonstrated difficulty in knowledge of qualitative and quantitative concepts, morphology, syntax, and integrative language skills. Expressively, he demonstrated limited skills in quantitative concepts and integrative language skills. The evaluation for language was modified to adjust to Sam by allowing him several breaks to stand up and stretch to address his impulsivity and hyperactivity. It is possible the he would have received lower scores without testing accommodations. Sam was diagnosed with Attention deficit hyperactivity disorder, combined type and Attachment disorder. He was genetically predisposed to ADHD as there was a family history in his father and psycho-morbidity because of his mother's bipolar disorder.

The treatment plan from the COCP team included: Treatment for attention deficit hyperactivity disorder be started with Adderall XR given with food to get his symptoms of hyperactivity, impulsivity, and short attention span controlled to help him do better in school. Language therapy emphasizing increasing auditory comprehension skills in the form of following one, two , and three step directions, and learning quantitative concepts (e.g., counting to 10) was recommended to improve his receptive and expressive language. Other recommendations that were made in an effort to improve Sam's ability to learn in school included more intensive learning experiences be scheduled in the morning; incorporation of novelty into lessons by using color, shape, textures, and media to enhance attention; cueing Sam's attention prior to giving instruction by saying his name, tapping the table, or giving the command, "listen."; preferential seating to limit distraction, use of short, specific directions to ensure understanding beginning with a one step direction and increasing the number of steps as appropriate; providing opportunities for controlled movement within the classroom to channel his energy; and design a behavior management system with positive consequences such as praise and affection and negative consequences such as time out as needed. Sam's parent(s) did not return for his six month follow-up appointment.

Illustration no. 2: John. John was a 7 year old African American male attending 1st grade without receiving any special services. He repeated Kindergarten. He lived with his grandmother (adoptive mother) and his uncle. John was referred to the COCP team for a neuropsychiatric evaluation for his poor academic achievement and the discrepancy between his verbal and non-verbal I.Q. scores (verbal score 87 and nonverbal

score 57). John's grandmother could not attend the evaluation due to medical reasons, but she did complete and send in all paperwork informing the COCP team about his behavior. She reported that she had been concerned with his academic and behavior problems at school and at home since he was enrolled in school. She noted that he does not pay attention at home or school and he can be very disruptive to other students which has happened since he was two years old. John's grandmother said he also starts fights at school and has significant difficulties learning. She reported that he is in the second grade, but does not know how to read and is behind in all academic areas and that his psychological testing shows two different I.Q. scores.

John tells his grandmother that "school is hard" and that he does not know how to do his homework and does not have any help, therefore won't do it. He has several stressors such as his mother dying at a young age, his grandmother who is physically and chronically ill, being wheelchair bound, and his uncle who is terminally ill receiving care from Hospice in the home. John's grandmother reported that John feels sad very often. John has never had a psychiatric evaluation and has never been on any psychotropic medications.

On the Child Behavior Checklist (CBCL) John's grandmother reported externalizing scores of 77 which are considered to be clinical in the areas of rule breaking behavior and aggressive behavior. She reported an internalizing problem score of 41 which was not considered to be clinical or at risk for a behavior disorder. On the Differential Ability Scale he obtained an I.Q. score of 87 which fell within the low average range.

John's language skills were assessed with the Preschool Language Scale – Fourth Edition (PLS-4). Behavioral observations at the time of his language assessment indicated that he presented with little or no facial expressions of happiness throughout the evaluation. John approximated a smile for a couple of brief moments when the clinician inquired about things he liked to do. However, he appeared very reserved throughout most of the evaluation and showed a tendency to frustrate easily when presented with requests to complete cognitive tasks. During testing, John required maximum verbal reinforcements and promises of stickers to complete evaluation tasks. On the Preschool Language Scale-Fourth Edition (PLS-4) he obtained an auditory comprehension score of 71, an expressive communication score of 77, and a total language score of 71. John's auditory comprehension, expressive communication, and total language scores were each greater than one standard deviation of 15 points below the mean of 100, indicating a language delay.

Receptively, John demonstrated strengths in qualitative concepts (e.g., "Look at all the animals. Which animal has the longest nose?"); vocabulary (e.g., indicated body parts on self; elbow, forehead, eyelashes, and wrist); and phonological awareness (e.g., "Choose a picture that begins with the /p/ sound"). John demonstrated weakness in the areas of: understanding quantity concepts (e.g., half, whole); understanding time/sequence concepts (first, last); and adding and subtracting numbers to five. Expressively, John demonstrated strengths in phonological awareness (e.g., "Think of a word that rhymes with rock"); and integrative language skills (e.g., "Complete the sentence, "If I could swim really well, I could say I can swim like a ____"). John

demonstrated weakness in the areas of counting (e.g., "How many children are in the picture"); integrative language skills (e.g., "Change what I say so that it makes sense – He eats soup with a shoe."); and defining words (e.g., "Tell me two things about a shoe."). Overall, John's language skills were not considered to be commensurate with his cognitive ability (standardized verbal I.Q. score of 87). The COCP team concluded that John was displaying a mildly depressed mood which was related to his home environment. In addition, he had multiple symptoms of attention deficit hyperactivity disorder combined type and aggression, difficulties in language, and visual motor problems. He also had a genetic predisposition to learning disorders, as well as mood disorders and substance abuse, as they presented in close family members. John was the product of a pregnancy complicated with the use of tobacco, alcohol, and possible illicit drugs, as well as exposure to HIV in utero (he tested negative for HIV). He was premature, had hypoxia and several other complications that could have contributed to his already genetic predisposition to develop some the learning and behavior problems. The team recommended a treatment plan for John including: a psycho-stimulant to treat his symptoms of attention deficit hyperactivity disorder to increase attention, concentration, decrease impulsivity, and facilitate learning; his mood be monitored for evidence of acute depression; individual psychotherapy to help deal with his multiple losses and environmental stressors which was considered imperative; language therapy with teacher collaboration to improve John's receptive, expressive, and total language skills to an age appropriate level; and a referral to a community agency such as the Family and School Support Team (FASST) to investigate if resources could be offered to

assist the family in providing him with needed medical and academic service (e.g. to help meet medical/psychiatric needs of John, transportation needs to get to medical appointments, and to help provide needed special services to him such as an increase in speech and language pathology services). Records indicated that John's grandmother was contacted to remind her of her six month follow-up appointment, but did not attend.

Illustration no. 3: James. James was an 11-year-old male in the 5th grade. He resided with his biological parents, younger sister, and maternal grandmother. There is a family history of dyslexia, attention deficit hyperactivity disorder (ADHD), and schizophrenia. James was diagnosed with ADHD when he was 6 years old and began taking Adderall for approximately five months. His behavior and academic performance improved while on medication. However, he developed significant tics and his mother discontinued the Adderall. James was found eligible for emotionally handicapped (EH) services in 12/00 when he was eight years old and received services through the Specific Learning Disabled (SLD) program. He was staffed into full-time EH in 8/01 pending reevaluation through the COCP. He was referred for a neuropsychiatric evaluation with the COCP on 10/01 by his school's child study team. Reasons for referral included: magical thinking, anxiety, attentional problems, processing disorders, neurological tics, and aggressiveness toward siblings. The child study team wanted to determine if James's inattention was selective or neurological.

James's language skills were assessed with the Clinical Evaluation of Language Fundamentals – Fourth Edition (CELF-3). James's receptive language standard score was 90 which was below average but within normal limits. His expressive language

standard score was 80 which indicated he had a moderate expressive language delay. His total language score was 85 indicating that his overall language skills were within normal limits for language functioning. During the evaluation with the physician James produced limited spontaneous conversation and spoke in a low tone; James did not engage in play with toys or in an extensive conversation with the clinician. James had normal hearing based on an audiological evaluation conducted in 10/00 and has normal intelligence based on recent testing indicating full scale IQ of 105 on the Universal Nonverbal Intelligence Test (UNIT) in 2001. This was a significant increase over prior testing with the Wechsler Intelligence Scale–Fourth Edition (WISC-III) in 2000 indicating a full scale IQ score of 77 indicating a below average score. James was experiencing several problems in school: difficulty reading and spelling; trouble staying on task and completing an assignment or project; trouble remembering what was heard; difficulty remembering information; and showing inappropriate behavior (e.g., aggression, withdrawal, and impulsiveness).

On the Child Behavior Checklist (CBCL) broadband factors, James mother rated his internalizing behavior (withdrawal, somatic complaints, anxious/depressed) and externalizing behavior (attention problems, delinquent behavior, aggressive behavior) broadband scores as 77 and 65, respectively. James's mother's scores placed him in the clinical range for the internalizing and externalizing areas of behavior.

At the time of his COCP evaluation his father reported that James was becoming increasingly irritable, agitated, and experiencing increased problematic behavior in school and at home and claimed to be unhappy. Both parents reported James was not

sleeping well, was crying a lot, and saying he wished he were not around. James was also having increasing problems with friends and was appearing to become more and more isolated. James was taking concerta and clonidine. Concerta is a once a day medicine for ADHD. Its main ingredient is methylphenidate, but it is packaged in a special, controlled release tablet that provides medication throughout the day. Hunt et al. (1985) suggested that clonidine may be most beneficial in children with ADHD, who are easily emotionally overwhelmed, are anxious, and have a low frustration tolerance. Clonidine is also used for Tourette's syndrome to control tics. Clonidine also causes sedation, so it may be helpful in treating the ADHD of children who have sleep disturbances.

The COCP team evaluated James and it concluded that he had symptoms consistent with depression and he received a primary diagnosis of Tourette's disorder and an expressive language disorder. The treatment plan included continuing concerta and clonidine from the primary care physician and neurologist; beginning Prozac for depression and following up in two months; instruction in language based strategies to improve memory such as mnemonics, categorizing, summarizing, and chunking; instruction in problem solving, in a small group, to enhance metalinguistic and socialization skills, an evaluation for voice to determine if he is eligible to receive voice therapy to address low tone; and placing him in a general education classroom rather than a full time EH class. The COCP team determined that James needed greater exposure to academic skills within the structure of the general education curricula; he be assigned a student "buddy' within the classroom to serve as a role model and mentor; guidance

counseling to reduce anxiety; tutorial assistance for reading, mathematics, and cursive writing; using multi-sensory teaching techniques to reinforce retention of information; and frequent review of information due to his disorders in short-term memory.

Follow-up appointments were scheduled more frequently with James than the typical patient as a change in medication to Prozac was recommended for him. At James initial follow-up appointment three months later his mother reported that the change in his class was helping him, his behavior had improved, and he was experiencing control over his ADHD symptoms. James's mother agreed to continue working with the present treatment plan. At the next follow-up appointment a couple of months later James's mother reported he was doing well in school with good grades and that the new classroom was beneficial. She reported that James's Tourette's disorder and ADHD appeared to be stable.

Summary

Descriptive statistics compared the demographic, educational, and parent perception information by language disorders to reveal differences. Non-parametric statistics compared differences in parent perception between children with behavioral disorders; with and without language delays (effect sizes were calculated to determine the magnitude of group differences). Lastly, three illustrations were selected from the study participants through the purposeful sampling method to gather cases that were information rich with respect to language among the sample. The illustrations are typical of children with behavior and language disorders in terms of the type and

severity of behavior and language characteristics. They were selected because each chart contained complete parent interview data in addition to detailed descriptions of language and behavior. The three illustrations included in the study provided insight into the complex language and behavior profiles of these children.

Chapter 5

Discussion

Research Questions

This research study investigated appointment data of child school age children referred for psychiatric services at an outpatient clinic at a large state university located in an urban setting. Three research questions guided the examination of the prevalence of language disorders in children with severe behavioral problems and its compounded effect on internalizing and externalizing scores on the CBCL.

Question 1 hypothesized that school age children referred to the outpatient clinic for a psychiatric evaluation would have a high prevalence rate of language disorders. Descriptive statistics utilizing a frequency count of the outpatient center data revealed that children with behavior disorders (n = 63) had a high prevalence of language disorders (n = 36) that was calculated to be 57.1% for the study sample. The result was not surprising, but establishes that prevalence rate in a school population of children with behavior disorders. The hypothesis was supported by the level of language prevalence of 57.1% which represented a majority of the children referred for a psychiatric evaluation as compared to 42.9% of the sample who did not present with a language disorder (n = 27). Further analysis of the prevalence data in this study also

found that the majority of children had mixed receptive-expressive delays (53.9%) as compared to receptive language delays (1%) and expressive language delays only (1%).

These data are consistent with the findings of Benner, Nelson, and Epstein (2002) who found that children with emotional and behavioral disorders experienced high levels of language disorders in clinic and school settings. Benner et al. also found that the most frequently occurring language diagnoses were mixed-receptive expressive disorder (58%), with a significantly smaller percentage of receptive language disorders (1%) and expressive Language disorders (1%).

Question 2 hypothesized that behavioral symptoms would be most significant in children with language disorders. The hypothesis was not supported utilizing a descriptive analysis of externalizing and internalizing broadband scores on the CBCL (Achenbach & Rescoria, 2001). Results of the analyses (Table 3) revealed that children with language disorders had a slightly higher, but similar, number of clinical scores (75%) as compared to children without language disorders (80%) on the externalizing broadband domain of the CBCL. Additionally, results revealed that children with language disorders also had a higher number of clinical scores (53%) than children without language disorders (35%) in the internalizing broadband domain of the CBCL. Moreover, an analysis of the difference between the means of externalizing and internalizing scores on the CBCL for language and no language groups revealed no significant difference for both broadband domain total scores (Table 4).

Externalizing Behavior

Of the study sample, 38 or 75% of participants had scores within the clinical range on the externalizing domain of the CBCL. The majority of children with scores in the clinical range on the CBCL were children with language disorders (n=22 or 57%) versus no language disorders (n=16 or 43%). However, children with language disorders scored a slightly lower mean (Table 4) for behavioral functioning across externalizing domain scores (69.0) versus children with no language disorders (70.6). The difference was not significant for a large effect (Table 4). Further, an analysis using the chi square test of independence revealed that there was no relationship between language and externalizing scores on the parent version of the CBCL (Table 5).

Internalizing Behavior

Children with language disorders within the clinical range of internalizing domain scores on the CBCL were 69% (n=16 out of 23) of the sample. Children with no language disorders within the internalizing domain scores represented 30% (n=10 out of 23) of the sample. Therefore, children with the highest number of clinical scores were children with language disorders (Table 3). Children with language disorders scored a higher mean (64.9) for behavior functioning on the internalizing score domain on the CBCL as compared to children with no language disorder (60.7). However, the difference was not significant and did not have a large effect (Table 4). Further, an

analysis using the chi square test of independence revealed that there was no relationship between language and internalizing scores on the parent version of the CBCL (Table 5).

Effect Sizes

Using Cohen's (1992) criteria, effect sizes (Table 4) were calculated for externalizing and internalizing broadband scores on the CBCL (Achenbach & Rescorla, 2001). The means for the language and non-language groups were compared to each other. The effect size of the externalizing and internalizing scores was small.

Question 3 hypothesized that communication would represent the highest proportion of initial concerns among caretakers of children referred for a psychiatric evaluation. Communication is the developmental domain that is most commonly impaired for infants and toddlers considered to be at risk or disabled (Rossetti, 2001). The hypothesis was not supported based upon an analysis of descriptive statistics' of language and no language status by caretaker initial area of concerns and the chi square test of independence. The chi square test of independence showed no relationship between caretakers' initial area of concern in their children and communication. The frequency count revealed that communication concerns represented 27% (n=10) of children with language disorders versus 11% (n=3) of children with no language disorders. Behavior was the number one area of concern of caretakers with language disorders (47%) and children with no language disorder (59%). Medical concerns were indicated as a primary concern by 8% of caretakers of children with language disorders

and 7% of caretakers of children without language disorders. A category of "other" was indicated by caretakers in 19% (n=7) of children with language disorders and 22% of children without language disorders (n=6). The category of other concerns consisted of: "no concerns"; "does not believe a problem existed"; and "don't know".

Three illustrations were identified that showed the complexity that the combination of language and behavior problems present with in children. These children present with externalizing and internalizing behaviors that puzzled family and educators. Two of the children in the case study had not been identified as having a language disorder in school. These finding were supported by Cohen et al. (1992) who found children with behavior disorders have unsuspected language disorders.

Implications

Study implications are: a) that teacher training is needed to increase awareness of the high prevalence of language disorders in children with behavior disorders. Teacher training has far reaching impact in that it could include multiple stakeholders in the school environment including: policy makers, administrators, teachers, speech language pathologists, psychologists, guidance counselors, and paraprofessionals. It may also impact a broad range of educational levels ranging from early intervention workers to training educators at the college pre-service levels.

The identification of coexisting language disorders and behavior disorders in school age children is important in order to (identify a process for early identification of language disorders and assessment to) increase educational outcomes. A combination of

the push for school reform that mandates that all children can learn in accordance with the No Child Left Behind Act (NCLB) of 2001 and inclusion of all students as per the Individuals with Disabilities Education Act (IDEA), 2004, are transferring the responsibility for the learning of all students to the teacher. The high prevalence of language disorders in children with behavior disorders and psychiatric disorders reported in the literature has made this a topic of increased interest among child and adolescent psychiatrists, linguists, and medical scientists. The investigation into the coexisting language disorders and behavior disorders in school age children should become more of an area of interest of school personnel.

Recommendations for Future Research

More studies are needed to identify the prevalence of language disorders in children using larger sample sizes to validate this studies findings. Secondly, another study using different instrumentation to determine if behavior differences exist between children with severe behavior with and without language disorders. A third recommendation would be to evaluate if prevalence rates of language disorders varied across children from different racial backgrounds, SES groups, or different levels of parent education. The majority of children in this study were from families representing low socioeconomic levels and low education levels which may have affected the language ability of children in the study. A fourth recommendation is for studying the co-existing disorders in children with Autism, Mental Retardation,

Asperger's Disorder, and Traumatic Brain Injury, children excluded from this study, to determine prevalence numbers within these groups of children. Understanding coexisting disorders can result in their being identified and treated earlier than is currently the case.

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APPENDICES

Appendix A

Confidentiality Statement

I understand that I am committed to an oral and written bond regarding the confidentiality of each medical record, medical information, or documentation which I might review in the course of my research. I will not release any information from a patient's chart to my family, friends, or any unauthorized person. During the course of my research, I will not record in my notes any formal written report to include any patient or physician names of identifiers, unless authorized to do so. I will not use this information for profit.

Name: Brenda Curtwright

Date: June 5, 2005

Appendix B

Reliability and Validity of Language Tests Used in the COCP 2001-2005

Test	Validity	Reliability
Clinical Evaluation of Language Fundamentals Screening Tests (CELF-3)	Content Validity. The CELF-3 Screening Test was developed from the same domain of content as CELF-3. Criterion-Related Validity-The correlations between the CELF-3 Screening Test Total Test Scores and CELF-3 Total Language Scores range from .68 to .88. Further, Overall percentage agreement across ages for correct identification was 83.5%.	Test-Retest Reliability on 240 students reflected appropriate stability of scores from test to retest (ranged from .83 to .93).
Clinical Evaluation of Language Fundamentals Tests (CELF-3)	Convergent validity (correlation between a student's score on two tests with similar measures) between the CELF-4 Screening test and the CELF-4 using z scores ranged from .67 to .75 for children ages 5.0-21:11. Sensitivity (how accurately a test correctly identifies students who have a disorder) ranged from 82.9% to 96.8%.	Test-retest reliability on 170 students using Pearson's product-moment correlation coefficient ranged from .82 to .90 for children ages 5.0-21:11. Evidence of internal consistency was evaluated using the split-half method The split –half reliability for students 5-8 years old was .70 and for students 9-21 years old, .72.

Appendix B (continued)

Clinical Evaluation of Language Fundamentals Screening Tests (CELF-4)	Evidence of convergent validity was provided by comparing students' total raw scores on the CELF-4 Screening Test with their CELF-4 Core Language standard scores. The correlations between the CELF-4 Screening Test and the CELF4 ranged from .67 to .75 across age groups. A matched sample was used to calculate the classification rates, sensitivity, specificity, positive predictive power, and negative predictive power of the CELF-4 Screening Test. The study consisted of 450 clinical cases and 450 non-clinical. The range of clinical hits was 80.0 to 96.8 across age groups.	Test-retest reliability was evaluated by administering the CELF-4 Screening Test to a group of students on two separate occasions. The sample included 170 students selected from the standardization sample. The test-retest reliability was estimated using Pearson's product-moment correlation coefficient and ranged from .82 to .90 across age groups. The split-half reliability for students ranged from .70 for children ages 5-8 to .72 for students 9-21 years.
Clinical Evaluation of Language Fundamentals Tests (CELF-4)	The CELF-4 reported evidence of validity based on test content. The CELF-4 content and subtest construction was designed to reflect the development of language abilities of students 5-21. Other test of validity included inter-correlational studies which ranged from.31. to .97 between subtests (n=2,650).	Test-Retest Reliability on 240 students reflected appropriate stability of scores from test to retest (ranged from .83 to .93). Internal consistency is reported for standardization and clinical populations. Reliability is reported based on the results of two analyses: coefficient alpha and the split-half method.
Expressive One-Word Picture Vocabulary Test	Three types of validity were used to measure the EOWPVT: Content Validity (parent questionnaires); Criterion-Related Validity (.67 to .90 with a median of .79); and Construct Validity (Data were obtained from a variety of sources: chronological age; cognitive ability, language; academic achievement; expressive and receptive vocabulary; previous editions; and exceptional group differences.	To assess internal consistency, Cronbach's coefficient alpha was computed for each age level. Coefficient alphas were high ranging from .93 to .98 with a median of .96; split half coefficients, corrected for the full length of the estimated, range from .96 to .99 with a median of .98. Test-retest reliability was examined with 226 examinees who were each retested by the same examiner.

Appendix B (continued)

Receptive One Word Picture Vocabulary Test	Three types of validity were used to measure the EOWPVT: Content Validity (parent questionnaires); Criterion-Related Validity (.67 to .90 with a median of .79); and Construct Validity (Data were obtained from a variety of sources: chronological age; cognitive ability, language; academic achievement; expressive and receptive vocabulary; previous editions; and exceptional group differences.	Three types of reliability demonstrated that the EOWPVT provides consistent measure that is relatively free from errors. To assess internal consistency, Cronbach's coefficient alpha was computed for each age level. Coefficient alphas were high ranging from .95 to .98 with a median of .96; split half coefficients, corrected for the full length of the estimated, range from .97 to .99 with a median of .98. Test-retest reliability was examined with 226 examinees that were each retested by the same examiner. The test-retest correlations range from .78 to .93 with a coefficient of .84 for the entire sample. Interrater reliability was examined through Reliability of Scoring (100%),
Receptive-Expressive Emergent Language Test	Criterion-Prediction Validity revealed a median coefficient between the REEL and criterion tests was .55 which was considered to be moderate correlations). The Expressive Language Ability Score and Language Ability Score yielded median coefficients of .62 and .60 which was considered to be high. The REEL achieved this validity by: using several constructs that accounted for test performance; secondly, hypotheses were generated that were based on the identified constructs; and third, the hypotheses were confirmed through local methods.	Test reliability refers to individual test differences are truly representative of individual differences versus chance errors (Anastasi and Urbani (1997). The REEL used Cronbach's (1951) coefficient alpha methods. The alphas for the sample were determined by using z-scores. The coefficients for subtests ranged from .80 to .90. The Test-retest method was used to examine test stability and was .78 for expressive language, .89 for receptive language and .80 for the Language Ability Composite.

Appendix B (continued)

Preschool Language Scale	Construct validity was measured by assessing the correlation between Auditory Comprehension and Expressive Communication subscales (.64). Concurrent validity was determined by compared the PLS-3 and the CELF-R (correlations were .69 for auditory comprehension; .75 for expressive communication; and .82 for total language score).	The PLS-3 reliability coefficients were obtained using Cronbach's coefficient alpha. Internal Consistency Reliability Coefficients for auditory comprehension ranged from .47 to l78 for children ages 0.0 to 6-11' for expressive communication ranged from .69 to .91, and for total language from .74 to .94. Test-Retest Stability indicated that stability coefficients ranged from .89 to .90 for auditory comprehension; .82 for .92 for expressive communication; and .91 to .94 for total language scores. The percentage of agreement between scores was 89%, and the correlation between scores was .98

Appendix C

Language Tests Administered to Study Sample and Language Status

Patient no.	Age	Language Status	Test
1	4	Delay	PLS-3
2	8	Delay	PLS-3
3	8	No delay	PLS-3
4	7	Delay	MLU
5	9	Delay	Language Sample
6	6	Delay	MLU
7	10	Delay	Language Sample
8	4	Delay	CELF-3
9	15	No delay	CELF-3 Screener
10	14	No delay	CELF-3 Screener
11	7	Delay	MLU
12	11	Delay	Language Sample
13	5	Delay	PLS-3
14	7	Delay	MLU
15	15	No delay	CELF-3 Screener
16	8	No delay	MLU
17	9	Delay	CELF-3
18	6	No delay	MLU
19	12	Delay	CELF-3 Screener
20	10	Delay	Language Sample
21	7	No delay	PLS-3
22	3	Delay	PLS-3
23	5	Delay	REEL
24	6	Delay	PLS-3
25	9	No delay	CELF-3 Screener
26	10	Delay	EOWPVT
27	3	Delay	MLU
28	8	Delay	PLS-4
29	11	No delay	CELF-3 Screener
30	10	Delay	PLS-4
31	11	Delay	CELF-3 Screener
32	14	No delay	CELF-3 Screener
33	6	Delay	REEL
34	10	Delay	CELF-3 Screener
35	15	No delay	Language Sample
36	16	Delay	CELF-3 Screener

Appendix C (continued)

Language Tests Administered to Study Sample and Language Status

Patient no.	Age	Language Status	Test
37	12	No delay	Language Sample
38	10	Delay	MLU
39	8	Delay	ROWPVT
40	8	Delay	CELF-4
41	7	Delay	CELF-4
42	5	Delay	MLU
43	12	No delay	PLS-4
44	5	No delay	MLU
45	13	No delay	CELF-4 Screener
46	9	Delay	PLS-4
47	8	Delay	PLS-4
48	5	Delay	PLS-4
49	4	Delay	MLU
50	9	No delay	Language Sample
51	5	Delay	PLS-4
52	11	No delay	Language Sample
53	10	Delay	ROWPVT & EOWPVT
54	7	Delay	PLS-4
55	7	No delay	PLS-4
56	7	No delay	CELF-4 Screener
57	10	No delay	Language Sample
58	9	No delay	Language Sample
59	14	No delay	CELF-4 Screener
60	11	No delay	Language Sample
61	8	No delay	PLS-4
62	5	Delay	PLS-4
63	9	No delay	Language Sample
64	6	Delay	PLS-4
65	4	Delay	PLS-4
66	7	Delay	CELF-4 Screener
67	13	Delay	CELF-4 Screener
68	8	No delay	Language Sample/MLU
69	5	No delay	Language Sample/MLU

About the Author

Brenda J. Curtwright is the loving wife of Lewis Curtwright, Jr. and loving mother of two beautiful children, Lewis K. Curtwright, III and Alexandria Rosamond Curtwright. She has been employed as Clinic Coordinator at the University of South Florida Department of Psychiatry Silver Child Development Center Speech and Language Clinic since 2001. Ms. Curtwright's clinical practice consists of providing assessment and treatment for speech and language disorders to children and adults as well as collaboration services to parents and schools.

Ms. Curtwright is a licensed speech-language pathologist in the state of Florida and holds the national certificate of clinical competence through the American Speech-Language and Hearing Association. Ms. Curtwright has been a mentor and supervisor to undergraduate and graduate students that have participated in numerous university courses, practica, and internships. She is the recipient of University of South Florida Cathy Lynn Richardson Endowed Doctoral Scholarship. She is interested in working in multiple capacities with children and adults with language and co-existing disorders.