The treatment of selective mutism: A case control alternating treatments design

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THE TREATMENT OF SELECTIVE MUTISM: A CASE
CONTROL ALTERNATING TREATMENTS DESIGN

by

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ABSTRACT

The Treatment of Selective Mutism: A Case Control Alternating Treatments Design

by

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This was the first study to examine the differential effectiveness of two behavioral interventions for selective mutism while employing a single-case alternating treatments design with documentation of treatment outcomes, calculation of effect size, and measures of treatment integrity. Participants were recruited via press release to the local media and the Clark County School District. Interested participants were initially screened over the telephone. If the screening indicated that a child met diagnostic criteria for selective mutism and did not meet exclusionary criteria, an assessment was scheduled. Each participant was assessed by the Anxiety Disorders Interview Schedule for Children for DSM-IV Child and Parent versions, Child Behavior Checklist, and Teacher Report Form. In addition, daily logs were collected from parents, children, and teachers to evaluate degree of mutism. The present study included nine children age 4-9 years. Five participants started with treatment A (exposure therapy) and followed the ABBABAAB pattern and four participants started with treatment B (contingency management) and followed the BAABABBA pattern. The results indicated that exposure-based therapy and
contingency management are effective behavioral interventions for selective mutism. The majority of children (86%) met criteria for treatment success at post-treatment. Rates of speech increased over 600% from baseline to end of treatment. Child ratings of speech indicated a large treatment effect size and parent ratings of speech indicated a moderate treatment effect size. Furthermore, the results indicated that exposure-based therapy was more effective than contingency management. The study provides additional support for the use of behavioral interventions for selective mutism. More specifically, the study provides empirical support for the differential effectiveness of exposure-based therapy. Several clinical implications for identification, assessment, and treatment of selective mutism were presented.
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CHAPTER 1

INTRODUCTION

Many people expect children to talk in social settings, speak when spoken to, and socialize with others their age. When these expectations are violated, serious disruptions in a family can occur and can impede a child's developmental progress. Children who fail to speak in public settings have limited opportunities for social interactions and participation in school activities that involve other children (Krysanski, 2003). Furthermore, children who fail to speak at school are often teased or disliked by peers (Black & Uhde, 1992; Krysanski, 2003). When children do not verbally communicate with others, they are unable to acquire appropriate skills needed to develop socially, make friends, respond positively to peers, or communicate needs. In addition, extended periods of time in which a child remains silent may affect speech and language development (Krysanski, 2003; Kumpulainen, Rasanen, Raaska, & Somppi, 1998).

Non-speaking may also hinder a child's academic progress (Bergman, Piacentini, & McCracken, 2002). A silent child in the back of the classroom most likely receives little attention from the teacher, especially because he never asks questions or verbally disrupts class. Perhaps more importantly, a teacher's inability to evaluate a child's understanding of fundamental concepts may decrease her opportunity to provide essential corrective feedback (Bergman et al., 2002). For example, when a child is mute, his teacher may be unable to assess phonemic awareness or detect phonemic decoding errors.
while reading. Additionally, if a child cannot convey to teachers what he has learned, the child may be retained or placed in a special education program. Violating the expectation to speak can thus drastically interfere with a child’s educational development.

Given the detrimental effects silence can have on a child’s social and academic development (Krysanski, 2003), identification and treatment of this phenomenon is crucial. Many questions regarding this behavior in children remain unanswered. Two pertinent questions are “What causes children to develop selective mutism?” and “How does one treat the disorder?” Future research is needed to develop an integrated model of selective mutism, to design assessment measures specific to selective mutism, and to provide empirically supported interventions for this population.

Classification

Selective mutism is a disturbance that interferes with a child’s educational functioning, occupational achievement, or social communication. Selective mutism is currently classified in the Diagnostic and Statistical Manual of Mental Disorders (4th ed., text revision, DSM-IV-TR) as a disorder first diagnosed in infancy, childhood, or adolescence. Selective mutism is defined as persistent failure to speak in specific social situations such as school, where speech is expected, despite speaking in other situations such as home (American Psychiatric Association, APA, 2000). To meet the diagnosis of selective mutism, symptoms must persist for more than one month, excluding the first month of school because many children may be initially timid and hesitant to speak at school. A diagnosis should not be given if failure to speak is due solely to lack of knowledge of, or comfort with, spoken language required in the social situation (APA,
2000). For example, children who have recently emigrated to a new country and have entered school for the first time would not meet diagnostic criteria for selective mutism (Krysanski, 2003). Additionally, a child whose parents are non-English speakers may not qualify for a diagnosis of selective mutism unless she is quite familiar with English and mutism supersedes the language discrepancy (Vecchio & Kearney, 2007). Bilingual children with selective mutism will present with mutism in both languages, in several settings, and for significant periods of time (Toppelberg et al., 2005). Furthermore, a diagnosis of selective mutism is not warranted if mutism is better accounted for by embarrassment related to having a communication disorder such as stuttering or if mutism occurs exclusively during a pervasive developmental or psychotic disorder. Children with selective mutism are often given an additional diagnosis of an anxiety disorder, especially social anxiety disorder (APA, 2000). The following paper reviews the literature and provides an in-depth presentation of selective mutism.
CHAPTER 2

REVIEW OF RELATED LITERATURE

Historical Overview

Stories describing children who remained silent in certain situations, but spoke in others, date back over 1500 years (Hooper & Linz, 1992). However, the German physician Kussmaul was the first researcher to describe this clinical presentation (Cline & Baldwin, 2001). In 1877, Kussmaul identified reluctance or refusal to speak as aphasia voluntaria, describing individuals who had forced themselves into mutism for no disclosed reason (Hooper & Linz, 1992). The term aphasia voluntaria implied that a child voluntarily decided not to speak. Following Kussmaul’s study, refusal or reluctance to speak received little attention. Hesselman (1983) reported that only 14 European authors researched this topic from 1893–1933.

Interest in selective mutism increased in 1934 when the Swiss child psychiatrist Moritz Tramer offered the first full description of this phenomenon (Gray, Jordan, Ziegler, & Livingston, 2002; Leonard & Dow, 1995). Tramer (1934) reviewed the case presented by Krivohlavy (1933) of a 3-year-old boy who experienced psychological changes after undergoing surgery for a serious infection. The boy became insolent, avoided strangers, and spoke only to family and other relatives. Krivohlavy concluded
that the boy’s selective silence was not the result of shyness but rather trauma from surgery and an inherited predisposition to mental illness. The child had a paternal history of alcoholism and a maternal history of mental illness (cited in Tramer, 1934). Tramer further reviewed Heinz’s (1932) study of 13 mute children. “Voluntary silence” was a major symptom of all cases. In addition, shyness or “passive stubbornness” was a key factor in some cases. Heinz purported that shyness, when accompanied by other factors, could lead to mutism (cited in Tramer, 1934). Tramer (1934) also presented his own case study of an 8-year-old mute boy. The child had a familial history of shyness, a paternal history of “nervous disorder,” and a sibling history of not speaking. The child did not have any known medical problems, serious illnesses, or developmental delays, and had never experienced psychological trauma. Tramer conceptualized the boy’s “voluntary silences” as resulting from a strong case of shyness exacerbated in certain social situations (Tramer, 1934). He subsequently coined the term “elective mutism” to describe verbally intact, non-psychotic children who spoke only with select peers and family members (Black & Uhde, 1992; March et al., 1995). Like the term aphasia voluntaria, elective mutism implies that a child elects or chooses not to speak (Krysanski, 2003).

**Historical Terms Used to Describe Mute Behavior**

Prior to 1970, the majority of the literature focused on describing different kinds of mutism (Hesselman, 1983). In addition to elective mutism, investigators used many terms to explain this behavior, such as speech phobia, speech shyness, speech inhibition, speech avoidance, suppressed speech, hearing mute, learned mutism, thymogenic mutism, voluntary mutism, ideogenic mutism, partial mutism, psychogenic mutism,
“Heinzian” mutism, psychological mutism, situation-specific mutism, temporary mutism, and functional mutism (Cline & Baldwin, 2001; Hadley, 1994; Hooper & Linz, 1992). The most recent term to describe this behavioral presentation, selective mutism, was established from DSM-IV (APA, 1994). Selective mutism replaced elective mutism to remove the notion that the child controlled the mutism. This new categorization implied that a child does not speak in select situations, but is not necessarily electing to be mute.

Mutism has been defined as inability or failure to speak. Hence, many forms of mutism exist, which are either biologically- or psychologically-based (Hooper & Linz, 1992). Mutism with a biological basis is often associated with profound deafness and hearing loss, profound mental retardation, infantile autism, akinetic mutism, or neurological insult such as lesions in the posterior fossa region (Gray et al., 2002; Hooper & Linz, 1992; Kolvin & Fundudis, 1981). Mutism with an organic basis is most likely caused by trauma to the cerebellum (Gordon, 2001). “Biological mutism” may result from any of the above disorders or injuries and does not include diagnostic criteria for selective mutism (cited in Cline & Baldwin, 2001; cited in Holmbeck & Lavigne, 1992).

Psychological mutism occurs when a child remains mute, despite having the ability to speak, without known neurological or biological variables. Hysterical and selective mutism are two forms of psychological mutism (Hooper & Linz, 1992; Kolvin & Fundudis, 1981). In 1936, Waterink and Vedder posited a multidimensional conceptualization of psychological mutism by conceptualizing six subtypes of this behavior pattern. “Heinzian” mutism was the result of an overly sensitive child reacting to changes in her environment and “ideogenic” mutism described individuals who believed their speech mechanism was inoperative. “Thymogenic” mutism and “neurotic”
mutism were anxiety-based. Thymogenic mutism was seen as a reaction to a traumatic event and neurotic mutism was an expression of anxiety neurosis (cited in Hooper et al., 1992). “Hysterical” mutism was defined as unconscious expression of an emotional problem via a physical symptom. The act of not speaking is the physical symptom displayed in hysterical mutism. Children with hysterical mutism may surprise their family by speaking in emergency situations (Hadley, 1994). Hysterical mutism has also been referred to as traumatic mutism because the onset is usually related to a traumatic event. Reports of hysterical or traumatic mutism in children are rare (Hooper & Linz, 1992; Kolvin & Fundudis, 1981). The final subtype, elective mutism, represented what selective mutism is today. Selective mutism refers to a child who speaks freely with intimates but is silent around others for no apparent reason. While selective mutism is more prevalent than hysterical mutism, the disorder is still a relatively rare phenomenon (Kolvin & Fundudis, 1981).

In addition to subtypes posited by Waterink and Veddar (1936), Hayden (1980) described four subtypes of selective mutism with the belief that mutism may serve distinct functions for different children. “Symbiotic mutism” is characterized by an enmeshed mother-child relationship and by a submissive yet manipulative relationship with others. “Passive-aggressive” mutism refers to a child who defiantly refuses to speak as an expression of anger. In this case, the child uses silence as a weapon. “Reactive mutism” is a response to a traumatic event such as sexual or physical abuse, significant loss, or school entry. Reactive mutism is often characterized by depression and withdrawal. The final subtype, “speech phobic mutism,” describes selective mutism from
a child’s fear of hearing his own voice. This subtype is also characterized by ritualistic behaviors.

Progressive mutism has been considered an extreme form of selective mutism or a separate form of psychological mutism. In progressive mutism, a child is capable of speaking but progressively becomes silent over time and eventually does not speak at all. The child becomes progressively mute despite the absence of biological or neurological factors (Paniagua & Saeed, 1988). The distinction between selective mutism and progressive mutism is that children with selective mutism do not speak to certain people, while children with progressive mutism eventually do not speak to anyone, even parents or close friends. Like hysterical mutism, few reports of progressive mutism exist in the literature (Paniagua & Saeed, 1988).

Hysterical mutism, selective mutism, idiogenic mutism, and schizophrenic mutism are forms of psychogenic mutism. Idiogenic mutism occurs when an individual imagines that her speech organs are diseased, though this condition is rare. Schizophrenic mutism occurs when mutism is comorbid in children with schizophrenia. This type of mutism is accompanied by withdrawal, absence of affect, catatonic features, and deterioration in habits. Children with schizophrenic mutism may also speak in emergency situations (Hadley, 1994).

A further distinction has been made between persistent and transient mutism. Persistent selective mutism may last for several years (Leonard & Dow, 1995). According to Dummit and colleagues (1997), persistent mutism typically occurs within the context of an anxiety disorder. Transient selective mutism spontaneously disappears within a few months and may be a form of “adaptation reaction” (Andersson & Thomsen,
Adaptation reaction refers to an individual's response to the typical stresses and strangeness of a new situation. Adaptation reaction may be an extension of a family pattern of shyness or modeling of parental reactions in novel social situations (Kolvin & Fundudis, 1981). Transient mutism is often seen at school entry at a time when many children may be reluctant to speak, so the DSM-IV diagnosis is limited to mutism that occurs beyond the first month of school (Andersson & Thomsen, 1998; APA, 2000).

Classification of Selective Mutism

The International Classification of Diseases, ninth edition (World Health Organization, 1978) was the first classification system to include a separate diagnostic category for elective mutism. Elective mutism appeared under “disturbance of emotions specific to childhood and adolescence.” Within this section, elective mutism was grouped with disorders of sensitivity, shyness, and social withdrawal. Elective mutism did not appear as a separate diagnostic category in the DSM until 1980. The DSM-III (APA, 1980) included elective mutism as a distinct disorder under “disorders usually first evidenced in infancy, childhood or adolescence.” According to the DSM-III, the essential feature was continuous refusal to speak in nearly all social situations, including school, despite ability to speak and comprehend the spoken language (APA, 1980). The DSM-III-R modified the primary diagnostic feature of elective mutism by necessitating persistent refusal to talk in one or more major social situations instead of requiring mutism in almost all situations (APA, 1987). The classification of this behavior as elective mutism emphasized that children were electing not to speak in certain situations (Dow, Sonies, Scheib, Moss, & Leonard, 1995).
The classification of this disorder was changed to selective mutism with the publication of the DSM-IV (APA, 1994). The main diagnostic criterion was also modified from “persistent refusal” to talk to “persistent failure” to speak. Thus, the term selective mutism implied that a child does not speak in select situations and indicates that the condition is no longer conceived as primarily controlled by the child (Krysanski, 2003). Even though a child may fail to speak to certain people and/or in certain situations, she is not necessarily choosing to remain speechless. This change is consistent with recent etiological theories that emphasize a relationship between selective mutism and anxiety and not oppositional behavior (Dow et al., 1995). The following section reviews the prevalence, age of onset, and course of selective mutism.

Epidemiology

Selective mutism is generally considered a rare disorder, with prevalence rates of less than 1% reported in the literature (Hooper & Linz, 1992; Wright, Cuccaro, Leonhardt, Kendall, & Anderson, 1994). However, estimates of prevalence are based on scant evidence and methodologically flawed studies. Recent research indicates varying prevalence rates from 0.03% to 2.0% depending on the population sampled and criteria used (Bergman et al., 2002; Chavira, Stein, Bailey, & Stein, 2004; Elizur & Perednik, 2003; Garcia, Freeman, Francis, Miller, & Leonard, 2004; Kumpulainen, 2002). Kopp and Gillberg (1997) reported a prevalence rate of 0.18% after screening children aged 7-15 years for selective mutism. On the other hand, Kumpulainen and colleagues (1998) sent a definition of selective mutism, based on DSM-III-R criteria, to second grade teachers in Kuipo County, Finland, asking them if any child in their class met the
DSM-III-R criteria were met by 38 (1.89%) of 2009 children. Bergman and colleagues (2002) found a prevalence rate of 0.71% for selective mutism, based on DSM-IV criteria, in their examination of kindergarten, first, and second grade public school students in Los Angeles. The authors suggested that the point prevalence rate for selective mutism is comparable to rates of other childhood disorders such as obsessive compulsive disorder and major depression. They further reported that selective mutism occurs more often than autism and Tourette’s disorder.

Few studies have addressed the incidence of selective mutism in immigrant populations (Elizur & Perednik, 2003; Steinhausen & Juzi, 1996; Toppelberg, Tabor, Coggins, Lum, & Burger, 2005). Elizur and Perednik (2003) found the prevalence of selective mutism among immigrants to be three times higher (2.2%) than the general prevalence of selective mutism (0.76%). These findings are consistent with other studies that selective mutism is relatively common (Toppelberg et al., 2005) and the actual prevalence of this disorder may be higher than previously thought (Bergman et al., 2002; Kopp & Gillberg, 1997; Kumpulainen et al., 1998) because many cases of selective mutism do not come to clinical attention (Leonard & Dow, 1995). Selective mutism is often underreported in isolated families and is usually not recognized until school entry. Many parents may not recognize the problem behavior because a child with selective mutism usually speaks freely at home (Ford, Sladeczek, Carlson, & Kratochwill, 1998; Spasaro & Schaefer, 1999). In addition, parents may conceptualize mutism as normal behavior, a shyness the child will outgrow, or something else that will disappear with time (Andersson & Thomsen, 1998). Selective mutism may not be perceived as a problem and subsequently may go unreported.
Earlier studies indicated that selective mutism occurred more often in females than males, with an approximate ratio of 2:1 (Hayden, 1980; Wilkins, 1985). More recent studies indicate a trend in the direction toward equal gender distribution (Elizur & Perednik, 2003; Remschmidt, Poller, Herpertz-Dahlmann, Hennighausen, & Gutenbrunner, 2001). Prevalence studies conducted by Kopp and Gillberg (1997) and Kumpulainen and colleagues (1998) found female to male ratios of 1.5 to 1. In addition, Andersson and Thomsen (1998) analyzed 37 cases of selective mutism referred to a hospital, 20 of which were male.

Age of onset for selective mutism is typically 3-6 years (Ford et al., 1998; Wright, 1985). However, mutism is usually not recognized until school entry (Black & Uhde, 1992), so the average age of initial referral, diagnosis, and intervention has been reported to be 6-8 years (Ford et al., 1998; Kolvin & Fundudis, 1981). Researchers further believe that a significant proportion of children with selective mutism are never referred for appropriate treatment (Black & Uhde, 1995; Schwartz et al., 2006). Selective mutism has a variable but often chronic course. Some children remain mute for a few months, while for others the disorder persists for years (Krysanski, 2003). Mutism that persists for several years is less common than mutism that remits within the first year (Wilkins, 1985). However, cases of children who have remained mute during 8 years of school have been reported in the literature (Hultquist, 1995). Jainer, Quasim, and Davis (2002) presented a case of persistent selective mutism that started at the age of language acquisition and remained until age 22 years. Kumpulainen and colleagues (1998) evaluated 38 second graders and found that most (53%) had been mute since kindergarten.
and that 18% had been mute since preschool. In this population, mutism predominately occurs in a school environment, though a child may speak freely at home.

Characteristics of Children with Selective Mutism

The defining characteristic of children with selective mutism is persistent reluctance to speak. Children with selective mutism usually talk freely at home, with immediate family members, and to close friends (Krysanski, 2003). Some children with selective mutism have difficulty speaking with extended family members. They tend to speak more freely with extended family members who visit often than with those who visit infrequently (Schum, 2006). In addition, children with selective mutism often nonverbally communicate to others by gesturing, nodding, pulling, pushing, or pointing. Some children use monosyllabic utterances to communicate as well (Krysanski, 2003). Occasionally, children with selective mutism fail to communicate nonverbally by avoiding eye contact and by offering little or no facial expression or body movement (Krolian, 1988).

Selective mutism typically occurs in the primary school setting. In this environment, children are more reluctant to speak to teachers than peers (Black & Uhde, 1995; Kumpulainen et al., 1998). However, children with selective mutism may display variant talking patterns (Black & Uhde, 1995; Ford et al., 1998). Some children may remain mute and non-interactive with non-family members in all situations, whereas other children may display this behavior only in a narrow range of social situations such as school. These latter children may interact normally and verbally communicate in certain situations such as a restaurant or grocery store but not others (Black, 1996;
Kumpulainen et al., 1998). Black (1996) used the term “speech reluctant” to describe children with selective mutism because failure to speak ranges across situations from completely inhibited to completely uninhibited.

Children with selective mutism usually display insidious shyness during the preschool years (Dow et al., 1995; Kolvin & Fundudis, 1981). Cases of sudden onset have been reported in the literature, but this type of mutism usually begins after a traumatic event such as school entry or loss of loved one. Selective mutism may have existed and remained unnoticed in children with insidious selective mutism because the child had not yet been exposed to a setting where she was required to speak. This may further explain why the average age of onset of selective mutism is during early childhood although the diagnosis is not typically made until school entry when children are expected to speak to their teacher and peers.

Perhaps another reason for delayed diagnosis is that children with selective mutism often appear physically normal. No physical abnormalities characterize children with selective mutism and these children often achieve normally at school. Kumpulainen and colleagues (1998) indicated that children with selective mutism generally performed at least at grade level and that teachers did not find mute behavior to be problematic. Kolvin and Fundudis (1981) administered intelligence tests to their sample and found most children with elective mutism to have normal intelligence. However, these results are inconsistent with other findings that children with selective mutism do have impairments in overall functioning, below average IQ scores, and academic deficiencies (Bergman et al., 2002; Cline & Baldwin, 2001; Krysanski, 2003; Kumpulainen et al., 1998).
McInnes, Fung, Manassis, Fiksenbaum, and Tannock (2004) systematically assessed nonverbal cognitive and language abilities of 7 children with selective mutism and 7 children with social phobia. Findings revealed normal levels of nonverbal cognitive and receptive language abilities in both groups. However, children with selective mutism produced significantly shorter narratives than children with social phobia, suggesting that selective mutism may involve subtle expressive language deficits (McInnes et al., 2004). In a similar study, Manassis, Fung, Tannock, Sloman, Fiksenbaum, and McInnes (2003) compared 14 children with selective mutism to 9 children with social phobia. Both groups had similar levels of cognitive ability, though the selective mutism group had more language impairments than children with social phobia. These findings suggest that selective mutism is related to subtle language impairments.

Parent and teacher reports indicate that children with selective mutism have severe social skills deficits (Cunningham, McHolm, Boyle, & Patel, 2004). Children with selective mutism also scored significantly lower on measures of social assertiveness. However, children with selective mutism were not victimized more than controls (Cunningham et al., 2004). These findings are consistent with Kumpulainen and colleagues’ (1998) report that 16% of children with selective mutism were rejected by peers, but only 5% were bullied (Kumpulainen et al., 1998).

Several common descriptors of children with selective mutism have been reported. These children have been described as shy, timid, sensitive, withdrawn, fearful, inhibited, reticent, clingy, compulsive, anxious, and depressed (Ford et al., 1998; Hooper & Linz, 1992; Kopp & Gillberg, 1997; Kristensen, 2001; Kumpulainen et al., 1998;
Lesser-Katz, 1986; Steinhausen & Juzi, 1996). Lesser-Katz (1986) identified overly sensitive, easily frightened, extremely insecure, and passive features for children with selective mutism. However, low prevalence and sample sizes limited most of the early literature on selective mutism to clinically referred children. Some have questioned whether these characteristics represent all children with selective mutism, especially because the majority of selective mutism cases do not come to medical attention or receive psychological treatment (Kumpulainen et al., 1998; Leonard & Dow, 1995). Two subtypes of selective mutism, nonreferred and clinically referred, may exist, and the characteristics of children within each group may differ significantly (Kumpulainen et al., 1998). As a result, the following sections review studies from clinical and nonreferred samples.

Internalizing Characteristics of Children with Selective Mutism

In an analysis of 81 referred and 19 nonreferred cases of selective mutism, Steinhausen and Juzi (1996) found an overwhelming majority to be shy and anxious, whereas one-third of the sample was depressed. Parent ratings indicated children to be withdrawn, anxious, and depressed. They further indicated that children had profound difficulties with social interactions and some attention difficulties. Although parent ratings were only available from the nonreferred sample, reported symptoms were congruent with information obtained from interviews with the referred sample. Wilkins’ (1985) comparison of case notes of 24 children with selective mutism to case notes of 24 children with emotional disorders further showed children with selective mutism to be more anxious, depressed, and manipulative.
In another retrospective case-control design, Andersson and Thomsen (1998) compared 37 children referred for selective mutism with 37 children referred for emotional/anxiety disorders. Children with selective mutism were often characterized as sensitive, weepy, shy, anxious, and speech impaired. In another study of case notes, Kolvin and Fundudis (1981) compared 24 children with selective mutism to 84 children with speech retardation and 102 controls. Common descriptors of children with selective mutism in this study were submissive, moody, easily distressed, aggressive, and stubborn. These children were all socially withdrawn and 33% were more withdrawn from peers than adults.

On the other hand, Bergman and colleagues (2002) examined symptoms of 12 nonreferred children attending public schools who met DSM-IV criteria for selective mutism. Teacher’s Report Form data indicated elevated internalizing, withdrawn, and anxious/depressed scores. In addition, children with selective mutism received significantly greater scores on the Social Anxiety Scale for Children-Revised than a comparison group of children without selective mutism. In a similar study, Kumpulainen and colleagues (1998) evaluated the characteristics of 38 nonreferred children who met DSM-III-R criteria for selective mutism. Children with selective mutism were most often characterized as shy, withdrawn, and serious.

Black and Uhde (1995) studied 30 nonreferred children with selective mutism and collected data from child and parent interviews and parent and teacher rating scales. Not surprisingly, children with selective mutism were most reluctant to speak at school and to unfamiliar non-family members. Furthermore, children with selective mutism were more reluctant to speak when away from home than at home, more reluctant to speak to
familiar non-family members than immediate family members, and more reluctant to speak to adults than children.

*Temperamental Characteristics of Children with Selective Mutism*

Others propose that subgroups within the selective mutism population may exist and may be differentiated via certain temperament characteristics. For example, Kristensen and Torgersen (2002) evaluated 26 children with selective mutism and a comorbid communication disorder, 28 children with selective mutism without a comorbid communication disorder, and 108 controls to compare temperament characteristics. Children with selective mutism with a comorbid communication disorder were characterized by more emotional stability and greater sociability than those without communication disorders. No differences were found between the selective mutism subgroups with respect to shyness or difficulty responding to new stimuli. Results are consistent with those of Steinhausen and Juzi (1996) who found that shyness was the most common personality feature in their sample and affected 85% of children with selective mutism. Shyness has been considered a hallmark temperamental characteristic of this population (Kristensen & Torgersen, 2002).

Many children with selective mutism also experience difficulty adapting to change or approaching novel stimuli. Behavioral inhibition refers to tendency to withdraw in response to unfamiliar people, objects, and situations (Black & Uhde, 1995). Inhibition has been closely linked to social anxiety disorder and increased physiological reactivity to novel stimuli (Schneier, Blanco, Antia, & Liebowitz, 2002). Selective mutism has been viewed as a severe form of behavioral inhibition in which a child freezes (Anstendig, 1994) to cope with the new situation. Researchers have thus
proposed a link between selective mutism and temperament due to the approach/withdrawal and adaptability temperament qualities of children with selective mutism. “Slow to warm” and “socially inhibited” are common descriptors used to characterize children with selective mutism (Ford et al., 1998; Kumpulainen et al., 1998). As infants, children in the former study typically did not respond well to new stimuli and experienced difficulty adapting to transition or change. Ford and colleagues (1998) also reported a predominance of mild to moderate mood intensity/emotionality in children with selective mutism.

**Comorbid Diagnoses and Associated Problems**

Common comorbid diagnoses of children with selective mutism include anxiety disorders and developmental disorders and delays (Black & Uhde, 1995; Dummit et al., 1997; Kristensen, 2000). A high frequency of comorbid enuresis and encopresis has also been reported (Kristensen, 2000). However, anxiety disorders are the most common comorbid disorders in children with selective mutism. In fact, the high comorbidity rates of anxiety disorders and the commonality of symptoms have prompted psychologists to propose that selective mutism is a symptom or subtype of an anxiety disorder. Selective mutism has been viewed as an anxiety disorder along the obsessive compulsive spectrum or as a more severe form of social phobia.

Anxiety disorders commonly found in children with selective mutism include social phobia, separation anxiety, and obsessive-compulsive disorder. In a study by Kristensen (2000), 54 children with selective mutism and 108 control children were evaluated and systematically assessed for comorbid diagnoses. Most (74.1%) children with selective mutism met diagnostic criteria for an anxiety disorder compared to only
7.4% in the control group. Black and Uhde (1995) indicated that most children in their sample experienced anxiety, especially social anxiety, and 97% were diagnosed with social phobia or avoidant disorder of childhood based on DSM-III criteria.

Furthermore, Dummit and colleagues (1997) evaluated the psychopathological features of 50 children with selective mutism. Children were systematically assessed via clinical interviews and rating scales. Results were similar to Black and Uhde (1995) and indicated that all children met DSM-III-R criteria for social phobia or avoidant disorder of childhood. In addition, 48% received an additional anxiety diagnosis. Vecchio and Kearney (2005) obtained similar findings in an empirical group comparison of children with selective mutism to children with and without anxiety disorders. All children with selective mutism met DSM-IV criteria for social phobia and 53% received an additional anxiety diagnosis. Additional comorbid anxiety diagnoses included separation anxiety, specific phobia, and generalized anxiety disorder. These findings reveal that anxiety symptomatology is a fundamental characteristic of children with selective mutism.

Manassis and colleagues (2003) systematically assessed 14 children with selective mutism and 9 children with social phobia. Parent and teacher reports indicated that both groups had elevated anxiety. The groups did not differ significantly on anxiety levels or comorbid diagnoses. However, the authors excluded social phobia as a comorbid disorder for children with selective mutism because the two conditions are closely linked in the literature (Manassis et al., 2003). Similarly, Yeganeh, Beidel, Turner, Pina, and Silverman (2003) compared 23 children with selective mutism to 23 children with social phobia. All children with selective mutism met diagnostic criteria for social phobia. In addition, no significant differences were found between the groups
regarding trait anxiety, general fears, or internalizing behavior problems. Furthermore, clinician and observer ratings indicated that children with selective mutism had higher ratings of social distress than children with social phobia. Yeganeh, Beidel, and Turner (2006) obtained similar results regarding 21 children with selective mutism, 21 children with social phobia, and 21 controls. Clinicians gave higher severity ratings of social phobia to the children with selective mutism than children with social phobia. However, children with selective mutism did not report higher levels of social distress. These findings are consistent with two previous studies (Manassis et al., 2003; Yeganeh et al., 2003) and suggest that speech avoidance may decrease social distress in children with selective mutism. Furthermore, both clinical groups scored significantly higher on self-report measures of anxiety than the control group, suggesting that children with social phobia and selective mutism experience comparable amounts of social anxiety.

Melfsen, Walitza, and Warnke (2006) examined social anxiety in different mental disorders such as separation anxiety disorder, selective mutism, depression, agoraphobia, and Asperger's syndrome. Significant social anxiety was found only in the selective mutism and Asperger's groups. Furthermore, Cunningham and colleagues (2004) compared 52 children with selective mutism to 52 control children. Children with selective mutism were more anxious, obsessive, and prone to somatic complaints than controls. These results indicated that selective mutism is fundamentally characterized by anxiety and internalizing symptoms.

**Comorbid Developmental Disorders**

Developmental disorders and delays are also highly comorbid with selective mutism. Language disorders and delays occur in 30-65% of reported cases of selective mutism.
mutism, while motor disorders and delays have been reported in 18-65% (Kristensen, 2000). Difficulty with articulation and delayed speech are frequently reported language disorders among children with selective mutism (Andersson & Thomsen, 1998; Kolvin & Fundudis, 1981; Kristensen, 1997; Kristensen & Oerbeck, 2006; Wilkins, 1985). The prevalence of communication disorders in children with selective mutism has been reported at 10-50% (Black & Uhde, 1995; Ford et al., 1998; Kristensen, 2002).

Kristensen (2000) illustrated the comorbidity of developmental disorders and delays by examining 54 cases of selective mutism for comorbid symptomatology. Most children with selective mutism (68.5%) met diagnostic criteria for a developmental disorder or delay and 46.3% of children met criteria for a developmental disorder/delay and an anxiety disorder. Kristensen (1997) concluded that selective mutism may be associated with developmental delays and these delays are likely to underlie the symptomatology of selective mutism. Furthermore, Kristensen and Oerbeck (2006) compared the auditory-verbal memory span of 32 youth with selective mutism to 62 controls. Children with selective mutism had reduced auditory-verbal memory spans, supporting the association between selective mutism and impairments in speech and language processing. However, systematic studies that include a more comprehensive neuropsychological assessment remain needed.

An association has also been posited between selective mutism and Asperger’s syndrome. Researchers have argued that selective mutism is an association of Asperger’s syndrome (Kristensen, 2000). Kopp and Gillberg (1997) and Andersson and Thomsen (1998) reported numerous cases of children with selective mutism who met diagnostic criteria for Asperger’s syndrome. To explain how selective mutism and Asperger’s
syndrome co-occurred in previous studies, Kopp and Gillberg (1997) proposed that selective mutism may be a less severe variant of, or familially associated with, autistic spectrum disorder.

While the association between autism and selective mutism is not strong, some case studies have revealed selective mutism in children with autistic spectrum disorder, autism, and/or mental retardation (Klin & Volkmar, 1993; Kristensen, 1997; Kristensen, 2000; Matson, Box, & Francis, 1992; Russell, Raj, & John, 1998; Silveira, Jainer, & Bates, 2004; Simons et al., 1997). Despite the distinction of displaying normal speech in at least one situation, children with autism or autistic spectrum disorder and mental retardation may experience similar difficulties as children with selective mutism, such as difficulty generalizing speech. Children with autistic spectrum disorder have difficulty generalizing newly learned material such as speech to other situations, people, and stimuli (Matson et al., 1992).

**Associated Personality Disorders**

Researchers have further hypothesized a relationship between selective mutism and schizoid personality because schizoid children are shy and socially withdrawn. Schizoid personality is associated with preference for being alone or nonsociability. Jainer and colleagues (2002) discussed a 22-year-old female who remained mute for 20 years without full remission. The authors attributed the protracted course of mutism to schizoid and avoidant personality traits and pathological shyness. Kristensen and Torgersen (2001) further proposed a link between selective mutism, Asperger's syndrome, and schizoid children. Schopler, Mesibov, and Kunce (1998) found selective
mutism to be present among a sample of schizoid children. However, concrete conclusions are not available regarding this association.

Associated Problems of Children with Selective Mutism

Fewer connections have been made between selective mutism and childhood schizophrenia. Eldar, Bleich, Apter, and Tyano (1985) presented the only known case in which a child’s selective mutism developed into schizophrenia. The authors suggested that this coexistence of symptoms indicated selective mutism to be an “atypical antecedent of schizophrenia.” Furthermore, biological factors of selective mutism presented by Kolvin and Fundudis (1981) resemble neurological antecedents of schizophrenia (Eldar et al., 1985).

Selective mutism has also been associated with trauma and may be an antecedent of dissociative identity disorder. Jacobson (1995) presented the case of a 15-year-old boy with selective mutism who had been abused and maltreated during infancy and childhood. Jacobson posited that the adolescent developed multiple identities to adapt to traumatic life events. In this extremely rare case, the boy had witnessed murders when he was a child and was told to keep silent. The boy repressed memories of the events and refused to talk to others for fear of revealing the secret. The author argued that selective mutism might be a manifestation of dissociative identity disorder in cases of severe trauma or abuse. In this case, the identities were believed to be the cause of mutism for they “forbade him to talk” (Jacobson, 1995). In addition, Szabo (1996) presented a 5-year-old girl who developed selective mutism a few weeks after her mother was murdered. She did not develop multiple identities but the author stressed that mutism was an outlet for her to nonverbally express her distress, anger, and uncertainty.
Recently, an association has been made between selective mutism and Fragile X syndrome. Hagerman, Hills, Scharfenaker, and Lewis (1999) presented a 12-year-old girl with selective mutism with heterozygous full mutation at FMR1. In addition, she had a long history of social anxiety and shyness. Her sister, who also had the FMR1 mutation, remained mute until adolescence. The mutation at FMR1 is the only known gene mutation to be associated with selective mutism. Studies have further illustrated instances of chromosome 18 abnormalities in children with selective mutism and comorbid developmental disabilities. This deletion of the short arm of chromosome 18 has been associated with children with autism and mental retardation as well (Grosso, Cioni, Pucci, Morgese, & Balestri, 1999; Simons, Goode, & Fombonne, 1997).

Externalizing Behavioral Problems

Externalizing characteristics of children with selective mutism are less commonly reported in the literature. Externalizing traits include oppositional, aggressive, negativistic, or hyperactive behaviors (Lesser-Katz, 1986; Paez & Hirsch, 1988; Steinhausen & Juzi, 1996). Paez and Hirsch (1988) associated selective mutism with oppositional defiant disorder. In oppositional defiant disorder, a child overtly expresses negativistic behavior, which is usually focused toward the family. Failure to speak in social situations has been characterized as persistent noncooperation with authority figures, so children with selective mutism may be viewed as defiant (Paez & Hirsch, 1988).

Scarce evidence exists for an association between externalizing disorders and selective mutism. In a systematic study of 50 children with selective mutism, Dummit et al. (1997) found only one instance of comorbid oppositional defiant disorder and
attention deficit hyperactivity disorder. Oppositional defiant disorder was not a common diagnosis among 30 children with selective mutism evaluated by Black and Uhde (1995). In fact, only three children received this diagnosis and oppositional behaviors were not a primary concern for parents. Of the 15 children with selective mutism assessed by Vecchio and Kearney (2005), only one child met diagnostic criteria for attention deficit hyperactivity disorder. No instance of oppositional defiant disorder was found among children with selective mutism. Furthermore, Andersson and Thomsen (1998) found no difference with respect to oppositional defiant disorder among 37 cases of selective mutism and 37 cases of emotional/anxiety disorders.

Kristensen (2001) found externalizing problems in children with selective mutism in low to moderate degrees and most often outside the school setting. For instance, children with selective mutism may be shy and clingy away from home but demanding and stubborn at home (Hultquist, 1995). Steinhausen and Juzi (1996) reported little evidence in parent ratings to support the notion that aggression and delinquent behaviors contribute to a child's mutism. Furthermore, Vecchio and Kearney (2005) found no difference between children with selective mutism and youth with anxiety diagnoses and controls with respect to levels of externalizing behavior problems. In fact, externalizing problems were low among all groups. In addition, Cunningham and colleagues (2004) found that children with selective mutism were less oppositional and displayed fewer attentional difficulties at school than controls.

On the other hand, Kolvin and Fundudis (1981) found a higher rate of behavioral problems, enuresis, and encopresis in children with selective mutism than children with speech retardation. Children in this study had excessive speech abnormalities and
displayed immature development. Wright (1994) reported that two preschool children treated for selective mutism demonstrated oppositional behaviors. However, these oppositional and controlling behaviors most often occurred when the child was experiencing substantial stress. Yeganeh and colleagues (2006) found that 29% (6) of children with selective mutism met diagnostic criteria for oppositional defiant disorder based on combined parent/child Anxiety Disorders Interview Schedule ratings. However, parent reports did not reveal group differences in oppositionality. In fact, mean scores for all groups were within normal range. The discrepancy between clinician and parent ratings in the selective mutism group may suggest that parents of children with selective mutism do not view their children as oppositional. Furthermore, oppositional behaviors do not appear to be present in most children with selective mutism. Nonetheless, externalizing behavior problems may affect the clinical presentation in some of these children (Yeganeh et al., 2006).

Other reported externalizing symptoms of children with selective mutism include temper tantrums, articulation difficulties, delayed speech acquisition, tics, and eating, elimination, and sleep disorders (Andersson & Thomsen, 1998; Dummit et al., 1997; Hooper & Linz, 1992; Kolvin & Fundudis, 1981; Krohn, Weckstein, & Wright, 1992; Steinhausen & Juzi, 1996; Wilkins, 1985). Some children with selective mutism may also display school refusal behavior. Jehman (2002) presented the case of an 8-year-old girl with selective mutism and comorbid separation anxiety and social anxiety disorder. Her social anxiety and selective mutism were particularly problematic outside the home environment, creating difficulties for school attendance. The child was often late and
frequently missed school. Furthermore, when she was at school she isolated herself from other students and made several telephone calls to her mother throughout the day.

Selective mutism has also been associated with selective inactivity. Children who are selectively inactive display non-responding in certain situations. Hill and Scull (1985) presented the case of a 9-year-old boy with selective mutism who displayed inappropriate verbal and nonverbal behavior. The child remained still when asked to perform various behaviors such as walking, playing sports, or coloring despite the ability to complete them. Likewise, he would not emit behaviors such as riding a bike, running, drawing or using eating utensils if attention was focused on him. On the opposite side of this selective inactivity, selective mutism has been associated with stranger anxiety. Shreeve (1991) described the case of a 4-year-old girl who displayed sudden stillness when exposed to strangers. In this example, selective mutism was seen as a “freezing” response to reduce the child’s anxiety to fearful stimuli. In general, children with selective mutism react to new physical and social settings similarly to others in extreme danger. Freezing or immobility is thus seen as a defense mechanism (Lesser-Katz, 1986). Shreeve proposed that a child’s selective inattention to discomforting objects such as strangers or novel settings allowed a child to cope with unwanted aspects of his environment (Shreeve, 1991).

**Summary of Comorbid Diagnoses in Children with Selective Mutism**

Although the DSM-IV-TR (APA, 2000) definition of selective mutism specifically excludes mute behavior that only occurs during a pervasive developmental disorder, schizophrenia, or other psychotic disorder, selective mutism can coexist with one of these disorders. Children with language, speech, or communication disorders,
pervasive developmental disorder, mental retardation, or psychoses will generally display impaired speech in all situations, unlike children with selective mutism who manifest impaired speech in select situations (Black, 1996). However, children with one of the aforementioned disorders may sometimes manifest more restricted speech at school or with non-familiar individuals than at home, as illustrated in the cases presented above (Andersson & Thomsen, 1998; Klin & Volkmar, 1993; Kopp & Gillberg, 1997; Kristensen, 1997; 2000; Matson et al., 1992; Simons et al., 1997).

Familial Characteristics of Children with Selective Mutism

Hadley (1994) summarized parental characteristics from early literature (1953-1979) on selective mutism. Mothers were generally described as resentful and dominant, whereas fathers were characterized as emotionally distant, quiet and silent at home, overly work-oriented, manipulative, tense, and anxious. Parents in general were described as passive but intolerant of their child’s failure to speak at school.

From recent literature, characteristics most commonly reported in family members of children with selective mutism include shyness, depression, anxiety, social phobia, and social isolation. Family members have also been described as closed and disharmonious (Andersson & Thomsen, 1998; Anstendig, 1999; Black & Uhde, 1992; Kristensen & Torgersen, 2001; Schvarztman et al., 1990; Sluzki, 1983). Andersson and Thomsen (1998) illustrated shyness in families of children with selective mutism. In 59% of cases, parents self-reported shyness and difficulty speaking in social situations. Furthermore, Kristensen and Torgersen’s (2001) comparison of children with selective mutism with and without comorbid communication disorders indicated a greater parental
history of excessive shyness and social anxiety in children with selective mutism.

History of social anxiety or shyness was reported in 21% of mothers and 17% of fathers of children with selective mutism. These results suggest that shyness and social anxiety are a familial experience.

**Familial Psychopathology of Children with Selective Mutism**

Several studies reveal the presence of psychopathology in families of children with selective mutism. Andersson and Thomsen (1998) found familial psychopathology in 35% of cases of selective mutism, with depression being the most frequent. History of another family member diagnosed with selective mutism was reported in three families (Andersson & Thomsen, 1998). Black and Uhde (1995) obtained a first-degree family history of selective mutism and social phobia from parents of 30 children with selective mutism. Family history of social anxiety disorder and selective mutism was common in their sample. A first-degree family history of social phobia was present in 70% of families and a history of selective mutism was present in 37% of first-degree family members. A parental history of selective mutism was reported in 15% of cases and 22% of children had a sibling history of selective mutism. Kristensen and Torgersen (2001) reported similar findings. Results indicated a maternal history of selective mutism in 9.3% of cases.

**Familial Personality Traits of Children with Selective Mutism**

Kristensen and Torgersen (2001) further assessed parental personality traits via the Millon Clinical Multiaxial Inventory-II. Mothers of children with selective mutism scored significantly higher on avoidant and schizoid scales than mothers of control children. Similarly, fathers of children with selective mutism scored significantly higher
on anxiety scales than fathers of control children. Avoidant personality disorder is the most frequent personality disorder associated with social phobia (Rettew, 2000). Rettew (2000) suggested that shyness, generalized social phobia, and avoidant personality disorder may exist along a continuum. Furthermore, evidence exists that some form of shyness, avoidant personality disorder, and selective mutism is within a social anxiety disorder spectrum (Schneier et al., 2002). Symptoms of adult avoidant personality disorder and social phobia correspond with symptoms of selective mutism such as avoidance of conversations and escape. These results further indicated social anxiety and selective mutism to be a family phenomenon.

Kolvin and Fundudis (1981) also discovered major personality disorders, psychiatric problems such as severe neurosis and depression, serious marital disharmony, or a combination of these in 58% of parents of children with selective mutism. Problems in social relationships were most common (33%) and often involved parental aggression or shyness. Furthermore, at least one parent in 42% of the families had a personality the authors described as “markedly unusual.” These findings may suggest an excess of psychiatric disturbances in families of children with selective mutism (Kolvin & Fundudis, 1981).

*Family Dynamics of Children with Selective Mutism*

children with selective mutism and their mothers were mutually dependent. They also reported that children with selective mutism often have difficulty separating from parents. Wilkins (1985) described mothers of children with selective mutism as overprotective and overindulgent.

An association has also been made between marital discord and selective mutism. Families have typically been characterized by strong tensions, distrust, unhappiness, and marital disharmony (Cline & Baldwin, 2001). Some have proposed that a child remains silent to punish a family or maintain family secrets (Krysanski, 2003). Another belief, based on a family systems perspective, is that parental quarrels or violence lead to a child’s mutism (Wilkins, 1985). However, more evidence is needed to support a causal relationship between familial discord and selective mutism (Wilkins, 1985). Consistent with Goll’s etiological theory of the socially isolated “ghetto family,” Andersson and Thomsen (1998) found parental distrust of the social system in 37% of cases of selective mutism. Other familial patterns cited in the literature on selective mutism include frequent silence in the household, poor communication, and bilingualism. For example, if a child with selective mutism speaks Spanish at home, she may betray her mother’s preference for the child to speak English (Sluzki, 1983).

On the other hand, Cunningham and colleagues (2004) did not find group differences in family structure, economic resources, family functioning, maternal mood difficulties, recreational activities, or social networks. Furthermore, Yeganeh and colleagues (2006) did not find differences in family dynamics of children with selective mutism compared to controls. Vecchio and Kearney (2005) obtained similar findings. In fact, children with selective mutism were largely in the normative range for most
subscales of the Family Environment Scale. However, this study did not address parental personality traits, parental psychopathology, or family history of selective mutism or anxiety. Many parents anecdotally reported a family history of selective mutism or anxiety, but this information was not measured in a standardized way.

**Summary of Familial Characteristics of Children with Selective Mutism**

Families of children with selective mutism have been characterized as shy, socially isolated, and fearful. These characterizations are quite similar to families of children with anxiety disorders. Furthermore, the prevalence of social phobia and avoidant personality disorder in parents suggest that social anxiety and selective mutism are transmitted via genetic or familial factors (Kristensen & Torgersen, 2001). Many familial characteristics, such as psychopathology, mistrust, and enmeshment, have been proposed as an explanation for a child’s unusual behavior. However, the etiology of selective mutism is not known.

**Differential Diagnosis of Selective Mutism**

Differential diagnosis of selective mutism is complicated due to broad DSM-IV criteria for this disorder and its listing under “other disorders of infancy, childhood, or adolescence.” The current classification implies an uncertainty about the nature of selective mutism and fails to emphasize growing consensus that selective mutism is more closely related to anxiety disorders than to a heterogeneous set of disorders (Vecchio & Kearney, 2005). Thus, some researchers believe that selective mutism is a specific developmental delay, a symptom of a more severe psychiatric disorder, or an oppositional behavior (Anstendig, 1998). The issue is further complicated because many disorders
can present themselves in a similar way and many disorders can coexist with selective mutism (Wright, Cuccaro, Leonhardt, Kendall, & Anderson, 1995). Clinicians must be aware of this and use the presence or absence of associated symptoms to rule out problems such as speech and language disorders, medical conditions, and psychoses as the cause of a child’s mutism (Krolian, 1988; Weckstein, Krohn, & Wright, 1998).

Associations have been made between selective mutism and family dynamics, traumatic events, and genetics. These associations are consistent with different proposed etiologies for selective mutism, none of which have been substantially accepted as a known cause. The associations between selective mutism and developmental disabilities, mental retardation, schizophrenia, personality disorders, dissociative identity disorder, and oppositional defiant disorder have all been presented. However, at this point, they are only associations. Evidence that selective mutism is an antecedent of these disorders does not exist. However, a growing consensus in the field is that selective mutism is an internalizing disorder and one closely related to social phobia and other anxiety disorders. In the following section, proposed theories to provide an understanding of this unique disorder are reviewed.

Theories of Selective Mutism

Many theories have been proposed to explain mute behavior in children, though none are well-supported empirically (Hadley, 1994; March et al., 1995). In the early literature, hereditary, psychiatric, social, and medical explanations were given for a child’s mute behavior. More recently, psychodynamic, learning/behavioral, and developmental theories to explain mutism have predominated. Common psychodynamic
theories of mutism include a response to a traumatic event such as abuse or death of a loved one, a manifestation of family dynamics, regressions to an earlier stage of development, and a change in environment such as immigration or frequent moves (Beck & Hubbard, 1987; Dow et al., 1995; Hadley, 1994; Krysanski, 2003). Behavioral theories include desire to control the surrounding environment, to obtain attention, or to reduce anxiety (Hadley, 1994). The possibility also exists that a genetic predisposition or biological factors such as a predisposition for anxiety contribute to a child’s mute behavior (Kumpulainen, 2002). However, the etiology of selective mutism cannot be explained by any one theory and is most likely multifactorial (Hooper & Linz; 1992; Kumpulainen, 2002).

_Psychodynamic Theories_

Psychodynamic theorists view selective mutism as a manifestation of unresolved conflict (Krysanski, 2003). Psychodynamic explanations of mutism are diverse and state that a child is mute to punish a family member, that a child is orally or anally fixated, that a child is regressing to earlier stages of development, that a child is maintaining family secrets, or that a child is maintaining some form of balance in the family system (Beck & Hubbard, 1987; Giddan, Ross, Sechler, & Becker, 1997). Another belief is that mutism is a reaction to trauma such as loss of a loved one or separation from mother (Hesselman, 1983). The most common traumatic event thought to trigger selective mutism is the first day of school. Psychodynamic theorists view school entry as “the first major move out of the family system,” which creates separation and abandonment issues for the child. According to psychodynamic theories, selective mutism is a way for children to cope with anger or anxiety or to punish parents (Krysanski, 2003).
Very little evidence exists, beyond case reports, to support the theory that psychological or physical trauma or acute losses cause a child to develop selective mutism (Black & Uhde, 1995). Furthermore, traumatic experiences and bereavement do not seem to be ordinary factors in the etiology of selective mutism (Black, 1995a). In fact, Black (1995a) asserted that it is unwise and potentially dangerous to assume that a child with selective mutism has been traumatized unless evidence clearly suggests this to be the case.

The most prominent psychodynamic explanations for mutism involve family dynamics and familial characteristics. To cope with his family environment, a child may develop mutism as a defense mechanism against anxiety-arousing stressors (Oppawsky, 1999). In general, families of children with selective mutism have been described as socially isolated, closed, and disharmonious with an absent or "distant" father (Shvarztman et al., 1990; Sluzki, 1983). Families have also been characterized as poor, uneducated, of low socioeconomic status, and immigrant, with fear and distrust of society. This distrust leads families to isolate themselves from members outside of the family (Hadley, 1994). The child with selective mutism models family mistrust and inhibition with strangers (Goll, 1979). Parental shyness and reservation, familial histories of not speaking, intense attachments such as overprotectiveness, and disturbed mother-child relationships such as enmeshed attachment have been linked to children with selective mutism (Andersson & Thomsen, 1998; Kolvin & Fundudis, 1981; Meyers 1984; Steinhausen & Adamek, 1997; Subak, West, & Carlin, 1982). Marital discord, mothers' marital dissatisfaction, absence of a father in the home, and divorce have also been linked
to the development of selective mutism (Krolian, 1988). For example, a child whose parents have recently divorced may become fearful, anxious, and distrustful of others.

Furthermore, some view a child's silence as neurotic, originating from elements of family psychopathology such as dependency, separation anxiety, and pathological shyness (Subak et al., 1982; Wright, 1992). Studies have indicated a significant prevalence of social anxiety disorder, avoidant personality disorder, and other familial psychopathology such as severe neurosis and depression in families of children with selective mutism (Andersson & Thomsen, 1998; Black & Uhde, 1995; Kolvin & Fundudis, 1981). Parental personality disorders have been further hypothesized to contribute to, if not cause, mute behavior (Kolvin & Fundudis; 1981; Kristensen & Torgersen, 2001; Steinhausen & Adamek, 1997). These results suggest that selective mutism originates from familial psychopathology.

A related theory associated with selective mutism is fear of revealing family secrets, so a child does not speak to anyone outside of the family to ensure privacy (Hesselman, 1983; Less-Katz, 1986). In many cases, family members express exaggerated concerns of saying the wrong thing or revealing secrets (Hadley, 1994). In other families, explicit rules of silence exist in which a child is taught “whatever is not mentioned does not exist.” A classic case is when an injunction is placed on children not to tell anyone about their parents’ lifestyle. In fear of violating this injunction, the child develops selective mutism. An example of a child sworn to secrecy is the case of a 9-year-old girl who stopped speaking at school after her mother and stepmother imposed a “vow of secrecy” not to reveal their homosexual relationship. Once the injunction was removed, the mutism ceased (Baptiste, 1995). This injunction has also been illustrated in
bilingual families and in families where domestic violence occurs (Lesser-Katz, 1986; Sluzki, 1983).

Language polarity in the family may lead to a bilingual child’s mutism. In this case, a child may avoid speaking out of fear of offending or betraying family members. For instance, Sluzki (1983) reported the case of a 9-year-old girl with selective mutism whose parents spoke different languages. If the child spoke Spanish, per her mother’s preference, she betrayed her father’s injunction. However, if the girl spoke English, she betrayed allegiance to her stepfather. A symptomatic solution is perhaps the only way out of this “no win” situation. The child’s mutism developed to avoid selecting a language and offending either parent (Sluzki, 1983).

Developmental Theories

A majority of familial theories do not adequately explain why a child’s mute behavior occurs outside the home versus in the home. On the other hand, developmental theories exist to explain why a child develops selective mutism and why it occurs in particular situations. Developmental theorists take an ecological perspective and consider what contributions the child, family, and community have in the development of mutism (Cline & Baldwin, 2001). Thus, selective mutism may develop via disposing, precipitating, and maintaining factors. Disposing factors include isolation from the community, family tradition of shyness, and family encouragement of mute behavior or factors within a child that encourage mutism as a reaction to challenge. Stressful challenges or transitions in the community may predispose a child to react by withholding speech. Finally, mutism is maintained through reactions from adults, peers,
and family members, secondary gains or reinforcement, and reductions in anxiety experienced by the child (Cline & Baldwin, 2001).

**Behavioral Theories**

Learning theorists believe that selective mutism is a learned pattern of behavior. Researchers propose that mutism is learned and maintained by social reinforcement from others. Specifically, when a parent stops placing demands on a child to speak, mutism is negatively reinforced (Hooper & Linz, 1992; Leonard & Topol, 1993; Porjes, 1992). Others believe that children learn the behavior through social modeling of anxious and shy family members, which is consistent with increased incidence of siblings with selective mutism (Cunningham, Caataldo, Mallion, & Keys, 1983; Hooper & Linz, 1992) and theories that emphasize shared familial experience of anxiety and mutism. Behavioral researchers hypothesize that selective mutism serves two distinct functions (Anstending, 1998; Powell & Dalley, 1995). For instance, some children use mutism to control and manipulate their environments (attention-seeking), while others remain mute to reduce anxiety (Lesser-Katz, 1986). Moldan (2005) presented the case of a 6-year-old girl to illustrate how selective mutism helps self-regulate affect and behavior.

**Biological Theories**

Research examining familial characteristics of children with selective mutism suggests a biological basis (Kolvin & Fundudis; 1981; Kristensen & Torgersen, 2001; Steinhausen & Adamek, 1997). Steinhausen and Adamek (1997), in an extended family history study of children with selective mutism, provided preliminary evidence that genetics contribute to the etiology of selective mutism. For example, children with selective mutism may have a genetic predisposition for anxiety, certain personality traits
such as excessive shyness, or temperamental characteristics such as withdrawn/inhibited (Kolvin & Fundudis, 1981; Kumpulainen, 2002).

Although very little systematic research exists, selective mutism has been commonly reported among siblings and twins, demonstrating the biological nature of this disorder (Gray et al., 2002; Segal, 2003; Sharkey & McNicholas, 2006). Four case studies of female monozygotic twins with selective mutism have been reported in the literature (McNicholas, 2006; Segal, 2003) and Gray and colleagues (2002) presented the cases of two sets of dizygotic twins with selective mutism. In addition, several studies on selective mutism have included twins. For example, Dummit and colleagues (1997) identified 3 pairs of monozygotic twins with selective mutism that represented 12% of the children in their study. Schwartz, Freedy, and Sheridan (2006) identified 3 sets of twins and an additional 3 sets of singleton siblings with selective mutism among 27 parents of children with selective mutism. Furthermore, Ford and colleagues (1998) surveyed parent members of the Selective Mutism Foundation and found 15 twins among 153 respondents. These findings suggest that twins may be overrepresented among children with selective mutism (Gray et al., 2002; Segal, 2003). The high degree of twin concordance also suggests a strong genetic influence in the development of this disorder. However, environmental factors such as twin interactions and family environment may also contribute to the high rate of selective mutism in twins (Segal, 2003; Sharkey & McNicholas, 2006).

From a neuropsychological perspective, children with selective mutism and developmental delays may represent a generalized profile of neuropsychological deficits. Children with selective mutism and substantial anxiety might have overactive behavioral
inhibition systems due to disruption in the prefrontal cortex and septohippocampal systems within the central nervous system (Gray et al., 2002). Neuropsychological data from 2 sets of twins assessed by Gray and colleagues (2002) illustrated two factors thought to be closely linked to the etiology of selective mutism. The first set of twins displayed articulation difficulties, expressive language deficits, and severe anxiety, but had a pattern of generally intact neuropsychological functioning. The neuropsychological functioning of the second set of twins was more representative of developmental immaturity. The authors concluded that developmental delays and anxiety may be two factors in the etiology of selective mutism. Dow and colleagues (1995) further proposed that selective mutism may be associated with neuropsychological delays in processing social cues. However, systematic neuropsychological or neurophysiological studies have not been conducted with children with selective mutism, so this theory remains speculative (Gray et al., 2002).

Selective mutism has recently been associated with reduced auditory efferent activity. Bar-Haim, Henkin, Ari-Even-Roth, Tetin-Schneider, Hildesheimer, and Muchnik (2004) compared the auditory processing of 16 children with selective mutism to 16 control children. Results indicated that 75% of the children with selective mutism had reduced auditory efferent activity. The authors purported that this deficiency may hinder children's ability to process incoming sounds while producing speech. Children with selective mutism may begin to whisper, restrict their speech, or remain silent in situations that require close monitoring or complex auditory processing of incoming auditory stimuli (Haim et al., 2004). Haim and colleagues (2004) further proposed that
reduced auditory efferent, combined with a shy, socially anxious and inhibited temperament, may lead to the development of selective mutism.

Summary of Theories

Empirical evidence to support any one theory as the cause of selective mutism does not exist. The etiology of selective mutism is most likely multifactorial, consisting of a combination of genetic and environmental factors (Gray et al., 2002; Steinhausen & Juzi, 1996). Studies have illustrated how some children with selective mutism may have a genetic predisposition for certain inherited personality features such as excessive shyness, temperamental characteristics such as withdrawn/inhibited, or anxiety that may contribute to the development of selective mutism (Andersson & Thomsen, 1998; Black & Uhde, 1995; Kolvin & Fundudis, 1981; Kristensen & Torgersen, 2001; Kumpulainen, 2002; Steinhausen & Adamek, 1997; Steinhausen & Juzi, 1996). Furthermore, environmental factors such as family dynamics, modeling and reinforcement, psychological or physical trauma, and language differences may be associated with the cause of this disorder (Grosso et al., 1999; Hooper & Linz, 1992; Leonard & Topol, 1993; Porjes, 1992; Shvarztman et al., 1990; Sluzki, 1983). Dummit and colleagues (1997) purported that selective mutism may represent the extreme end of a continuum of temperamental characteristics and social behavior with a biological basis.

Integrative Theory

Within a vulnerability model, various stressors contribute to the development of selective mutism. Stressors include immigration, signs of behavioral abnormalities during infancy and preschool years, stressful life events, and developmental risk factors such as intrauterine exposure to toxins, delivery complications, premature birth, low birth
weight, and speech, language, or motor delays (Beck & Hubbard, 1987; Gray et al., 2002; Hesselman, 1983; Kristensen, 1997; Kristensen, 2002; Steinhausen & Juzi, 1996). Kristensen (2000) proposed that selective mutism should be viewed as a symptom of anxiety reflecting different vulnerabilities. For instance, neurodevelopmental immaturity may make some children with selective mutism more vulnerable to negative events. As a result, these children tend to overreact with anxiety and withdrawal when approached by new situations (Kristensen, 2000). Sharon, Price, and Stein (2006) proposed that selective mutism develops from complex interactions among various genetic, environmental, developmental, temperamental, psychological, and social systems. A hypothetical pathway in the development of selective mutism may begin when a child’s strong genetic predisposition for anxiety and behaviorally inhibited temperament interacts with an existing communication disorder or unstable home environment. The combination of these factors may lead to a heightened sensitivity to verbal interactions, resulting in selective mutism.

An integrated model for the etiology of selective mutism would thus include general psychological vulnerabilities, generalized biological vulnerabilities, stressors, and various environmental experiences such as family dynamics and modeling of anxiety. A child who has a psychological vulnerability for anxious apprehension, genetically inherits a withdrawn/inhibited temperament style and shy personality, has a history of neuropsychological delays, and experiences a stressful event such as frequent moves may develop selective mutism.

No matter what cause of this disorder, researchers agree that a child’s mutism can be best conceptualized by a careful examination of his case history and the psychosocial
context within which mutism developed (Black, 1996a; Krysanski, 2003). Furthermore, a thorough assessment is needed before a child is diagnosed with selective mutism, for many possible explanations exist for the mute behavior. For example, mutism may result from neuropsychological trauma or may be a symptom of pervasive developmental disorder. A diagnosis of selective mutism can only be made once these conditions have been excluded (APA, 1994). Thus, when assessing a silent child the clinician must be aware of casual factors of mutism (Eisen et al., 1995).

Assessment

Heterogeneity within the selective mutism population necessitates a comprehensive evaluation of speech and language problems, temperament, primary symptoms, and comorbid disorders (Kristensen & Torgersen, 2002; Steinhausen & Juzi, 1996). Furthermore, the assessment of selective mutism requires the inclusion of multiple sources such as parents and teachers. The assessment should also occur in multiple settings such as home, school, and community (Hultquist, 1995; Krysanski, 2003; McInnes & Manassis, 2005). Assessment of children with selective mutism is particularly important because these children may present with different symptomatology and contributing factors. Each case needs to be systematically assessed so treatment plans can be individually tailored for a child (Dow et al., 1995; Schill, Kratochwill, & Gardner, 1996). Unfortunately, little has been published regarding the specific assessment of selective mutism.
Overall Assessment Approach

The traditional psychoeducational assessment process that evaluates cognitive, emotional, and behavioral factors may be complicated with children with selective mutism due to their lack of expressive language. However, these approaches may be necessary to rule out speech and language disorders or other diagnoses (Hultquist, 1995). Dow and colleagues (1995) suggested that a thorough evaluation of children with suspected selective mutism should assess neurological, psychiatric, audiological, social, academic, cognitive, and speech and language concerns. Comprehensive assessments of selective mutism would include separate clinical interviews with parents and children, various checklists such as the Classroom Communication Checklist or Environmental Language Inventory to assess speech and language ability, physical examinations to rule out biological or neurological causes for mutism, auditory testing to ensure audiological impairments are not contributing to mutism, standardized psychological testing to assess a child’s cognitive abilities, and formal speech and language evaluation (Dow et al., 1995; Krysanski, 2003). Standardized assessment techniques specifically used to identify selective mutism have not been developed. However, structured interviews such as the Anxiety Disorders Interview Schedule for Children for DSM-IV and the Diagnostic Interview Schedule for Children have separate sections for assessing selective mutism (Hooper & Linz, 1992).

Interviews

Because children with selective mutism may not speak to a clinician, a parental interview can provide an excellent source of useful information. The clinical interview should assess a child’s symptoms and symptom history, speaking patterns, social
interactions, and developmental temperament. The clinician should obtain information regarding onset of neurological problems or atypical speech and language difficulties, duration of symptoms, precipitating factors, where and to whom a child speaks, and degree of involvement in social activities such as verbal and nonverbal cues and participation, social skills, friendships, and telephone usage (Dow et al., 1995; Krysanski, 2003). Furthermore, the child’s medical, audiological, psychiatric, and developmental history should be obtained. The clinician should assess for prenatal and perinatal complications, illnesses, hospitalizations, occurrence of otitis media, previous diagnosis and treatment of psychological disorder, and motor, language, and social development. In addition, a family history of medical problems, psychopathology, learning disorders, and excessive shyness should be obtained. The clinician should especially assess how mutism is perceived by the family and how the family responds to a child’s mute behavior (Dow et al., 1995; Krysanski, 2003; McInnes & Manassis, 2005; Weckstein et al., 1998).

Interviewing a child with selective mutism may be difficult because these children are often uncooperative and nonverbal (Weckstein et al., 1998). However, the child interview is one of the most important components of the assessment process, so clinicians should attempt to obtain information via nonverbal communication such as play or art. Nonverbal interactions will also aid in developing rapport with a child (Weckstein et al., 1998). Further, an interview provides a clinician with the opportunity to observe the nature of a child’s mutism. In addition, the clinician should perform a mental status examination. The interview should assess a child’s symptoms, social interactions, family history, and developmental temperament. The assessment of a child
should also include a physical examination that rules out audiological, neurological, or biological causes (Dow et al., 1995; Krysanski, 2003).

**Behavioral Checklists**

Checklists such as the Personality Inventory for Children, Child Behavior Checklist (CBCL), Teacher’s Report Form, and Conners’ Rating Scale-Revised may be used to identify the presence of comorbid behaviors (Hooper & Linz, 1992; Manassis et al., 2003). The CBCL is of particular advantage in the assessment of children suspected of having selective mutism because various behaviors can be assessed across settings and raters (Hooper & Linz, 1992). In addition to teacher ratings, a clinician should review a child’s academic achievement such as school records and grades. Also, thorough assessments of family functioning should be obtained via self-report inventories such as the Family Environment Scale, the Parenting Stress Index, and the Locke-Wallace Marital Adjustment Test (Hooper & Linz, 1992).

**Child Measures**

Children may be administered standardized rating scales of child psychopathology such as the Revised Children’s Manifest Anxiety Scale, Multidimensional Anxiety Scale for Children, Social Anxiety Scale for Children-Revised, Social Phobia and Anxiety Inventory for Children, and Children’s Depression Inventory. Each of these measures is widely used to assess children with internalizing problems. Several measures of general anxiety and depression can be applied to children with selective mutism, though a child’s compliance and comprehension of these measures must be considered. If a child needs help with reading, questions may be read aloud by an examiner (Kearney & Vecchio, 2006; Manassis et al., 2003).
Standardized Tests

Standardized psychological instruments such as tests of academic achievement and cognitive functioning should also be included in the evaluation of selective mutism. However, children with selective mutism are often initially uncooperative and nonverbal, so formal testing may need to be postponed until later in treatment (Weckstein et al., 1998). Nonetheless, standardized tests are important because children with selective mutism are often difficult to assess academically and tests of intellectual capacity can provide invaluable information about a child’s level of functioning (Dow et al., 1995). An academic assessment of a child with selective mutism should include review of grades, teacher reports, and tests of cognitive ability and achievement such as the Wechsler Intelligence Scale for Children, Wechsler Preschool and Primary Scale of Intelligence, Wide Range Assessment of Memory and Learning, Wide Range Achievement Test-3, and Peabody Individual Achievement Test-Revised. The Performance Scale of the Wechsler scales, Raven’s Colored Progressive Matrices, Test of Nonverbal Intelligence, and Kaufman Assessment Battery for Children are good measures of cognitive abilities of children with selective mutism. These measures do not require children to respond orally (Dow et al., 1995; Hooper & Linz, 1992; Manassis et al., 2003; McInnes, Fung, Manassis, Fiksenbaum, & Tannock, 2004; Weckstein et al., 1998). Standardized testing results, academic records, and parent and teacher comments may be useful in determining whether further evaluation is indicated.

Speech and Language Assessment

A formal evaluation of receptive language, expressive language, and phonology is an essential part of assessing selective mutism. Unfortunately, most children suspected
of having selective mutism have never received a formal speech and language assessment, perhaps due to the misconception that one cannot assess mute children for speech and language functioning (Dow et al., 1995). However, children with selective mutism can be administered several tests of receptive language ability that do not require verbal participation, such as the Lindamood Auditory Conceptualisation Test (LACT), Peabody Picture Vocabulary Test-Revised, and Clinical Evaluation of Language Fundamentals-3. Children with selective mutism can respond to items in the LACT by selecting and manipulating colored blocks that represent sounds and sound patterns in syllables (Manassis et al., 2003; McInnes et al., 2004). The Peabody Picture Vocabulary Test-Revised is useful to screen receptive language difficulties. Tests that assess more complex receptive ability include the Token Test for Children, Test of Auditory Comprehension of Language-Revised, and Test of Language Development. The Utah Test of Language Development and Preschool Language Scale-3 may be administered to less responsive or immature children (Cleator & Hand, 2001; Dow et al., 1995).

Parents may also complete ratings of communicative ability such as the Children’s Communication Checklist to assess for language impairments. This measure covers child’s speech output, syntax, coherence, stereotyped conversation, conversational context, conversational rapport, inappropriate initiation, and social relationships and interests (Manassis et al., 2003; McInnes et al., 2004). Another alternative is to train parents to administer structured receptive language tests such as sentence repetition tasks at home and audiotape or videotape a child’s response for a clinician to review (McInnes & Manassis, 2005). The Strong Narrative Assessment Procedure is a nonstandardized
measure of expressive language that may also be used at home. A child is asked to listen to stories from an audiotape and then retell the story to a parent (McInnes et al., 2004).

In addition, a prerecorded audiotape or videotape of a child speaking freely at home can assess phonological ability, including length of utterances, grammatical construction, tone of voice, complexity and fluency of speech, pronunciation, and abnormalities of rhythm, stress, inflection, pitch, or volume (Dow et al., 1995; Krysanski, 2003). Cleator and Hand (2001) recommended that speech and language assessments be conducted in a child's home by a speech and language therapist. They further suggested that a therapist should enter a child's home as a visitor who remains in the background and does not focus on the child. Initially, the therapist may observe a child's verbal interactions with her family and, once the child relaxes, the therapist may be able to administer standardized tests. These methods are useful in the assessment of selective mutism, but a recognized procedure for conducting a successful and thorough speech and language assessment of children with selective mutism has not been empirically established (Cleator & Hand, 2001).

**Observations**

Naturalistic observations may further facilitate the assessment of selective mutism. Clinicians should directly observe a child in free play, interacting with his family, and in his classroom. Direct observations are particularly useful to assess the extent to which parents, teachers, and peers reinforce nonverbal communication (Cline & Baldwin, 2001; Weckstein et al., 1998). Key target behaviors to observe in children with selective mutism include rates of speech, patterns of speech, and anxiety levels. Direct observation of a child at home and various social settings such as school, clinic, or
playground provide data for comparing rates of speech and anxiety levels across different settings (Dow et al., 1995). Observations in multiple situations are particularly important because the severity of a child’s mutism in the clinic may be an inaccurate indicator of mutism severity in other situations. Furthermore, Black and Uhde (1995) indicated that severity ratings of anxiety significantly correlated with mutism severity. This suggests that severity ratings of anxiety are important factors in determining mutism severity (Black & Uhde, 1995). Observing and recording daily ratings of speech including amount, volume, and settings would further assist the assessment of selective mutism.

Daily ratings of anxiety may be used as well to evaluate how much anxiety a child experiences. A child monitors feelings of anxiety throughout the day and rates how much anxiety she experienced. Obtaining daily ratings of anxiety from parents and teachers allows for a comparison of anxiety severity across observers. In addition, daily ratings of behavior from a parent, child, and teacher may be used to evaluate degree of mutism. Daily ratings of behavior from multiple sources allow for the comparison of speech patterns across situations. A treatment plan should be designed according to a child's speech patterns in various situations. Furthermore, daily ratings allow for clinicians to monitor fluctuations in a child's behavior and indicate whether treatment procedures are progressing effectively (Vecchio & Kearney, 2006).

*Analogue Assessment*

Another means of assessing selective mutism is analogue assessment (Schill et al., 1996). A functional analysis of mute behavior such as speaking patterns provides good understanding of variables maintaining the disorder. Functional analyses can also identify relationships between environmental events and selective mutism (Schill et al.,
Analogue assessments can indicate the function of a child’s behavior and assist in developing treatment plans.

The Anxiety Disorders Interview Schedule for DSM-IV-TR (ADIS) and the Functional Diagnostic Profile are two structured interviews for conducting functional analysis for selective mutism (Schill et al., 1996; Vecchio & Kearney, 2005). Kearney and Vecchio (2006) recommended that the following supplemental questions be addressed during the ADIS: (1) What settings best represent a child’s mutism? (2) How is a child’s mutism manifested in each setting? (3) How long has mutism occurred in each setting? (4) When mutism occurs in each situation, is a child alone or with others? (5) What specific antecedents and circumstances surround each instance of a child’s mutism? (6) Can a child be enticed to speak audibly in these situations in any way? (7) What compensatory behaviors does a child show to communicate with others? and (8) How do significant others respond to a child’s mutism? The Functional Diagnostic Profile assesses various factors such as child characteristics, setting events, and consequences that could contribute to a child’s mutism (Schill et al., 1996). For example, parents are asked if selective mutism is more likely to occur following a specific adult command or during periods of decreased social attention. The Functional Diagnostic Profile also provides information regarding the function of a child’s mutism. A child may fail to speak to decrease anxiety, increase feedback from others, avoid aversive directives, or because her speaking skills are underdeveloped or inefficient (Kearney & Vecchio, 2006; Schill et al., 1996).

While the proposed assessment protocol may have good treatment utility, further research is needed regarding its use with selective mutism. In general, more research and
specific measures are needed to assess and successfully treat children with selective mutism. Improving upon the assessment of selective mutism is especially important because many children spend years in silence before their mutism is recognized as a problem. Such delay may lead to poor long-term prognosis.

Treatment

Literature regarding treatment options for selective mutism include studies that are uncontrolled and lack generalizability (Krysanski, 2003). Although most attempted interventions are similar to treatments for anxiety-based disorders, such as behavior therapy and pharmacotherapy, a consensual "treatment of choice" for selective mutism does not exist. Further, little is known about treatment of persistent selective mutism, except that this disorder is often intractable to treat and that spontaneous recovery is rare (Leonard & Dow, 1995). Despite these uncertainties, however, researchers agree that the prognosis of selective mutism is better for children who receive early intervention. Early intervention reduces rewards such as attention and avoidance of anxiety and related difficulties such as problems with learning and socializing (Hooper et al., 1992; Leonard & Topol, 1993; Schum, 2006; Schwartz et al., 2006). Furthermore, treatment for children mute for years may be difficult because behavior patterns become more practiced and entrenched and harder to change (Schum, 2006). Children with symptoms persisting longer than 6 months should be evaluated and treated. Most would agree that best treatment outcomes for this population result from interventions that involve parents and teachers (Leonard & Topol, 1993).
Many different approaches such as behavioral, family systems, and psychodynamic have been employed to treat this disorder (Dow et al., 1995; Jackson, Allen, Boothe, Nava, & Coates, 2005; Standart & Le Couteur, 2003). Most successful treatment approaches for selective mutism have included behavior therapy techniques such as reinforcement, shaping, prompting, response initiation, stimulus fading, modeling, contingency management, and systematic desensitization. Other interventions for selective mutism include psychodynamic play therapy, group therapy, cognitive therapy, and family therapy. Techniques less commonly discussed in the literature include speech therapy, social skills training, audio/video feedforward and, most recently, psychopharmacological interventions (Giddan et al., 1997; Kehle, Madaus, & Baratta, 1998; Rye & Ullman, 1999). Each of these interventions is discussed next.

Psychodynamic Interventions

According to psychodynamic theory, mutism is a manifestation of intrapsychic conflicts. Thus, the primary goal of psychodynamic treatments for selective mutism is to identify and resolve these conflicts. Before the introduction of behavioral techniques in the treatment of selective mutism, insight-oriented psychodynamic therapy was the intervention of choice for this population. However, few cases studies illustrate psychodynamic treatment of children with selective mutism. Furthermore, researchers are unable to determine, from the results of these studies, whether psychodynamic therapy was itself successful or if a child simply recovered on his own (Krysanski, 2003). Psychodynamic treatments can be time consuming, especially when a child will not speak. Psychodynamic therapy for selective mutism often involves art or play therapy to
expedite treatment (Dow et al., 1995). Play therapy is often used to evaluate the presence of comorbid symptoms and to develop rapport (Jackson et al., 2005).

Many rationales have been provided for using play therapy to treat children with selective mutism. From a theoretical perspective, clinicians believe that intrapsychic conflicts are expressed in a child's play, that the unconscious drive is operational in symptom formation, and that the transformation and interpretation of unconscious content is facilitated through play and language (Vainer & Nemiroff, 1995). A major advantage of this treatment approach is that verbal communication from the child is not necessary. Furthermore, play is a natural situation in which a child is accustomed and feels comfortable. Play therapy does not demand children with selective mutism to speak; instead, social communication is developed through play. In addition, play therapy enhances the social interaction, social perspective, and problem-solving skills of a child with selective mutism (Kaduson et al., 1997). Psychodynamic play therapy should be viewed as direct communication from the child. Therapy needs to be long-term and nonintrusive, for a child with selective mutism must feel comfortable and safe. A therapist should be patient and understand that a child with selective mutism will find the words when she is ready to speak (Lesser-Katz, 1988).

A few studies have illustrated the effectiveness of play therapy for selective mutism. Weininger (1987) reported two case studies in which individual play therapy was successful for 5- and 6-year-old girls with selective mutism. In both cases, play therapy resulted in generalization of speech to the school setting (Weininger, 1987). Valner and Nemiroff (1995) presented the case of a 6-year-old Hispanic girl with selective mutism successfully treated with play therapy. This case stressed the need to
understand a child’s silence in the context of cultural and social realities. The “magical realism” of some Latin American writers has captured the expressive quality of a child’s mental life through metaphors and symbolism. The girl in this case suggested that magical realism is a way of embracing what we are not able to control or understand, and that reality occurs through a series of complex metaphors (Valner & Nemiroff, 1995).

Atlas (1993) further illustrated the intrapsychic significance of symbol use. He presented the case of a 4-year-old girl with selective mutism successfully treated with play therapy. Atlas (1993) and Valner and Nemiroff (1995) suggested that psychodynamic play therapy promotes a child’s use of metaphors and that symbolism may help resolve intrapsychic conflicts.

Play therapy has been shown to be effective when used in group settings as well. Bozigar and Hansen (1984) reported a group intervention that successfully incorporated group play therapy. Play therapy effectively improved the speech and social behavior of children with selective mutism in the classroom (Bozigar & Hansen, 1984). Furthermore, Barlow, Strother, and Landreth (1986) illustrated that sibling group play therapy was successful in generalizing speech to other environments over 2-9 months of treatment. Group or sibling play therapy is perhaps effective in treating selective mutism because a pressure-free environment is created in which a child feels safe to talk (Barlow et al., 1986). Post (2001) reported a case study in which child-centered play therapy and group play therapy were successful for a 10-year-old biracial boy with selective mutism. The author asserted that, through play therapy, the boy felt accepted, safe, and empowered to allow his voice to be heard. Thus, play therapy may alleviate anxiety attached to speaking. Lesser-Katz (1988) further argued that play therapy is perhaps the only option
a therapist has when treating a very young silent child. However, nearly all reports on the use of play therapy with children with selective mutism have been single case studies. Empirical data are needed before assumptions can be made about the efficacy of play therapy with this population.

Psychoanalysis has also been employed in the treatment of selective mutism (Kumpulainen, 2002). Wergeland (1980) indicated that children with selective mutism treated with psychoanalysis improved when a change was made in the environment so the child no longer had to meet expectations of speaking. Wergeland advocated for a change of schools, when possible, as the first step of treatment. However, other researchers have noted instances in which change of school had no effect on mutism (Hultquist, 1995). Yanof (1995) presented a 4½-year-old boy with selective mutism treated with psychoanalysis. His mutism was viewed as embedded in a character structure in which verbal communication and play were disrupted and maintained by unresolved conflicts. Psychoanalytic treatment was used to unravel this structure. Yanof purported that child psychoanalysis is very similar to, and relies on, principles of adult psychoanalysis. However, she distinguished the two by developmental organizational capacities and communication styles. Yanof modified her analytic technique with different ways of communicating with the child. She developed a relationship with the child, analyzed his defenses, and gradually developed a transference paradigm. Yanof concluded that transference was successful because the child's symptoms subsided, his object relations enhanced, his freedom of expression improved, and he developed a different sense of self. However, due to the longevity of this study, determining whether treatment itself or passage of time led to these changes is difficult. Unfortunately, data regarding
psychoanalytic treatment of children with selective mutism is limited. This form of
treatment is believed to be rare as only a few children with selective mutism have been
treated psychodynamically (Krysanski, 2003).

Group Therapy

One consensus in the psychotherapeutic literature for selective mutism is that
individual psychotherapy with the child alone is the least successful of the psychological
interventions (Krolian, 1988). Group interventions have been more effective in treating
selective mutism than individual psychotherapy. For example, play therapy was shown
to be more effective when employed in a group setting (Bozigar & Hansen, 1984).
Group interventions focus on a child’s verbal and nonverbal reactions to the therapist that
are generalized to other situations and people. Group therapy helps reduce a child’s
anxiety and provides him with confidence to speak (Bozigar & Hansen, 1984). Although
the rationale for using group treatment is supported, this mode of therapy has rarely been
utilized due to low prevalence rates of this disorder. Because a therapist is unlikely to
encounter multiple cases of selective mutism, she will not likely have the opportunity to
employ this treatment modality (Bozigar & Hansen, 1984).

Family Therapy

Historically, family dysfunction and psychopathology were viewed as the cause
of one’s mutism, so family therapy was employed to resolve conflicts within the family
(Meyers, 1984). Now that selective mutism is not necessarily perceived as a result of
family dynamics, clinicians mainly involve the family in the implementation and design
of the treatment plan. However, if known problems exist within the family and impact a
child’s symptoms, the psychodynamic family approach may be taken (Dow et al., 1995).
No systematic reports exist on the effectiveness of family therapy as the primary intervention for selective mutism. Hoffman and Laub (1986) argued that combined family and individual therapy is essential to alleviate symptoms of selective mutism because little improvement results from either approach alone. When family therapy has been employed, it has usually been concurrent with individual therapy. Carr and Afnan (1989) reported the case of a child who remained mute in select situations for 4 years. After 18 sessions of individual and family therapy over a 7-month period, the child’s symptoms were successfully alleviated. Powell and Malky (1995) further presented a case in which individual and family therapy were successfully integrated for a 6-year-old girl with selective mutism. After six months of treatment, the child’s speech generalized to the school environment and the girl was speaking before her class. In addition, Lazarus, Gavillo, and Moore (1983) reported on the effective combination of family and individual therapy for a 7-year-old girl with selective mutism. In this case, family therapy focused on clarifying family relations and helping family members develop identities outside the family. These studies suggest that family therapy is successful when employed concurrently with individual therapy. Furthermore, involving the family in therapy can decrease length of treatment (Afnan & Carr, 1989).

Family dynamics have been identified as maintaining a child’s mutism, so treatments have been based on a structured family systems approach (Atoynatan, 1986; Baptiste, 1995; Tatem & DelCampo, 1995). Flurst (1989) presented one of the only known cases in which a family physician successfully treated a child with selective mutism. The doctor interpreted the 5-year-old’s mutism as a family function and adopted a family-oriented approach to treatment. Intervention drew upon methods of family
assessment and family counseling. In this case, the family doctor assumed the role of family therapist and successfully alleviated the girl’s symptoms. The author concluded that family doctors should feel competent in treating children with selective mutism (Flurst, 1989).

Treatment in these cases were based on historical etiologies that selective mutism is caused by family dysfunction where a child either has an enmeshed relationship with the mother or is forced to keep family secrets. Therapy was further based on the notion that a child was electing to be silent due to family dynamics. However, little evidence supports the efficacy of insight-oriented therapy with this population.

Behavioral Interventions

Behavioral techniques, based on principles of learning theory, are the most commonly used interventions to treat selective mutism (Dow et al., 1995). In addition, most successful treatment approaches discussed in the literature involve some form of behavior modification (Hultquist, 1995; Krysanski, 2003). Many argue that behavioral treatment strategies such as reinforcement, stimulus fading, shaping, contingency management, and response initiation are most effective for alleviating symptoms of selective mutism (Cunningham et al., 1983; Sluckin, Foreman, & Herbert, 1991). Additional behavioral techniques that may be employed to treat selective mutism include systematic desensitization, prompting, self-modeling, extinction, and aversion. Furthermore, behavioral techniques represent a strong, empirically-based approach to the treatment of selective mutism (Krysanski, 2003).

The behavioral therapy approach to selective mutism initially focuses on inducing a child to speak. Because mutism is believed to be a learned behavior, techniques such as
positive reinforcement, modeling, and stimulus fading should elicit a response from children with selective mutism. Positive reinforcement and modeling may be employed to shape a child's speech to closer approximations of a desired goal. Behavioral hierarchies may be employed by clinicians to elicit anxiety-provoking situations from a child. Speech is then shaped from the least to most anxiety-provoking situation. Stimulus fading may be used to generalize a child's speech to other settings. In stimulus fading, new individuals are gradually introduced to an environment where speech has already been established, or children and persons spoken to in one setting are gradually moved to another setting where speech is nonexistent. Escape and avoidance procedures may be employed in which children with selective mutism are allowed to "escape" from after school detention, are isolated from activities they enjoy, or are not allowed to go home unless they speak. Response cost techniques such as time-out, in which a child loses opportunities for reinforcement by failing to speak, may also be used. Once a child is speaking in the setting, contingencies for speaking must be maintained (Baldwin & Cline, 1991; Cunningham et al., 1983; Labbe & Williamson, 1984).

Many researchers and clinicians believe that employing any one technique is insufficient for treating selective mutism. Therefore, behavioral interventions most effective in treating selective mutism use a multimethod approach that include one or more of the above-mentioned techniques (Ciottone & Madonna, 1984; Krysanski, 2003; Labbe & Williamson, 1984; Watson & Kramer, 1992). For example, contingency management approaches employ positive reinforcement for verbal behavior and extinction for nonverbal behavior. Because a child with selective mutism may not speak at all in certain settings or to certain people, other techniques such as shaping, modeling,
and stimulus fading need to be combined with contingency management to initiate speech in the targeted environment (Cunningham et al., 1983; Labbe & Williamson, 1984; Richburg & Cobia, 1994).

Richburg and Cobia (1994) presented a 5-year-old girl with selective mutism first treated using stimulus fading. Stimulus fading alone was largely unsuccessful. However, a combination of contingency management and stimulus fading was effective and the child was speaking in social settings, including school, within six months of combined treatment. Lipton (1980) reported that treatment of a 6-year-old girl using contingency management was unsuccessful until a stimulus fading procedure was integrated into treatment. Within ten sessions of combining these treatments, the girl was speaking in school and other social situations (Lipton, 1980). Furthermore, several studies reviewed by Labbe and Williamson (1984) involved a combination of contingency management and stimulus fading.

Lysne (1995) discussed a 14-year-old boy who had been silent outside of home for ten years. Contingency management using reinforcement sampling, response cost, and stimulus fading were not effective until an escape procedure was employed (Lysne, 1995). Aversive or escape procedures are often needed to produce initial verbalization. However, these procedures can be a painful experience for a child with selective mutism because they place pressure on her to speak. Careful consideration and constant monitoring must accompany use of aversion or escape (Hultquist, 1995). Furthermore, aversive and/or escape procedures should neither be used as the primary intervention nor for a very young child (Labbe & Williamson, 1984; Lysne, 1995).
Albert-Stewart (1986) combined contingency management with shaping and self-modeling to produce audible speech for a 13-year-old Mexican-American boy. The boy read into a tape recorder and was rewarded via token economy for volume and clarity of speech. After 11 therapy sessions, he was able to increase volume and clarity of speech in school. Masten, Stacks, Caldwell-Colbert and Jackson (1996) presented an 8-year-old Mexican-American boy treated with combined shaping, positive reinforcement, and stimulus fading. Treatment lasted three years and successfully helped the child speak in certain settings. Unfortunately, the results did not generalize to the classroom (Masten et al., 1996).

Porjes (1992) developed a four-stage intervention plan for selective mutism via contingency management. The four stages included: (1) an ecological analysis, (2) establishment of reinforcement menus, (3) initiation of speech, and (4) generalization of speech across new situations and with new people. Porjes employed this intervention with two first grade students who had been mute since kindergarten commencement. Both children successfully completed all stages of the intervention and speech generalized to peers and teachers at school. However, contingencies were still in place at end of treatment to maintain speech in school (Porjes, 1992). Porjes further emphasized the need for a systemized, coordinated approach for increasing verbal speech of children with selective mutism in school. The need to intervene as soon as selective mutism is recognized was also stressed. This is particularly because chances of obtaining successful treatment outcome increase when a child is younger, just starting school, and has been mute for a short time. The longer a child remains mute in school, the more academic difficulties and problems she is likely to encounter (Porjes, 1992). In addition,
compounding socialization problems can occur after prolonged periods of mute behavior (Austad, Sininger, & Stricklin, 1980).

Contingency management is frequently used to treat selective mutism in the school environment (Lazarus et al., 1983; Lysne, 1995; Porjes, 1992). In this setting, an effective individualized treatment plan could be implemented with the combined efforts of parents, teachers, and clinicians. The goals of this treatment include decreasing a child's anxiety, increasing verbal and nonverbal communication, and increasing social interaction. Dow and colleagues (1995) emphasized that the speech of a child with selective mutism should not be forced. The authors suggested the following for reducing a child's anxiety: (1) the child should remain in a regular classroom unless special needs beyond mutism exist, (2) less emphasis should be placed on verbal performance via the use of nonverbal assessment measures and incorporation of nonverbal classroom activities and games, (3) relationships with peers should be encouraged, and (4) a school-based program should be coordinated with individual and/or family therapy. In addition, small-group situations can be established to increase a child's nonverbal communication and social interaction. If needed, speech and language therapy may be used in school to increase a child's verbal communication by helping him develop better linguistic skills (Dow et al., 1995).

Classroom-based contingency management programs have also been implemented in cases of children with selective mutism (Brown & Doll, 1988; Lazarus et al., 1983). Brown and Doll (1988) reported on a 6-year-old mute girl whose target behavior was to produce audible speech in kindergarten. The treatment program was divided into three phases and included teacher prompts to speak loudly, a token
reinforcement system, and a “talk light” that lit when her speech was loud enough. Initially, the entire class chose a reward from the prize box every time the child spoke to another student. After five weeks, only the girl with selective mutism and the child she spoke to were able to choose a prize. Once this prize distribution changed, the child with selective mutism began to speak to many students on most days. This improvement occurred because a student needed to prompt the girl to speak if she wanted to receive a prize. The talk light alone was not successful in increasing the child’s audible speech. However, the combination of the talk light and reinforcement effectively modified the girl’s speech habits. At the end of the school year, the treatment program was discontinued and the child continued to speak in her resource classroom in an audible voice without the talk light or artificial reward contingencies (Brown & Doll, 1988).

Lazarus and colleagues (1983) discussed treatment for two children with selective mutism within school. The first case illustrated the effectiveness of contingency management techniques combined with shaping and successive approximations in eliciting speech from the child. The second case study successfully combined contingency management with reinforcers, successive approximations, shaping, and family therapy. Follow-up data revealed that the child continued to speak to children in her classroom and to the teacher throughout the school year, and that her speech was progressing in other situations (Lazarus et al., 1983).

Auster, Freeney-Kettler, and Kratochwill (2006) presented a case of selective mutism in which a boy was treated in school using a Conjoint Behavioral Consultation (CBC) model. Within this model, a school therapist serves as a consultant and initiates collaboration between teachers and parents. This approach allows parents, teachers, and
clinicians to collaborate to assess, monitor, and treat a child’s mutism. Therapists trained parents and teachers to implement stimulus fading and contingency management. The boy’s speech increased in school and improvements were generalized across settings. This case illustrates how parents and teachers can effectively collaborate to help children resolve problems. However, this is the only reported case using the CBC model to treat selective mutism. Future research is needed to establish its efficacy for this population (Auster et al., 2006).

Other effective behavioral techniques include use of multiple reinforcers and reinforcement in multiple situations. Austad and colleagues (1980) presented a 7-year-old girl with selective mutism whose speech was maximized with use of multiple reinforcers within a three-week course of intensive therapy. The girl was seen for 90 minutes five days per week for the first two weeks; every other day for 60 minutes during the third week; and once more for 60 minutes (Austad et al., 1980). While this is one of the most rapid cases of successful treatment using multiple reinforcers in the literature, this approach is also the most intensive.

Lachenmeyer and Gibbs (1985) discussed a 4 year-old boy with selective mutism whose speech was rewarded in multiple settings by various people. The authors posited that rewards have multiple functions. Rewards not only motivate a child to speak but have a feedback component that leads to attributions of competence. Rewards across multiple situations encourage a child to evaluate her performance and effectiveness and lead to behavior change (Lachenmeyer & Gibbs, 1985). This behavioral approach was based on principles of social psychology.
Another effective behavioral technique is self-modeling, defined as positive change in behavior and attitude from repeated and spaced viewings of oneself on edited videotapes depicting desired behaviors (Kehle et al., 1998; Kehle, Owen, & Cressy, 1990). Spacing refers to use of spaced presentations of material instead of one single presentation because spacing often results in enhanced learning (cited in Krysanski, 2003). Video feedforward, a variation of video self-modeling in which the observed adaptive behaviors have not previously occurred in that context, is also effective (cited in Krysanski, 2003). For a child with selective mutism, the videotape is edited to portray the image of the child speaking in a social situation in which the child has been mute (Blum et al., 1998). Self-modeling is considered superior to modeling because it provides a child with confidence that he could successfully speak in these social situations (Kehle et al., 1998; Pigott & Gonzales, 1987). Kehle and colleagues (1990) presented a case study in which a child with selective mutism began speaking in all social situations after only five, five-minute treatment sessions. The authors argued that self-modeling is perhaps the most effective short-term treatment for selective mutism because of its relatively inexpensive, non-intrusive, simple, and practical nature (Kehle et al., 1990). However, purchasing the video and editing equipment can be expensive (Krysanski, 2003) and not everyone has access to these devices.

A combination of behavioral techniques is usually preferred over any one technique in isolation. Holmbeck and Lavigne (1992) presented a 6-year-old, Filipino girl with selective mutism treated with self-modeling and stimulus fading. The girl, who had previously been mute in school for 1½ years, began speaking in therapy and in various social situations after 12 treatment sessions. Stimulus fading was replaced with
contingency management to generalize speech to the classroom. By the end of the school year, she was consistently whispering in class and could read from a book during reading group (Holmbeck & Lavigne, 1992).

A variation of videotaped self-modeling is a behavior technique known as audio feedforward. This intervention involves having a child with selective mutism listen to edited audiotapes to depict her speaking in settings in which she has been mute. Blum and colleagues (1998) successfully treated three children with selective mutism using the audio feedforward technique. The child listened to edited audiotapes to depict him answering questions posed by a target person such as a teacher or someone with whom the child did not speak. The children had resisted change from previous behavioral interventions and did not begin speaking until the audio feedforward component was added to treatment. However, because parents continued to offer rewards for speaking, the treatment outcomes could not be solely attributed to the audio feedforward intervention. The authors also reported three cases in which a child had refused to make an audiocassette, suggesting that this technique may not work with oppositional children. Advantages of using this intervention are that audiocassettes are easier to edit and less expensive than video equipment. However, the efficacy of audio feedforward and video feedforward techniques remains unclear (Blum et al., 1998).

Despite the above findings, some still question the extent to which behavioral therapy is effective in the treatment of selective mutism. Louden (1987) argued that chronic cases of mutism are difficult to treat and that no distinct evidence exists for the effectiveness of behavior therapy. The author examined an 8-year-old child who underwent many sessions of behavioral therapy with minimal gains and remained in
control of the situation throughout treatment. Louden argued that simple contingency management procedures are insufficient for selective mutism. As previously mentioned, a combination of contingency management and stimulus fading is often required to generalize speech to other situations. However, stimulus fading is impossible if the child will not speak to anyone in the early stages of treatment. Louden further concluded that systematic desensitization was most effective when treating an anxious child only if his mutism was a fear-reducing mechanism (Louden, 1987).

The argument that selective mutism can only be treated successfully once the mutism is conceptualized as anxiety-based was further supported by Croghan and Craven (1982). In the treatment of an 8-year-old girl with selective mutism, the authors tried several behavioral techniques including modeling, positive reinforcement, avoidance-training, and systematic desensitization. However, therapy was not successful until formulations were made that the anxiety was attached to the act of speaking itself. Once this was established, systematic desensitization addressed the problem directly (Croghan & Craven, 1982).

On the other hand, clinicians who conceptualize selective mutism as an oppositional behavior are most likely to employ the Hawthorn Center approach developed by Wright (1968). This approach is a response initiation technique in which a child is informed that she may not leave the therapy session until she says at least one word to the therapist. Most children usually speak within 1 to 4 hours, and the session should not be ended unless both therapist and child are exhausted. Once the child speaks, she is rewarded and allowed to leave the therapist’s office. Within a month, similar steps are taken to generalize the verbal behavior to other settings such as school (Eisen et al., 69).
In the Hawthorn approach, the child is sent the message that, unlike others in his life, the therapist will not acquiesce to the child’s mutism and that it is necessary for him to speak. Dow and colleagues (1995) posited that forcing speech may produce overwhelming anxiety in a child with selective mutism. However, Krohn and colleagues (1992) reported no detrimental effects from challenging 20 children with selective mutism to speak. In fact, 17 of these children reported excellent results and the remaining three had fair treatment outcomes. However, the study was retrospective and, due to ethical concerns, systematic follow-ups were not conducted (Krohn et al., 1992).

**Other Interventions**

Other interventions less commonly discussed in the literature include speech therapy, social skills training and, most recently, psychopharmacological interventions. Speech therapy has been used in schools in conjunction with behavioral modification techniques as part of a multidisciplinary intervention program. In speech therapy, mutism is viewed as a speech or language problem and the goal of treatment is to rebuild language through a series of speech tasks. Furthermore, speech therapy provides a place for a child with selective mutism to speak in a safe environment (Schmerling & Kerins, 1987). Similar to speech therapy, an adapted language training strategy was used in the treatment of a 7-year-old boy with selective mutism. This program focused on nonverbal attending, verbal imitative responding, and functional language responding to a series of questions posed by the therapist. The intervention was successful in generalizing the child’s language to school and other social environments (Pecukonis & Pecukonis, 1991).
However, the study was a single case and no other studies are available to support this program’s effectiveness.

While research has suggested that some children with language disorders have social skills deficits, social skills training is another intervention rarely discussed in the treatment literature for selective mutism. Although selective mutism is not a language disorder, children who remain mute in school and other social situations lack opportunities to socialize with peers and consequently may not develop appropriate social skills. Rye and Ullman (1999) reported on the successful treatment of a 13-year-old boy who had been mute since kindergarten. The boy’s treatment plan included systematic desensitization, consultation with school personnel, and social skills training. The child made several improvements in speech, but because the study lacked an experimental design, his progress could not be explicitly linked to one of these interventions. Still, the authors purported that therapists may need to teach clients with selective mutism social skills and how to respond to certain peer reactions, especially when the child has been mute for many years (Rye & Ullman, 1999).

Fisak, Oliveros, and Ehrenreich (2006) used a modified version of Social Effectiveness Therapy for Children (SET-C) to successfully treat a 10-year-old Hispanic boy with selective mutism. SET-C is a manualized behavioral treatment for social anxiety for use groups. In this case study, SET-C was modified to an individual therapy format. The primary focus of the intervention is social skills training, but reinforcement, modeling, anxiety hierarchies, and exposures are also employed. In addition, parents are trained in the management of child anxiety (Fisak et al., 2006).
Pharmacotherapy is another option for treating a child’s mutism. However, a survey of child and adolescent psychiatrists indicated that only 14% believe pharmacotherapy to be the most effective treatment for selective mutism. When drug interventions were endorsed, the psychiatrists most often reported that antidepressant drugs with antianxiety effects were the most useful medications for selective mutism (Carlson, Kratochwill, & Johnston, 1994). Furthermore, most available case reports on the pharmacological treatment of selective mutism used selective serotonergic reuptake inhibitors, particularly medications successful in treating social anxiety and other anxiety disorders.

Golwyn and Weinstock (1990) reported improvements in the speech of a girl with selective mutism after six weeks of phenelzine. Golwyn and Selvie (1999) further demonstrated the efficacy of phenelzine for four children with selective mutism. Because of the possibility of serious food and drug interactions, the authors stressed that phenelzine should only be implemented if a child does not respond to behavior modification and other selective serotonergic reuptake inhibitors such as fluoxetine (Golwyn & Selvie, 1999). Fluoxetine has been shown to safely reduce anxiety symptoms associated with selective mutism (Black & Uhde, 1994; Dummit, Klein, Tancer, Asche, & Martin, 1996). In these pilot studies (Black & Uhde, 1994; Dummit et al., 1996), 76% of children treated with fluoxetine displayed increased speech and decreased anxiety in social settings. Dummit and colleagues (1996) reported that treatment gains were greater for younger children. However, results of both studies were limited by small sample size (Black & Uhde, 1994) or an uncontrolled design (Dummit et al., 1996).
A few case reports further provide support for fluoxetine for selective mutism. Stegbauer and Roberts (2002) presented a 5-year-old girl with selective mutism who received fluoxetine as an adjunct to a behavioral management program involving rewards and shaping. The girl slowly made improvements in speech over two years of treatment. After two years, fluoxetine was tapered and then eliminated. At 5-year follow-up, she demonstrated some inhibited behavior but actively participated and verbally communicated in all social settings, including school plays. Guna-Dumitrescu (1996) further discussed an 8-year-old boy with selective mutism successfully treated with multimodal therapy involving fluoxetine. The child was hospitalized for mutism and reported aggressiveness. Two weeks following hospitalization, he began taking fluoxetine. Treatment gains were not seen over the next 4 weeks, so a behavioral plan including shaping and escape procedures was implemented. The child began speaking within three weeks of combined treatment and communication rapidly generalized to other settings. Silveira and colleagues (2004) presented a 6-year-old girl with selective mutism and autistic spectrum disorder treated successfully with fluoxetine. Fluoxetine was gradually introduced after several months of school-based behavioral interventions, such as reinforcement and hierarchies, failed to produce improvements in social behaviors. Eight weeks after initiation of fluoxetine, her parents reported significant improvements. The girl stood in front of class, smiled at people she did not know well, and maintained eye contact. At 12-month follow-up, she spoke in social settings and was interacting with her peers more appropriately (Silveira et al., 2004).

These cases provide support for behavioral management as an adjunct to pharmacotherapy. In addition, Motavalli (1995) presented a 12-year-old girl
successfully treated with fluoxetine alone. The girl had not spoken to anyone except her mother, a few siblings, and two close friends since she was age 4 years. The child was prescribed 20 milligrams of fluoxetine. Within one week, her family reported increased nonverbal communication and decreased withdrawal. Two weeks after initiation of fluoxetine, the girl spoke fluently in social situations and with family members. Fluoxetine treatment was discontinued four weeks later without side effects. At 12-month follow-up, the child continued to speak in social settings, had more friends, and was more comfortable around new or unfamiliar people.

Pharmacotherapy is not always effective in this population. For example, the 22-year-old female with persistent selective mutism presented by Jainer and colleagues (2002) could not tolerate phenelzine or fluoxetine. The authors prescribed 20 milligrams of paroxetine instead. The patient’s social anxiety was reduced within a few weeks of taking paroxetine and she obtained a placement at a technical college following three months of treatment. Within one year, the client was speaking outside of her home. Another type of selective serotonergic reuptake inhibitor, sertraline, was shown to be effective in improving the symptoms of five children with selective mutism. Two of the children’s symptoms were completely absent after 10 weeks of treatment and a third child’s symptoms were absent after 20 weeks. However, the authors urged that selective serotonergic reuptake inhibitors to treat selective mutism should be further investigated. They also stressed that behavior modification should be employed as an adjunct to drug treatment (Carlson et al., 1999). Jehman (2002) presented a successful case of selective mutism in which paroxetine was initiated without a behavioral intervention. The 8-year-old girl was treated with 5 milligrams of paroxetine, which was well-tolerated. Her
mutism was resolved within three weeks of treatment. Following three years of continued paroxetine treatment, the child’s improvements remained.

Fluvoxamine and moclobemide are two other medications used for selective mutism. Lafferty and Constantino (1998) presented the only known case of fluvoxamine treatment for selective mutism in the literature. A 6-year-old girl was prescribed 50 milligrams of the medication daily. Fluvoxamine was increased to 100 milligrams two weeks later because initial treatment effects were not evident. The child’s mutism almost completely resolved two weeks following the increased dosage. At four weeks, the child started displaying hypomanic behavior, so the dosage was reduced and she was given lithium carbonate. Fluvoxamine was gradually tapered at six months due to concerns about manic symptoms and polypharmacy. At 9-month follow-up, the child’s mutism remained in remission (Lafferty & Constantino, 1998).

Moclobemide is a reversible inhibitor of monoamine oxidase type A. The drug was approved in the United Kingdom for depression and social anxiety disorder. The drug raises levels of dopamine, noradrenalin, and serotonin in the brain, creating an antidepressant effect (Maskey, 2001). Maskey presented a 12-year-old girl with chronic selective mutism who had been resistant to previous interventions until moclobemide was added and therapeutic gains were evident within two weeks. The child reported no adverse effects.

Researchers have found selective serotonergic reuptake inhibitors to be safe for children with selective mutism. Recent reports on the use and effectiveness of these antidepressants for selective mutism are promising. However, pharmacotherapy studies are uncontrolled or limited by small sample size (Schum, 2002; Stein, 1999). Only two
double-blind trials document the effectiveness of pharmacotherapy for selective mutism (Silva, Gabbay, Minami, Munoz-Silva, & Alonso, 2005). Furthermore, antidepressants may reduce anxiety associated with selective mutism, but psychotropic drugs are limited in targeting mute behaviors. In most cases, medication alone will not cure selective mutism (Schum, 2002). Furthermore, pharmacotherapy should be employed concurrently with psychotherapy. Some clinicians recommend that treatment begins with behavioral management. Pharmacotherapy may be integrated into the treatment of chronic cases of selective mutism that have not responded well to behavioral interventions (Stein, 1999; Yapko, 1999).

**Treatment for Clients with Disabilities**

A few case studies involving the treatment of children with selective mutism with disabilities have been reported in the literature. Russell, Raj, and John (1998) reported on the treatment of three children with selective mutism and mental retardation who comprehended and expressed spoken language. The children and their families entered into a 12-week residential treatment program. Treatment involved psychologists, special educators, occupational therapists, a speech therapist, and a psychiatrist. The treatment plan was multimodal involving differential reinforcement, speech therapy, and stimulus fading. Clinical improvement was only observed from the eighth week onward and two children were administered fluoxetine in the fourth week because they showed no improvement. However, improvements were gradual and sustained throughout the 12 weeks of treatment.

Zondlo and Scanlan (1983) presented the only known case of selective mutism in a deaf person in the literature. The 26-year-old female was hospitalized because of
failure to communicate and increased aggression. During hospitalization her speech was unintelligible, with the exception of the word “no.” Following hospitalization, she moved to a supervised residential facility for deaf adults and her communication with others began to improve. Bell and Espie (2003) also presented the case of an adult with selective mutism. The 36-year-old female client with Down’s syndrome had selective mutism for the previous 14 years. Treatment involved reinforcement, shaping, response initiation, and generalization. Treatment sessions were conducted three times per week for three months. Selective mutism rapidly resolved and her quality of life and social interactions improved.

Follow-up Studies

Studies that monitor selective mutism progress following treatment success are rare. Follow-up refers to tracking symptoms over a specified time period. For example, a 1-year follow-up would represent symptom changes one year post-treatment and usually include an interview and standardized psychological instruments. Follow-up studies for selective mutism indicate that complete remission or significant improvement after a mean follow-up period of five years was evident in 53-100% of cases (Remschmidt et al., 2001). Spontaneous speech is most likely to occur when treatment programs last longer than 2 years (Hultquist, 1995). However, reports conflict and suggest that, in some cases, the condition remains chronic. In the first controlled long-term outcome study of selective mutism, Steinhausen, Wachter, Laimbock, and Metzke (2006) compared 33 young adults with selective mutism in childhood to 26 young adults with anxiety disorders in childhood and 30 young adults with no history of psychiatric disorders in childhood. The selective mutism participants were initially assessed at a
mean age of 8.5 years and follow-up was collected after an average of 13 years.

Symptoms of selective mutism improved considerably with complete remission in 58% of participants. However, the anxiety and selective mutism groups had significantly higher rates of phobic disorders at follow-up than the control group. Remschmidt and colleagues (2001) reported a remission rate of 74% (100 of 143) in their analysis of ten follow-up studies (with n > 5) for selective mutism. Remission rates for selective mutism appear related to length of follow-up. Better results were indicated for children who had been followed at least 10 years from their original assessment. This may be due to the prolonged, chronic course of the disorder, for many children remain mute in select situations for 5-7 years.

Interpretations from follow-up data are further limited due to mixed results often reported in these studies. Some studies indicate treatment success while a portion of children that began speaking never achieved normal speech and/or emotional problems remained (Cunnigham et al., 1983; Kolvin & Fundudis, 1982; Wergeland, 1980). Some view poor prognosis as an outcome of family pathology, while others view these reports as sketchy and emphasize caution (Remschmidt et al., 2001). However, most children will continue to be shy or experience anxiety in some settings, even though treatment was successful (Kumpulainen, 2002). Black and Uhde (1995) found preliminary evidence to suggest that a child’s social anxiety will persist even after mutism has resolved. Crumley (1993) presented an adult male who displayed selective mutism as a child. He recalled many clinical features associated with social phobia such as fear of public speaking, fear of being observed, blushing, palpitations, and extreme shyness. As an adult, he continued to have social fears such as meeting and talking to unfamiliar people.
Follow-up studies for children with selective mutism are scarce and long-term follow-up is rarely reported in the literature. Furthermore, the majority of follow-up studies reported in the literature have weak methodologies and/or small sample sizes. Few studies have compared treated children to untreated children with selective mutism and most studies involved sample sizes of 10 or less (Remschmidt et al., 2001). Perhaps more significantly, very few reports exist on the progress of children who did not receive treatment. In addition, a definition of treatment success and systematic pre- and post-assessment data have been absent in almost all studies. A uniform standard for defining treatment success does not exist either. For instance, some studies considered production of speech in one setting as success even if the behavior did not generalize to other settings. Thus, conclusions from many follow-up studies must be tempered (Tancer, 1992; Weregeland, 1980).

_Treatment Summary_

Many studies have illustrated effectiveness in the treatment of selective mutism. However, selective mutism has been considered difficult to treat because researchers and clinicians have yet to agree on specific treatment approaches. On the other hand, most would agree that the best treatment outcomes for this population result from early interventions that involve parents and teachers (Hooper et al., 1992; Leonard & Topol, 1993). A meta-analysis of 114 treatment studies conducted by Pionek Stone, Kratochwill, Sladeczek, and Serlin (2002) indicated (1) treatment of selective mutism is more efficacious than no treatment, (2) behaviorally-oriented interventions are more effective than no treatment, and (3) no differential effects exist between applied behavioral analysis such as shaping or positive reinforcement and combined behavioral
approaches such as modeling with positive reinforcement. However, further research is needed before treatment approaches can be classified as beneficial for children with selective mutism (Pionek Stone et al., 2002).

Suggestions for Future Research and Purpose of Present Study

Research on selective mutism illustrates that this behavior pattern is often within the anxiety spectrum. Several researchers believe that selective mutism in children is a symptom and manifestation of severe social phobia (Black & Uhde, 1995; Dummit et al., 1997; Ford et al., 1998; Kristensen, 2000). Recent literature indicates a need to modify the diagnostic conceptualization of selective mutism. Emphasizing the social and general anxiety components of, or associations with, selective mutism will significantly impact the assessment and treatment of this population. A reconceptualization of this disorder as akin to general or social anxiety would prompt clinicians to employ assessment methods specifically designed for youth with general and social anxiety, urge the development of assessment instruments specific to youth with selective mutism, and spur the design of treatment procedures specific to this population (Vecchio & Kearney, 2005).

Most studies have employed promising anxiety-based interventions for selective mutism. Most case studies and single case research designs have illustrated positive treatment outcomes for children with this disorder. However, these studies have often lacked strong methodologies such as experimental control. Pionek Stone and colleagues (2002) highlighted several methodological flaws and gaps in the treatment literature for selective mutism: (1) most studies relied on a constricted range of measures, (2)
researchers have generally not employed treatment manuals, (3) within group design studies (same treatment) are virtually nonexistent, (4) studies usually did not report measures of treatment integrity, and (5) many studies lacked sufficient data to compute effect sizes.

Future research is needed to provide empirically supported interventions for children with selective mutism. Studies with more control, a wide range of measures, and single-case experimental design are needed to identify effective treatments for selective mutism. Furthermore, studies that examine the differential effectiveness of various components within behavior therapy would be beneficial. Pionek Stone and colleagues (2002) recommended that researchers document treatment outcomes via graphic display of data and calculate effect sizes to yield empirically supported treatments for selective mutism.

Researchers are moving toward a consensus that selective mutism is linked to anxiety in general and to social anxiety in particular (Steinhausen & Juzi, 1996; Vecchio & Kearney, 2005). As such, treatment approaches that rely on exposure-based practices and parent-based contingency management have been preferred. The purpose of the present study was thus to (1) evaluate the effectiveness and provide preliminary support for the use of exposure therapy for selective mutism, (2) examine differential effectiveness of two behavioral approaches, exposure therapy and contingency management, for selective mutism, and (3) suggest future research questions. Much of the literature on selective mutism has consisted of uncontrolled single case reports or single case research designs with poor methodologies. Studies with greater experimental control are needed to provide evidence-based support for treatment of selective mutism.
A single case research design with control, documentation of treatment outcomes, calculation of effect size, and assessment of treatment integrity will provide more knowledge and support for treating selective mutism.

Hypotheses

Nine children with selective mutism were evaluated and treated via a single-subject alternating treatments design (ABBABABAAB). Treatment A was an exposure-based therapy and treatment B was contingency management. Each child received both treatment approaches separately. The following hypotheses were evaluated: (1) all children will meet criteria for treatment success at post-treatment, (2) significant improvements of 75% will be seen on primary dependent measures at post-treatment, and (3) children will show more improvement from exposure therapy than contingency management.
CHAPTER 3

METHODOLOGY

Participants

Nine (9) children aged 4-9 years and their parents voluntarily participated in the study. Participants lived in southern Nevada. Seven (7) participants were referred from public and private schools in southern Nevada. One (1) participant was referred from a preschool center in Las Vegas and one (1) participant was recruited from a general press release to the Las Vegas community. The sample was 44.4% European-American, 22.2% biracial, 22.2% Asian-American, and 11.1% Hispanic-American. Mean age of the sample was 7 years, 77.8% were female, 77.8% of parents were married, and the self-reported mean annual family income was $67,889. Children met diagnostic criteria for selective mutism. Parents reported that no children were currently receiving treatment for selective mutism or for an anxiety disorder at time of entry into the study.

Child Measures

Daily rating of anxiety (DRA). The DRA is a self-report measure that the child completed each day to monitor anxiety. The DRA contains one item rated on a scale of 0 (none) to 10 (an extreme amount) to evaluate anxiety the child experienced that day (see Appendix II).
Daily rating of behaviors (DRB). The DRB is a self-report measure that children completed each day to monitor speaking patterns and to evaluate degree of mutism. Children recorded the number of words they mouthed, whispered, or spoke in school, public, or on the telephone. If applicable, they were asked to rate how audible the words were on a 0-10 scale, where 0 = not at all audible and 10 = completely audible. They were also asked with whom they spoke. For example, children recorded whether they spoke to parents, siblings, relatives, classmates, teachers, friends, or non-family members (see Appendix II). Children only monitored their speech in difficult or anxiety-provoking situations. Children did not record their speech in comfortable situations. Thus, the amount of speech recorded did not reflect their total daily speech.

Parent Measures

Child Behavior Checklist (CBCL; Achenbach & Rescorla, 2001). The CBCL is a 118-item instrument rated on a 0-2 scale to assess comorbid internalizing and externalizing behaviors. The CBCL is a broadband measure of current behaviors, thoughts, and emotions. The CBCL yields scores for total problem behavior, internalizing and externalizing behavior, six DSM-oriented scales, and eight empirically based syndrome scales such as anxious/depressed, social problems, and withdrawn/depressed. The CBCL has an administration time of approximately 20 minutes and requires a fifth grade reading level (Achenbach & Rescorla, 2001). Scores in this study included internalizing T, externalizing T, and total T scores.

The CBCL is one of the most widely used standardized measures for assessing behavioral and emotional problems in children. The measure has demonstrated good
test-retest (mean r = .90) and interrater reliability (mean r = .76) as well as construct and criterion-related validity (Achenbach & Rescorla, 2001). The CBCL was normed on 1,753 nonreferred children and standardized separately for boys and girls aged 6-11 and 12-18 years. The six DSM-oriented scales are based on factor analyses of parent ratings of 4,994 clinically referred children (Achenbach & Rescorla, 2001). Comparisons can be made between the DSM-oriented and empirically based syndrome scales to assess initial problems and evaluate treatment outcomes and efficacy (Achenbach et al., 2001).

Demographic Information Form (DIF). The DIF measures demographic information such as parental education, parental marital status, income, and occupation. In addition, the form includes questions pertaining to prior therapy and pharmacological treatments received as well as family history of selective mutism, shyness, and anxiety (see Appendix III).

Daily rating of child anxiety (DRCA). The DRCA is a self-report measure that parents completed each day to monitor their child’s anxiety. The DRCA contains one item to be rated on a scale of 0 (none) to 10 (an extreme amount) to evaluate how much anxiety their child experienced that day (see Appendix IV).

Daily rating of child behaviors (DRCB). The DCB is a self-report measure that parents completed each day to monitor their child’s speaking patterns and evaluate degree of mutism. Parents recorded number of words their child mouthed, whispered, or spoke in public, on the telephone, or at home. If applicable, they were asked how audible words were on a 0-10 scale where 0 = not at all audible and 10 = completely audible. Parents were also asked with whom the child spoke. For example, parents recorded whether their children spoke to siblings, relatives, classmates, teachers, friends, or non-family members.
(see Appendix IV). Parents only monitored their child’s speech in difficult or anxiety-provoking situations. Parents did not record their child’s speech in comfortable situations. Thus, the amount of speech recorded did not reflect the child’s total daily speech.

Teacher Measures

*Teacher’s Report Form* (TRF; Achenbach & Rescorla, 2001). The TRF is a 118-item instrument rated on a 0-2 scale to assess comorbid internalizing and externalizing behaviors. The TRF is a broadband measure of current behaviors, thoughts, and emotions. The TRF yields scores for total problem behavior, internalizing and externalizing behavior, six DSM-oriented scales and eight empirically based syndrome scales such as anxious/depressed, social problems, and withdrawn/depressed. The TRF has an administration time of approximately 20 minutes and requires a fifth grade reading level (Achenbach & Rescorla, 2001). Scores in this study included internalizing T, externalizing T, and total T scores.

The TRF is one of the most widely used standardized measures for assessing behavioral and emotional problems in children. The measure has demonstrated good test-retest (mean r = .90) and interrater reliability (mean r = .60) as well as construct and criterion-related validity (Achenbach & Rescorla, 2001). The TRF was normed on 2,319 nonreferred children and standardized separately for boys and girls aged 6-11 and 12-18 years. The six DSM-oriented scales are based on factor analyses of teacher ratings of 4,437 clinically referred students (Achenbach & Rescorla, 2001). Comparisons can be
made between DSM-oriented and empirically based syndrome scales to assess initial problems and evaluate treatment outcomes and efficacy (Achenbach et al., 2001).

*Daily rating of student anxiety* (DRSA). The DRSA is a self-report measure that teachers completed each day to monitor a student’s anxiety. The DRSA contains one item rated on a scale of 0 (none) to 10 (an extreme amount) to evaluate how much anxiety the student experienced that day (see Appendix V).

*Daily rating of student behaviors* (DRSB). The DRSB is a self-report measure that teachers completed each day to monitor a child’s speaking patterns and evaluate degree of mutism. Teachers recorded number of words a child mouthed, whispered, or spoke in school. If applicable, teachers were asked to rate how audible words were on a 0-10 scale where 0 = not at all audible and 10 = completely audible. Teachers were also asked with whom a child spoke and where he spoke. For example, teachers recorded if a child spoke to classmates, friends, or principal and if he spoke in the classroom, library, or during recess (see Appendix V).

**Clinician Measures**

*The Anxiety Disorders Interview Schedule for Children for DSM-IV Child Version* (ADIS-C; Silverman & Albano, 1996). The ADIS-C is a widely used semi-structured interview to assess anxiety disorders in children and adolescents. The ADIS-C permits differential diagnoses among anxiety disorders. In addition, subsections are available for assessing selective mutism, school refusal behavior, and other problems.

The ADIS-C is composed of yes/no questions that address symptom severity, frequency, and duration. The ADIS-C accommodates children with selective mutism,
and other young or nonverbal children, by utilizing fear thermometers or visual rating scales. In addition to providing a means for children with selective mutism to nonverbally communicate symptoms, the ADIS-C provided comorbidity data. The ADIS-C has an administration time of approximately forty-five minutes.

_The Anxiety Disorders Interview Schedule for Children for DSM-IV Parent Version_ (ADIS-P; Silverman & Albano, 1996). The ADIS-P is a semi-structured interview that parallels the format and content of the child version. The ADIS-P can be administered in approximately one hour.

Silverman, Saaverda, and Pina (2001) demonstrated the ADIS-C and the ADIS-P to be reliable instruments for deriving DSM-IV diagnoses and anxiety disorder symptoms in children. Kappa coefficients obtained for separation anxiety disorder, specific phobia, social phobia and generalized anxiety disorder ranged from .63-.80 on the ADIS-C and .65-.88 on the ADIS-P. Test-retest reliabilities of the separation anxiety disorder, specific phobia, social phobia and generalized anxiety disorder scales ranged from .78-.95 on the ADIS-C and .81-.96 on the ADIS-P (Silverman et al., 2001).

**Participant Screening**

The public was informed of the nature and purpose of the study via press release to the campus directory, local media, and the Clark County School District. Interested parents contacted the primary investigator for information and screening. The initial screening occurred over the telephone and consisted of asking parents to identify their child's primary behavior problem as well as follow-up questions to more accurately determine its nature. In addition, questions regarding exclusionary criteria were
addressed. If the initial screening indicated that a child met diagnostic criteria for selective mutism and did not meet exclusionary criteria, an assessment was scheduled.

Children were excluded from this study if (1) failure to speak was due to lack of knowledge of, or comfort with, spoken language required in the social situation, (2) failure to speak was better accounted for by a communication disorder such as stuttering, (3) mutism occurred exclusively during the course of a pervasive developmental disorder, severe mental retardation, schizophrenia, or other psychotic disorder, (4) a child was currently receiving pharmacological or other treatment for selective mutism, (5) a child had non-English speaking parents and/or English was not the primary language spoken in the home, (6) a child had deaf parents, (7) a child had been absent more than 20% of the school year, (8) a child had been diagnosed with a developmental disorder, (9) a child was under age 4 years or over age 10 years, and/or (10) a child had comorbid diagnoses that were more severe than selective mutism. Children who had comorbid diagnoses with severity ratings equal to or less than the severity ratings of their selective mutism were eligible for the study.

Thirty-seven (37) children were screened for participation in this study. Twenty (20) children were excluded during the initial screening process because they met one or more of the above exclusionary criteria. Nine (9) children were excluded because they had non-English speaking parents and/or English was not the primary language spoken in the home. Four (4) children were excluded because they were already receiving treatment for selective mutism. Two (2) twin females with deaf parents were excluded under criterion 6. Two (2) other siblings were excluded under criteria 5 and 9 above. Two (2) high school males were excluded under criterion 9. One (1) child was excluded
under criterion 1 and 5 following an in-home pre-assessment screening revealing the child to have insufficient knowledge of English; Spanish was the only language spoken in the home. Additionally, one (1) child decided not to participate in the study. Of the 21 children excluded from the study during initial screening, 14 (67%) were male and 7 (33%) were female.

Sixteen assessments were thus conducted. One (1) child did not meet diagnostic criteria for selective mutism during formal assessment and was excluded. One (1) child had a non-English speaking parent and was excluded. Two (2) children met diagnostic criteria for selective mutism but their parents chose not to participate in the study. Three (3) children met diagnostic criteria for selective mutism and began participation in the study but dropped out prematurely. The first child dropped out after treatment session one because his parents did not want to employ a contingency management approach. The second child dropped out after two sessions because he spontaneously began speaking in all social situations. The third child dropped out after three sessions due to family matters. Children excluded from the study during initial screening or formal assessment were either referred for treatment, received treatment from the primary investigator separate from the study, or were provided with contact information for other mental health providers in the community. Of the 7 children who received formal assessment but did not remain in the study, 5 (71%) were male and 2 (29%) were female. The remaining nine (9) children who were formally assessed remained in the study for 10-32 sessions.
Procedure

Parents who decided to participate in the study were given the option to have the assessment conducted at the child’s school/daycare, at the UNLV Child School Refusal and Anxiety Disorders Clinic, or in their home. Two (22%) assessments were conducted in the child’s home and 7 (78%) were conducted at the UNLV Child School Refusal and Anxiety Disorders Clinic. Parents/guardians were provided with a consent form detailing the nature of the study. Informed consent from parents/guardians and assent from each child were obtained prior to data collection.

The primary investigator conducted a structured diagnostic interview with each child individually. Six children chose not to participate in the diagnostic interview, so interview data were obtained solely from parent report. A structured diagnostic interview was also conducted individually with the child’s parent by the primary investigator. For reliability purposes, an additional graduate student attended 67% of the interviews. Interrater reliability data is presented in the Results chapter.

Parents also completed the Child Behavior Checklist and a demographic information form, which took 25-35 minutes to complete. Parents completed these inventories as children were interviewed. Parental consent was obtained so a child’s primary teacher or daycare provider could complete the Teacher’s Report Form. Teachers were given the questionnaire with a self-addressed stamped envelope and asked to return it to the primary researcher.

Children, parents/guardians, and teachers were provided with contact information for the primary researcher, graduate students, and their supervisor if they had questions or
concerns. To ensure participant anonymity, questionnaires, data sheets, and consent forms were number coded.

Upon completion of the assessment, a family was scheduled for a consultation session to review results and discuss treatment options. Families were given the option to participate in the study, receive a referral to another facility, or abstain from treatment. Each family was informed of the treatment process and the time commitment involved. Participation in the study required two sessions per week and daily homework assignments. The basic principles and goals of each treatment approach were outlined. If a family agreed to participate in this study, then parents were asked to sign an additional consent form for treatment and the first session was scheduled. Parents were also asked to sign a release of information form allowing the primary investigator to communicate with the child’s teacher/school to coordinate treatment.

The primary researcher provided treatment under the supervision of Dr. Christopher Kearney at the UNLV Child School Refusal and Anxiety Disorders Clinic. The initial assessment and consultation session constituted the baseline period of this study. Daily ratings of anxiety and speech were collected from baseline to post-treatment. The primary researcher or an undergraduate student contacted parents, children, and teachers via telephone to record daily ratings. All efforts were taken to obtain parent and child ratings on a daily basis. Occasionally, participants were out of town, ill, or otherwise unavailable to complete daily ratings via telephone. Data were not collected on these days. Teacher ratings were only obtained for days the child attended school. Due to time constraints and difficulty contacting teachers via telephone, they were given the option of completing the daily ratings independently and sending them to
the primary researcher via facsimile or through the parent. On occasion, the primary investigator retrieved daily ratings from teachers in-person.

_Treatment_

This study employed a single-subject alternating treatments design. Treatment A was exposure-based therapy and treatment B was contingency management. Each child received both treatment approaches separately. The order in which the treatments were applied was randomized and counterbalanced. Five children started with treatment A and followed the ABBABAAB pattern and four children began with treatment B and followed the BAABABBA pattern. Upon completion of assessment and consultation sessions, each child began treatment A or treatment B. Each child received two treatment sessions per week. Sessions were scheduled 3-4 days apart. Between sessions, the alternating treatment was not used. For example, if a child received treatment A, parents were instructed not to employ treatment B until the next treatment B session. The treatments were not employed concurrently.

_Treatment protocols_

Consultation and treatment protocols are in Appendix VI. Exposure therapy (treatment A) involved shaping, modeling, prompting, stimulus fading, and in vivo exposure. Shaping is a technique in which speech was divided into multiple components. Shaping the speech of children with selective mutism involved a series of steps until full communication was reached. Steps included producing non-word utterances with mouth closed, producing non-word utterances with mouth open, mouthing words without verbalization, whispering single words, whispering sentences, and gradually increasing the volume of speech until normal spontaneous communication was reached. Modeling
and prompting techniques were used in combination with shaping. The primary
investigator modeled the target response and prompted the child to do the same.
Stimulus fading was also employed. For example, once speech was established at the
Child School Refusal and Anxiety Disorders Clinic, new individuals were introduced or
exposures were gradually moved into school or other public settings. Stimulus fading
was useful to enhance generalization of speech across settings.

Contingency management (treatment B) involved modifying behavior via the
control or manipulation of consequences to the behavior. Treatment B involved
establishing a parent-based reward and consequence system for speaking/not speaking,
introducing routines for the child, and modifying parent commands. During treatment B,
parents attended the Child School Refusal and Anxiety Disorders Clinic without their
child. If this was not possible, the examiner did not interact with the child. Visits to the
Clinic or interactions with the examiner were considered potential exposures and might
have confounded the alternating treatment design. Thus, if children attended the Clinic
during treatment B sessions, they remained in the waiting room. To accommodate
parents, some treatment B sessions were conducted in the child’s home.

Treatment Integrity

A trained undergraduate or graduate student observed and rated 76% of sessions.
The rater assessed whether each treatment protocol was adhered to by answering four
questions on a yes/no basis. The questions for each treatment protocol are listed in
Appendix VII. In addition, raters assessed whether the alternating treatment design was
adhered to by answering this yes/no question “Were components of the other treatment
protocol utilized during this session?" Treatment integrity data are presented in the Results chapter.

_Treatment credibility_

The experimenter conducted all sessions. At treatment completion, parents were asked to rate the effectiveness of each treatment component (A and B) via the question, "How much would you attribute the changes in your child’s behavior to the treatment approach?" on a 0-10 scale where 0 = completely not due to the treatment approach and 10 = completely due to the treatment approach (see Appendix VIII). Treatment completion occurred once treatment success was reached, when parents withdrew from the study, or at 6 months, whichever occurred first. Treatment success was defined as ineligibility for a diagnosis of selective mutism or speaking in school when expected to speak and speaking freely in a normal manner. At treatment success a child spoke at an audible level to teachers and peers, and in all social settings, such as school, playground, and restaurant. Treatment credibility data and treatment success rates are presented in the Results chapter.

_Follow-up_

Pre-treatment assessment measures were re-administered at treatment completion and 3-month follow-up. The pre-treatment assessment measures were evaluated before and after treatment and comparisons across time were made. Post-treatment assessment data were unavailable for 2 children and 3-month follow-up data were not obtained for 3 children. Post-treatment and follow-up data were unavailable for the first child because his family moved out of town at the end of treatment. A second family failed to schedule a post-treatment assessment and the primary investigator was unable to contact the family.
for follow-up data. Follow-up data were not obtained on a third child because his mother
failed to respond to letters and telephone calls requesting their participation in the
assessment.

Data Analyses

The selective mutism section of the ADIS-C was re-administered at post-
treatment to determine if a child met criteria for treatment success. Given the small
sample size and study design, statistical analyses were not computed for diagnoses or pre-
and post-measures. Therefore, data from the Anxiety Disorders Interview Schedule and
the Child Behavior Checklist and Teacher Report Form were presented in tables and
examined for information purposes only. Data from parent, child, and teacher ratings of
anxiety and parent, child, and teacher ratings of behavior were also visually presented.

To test the hypothesis that treatment A (exposure therapy) produced greater
effects than treatment B (contingency management), two-way within group ANOVAs
were conducted for parent, child, and teacher ratings of average number of words spoken
in public per day. For purposes of the ANOVAs, data were pooled across participants. For
example, eight participants completed six sessions of treatment A and six sessions of
treatment B. Thus, parent ratings from 48 sessions of treatment A were compared to 48
sessions of treatment B. One child was excluded from the ANOVAs because he only
completed five sessions of treatment A and five sessions of treatment B, and parent
ratings were not obtained for all sessions. Child data were obtained for five participants
who completed six sessions of treatment A and six sessions of treatment B. Thus, child
ratings from 30 sessions of treatment A were compared to 30 sessions of treatment B.
Teacher data were obtained for three participants who completed six sessions of treatment A and six sessions of treatment B. Thus, teacher ratings from 18 sessions of treatment A were compared to 18 sessions of treatment B.

In addition, Cohen's $d$ was calculated to measure treatment effect size based on parent, child, and teacher ratings. For purposes of the Cohen’s $d$, three paired samples $t$ tests were computed comparing treatment A and treatment B means per participant for average number of words spoken in public per day.
CHAPTER 4

RESULTS

Case Studies

Participant 1

Sumey (fictitious name) was a 6-year-old biracial female referred to the study by her elementary school. School officials provided Sumey’s mother, Ms. S., with a referral because they were increasingly concerned with Sumey’s failure to speak in class. The initial assessment session was conducted at Sumey’s home and was attended by Sumey, Ms. S., Sumey’s maternal grandmother, the experimenter, and a female undergraduate student who attended for reliability purposes. In addition, Sumey’s brother was present in the home during the initial evaluation but he remained in another room.

Sumey appeared shy and anxious and was reluctant to speak. She sat very close to her grandmother and occasionally sat on her grandmother’s lap. She failed to respond to questions posed by the examiner. Sumey verbally told Ms. S. that she did not want to speak to the examiner. The examiner informed Sumey she did not have to speak and that she could respond nonverbally. However, Sumey chose not to participate in the interview. Ms. S. and Sumey’s grandmother politely and efficiently answered the
interview questions. Both expressed concern over Sumey’s behavior and were unsure why she would not speak in public.

*Presenting Complaints*

Ms. S. indicated via structured diagnostic interview that Sumey did not speak at school. Although Sumey had never spoken at school, she had no problems attending school and performed well academically. Sumey did speak with her family at home. However, she would not speak at home when non-family members were present. Ms. S. reported that Sumey had fewer friends than most kids, had trouble making friends, and preferred to spend the majority of her time alone. Ms. S. further described Sumey as excessively shy and mute around children.

The examiner inquired about symptoms of various internalizing and externalizing behavior disorders. Ms. S. revealed that Sumey was fearful of, and avoided, many evaluative situations. These situations included answering questions in class, reading aloud or giving oral reports, asking the teacher a question, asking for help, working with a group, writing on the chalkboard, using public bathrooms, engaging in musical or athletic performances, attending parties or school activity nights, conversing with others, speaking to adults, and talking to people she did not know well. However, Sumey did not fear taking written tests, attending physical education class, eating before others, answering or talking on the telephone, or having her picture taken. In addition, Ms. S. said Sumey did better in social situations that involved older children but that she often "shut down," froze, or refused to speak in social situations. In general, Sumey failed to verbally participate in various activities outside her home.
Sumey met diagnostic criteria for social phobia and selective mutism (clinical interference 7). Sumey’s mother also endorsed clinical symptoms of specific phobia, animal type (clinical interference 6). Specifically, Sumey’s fear of bugs stopped her from playing outside or going to the park. Sumey did not meet criteria for another disorder.

Furthermore, Ms. S. reported that nothing traumatic had occurred to her daughter and denied a family history of shyness, selective mutism, or anxiety. Data from the CBCL were largely unremarkable except for elevated parent-reported internalizing problems. Specifically, Sumey’s mother endorsed the presence of evaluative anxiety, nervousness, dependency, refusal to speak, social withdrawal, self-consciousness, and timidity. These ratings provided further evidence of Sumey’s mutism and social anxiety.

In general, Sumey was a well-behaved child who did not speak in public situations and especially school. Sumey’s teacher did not return the TRF, so teacher comparisons could not be made.

Assessment results were reviewed with Ms. S. at the consultation session. The examiner reviewed the treatment components, expected course of treatment, and treatment options with Ms. S. and Sumey and they agreed to participate in the study. Treatment was scheduled to begin one week following consultation.

**Course of Treatment and Progress**

Sumey received 12 treatment sessions. She received 6 sessions of treatment A and 6 sessions of treatment B and treatment began with treatment A. Rapport was easily established across sessions. Session 1 was conducted at the Clinic and involved explaining goals of treatment, defining concepts of exposure therapy, and establishing a behavioral hierarchy of anxiety-provoking situations. The examiner employed shaping,
modeling, and prompting to elicit Sumey’s speech. The examiner solicited from Sumey anxiety-provoking situations and a behavioral hierarchy was created. Beginning with the least anxiety-provoking situation and progressing to the most anxiety-provoking situation, her hierarchy read as follows: (1) mouthing to visitors inside the home, (2) mouthing to others outside the home (3) whispering to visitors inside the home, (4) whispering to others outside the home, (5) increase volume of voice when speaking to visitors in home, (6) increase volume of voice when speaking in public, and (7) normal speaking in all social situations, including school.

Treatment sessions 2 and 3 were parent-focused. These sessions consisted of explaining goals of treatment, outlining the expected course of treatment, and reviewing principles of contingency management. During session 2, a parent-based reward and consequence system was established. The plan allowed Sumey to earn stickers for displaying target behaviors. She could trade her stickers for purchases at her favorite store. The plan was reviewed during session 3, but no revisions were made.

Treatment session 4 was conducted at the Clinic. The examiner employed shaping, modeling, and prompting to increase the amount and audibility of Sumey’s speech. By the end of session 4, Sumey spoke freely to the examiner in the Clinic.

During session 5, Sumey’s contingency plan was reviewed, but no modifications were made. Ms. S. was instructed to establish routines for Sumey in which she would have the opportunity and expectation to speak.

Treatment sessions 6, 7, and 9 were exposures conducted partly in the Clinic and partly at a nearby fast-food restaurant. The examiner reviewed the behavioral hierarchy and role-played the situation with Sumey prior to conducting the social exposures.
Modeling, prompting, shaping, and stimulus fading were employed. In session 6, Sumey’s task was to speak to the examiner in a social setting. In session 7, Sumey was instructed to speak to others with the examiner by her side. In session 9, Sumey was able to order her food independently. Sumey’s voice was shaped across exposures to increase the audibility and amount of speech in social settings.

Treatment sessions 8, 10, and 11, were conducted with Ms. S. These sessions were primarily focused on modifying parent commands for speech. However, Sumey’s contingency plan was reviewed each time and changes were made as necessary. For example, a separate reward system was created for speaking in school. Sumey’s final treatment session (12) was conducted at a local mall. The purpose of the exposure was to have Sumey speak to various mall employees. Sumey maintained a conversation with the examiner and spoke in a clear and loud voice. However, when prompted to speak to new people (strangers), Sumey spoke in a very soft and barely audible voice. The examiner used prompting and shaping to increase the audibility of Sumey’s speech, which was successful.

A break in treatment was taken following session 12 due to a medical emergency. Ms. S. said she was interested in continuing with the study at a later date. However, she never made an appointment or returned calls from the primary investigator. Unfortunately, follow-up data were not available.

A summary of Sumey’s progress is presented in Table 1. The table summarizes the amount of words spoken, whispered, and mouthed in public as reported by parent, child, and teacher. Figures 1 (words spoken), 2 (words whispered), and 3 (words...
mouthed) represent visual displays of Sumey’s progress across treatment as reported by parent, child, and teacher.

Participant 2

Daniel (fictitious name) was a 6-year-old European-American male referred to the study by his elementary school. School officials referred Daniel’s mother, Mrs. D., to the study because they were increasingly concerned with Daniel’s failure to speak in class. The initial assessment session was conducted at Daniel’s home and was attended by Daniel, Mrs. D., Mr. D., the experimenter, and a female graduate student who attended for reliability purposes. In addition, Daniel’s older brother was present in the home during the initial evaluation but he remained upstairs.

Daniel appeared reticent and fearful and was hesitant to interact with the examiner. He hid behind his mother throughout the evaluation. Daniel was informed that he could nonverbally respond to the examiner, but he chose not to participate in the interview. Daniel did not speak directly to the examiner or to his parents while the examiner was present in the room. However, he responded to a few questions with head nods. At times, the examiner could hear Daniel speaking and singing with his older brother in their room. Mr. and Mrs. D. politely and efficiently answered the interview questions. Both expressed concern over Daniel’s behavior and were unsure why he did not speak in public.

**Presenting Complaints**

Mr. and Mrs. D. indicated via structured diagnostic interview that Daniel failed to speak in school and social situations. Daniel had never spoken in school, though he would occasionally whisper to his parents in other social settings. Daniel spoke freely
with his family at home. However, he displayed variant speaking patterns when non-
family members were present in the home. Mr. and Mrs. D. reported that Daniel was
born one month premature, was delayed in speech, and displayed inhibited and
withdrawn temperament since infancy.

The examiner inquired about symptoms of various internalizing and externalizing
behavior disorders. Mr. and Mrs. D. revealed that Daniel was fearful of, and avoided,
many evaluative situations. These situations included answering questions in class,
reading aloud or giving oral reports, asking the teacher a question, asking for help,
conversing with others, inviting a friend to play, speaking to adults, and talking to people
he did not know well. However, Daniel did not fear taking written tests, working in a
group, writing on the chalkboard, using public bathrooms, attending physical education
class, eating before others, or having his picture taken. Furthermore, Daniel would attend
parties or school activity nights but failed to speak in these settings. Daniel would only
answer or speak on the telephone to his mother, father, or brother. In addition, Mr. and
Mrs. D. mentioned that Daniel did better in social situations that involved friends but that
he often “shut down,” froze, refused to speak, and occasionally had temper tantrums in
social situations. In general, Daniel failed to verbally participate in various activities
outside his home.

Daniel met diagnostic criteria for social phobia and selective mutism, with clinical
interference ratings of 7 and 8, respectively. Mr. and Mrs. D. reported that Daniel
displayed symptoms of separation anxiety from infancy through preschool but no longer
had difficulty separating from his parents. Daniel frequently wet his pants during the day.
and at night and met diagnostic criteria for enuresis (clinical interference 4). Daniel did not meet criteria for another disorder.

Furthermore, Mr. and Mrs. D. reported that nothing traumatic had occurred to their son and denied a family history of selective mutism. A family history of shyness was present in a great-grandparent and a history of anxiety was reported in a paternal grandmother. Data from the CBCL were largely unremarkable. Data from the TRF revealed elevated teacher-reported internalizing problems. Specifically, Daniel’s teacher endorsed the presence of evaluative anxiety, refusal to speak, social withdrawal, self-consciousness, and timidity. These ratings provided further evidence of Daniel’s mutism and social anxiety. In general, Daniel was a well-behaved child who did not speak in public situations and especially school.

Assessment results were reviewed with Daniel and his parents at the consultation session. The examiner reviewed the treatment components, expected course of treatment, and treatment options with the family and they agreed to participate in the study. Treatment was scheduled to begin one week following consultation.

Course of Treatment and Progress

Daniel received 10 treatment sessions. He received 5 sessions of treatment A and 5 sessions of treatment B and intervention began with treatment A. Rapport was easily established across sessions. Treatment session 1 was conducted at the Clinic and involved explaining goals of treatment, defining the concepts of exposure therapy, and establishing a behavioral hierarchy of anxiety-provoking situations. The examiner employed shaping, modeling, and prompting to encourage Daniel to speak. The examiner attempted to solicit from Daniel anxiety-provoking situations. However,
Daniel would not communicate with the examiner. Thus, the examiner created a behavioral hierarchy based on information obtained during the parent interview. Beginning with the least anxiety-provoking situation and progressing to the most anxiety-provoking situation, his hierarchy read as follows: (1) mouthing to friend or in Clinic, (2) mouthing to teacher, (3) making non-word utterances with mouth open to friend or in Clinic, (4) making non-word utterances with mouth open to teacher, (5) whispering to friend or in Clinic, (6) whispering to teacher, (7) speaking to friend or in Clinic, (8) speaking to teacher, and (9) normal speaking in all social situations, including school. Shaping was to be employed at each step to increase amount of words spoken and volume of speech.

Treatment sessions 2 and 3 were conducted with Mr. and Mrs. D. in their home. These sessions consisted of explaining goals and expected course of treatment, reviewing principles of contingency management, and establishing a parent-based reward and consequence system. The plan allowed Daniel to earn dollars which he could use to purchase Gameboy games. Consequences for not displaying target behaviors were loss of privileges such as the loss of his Gameboy for one day.

Treatment session 4 was conducted at the Clinic and involved shaping, modeling, and prompting. Daniel mouthed to the examiner throughout the session. However, attempts for Daniel to whisper were largely unsuccessful. Daniel did whisper to his mother and brother in front of the examiner, but failed to whisper directly to the examiner. The closest approximation Daniel made to speaking to the examiner was by producing sounds to words with his mouth closed.
During session 5, Daniel's contingency plan was reviewed with his parents. No modifications were made. Mr. and Mrs. D. were instructed to establish routines for Daniel so he would have the opportunity and expectation to speak.

Treatment sessions 6 and 7 were exposures conducted at the Clinic. The examiner reviewed the behavioral hierarchy and treatment goals with Daniel. Modeling, shaping, prompting, and stimulus fading were employed. Daniel's whispers to his family became more audible and frequent. However, Daniel did not whisper directly to the examiner. He continued to communicate with the examiner via mouthing, nods, and speaking with his mouth closed, despite prompts for him to communicate in a more normal manner. At one point during session 7, Daniel verbally asked his mother to play another game.

During the next exposure visit (session 9), Daniel's task was to mouth to the examiner and to others in a social setting. An exposure was conducted in a nearby fast-food restaurant where Daniel was prompted to place his order. Daniel mouthed his order to the employee. Daniel continued to mouth throughout the session. However, attempts to shape his speech to whispers were not successful.

Treatment sessions 8 and 10, were conducted with Mr. and Mrs. D. These sessions were primarily focused on modifying parent commands for speech. Daniel's contingency plan was reviewed during each session; however no changes were made. Treatment session 10 was Daniel's last treatment session. Mr. and Mrs. D. asked to suspend treatment because the family would be traveling over the holidays. The family moved out of town shortly after and decided not to participate in the treatment study.
because the commute to Las Vegas was too long. Unfortunately, post-treatment and follow-up data were not available.

A summary of Daniel's progress is presented in Table 2. The table summarizes amount of words spoken, whispered, and mouthed across treatment as reported by parent, child, and teacher. Figures 4 (words spoken), 5 (words whispered), and 6 (words mouthed) represent visual displays of Daniel's progress across treatment as reported by parent, child, and teacher.

Participant 3

Jaime (fictitious name) was a 9-year-old Hispanic male referred to the study by his elementary school. School officials referred Jaime’s mother, Mrs. J., to the study because they were increasingly concerned with his failure to speak in class. The initial assessment session was conducted at the Clinic and was attended by Jaime, Mrs. J., the experimenter, and a female undergraduate student who attended for reliability purposes.

Jaime appeared quiet and reserved. Jaime did not engage in spontaneous speech with his mother or the examiner during the evaluation, but he agreed to participate in the interview. Mrs. J. and Jaime politely and efficiently answered the interview questions. Mrs. J expressed concern over Jaime’s behavior and stated that school had become difficult for him because he did not speak.

Presenting Complaints

Mrs. J. indicated via structured diagnostic interview that Jaime failed to speak in school and social situations. Jaime never spoke in school, but spoke freely with his family at home. However, he displayed variant speaking patterns when non-family members were present in the home and he barely spoke to his stepfather.
The examiner inquired about symptoms of various internalizing and externalizing behavior disorders. Mrs. J. revealed that Jaime was fearful of, and avoided, many evaluative situations. These situations included answering questions in class, reading aloud or giving oral reports, asking the teacher a question, asking for help, conversing with others, inviting a friend to play, answering or talking on the telephone, playing in a group, writing on the chalkboard, using public bathrooms, attending physical education class, eating before others, having his picture taken, speaking to adults, and talking to people he did not know well. The only item that Jaime did not fear was taking written tests. In addition, Mrs. J. mentioned that Jaime often “froze” and refused to speak in social situations. In general, Jaime failed to verbally participate in various activities outside his home.

Jaime met ADIS-P diagnostic criteria for social phobia and selective mutism, with clinical interference ratings of 8. Jaime had difficulty separating from his mother and met criteria for separation anxiety disorder (clinical interference 7). Jaime also met criteria for specific phobia, blood injection-injury subtype (clinical interference 4). Jaime did not meet ADIS-P criteria for another disorder. Jaime met ADIS-C criteria for separation anxiety disorder (clinical interference 6) and specific phobia, blood-injection injury subtype (clinical interference 5). Jaime endorsed social evaluative fears but denied any interference, so a diagnosis of social phobia was not warranted. Furthermore, he said he spoke in school, in class, and on the playground and so he did not meet criteria for selective mutism.

Furthermore, Mrs. J. reported that nothing traumatic had occurred to her son and denied a family history of selective mutism, shyness, or anxiety. Data from the CBCL
and TRF were largely unremarkable except for elevated parent- and teacher-reported internalizing problems. Specifically, Mrs. J endorsed the presence of dependency, nervousness, worry, sadness, self-consciousness, shyness/timidity, refusal to speak, secretiveness, lack of energy or enjoyment, social withdrawal, and a preference for being alone. Jaime’s teacher endorsed the presence of evaluative anxiety, fear, refusal to speak, self-consciousness, nervousness, worry, shyness/timidity, social withdrawal, lack of energy or enjoyment, and a preference for being alone. These ratings provided further evidence of Jaime’s mutism and social anxiety. In general, Jaime was a well-behaved child who did not speak in public situations and especially school.

Assessment results were reviewed with Jaime and his parents at the consultation session. The examiner reviewed the treatment components, expected course of treatment, and treatment options with the family and they agreed to participate in the study. Treatment was scheduled to begin one week following consultation.

Course of Treatment and Progress

Jaime received 32 treatment sessions. He received 16 sessions of treatment A and 16 sessions of treatment B and intervention began with treatment A. Rapport was easily established across sessions. Session 1 was conducted at the Clinic and involved explaining goals of treatment, defining concepts of exposure therapy, and establishing a behavioral hierarchy of anxiety-provoking situations. The examiner employed shaping, modeling, and prompting to elicit Jaime’s communication. The examiner solicited from Jaime anxiety-provoking situations and created a behavioral hierarchy. Beginning with the least anxiety-provoking situation and progressing to the most anxiety-provoking situation, her hierarchy read as follows: (1) speaking comfortably in Clinic, (2) reading in
Clinic, (3) giving oral reports in Clinic, (4) speaking to adults in social settings, (5) speaking to children in social settings, (6) whispering or talking to children on school playground, (7) speaking on school grounds, outside of classroom, (8) speaking in classroom without teacher or children present, (9) speaking to teacher in classroom without students present, (10) speaking to children in classroom with teacher present, and (11) reading and speaking normally in classroom.

Treatment sessions 2 and 3 were parent-focused. These sessions consisted of explaining goals of treatment, outlining the expected course of treatment, reviewing principles of contingency management, and creating a parent-based reward and consequence system. The plan allowed Jaime to earn pretend dollars for displaying target behaviors. He could use the dollars for online purchases.

Treatment session 4 was conducted at the Clinic. The examiner employed shaping, modeling, prompting, and stimulus fading to increase the amount and audibility of Jaime’s speech. Jaime spoke and read to the examiner during session 4. Jaime’s contingency plan was reviewed in session 5. Modifications were made with respect to Jaime speaking to his stepfather. Jaime now needed to have a conversation with his stepfather to receive rewards. Mrs. J was instructed to establish routines for Jaime in which he would have the opportunity and expectation to speak.

Treatment session 6 was an exposure conducted at the Clinic and involved hierarchy review, modeling, shaping, prompting, systematic desensitization, and imaginal exposures. The focus of the session was to prepare Jaime for in-vivo social exposures. Session 7 was an exposure conducted partly at the Clinic and partly at the Student Union of UNLV. Jaime successfully presented an oral report in session. The examiner
reviewed the behavioral hierarchy and role-played various scenarios with Jamie prior to conducting the social exposure. Modeling, prompting, shaping, and systematic desensitization were employed. Jaime successfully spoke to several UNLV students and employees.

Treatment sessions 8, 10, 11, and 13 were conducted with Mrs. J. These sessions were primarily focused on modifying parent commands and establishing contingencies for speech. Jaime’s contingency plan was reviewed, but no changes were made.

Treatment sessions 9 and 12 were exposures conducted partly at the Clinic and partly at a nearby fast-food restaurant. The session focused on eliciting speech with adults in social settings and involved modeling, shaping, stimulus fading, prompting, and hierarchy review. Sessions 14 and 15 were exposures conducted at a mall. The examiner modeled in-vivo social exposures for Mrs. J. and Jaime was prompted to speak to adults. Jaime appeared comfortable speaking to adults in social settings, so exposure sessions 17 and 20 were conducted at Chuck E Cheese’s. Prompting, shaping, modeling, and relaxation exercises were employed. Jaime successfully spoke to adults, engaged in conversation with the examiner and his mother in front of children, but froze when prompted to speak directly to a child.

Treatment sessions 16, 18, 19, and 21 were conducted with Mrs. J. These sessions were primarily focused on modifying parent commands and establishing contingencies for speech. Jaime’s contingency plan was reviewed but no changes were made. Tangible reinforcers were replaced with social reinforcers following session 21.

Treatment session 22 was an exposure conducted partly at the Clinic and partly at an ice-cream parlor. The examiner reviewed the hierarchy and discussed obstacles to the
social exposures involving children. Jaime successfully ordered ice-cream for his family and said he was ready to resume social exposures with children. Treatment sessions 23 and 25 were thus conducted at Chuck E Cheese's. The examiner employed modeling, prompting, and shaping and Jaime was successfully able to speak to other children.

Treatment sessions 24, 26, 27, and 29 were conducted with Mrs. J. These sessions were primarily focused on modifying parent commands and establishing contingencies for speech. Jaime’s contingency plan was reviewed but no changes were made. Tangible reinforcers continued to be replaced with social reinforcers.

Treatment sessions 28, 30, and 31 were exposures conducted at Jamie's school. The examiner employed shaping, prompting, modeling, and stimulus fading and Jaime successfully spoke to the examiner, his classmates, and his teacher. He spoke comfortably with an audibility level of 9. Jaime’s final treatment session (32) was parent-focused and conducted at the Clinic. Mrs. J. reported that Jaime had been speaking comfortably in all social situations, including school. Jaime reached the end of his hierarchy, so a post-treatment assessment was scheduled. Jaime did not meet criteria for an ADIS-P or ADIS-C diagnosis during the post-treatment assessment. The family was unable to be reached for the 3-month follow-up assessment.

A summary of Jaime’s progress is presented in Table 3. The table summarizes amount of words spoken, whispered, and mouthed across treatment as reported by parent, child, and teacher. Figure 7 (words spoken) and Figure 8 (words whispered) represent visual displays of Jaime’s progress across treatment as reported by parent, child, and teacher. Parent, child, and teacher rated the number of words mouthed as zero across treatment, so this information was not presented visually.
Participant 4

Melissa (fictitious name) was a 9-year-old European-American female who had been mute in school since kindergarten. The initial assessment session was conducted at the Clinic and was attended by Melissa, Melissa’s mom, Mrs. M., the experimenter, and a female undergraduate student who attended for reliability purposes. Initially, Melissa appeared quiet and reserved. However, she warmed to the examiner and agreed to participate in the evaluation. Melissa and Mrs. M. politely and efficiently answered the interview questions. Mrs. M. expressed concern over Melissa’s mutism in school.

Presenting Complaints

Mrs. M. indicated via structured diagnostic interview that Melissa did not speak at school. Melissa spoke freely with her family at home and in social settings. Mrs. M. reported that Melissa had fewer friends than most kids and had difficulty making friends because she did not speak to children.

The examiner inquired about symptoms of various internalizing and externalizing behavior disorders. Mrs. M. revealed that Melissa was fearful of, and avoided, many evaluative situations. These situations included answering questions in class, reading aloud or giving oral reports, asking the teacher a question or asking for help, answering or talking on the telephone, initiating conversations with others, attending physical education class, and inviting a friend to play. However, Melissa did not fear taking written tests, playing with a group, eating before others, or using public bathrooms. In addition, Mrs. M. said Melissa often got angry, cried, “froze,” or refused to speak in social situations. In general, Melissa failed to verbally participate in various activities.
outside her home. Melissa met diagnostic criteria for social phobia and selective mutism (clinical interference 6). In addition, Melissa met ADIS-P diagnostic criteria for separation anxiety disorder (clinical interference 5.5), generalized anxiety (clinical interference 5.5) disorder, and oppositional defiant disorder (clinical interference 4). Melissa met ADIS-C criteria for selective mutism (clinical interference 7) and social phobia (clinical interference 6). Melissa did not meet criteria for another disorder.

Furthermore, Mrs. M. reported that nothing traumatic had occurred to her daughter and denied a family history of selective mutism. A maternal and paternal history of shyness and anxiety were reported. Data from the CBCL and TRF were remarkable with elevated parent-reported internalizing and externalizing problems and elevated teacher-reported internalizing behaviors. Specifically, Melissa’s mother endorsed the presence of dependency, loneliness, sadness, evaluative anxiety, perfectionism, nervousness, fear, anxiety, refusal to speak, worry, self-consciousness, social withdrawal, shyness/timidity, and somatic complaints. Melissa’s teacher endorsed the presence of evaluative anxiety, fear, social isolation, sadness, lack of energy, worry, refusal to speak, self-consciousness, shyness/timidity, and social withdrawal. These ratings provided further evidence of Melissa’s mutism and social phobia.

Assessment results were reviewed with Mrs. M. at the consultation session. The examiner reviewed the treatment components, expected course of treatment, and treatment options with Mrs. M. and Melissa and they agreed to participate in the study. Treatment was scheduled to begin one week following consultation.

Course of Treatment and Progress
Melissa received 29 treatment sessions. She received 15 sessions of treatment A and 14 sessions of treatment B and treatment began with treatment B. Rapport was easily established across sessions. Treatment session 1 was parent-focused and conducted at the Clinic. Session 1 consisted of explaining goals of treatment, outlining the expected course of treatment, and reviewing principles of contingency management. A parent-based reward and consequence system was established. The plan allowed Melissa to earn pretend dollars for displaying target behaviors. She could use her dollars for purchases at a local toy store.

Sessions 2 and 3 were conducted at the Clinic and involved explaining goals of treatment, defining concepts of exposure therapy, and establishing a behavioral hierarchy of anxiety-provoking situations. The examiner employed shaping, modeling, and prompting to elicit Melissa's speech. The examiner solicited from Melissa anxiety-provoking situations and created a behavioral hierarchy. Beginning with the least anxiety-provoking situation and progressing to the most anxiety-provoking situation, Melissa’s hierarchy read as follows: (1) reading in Clinic, (2) giving a report in Clinic, (3) ordering food in public, (4) speaking to adults in public, (5) speaking to children in public, (6) talking or playing a game in classroom without class or teacher present, (7) reading in classroom without class or teacher present, (8) talking or playing a game in classroom with teacher present, (9) reading in classroom with teacher present, (10) talking or playing a game in classroom with class and teacher present, (11) reading in classroom with class and teacher present, and (12) having conversations with classmates.

The examiner reviewed principles of behavior modification with Mrs. M. during session 4. Melissa’s contingency plan was reviewed but no changes were made. Session
5 was an exposure conducted at the Clinic and involved shaping, modeling, and prompting. The session focused on practicing short conversations with the examiner and two undergraduate assistants. Melissa was provided with social cues for initiating and maintaining conversations with others.

Sessions 6 and 7 were parent-focused and involved reviewing the contingency plan and principles of behavior modification. Mrs. M. was instructed to establish routines for Melissa in which she would have the opportunity and expectation to speak. The contingency plan was reviewed again during session 9, but no changes were made.

Treatment session 8 was an exposure conducted at the Clinic. Modeling, shaping, and prompting were employed to increase the audibility and amount of Melissa’s speech while reading and giving oral reports. Treatment session 10 was an exposure conducted partly at the Clinic and partly at the Student Union of UNLV. The examiner reviewed the hierarchy with Melissa and role-played scenarios prior to conducting the exposures. Melissa successfully spoke to various students and employees with an audibility of 5.5.

Treatment sessions 11 and 13 were conducted partly at the Clinic and partly at a nearby fast-food restaurant. These sessions involved modeling, prompting, stimulus fading, shaping, and hierarchy review. The examiner modeled in-vivo social exposures for Mrs. M. and Melissa successfully ordered food and completed various tasks such as ordering napkins and asking for ketchup.

Treatment sessions 12, 14, 15, 17, and 20 were conducted with Mrs. M. These sessions were primarily focused on modifying parent commands for speech, reviewing Melissa’s consequence system, and establishing contingencies. Melissa’s contingency plan was reviewed but no changes were made.
Treatment session 16 was an exposure conducted at an ice-cream parlor. Melissa was prompted to order ice-cream for her entire family. Shaping was employed to increase the audibility of her voice to 10. Melissa successfully maintained a conversation with her family, friends, the examiner, and an undergraduate assistant in the social setting. The next three exposures (sessions 18, 19, and 21) were conducted at Melissa’s school. Shaping, modeling, prompting, and stimulus fading were employed to elicit Melissa’s speech in the classroom. Melissa played games with, and spoke freely to, her classmates during session 21. Unfortunately, the school year ended and exposures were no longer feasible.

Treatment sessions 22, 23, 25, and 28 were conducted with Mrs. M. These sessions primarily focused on reviewing the contingency plan, modifying parent commands, establishing contingencies for speech, and replacing tangible reinforcers with social reinforcers.

Treatment sessions 24, 26, and 27 were exposures conducted in social settings involving other children. Modeling, prompting, shaping, and stimulus fading were employed to increase the amount and audibility of Melissa’s speech. Melissa successfully ordered food and maintained short conversations with others during these exposures.

A summary of Melissa’s progress is presented in Table 4. The table summarizes the amount of words spoken, whispered, and mouthed across treatment as reported by parent, child, and teacher. Figure 9 (words spoken), Figure 10 (words whispered), and Figure 11 (words whispered) represent visual displays of Melissa’s progress across treatment as reported by parent, child, and teacher.
Participant 5

Carly (fictitious name) was a 4-year-old Asian female who had been mute in school for one year. The initial assessment session was conducted at the Clinic and was attended by Carly, Carly's parents, Mr. and Mrs. C., the experimenter, and a female graduate student who attended for reliability purposes.

Carly appeared quiet and reserved. Carly said she did not want to speak to the examiner. The examiner informed Carly she could respond nonverbally, but she chose not to participate in the interview. However, Carly spoke to her parents in front of the examiner. Mr. and Mrs. C. politely and efficiently answered the interview questions. They expressed concern over Carly's behavior and were especially worried about Carly entering kindergarten in the fall.

Presenting Complaints

Mr. and Mrs. C. indicated via structured diagnostic interview that Carly did not speak at school. Although Carly never spoke at school, she did not have problems attending. Carly spoke normally with her family, at home, and to a few cousins. Mr. and Mrs. C. reported that Carly had fewer friends than most kids and had trouble making friends because she could not approach children. However, Carly preferred to spend the majority of her time with other kids.

The examiner inquired about symptoms of various internalizing and externalizing behavior disorders. Mr. and Mrs. C. revealed that Carly was fearful of, and avoided, many evaluative situations. These situations included answering questions in class, asking the teacher a question or asking for help, playing with a group, writing on the chalkboard, attending parties, conversing with others, inviting a friend to play, speaking
to adults, and talking to people she did not know well. However, according to Mr. and Mrs. C., Carly did not fear eating before others, using public bathrooms, answering or talking on the telephone, or having her picture taken. In addition, Mr. and Mrs. C. stated that Carly often "froze" or refused to speak in social situations. In general, Carly failed to verbally participate in various activities outside her home. Carly met diagnostic criteria for social phobia and selective mutism (clinical interference 8). She did not meet criteria for another disorder.

Furthermore, Mr. and Mrs. C. reported that nothing traumatic had occurred to their daughter and denied a family history of selective mutism or anxiety. A maternal history of shyness was reported. Data from the CBCL and TRF were largely unremarkable except for elevated parent- and teacher-reported internalizing problems. Carly’s mother endorsed the presence of dependency, fear, anxiety, somatic complaints, refusal to speak, self-consciousness, and shyness/timidity. Carly’s teacher endorsed dependency, fear, nervousness, preference for being alone, refusal to speak, and shyness/timidity. These ratings provided further evidence of Carly’s mutism and social phobia. In general, Carly was a well-behaved child who did not speak in social settings and especially school.

Assessment results were reviewed with Mr. and Mrs. C. at the consultation session. The examiner reviewed the treatment components, expected course of treatment, and treatment options with Mr. and Mrs. C. and Carly and they agreed to participate in the study. Treatment was scheduled to begin one week following consultation.
Course of Treatment and Progress

Carly received 15 treatment sessions. She received 8 sessions of treatment A and 7 sessions of treatment B and treatment began with treatment A. Rapport was readily established across sessions. Session 1 was conducted at the Clinic and involved explaining goals of treatment, defining concepts of exposure therapy, and establishing a behavioral hierarchy of anxiety-provoking situations. The examiner employed shaping, modeling, and prompting to elicit Carly's communication. The examiner attempted to solicit from Carly anxiety-provoking situations. However, the behavioral hierarchy was created using information obtained from the parent interview. Beginning with the least anxiety-provoking situation and progressing to the most anxiety-provoking situation, her hierarchy read as follows: (1) mouthing or whispering in Clinic, (2) talking in Clinic, (3) whispering or speaking to adults in public settings, (4) speaking to children on the telephone, (5) whispering or talking to children in social settings, (6) whispering or talking to children on school playground, (7) speaking in classroom with parents present, (8) speaking to teacher in classroom without parents present, and (9) speaking to children in classroom without parents present.

Treatment sessions 2 and 3 were parent-focused. These sessions consisted of explaining goals of treatment, outlining the expected course of treatment, reviewing principles of contingency management, and creating a parent-based reward and consequence system. The plan allowed Carly to earn pretend dollars for displaying target behaviors. She could use her dollars for purchases at her favorite stores.

Treatment session 4 was conducted at the Clinic. The examiner employed shaping, modeling, prompting, and stimulus fading to increase the amount and audibility
of Carly’s speech. Carly mouthed, whispered, and spoke to the examiner during session 4 and volume was shaped toward normal speech (audibility 8). Carly’s contingency plan was reviewed in session 5, but no modifications were made. Mr. and Mrs. C. were instructed to establish routines for Carly in which she would have the opportunity and expectation to speak.

Treatment sessions 6 and 7 were exposures conducted in the Clinic. A videotape depicting Carly speaking at home was watched in session. Following the videotape review, in-vivo exposures were conducted at a nearby fast-food restaurant. The examiner reviewed the behavioral hierarchy and role-played the situation with Carly prior to conducting the social exposure. Modeling, prompting, and shaping were employed. Carly successfully ordered her food independently.

Treatment sessions 8, 10, and 11 were conducted with Mr. and Mrs. B. These sessions were primarily focused on modifying parent commands and establishing contingencies for speech. Carly’s contingency plan was reviewed, but no changes were made. Following session 11, tangible reinforcers were replaced with social reinforcers.

Treatment session 9 was an exposure conducted at Carly’s home. The session focused on eliciting spontaneous speech and involved modeling, shaping, and prompting. Session 12 was an exposure conducted at Chuck E Cheese’s. The examiner modeled in-vivo social exposures for Mr. and Mrs. B. and Carly was prompted to speak to children and adults. Treatment session 13 was an exposure conducted at the Clinic. Carly introduced herself to a child her age and they engaged in social play together. Session 14 was an exposure conducted at Carly’s school. Carly successfully spoke to the examiner.
her classmates, and her teacher. She spoke comfortably with an audibility of 5. Sessions 12, 13, and 14 involved modeling, shaping, and prompting.

Carly’s final treatment session (15) was parent-focused and conducted at the Clinic. Mr. and Mrs. C. reported that Carly had been speaking comfortably in all social situations, including school. Mr. C. also mentioned that Carly spoke comfortably on the telephone now. Carly reached the end of her hierarchy, so a post-treatment assessment was scheduled. Carly did not meet criteria for selective mutism during the post-treatment or 3-month follow-up assessment. She continued to meet criteria for social phobia at post-treatment and 3-month follow-up assessment, but the clinical interference rating decreased to 4.

A summary of Carly’s progress is presented in Table 5. The table summarizes amount of words spoken, whispered, and mouthed across treatment as reported by parent and teacher. Figures 12 (words spoken), 13 (words whispered), and 14 (words mouthed) represent visual displays of Carly’s progress across treatment as reported by parent and teacher. Child data were not obtained because Carly’s parents felt she was too young to understand and complete the logs.

Participant 6

Brooke (fictitious name) was a 9-year-old European-American female who had been mute in school for four years. The initial assessment session was conducted at the Clinic and was attended by Brooke, Brooke’s mom, Ms. B., the experimenter, and a female graduate student who attended for reliability purposes. Brooke appeared comfortable and relaxed. She spoke freely to the examiner and agreed to participate in the evaluation. Brooke and Ms. B. politely and efficiently answered the interview
questions. Ms. B. expressed concern over Brooke’s mutism in social settings and was especially worried about Brooke speaking in school.

Presenting Complaints

Ms. B. indicated via structured diagnostic interview that Brooke did not speak at school. Brooke spoke freely with her immediate family at home. However, she did not speak to her father or paternal grandparents and displayed variant speaking patterns when visitors were present in the home. Ms. B. reported that Brooke had fewer friends than most kids and would not speak to children. However, Brooke preferred to spend the majority of her time with other kids.

The examiner inquired about symptoms of various internalizing and externalizing behavior disorders. Ms. B. revealed that Brooke was fearful of, and avoided, many evaluative situations. These situations included answering questions in class, reading aloud or giving oral reports, asking the teacher a question or asking for help, answering or talking on the telephone, conversing with others, and inviting a friend to play. However, Brooke did not fear taking written tests, playing with a group, attending physical education class or team meetings, eating before others, using public bathrooms, engaging in athletic performances, or attending parties. In addition, Ms. B. stated that Brooke often got angry, “froze,” or refused to speak in social situations. In general, Brooke failed to verbally participate in various activities outside her home. Brooke met diagnostic criteria for social phobia and selective mutism (clinical interference 8). ADIS-C interview results were similar to the ADIS-P, but Brooke endorsed less fear and avoidance of evaluative situations. Thus, the clinical interference ratings for social phobia and selective mutism were 4. Brooke did not meet criteria for another disorder.
Furthermore, Ms. B. reported that nothing traumatic had occurred to her daughter and denied a family history of selective mutism. A maternal and paternal history of shyness and anxiety and a maternal history of school refusal behavior were reported. Data from the CBCL and TRF were largely unremarkable except for elevated parent-reported internalizing problems. Specifically, Brooke’s mother endorsed the presence of evaluative anxiety, perfectionism, nervousness, fear, anxiety, refusal to speak, worry, self-consciousness, and shyness/timidity. Brooke’s teacher endorsed the presence of fear, anxiety, perfectionism, nervousness, worry, refusal to speak, self-consciousness, shyness/timidity, evaluative anxiety, and social withdrawal. These ratings provided further evidence of Brooke’s mutism and social phobia. In general, Brooke was a well-behaved child who did not speak in social settings and especially school.

Assessment results were reviewed with Ms. B. at the consultation session. The examiner reviewed the treatment components, expected course of treatment, and treatment options with Ms. B. and Brooke and they agreed to participate in the study. Treatment was scheduled to begin one week following consultation.

Course of Treatment and Progress

Brooke received 16 treatment sessions. She received 8 sessions of treatment A and 8 sessions of treatment B and treatment began with treatment B. Rapport was readily established across sessions. Treatment session 1 was parent-focused and conducted at the Clinic and consisted of explaining goals of treatment, outlining the expected course of treatment, and reviewing principles of contingency management. A parent-based reward and consequence system was established. The plan allowed Brooke to earn pretend
dollars for displaying target behaviors. She could use her dollars for purchases at her favorite stores.

Sessions 2 and 3 were conducted at the Clinic and involved explaining goals of treatment, defining concepts of exposure therapy, and establishing a behavioral hierarchy of anxiety-provoking situations. The examiner employed shaping, modeling, and prompting to elicit Brooke’s speech. The examiner solicited from Brooke anxiety-provoking situations and created a behavioral hierarchy. Beginning with the least anxiety-provoking situation and progressing to the most anxiety-provoking situation, Brooke’s hierarchy read as follows: (1) speaking to adults in social settings, (2) speaking to children in social settings, (3) playing games that involve speaking on school grounds, (4) reading on school grounds, (5) talking in classroom without class or teacher present, (6) reading in classroom without class or teacher present, (7) reading in classroom with teacher present, (8) asking or answering the teacher’s question without the class present, (9) reading to teacher without the class present, (10) asking or answering the teacher’s question with the class present, (11) playing games with classmates in class that involve speaking, and (12) reading in class when entire class is present. Brooke spoke comfortably to the examiner in the Clinic, so speaking in the clinic was not included in the hierarchy.

The examiner reviewed principles of behavior modification with Ms. B. during session 4. Changes were made to Brooke’s contingency plan to adjust reward and consequences in accordance with her hierarchy. Session 5 was an exposure session conducted in a mall and involved shaping, modeling, prompting, hierarchy review, and systematic desensitization. The session focused on increasing Brooke’s speech with
adults in social settings. Brooke successfully ordered items and asked questions to employees at several stores.

Sessions 6 and 7 were parent-focused and involved reviewing the contingency plan and principles of behavior modification. Ms. B. was instructed to establish routines for Brooke in which she would have the opportunity and expectation to speak. The contingency plan was reviewed again during session 9, but no changes were made.

Treatment session 8 was an exposure conducted on the playground at Brooke’s school. Modeling, prompting, shaping, and hierarchy review were employed. Brooke remained silent and refused to participate in session. She threw temper tantrums and ran away from the examiner when prompted to communicate. Treatment session 10 was an exposure conducted at the Clinic. The examiner reviewed the hierarchy with Brooke and the following step was added: playing games at the library across the street from the school. This step was added with the goal of shaping the exposure to school grounds.

Treatment sessions 11 and 13 were conducted at the library and recreation center near Brooke’s school. These sessions involved modeling, prompting, shaping, and hierarchy review. The examiner modeled in-vivo social exposures for Ms. B. Brooke spoke to the examiner and her family at the library, at the recreation center, and in the adjacent parking lot to the school. However, once the exposure was moved to school grounds, Brooke became mute and refused to participate.

Treatment sessions 12, 14, and 15 were conducted with Ms. B. These sessions were primarily focused on modifying parent commands for speech, reviewing Brooke’s consequence system, and establishing contingencies for Brooke and her family members.
Brooke’s contingency plan was reviewed, but no changes were made. Brooke’s paternal grandmother became involved in her treatment plan and attended session 12.

Brooke’s final treatment session (16) was conducted at the library outside her school. The examiner attempted to shape Brooke’s speech to school grounds, but she refused to participate once the exposure was moved to the school parking lot. Brooke ran away from the school and threw a tantrum. Her mother brought her back to the school and prompted her to complete the exposure. Brooke screamed a few sentences at her mother and the session was ended. Ms. B. contacted the examiner after session 16 and they decided that Brooke would benefit best from treatment B and not treatment A as her behavior appeared to be more oppositional and not anxiety-based. The examiner agreed to modify Brooke’s treatment. However, the family had personal troubles and decided to withdraw from the study.

Ms. B and Brooke agreed to participate in the post-treatment assessment. Brooke continued to meet ADIS-P criteria for selective mutism and social phobia (clinical interference 8) during the post-treatment and 3-month follow-up assessment. However, Ms. B. noted that Brooke was speaking more often and with more ease in several social situations. Brooke met ADIS-C criteria for selective mutism (clinical interference 4) at post-treatment. Brooke did not meet criteria for an ADIS-C diagnosis at 3-month follow-up. According to Brooke, she did not fear speaking; she simply did not want to speak to others. She denied any clinical interference and so she did not meet criteria for selective mutism.

A summary of Brooke’s progress is presented in Table 6. The table summarizes amount of words spoken, whispered, and mouthed across treatment as reported by parent
and child. Figure 15 (words spoken) represents visual displays of Brooke’s progress across treatment as reported by parent and child. Parent and child rated number of words whispered and mouthed as zero across treatment, so this information was not presented visually. Teacher data were not obtained because Brooke’s teacher declined participation.

Participant 7

Addison (fictitious name) was a 6-year-old Asian female who had been mute in school for two years. The initial assessment session was conducted at the Clinic and was attended by Addison, Addison’s mom, Mrs. A., the experimenter, and a female graduate student who attended for reliability purposes. Addison appeared shy and anxious. She remained silent throughout the evaluation. The examiner informed Addison that she could respond nonverbally, but she chose not to participate in the interview. Mrs. A. politely and efficiently answered the interview questions. She expressed concern over Addison’s behavior and was especially worried about school becoming increasingly difficult for Addison because there would be greater demands for speech.

**Presenting Complaints**

Mrs. A. indicated via structured diagnostic interview that Addison had not spoken at school since kindergarten. She spoke freely with her family at home, but displayed variant speaking patterns when visitors were present in the home. Mrs. A. noted that Addison would speak to visitors after they stayed with them for a few days. Mrs. A. reported that Addison had trouble making friends because she did not want to speak to children. However, Addison preferred to spend the majority of her time with other kids.
The examiner inquired about symptoms of various internalizing and externalizing behavior disorders. Mrs. A. revealed that Addison was fearful of, and avoided, many evaluative situations. These situations included answering questions in class, reading aloud or giving oral reports, asking the teacher a question or asking for help, writing on the chalkboard, conversing with others, speaking to adults, and talking to people she did not know well. However, Addison did not fear taking written tests, attending physical education class or team meetings, playing with a group, eating before others, using public bathrooms, engaging in athletic performances, talking on the telephone, or inviting a friend to play. In addition, Mrs. A. stated that Addison often “froze” and failed to speak in social situations. In general, Addison failed to verbally participate in various activities outside her home, especially school. Addison met diagnostic criteria for social phobia and selective mutism (clinical interference 6.5). Addison did not meet criteria for another disorder.

Furthermore, Mrs. A. reported that nothing traumatic had occurred to her daughter and denied a family history of selective mutism or anxiety. A history of shyness was reported in two grandparents. Data from the CBCL and TRF were largely unremarkable except for elevated parent- and teacher-reported internalizing problems. Specifically, Addison’s mother endorsed the presence of nervousness, fear, anxiety, obsessions, dependency, refusal to speak, worry, loneliness, social withdrawal, self-consciousness, and shyness. Addison’s teacher endorsed the presence of dependency, evaluative anxiety, fear, self-consciousness, refusal to speak, perfectionism, shyness/timidity, social withdrawal, and worry. These ratings provided further evidence of Addison’s mutism.
and social phobia. In general, Addison was a well-behaved child who did not speak in social settings.

Assessment results were reviewed with Mrs. A. at the consultation session. The examiner reviewed the treatment components, expected course of treatment, and treatment options with Mrs. A. and Addison and they agreed to participate in the study. Treatment was scheduled to begin one week following consultation.

Course of Treatment and Progress

Addison received 21 treatment sessions. She received 11 sessions of treatment A and 10 sessions of treatment B and treatment began with treatment B. Rapport was easily established across sessions. Treatment session 1 was a parent session conducted at the Clinic and consisted of explaining goals of treatment, outlining the expected course of treatment, and reviewing principles of contingency management. A parent-based reward and consequence system was established. The plan allowed Addison to earn “Allison” dollars for displaying target behaviors. She could use her dollars for purchases at bargain stores.

Sessions 2 and 3 were conducted at the Clinic and involved explaining goals of treatment, defining concepts of exposure therapy, and establishing a behavioral hierarchy of anxiety-provoking situations. The examiner employed shaping, modeling, and prompting to elicit Addison’s speech. Addison began to whisper to the examiner during session 2. The examiner solicited from Addison anxiety-provoking situations and created a behavioral hierarchy. Beginning with the least anxiety-provoking situation and progressing to the most anxiety-provoking situation, Addison’s hierarchy read as follows: (1) mouthing or whispering in Clinic, (2) speaking in Clinic, (3) reading in Clinic, (4)
ordering items in public, (5) speaking to adults in social settings, (6) speaking to children in social settings, (7) speaking in classroom without class present, (8) speaking in classroom with teacher present, (9) speaking to classmates with teacher present, (10) asking teacher a question without class present, (11) asking teacher a question with class present, (12) reading in classroom without class or teacher present, (13) read in classroom without class present, and (14) reading in classroom with class and teacher present.

Addison’s contingency plan was reviewed during session 4, but no changes were made. Session 5 was an exposure session conducted in the Clinic and involved shaping, modeling, prompting, and hierarchy review. The session focused on increasing the volume of Addison’s whispers to approximate normal speaking.

Sessions 6, 7, and 9 were parent-focused and involved reviewing the contingency plan and principles of behavior modification. To accommodate Mrs. A., sessions 6 and 9 were conducted at their home. Session 7 was conducted at the Clinic. Mrs. A. was instructed to establish scenarios for Addison in which she would have the opportunity and expectation to speak. No changes were made to Addison’s hierarchy or rewards system.

Treatment session 8 was an exposure session conducted at Addison’s home. Modeling, prompting, and shaping were employed to elicit normal speech from Addison. Addison’s voice reached an audibility of a 10 and she read to the examiner in session.

Treatment sessions 10 and 11 were social exposures conducted at Chuck E Cheese’s. These sessions involved modeling, prompting, shaping, and hierarchy review. The examiner modeled in-vivo social exposures for Mrs. A. Addison was prompted to
speak to children and adults. She successfully ordered food and held short conversations with others.

Treatment sessions 12, 14, and 15 were conducted with Mrs. A. To accommodate Mrs. A., sessions 14 and 15 were conducted at their home. These sessions were primarily focused on modifying parent commands for speech and discussing obstacles to the contingency plan. Addison’s contingency plan was reviewed and consequences for not speaking in school were added during session 14. Consequences consisted of loss of privileges such as decreased computer time.

Treatment sessions 13 and 16 were exposure visits conducted at Addison’s school. These sessions involved modeling, prompting, shaping, stimulus fading, and hierarchy review. Addison successfully read to the examiner in the classroom in a normal voice. However, once her teacher was gradually introduced into the classroom, Addison’s voice regressed to a whisper. Addison’s hierarchy was modified to include playing games in front of her teacher prior to reading in front of her teacher.

Treatment sessions 17 and 20 were parent-focused and conducted at the Clinic. These sessions were primarily focused on modifying parent commands for speech. Addison’s contingency plan was reviewed, but no changes were made. Following session 17, tangible reinforcers were replaced with social reinforcers.

Treatment sessions 18, 19, and 21 were exposure visits conducted at Addison’s school and involved hierarchy review, prompting, and shaping. Addison successfully played games and read in front of her teacher. Addison began speaking directly to her teacher in a normal voice during session 18. The amount and volume of her speech was shaped until normal speaking patterns were reached by session 21.
Addison reached the end of her hierarchy and Mrs. A. reported that Addison continued to speak comfortably in all social settings, so the post-treatment assessment was scheduled. Addison did not meet criteria for selective mutism during the post-treatment or 3-month follow-up assessment. She continued to meet criteria for social phobia, but the clinical interference ratings decreased to 4.

A summary of Addison’s progress is presented in Table 7. The table summarizes amount of words spoken, whispered, and mouthed across treatment as reported by parent and teacher. Figures 16 (words spoken), 17 (words whispered), and 18 (words mouthed) represent visual displays of Addison’s progress across treatment as reported by parent and teacher. Child data were not obtained because Addison chose not to complete daily logs.

Participant 8

Kasey (fictitious name) was a 5-year-old biracial female who had been mute in social settings for two years. The initial assessment session was conducted at the Clinic and was attended by Kasey, Kasey’s mom, Mrs. K., the experimenter, and a female graduate student who attended for reliability purposes.

Kasey appeared timid and nervous. Kasey verbally told her mother that she was not going to speak to the examiner. The examiner informed Kasey that she could respond nonverbally, but she chose not to participate in the interview. Kasey spoke to her mother in front of the examiner, but she failed to speak directly to the examiner until the end of the evaluation. Kasey said she liked stickers and asked for a lollipop. Mrs. K. politely and efficiently answered the interview questions. She expressed concern over Kasey’s behavior and was especially worried about Kasey attending preschool. Kasey had
difficulty attending preschool in the past and her parents withdrew her because she was unable to inform her teachers when she needed to use the restroom. Mrs. K. was concerned about Kasey being able to function academically and socially in kindergarten.

Presenting Complaints

Mrs. K. indicated via structured diagnostic interview that Kasey did not speak at preschool and she had difficulty separating from her mother. Kasey spoke freely with her family at home. However, she displayed variant speaking patterns when non-family members were present in the home. Mrs. K. reported that Kasey was delayed in speech, but had never been officially diagnosed with a developmental delay. Kasey attended speech therapy for two months, but the speech therapist said Kasey’s lack of language was not attributed to a speech disorder. Mrs. K. reported that Kasey had fewer friends than most kids and had trouble making friends because she did not speak to children. However, Kasey preferred to spend the majority of her time with other kids.

The examiner inquired about symptoms of various internalizing and externalizing behavior disorders. Mrs. K. revealed that Kasey was fearful of, and avoided, many evaluative situations. These situations included asking the teacher a question, asking for help, playing with a group, attending parties, having her picture taken, answering or talking on the telephone, conversing with others, speaking to adults, and talking to people she did not know well. However, Kasey did not fear eating before others, using public bathrooms, or inviting a friend to play. In addition, Mrs. K. said Kasey often cried, got angry or frustrated, “froze,” or refused to speak in social situations. In general, Kasey failed to verbally participate in various activities outside her home. Kasey met diagnostic criteria for social phobia and selective mutism (clinical interference 8). In addition,
Kasey met criteria for attention-deficit hyperactivity disorder predominantly inattentive type (clinical interference 6). Kasey did not meet criteria for another disorder.

Furthermore, Mrs. K. reported that nothing traumatic had occurred to her daughter and denied a family history of selective mutism. A paternal history of shyness and anxiety was reported. Data from the CBCL were largely unremarkable except for elevated parent-reported internalizing problems. Specifically, Kasey’s mother endorsed the presence of evaluative anxiety, nervousness, fear, dependency, refusal to speak, worry, social withdrawal, self-consciousness, shyness, and sadness. These ratings provided further evidence of Kasey’s mutism and social phobia. In general, Kasey was a well-behaved child who did not speak in social settings. Kasey was not in school at the time of initial evaluation, so teacher data could not be solicited.

Assessment results were reviewed with Mrs. K. at the consultation session. The examiner reviewed the treatment components, expected course of treatment, and treatment options with Mrs. K. and Kasey and they agreed to participate in the study. Treatment was scheduled to begin one week following consultation.

Course of Treatment and Progress

Kasey received 16 treatment sessions. She received 8 sessions of treatment A and 8 sessions of treatment B and treatment began with treatment B. Rapport was easily established across sessions. Treatment session 1 was parent-focused and conducted at the Clinic and consisted of explaining goals of treatment, outlining the expected course of treatment, and reviewing principles of contingency management. A parent-based reward and consequence system was established. The plan allowed Kasey to earn pretend dollars for displaying target behaviors. She could use her dollars for purchases at bargain stores.
Sessions 2 and 3 were conducted at the Clinic and involved explaining goals of treatment, defining concepts of exposure therapy, and establishing a behavioral hierarchy of anxiety-provoking situations. The examiner employed shaping, modeling, and prompting to elicit Kasey’s speech. The examiner solicited from Kasey anxiety-provoking situations and created a behavioral hierarchy. Beginning with the least anxiety-provoking situation and progressing to the most anxiety-provoking situation, Kasey’s hierarchy read as follows: (1) speaking in Clinic, (2) engaging in spontaneous conversations in Clinic, (3) playing games that involved speaking and making verbal requests in Clinic, (4) ordering items in public, (5) talking to adults in social settings, and (6) talking to children in social settings. Kasey began to speak to the examiner during session 2.

Kasey’s contingency plan was reviewed during session 4, but no changes were made. Session 5 was an exposure session conducted in the Clinic and involved shaping, modeling, prompting, and hierarchy review. The session focused on increasing the length of Kasey’s sentences and spontaneous speech was encouraged.

Sessions 6 and 7 were parent-focused and involved reviewing the contingency plan and principles of behavior modification. Mrs. K. was instructed to establish routines for Kasey in which she would have the opportunity and expectation to speak. The contingency plan was reviewed again during session 9, but no changes were made.

Treatment session 8 was an exposure session conducted partly in the Clinic and partly in a nearby fast-food restaurant. Modeling, prompting, and shaping were employed. A videotape depicting Kasey singing at home was watched with Kasey in session. Following the videotape review, an in-vivo exposure session was conducted at a
nearby fast-food restaurant. The examiner reviewed the behavioral hierarchy and role-played the situation with Kasey prior to conducting the social exposure. Kasey successfully ordered her food following modeling and prompting from the examiner.

Treatment sessions 10, 11, and 13 were social exposures conducted at local restaurants and shopping centers. These sessions involved modeling, prompting, shaping, and hierarchy review. The examiner modeled in-vivo social exposures for Mrs. K. Kasey was prompted to speak to children and adults. She successfully ordered food, asked questions, made independent purchases, and introduced herself to others.

Treatment sessions 12, 14, and 15 were parent-focused and conducted with Mrs. K. These sessions were primarily focused on modifying parent commands for speech. Kasey’s contingency plan was reviewed, but no changes were made. Following session 12, tangible reinforcers were replaced with social reinforcers.

Kasey’s final treatment session (16) was conducted at Chuck E Cheese’s so Kasey could speak to children in a social setting. Kasey introduced herself to others and engaged in several short conversations with children throughout the session. Kasey reached the end of her hierarchy and Mrs. K. reported that Kasey continued to speak comfortably in all social settings, so the post-treatment assessment was scheduled. Kasey did not meet criteria for selective mutism or social phobia during the post-treatment or 3-month follow-up assessment. At 3-month follow-up, Kasey was enrolled in preschool. Mrs. K reported that Kasey adjusted well to school and was speaking freely to her peers and teachers.

A summary of Kasey’s progress is presented in Table 8. The table summarizes amount of words spoken, whispered, and mouthed across treatment as reported by parent
and child. Figures 19 (words spoken) and 20 (words whispered) represent visual displays of Kasey’s progress across treatment as reported by parent and child. Parent and child rated the number of words mouthed as zero across treatment, so this information was not presented visually. Teacher data were not obtained because Kasey was not enrolled in school during the course of the study.

Participant 9

Tori (fictitious name) was a 5-year-old European-American female who had been mute in school for three years. The initial assessment session was conducted at the Clinic and was attended by Tori, Tori’s mom, Mrs. T., the experimenter, and a female graduate student who attended for reliability purposes.

Tori appeared shy and anxious. Tori verbally told her mother that she did not want to speak to the examiner. The examiner informed Tori that she could respond nonverbally, but she chose not to participate in the interview. However, Tori spoke to her mother in front of the examiner. She also answered some questions by directing her responses to her mother. Mrs. T. politely and efficiently answered the interview questions. She expressed concern over Tori’s behavior and was especially worried about Tori entering first grade in the fall.

*Presenting Complaints*

Mrs. T. indicated via structured diagnostic interview that Tori did not speak at school. Although Tori had never spoken at school, she loved attending. Tori spoke normally with her family, at home, and to a few friends. Mrs. T. reported that Tori had trouble making friends and preferred to spend the majority of her time alone.
The examiner inquired about symptoms of various internalizing and externalizing behavior disorders. Mrs. T. revealed that Tori was fearful of, and avoided, many evaluative situations. These situations included answering questions in class, reading aloud or giving oral reports, asking the teacher a question, asking for help, walking in the hallways at school, engaging in musical or athletic performances, attending parties or school activity nights, conversing with others, speaking to adults, and talking to people she did not know well. However, Tori did not fear taking written tests, attending physical education class, eating before others, using public bathrooms, answering or talking on the telephone, or playing with a group. In addition, Mrs. T. stated that Tori often cried, “froze,” or refused to speak in social situations. In general, Tori failed to verbally participate in various activities outside her home. Tori met diagnostic criteria for social phobia and selective mutism (clinical interference 8). Tori did not meet criteria for another disorder.

Furthermore, Mrs. T. reported that nothing traumatic had occurred to her daughter and denied a family history of selective mutism or anxiety. A maternal history of shyness was reported. Data from the CBCL and TRF were largely unremarkable. All scores were within normal range, but Tori’s mother endorsed the presence of evaluative anxiety, refusal to speak, self-consciousness, and timidity. Tori’s teacher endorsed refusal to speak, gets teased often, and shyness/timidity. These ratings provided further evidence of Tori’s mutism and social phobia. In general, Tori was a well-behaved child who did not speak in public situations and especially school.

Assessment results were reviewed with Mrs. T. at the consultation session. The examiner reviewed the treatment components, expected course of treatment, and
treatment options with Mrs. T. and Tori and they agreed to participate in the study. Treatment was scheduled to begin one week following consultation.

Course of Treatment and Progress

Tori received 12 treatment sessions. She received 6 sessions of treatment A and 6 sessions of treatment B and treatment began with treatment A. Rapport was easily established across sessions. Session 1 was conducted at the Clinic and involved explaining goals of treatment, defining concepts of exposure therapy, and establishing a behavioral hierarchy of anxiety-provoking situations. The examiner employed shaping, modeling, and prompting to elicit Tori’s speech. The examiner solicited from Tori anxiety-provoking situations and with the help of Mrs. T. a behavioral hierarchy was created. Beginning with the least anxiety-provoking situation and progressing to the most anxiety-provoking situation, her hierarchy read as follows: (1) mouthing or whispering in Clinic, (2) talking in Clinic, (3) reading in Clinic, (4) ordering items in public, (5) talking to adults in social settings, (6) talking to children in social settings, (7) talking in classroom without classmates present, (8) reading in classroom without classmates present, (9) talking in classroom with only teacher present, (10) reading in classroom with only teacher present, (11) asking the teacher a question without class present, (12) asking the teacher a question with class present, (13) talking to children in class with teacher present, and (14) reading a book in class with class and teacher present.

Treatment sessions 2 and 3 were parent-focused. These sessions consisted of explaining goals of treatment, outlining the expected course of treatment, and reviewing principles of contingency management. During session 2, a parent-based reward and consequence system was established. The plan allowed Tori to earn pretend dollars for
displaying target behaviors. She could use her dollars for purchases at her favorite store. The plan was reviewed during session 3, but no revisions were made.

Treatment session 4 was conducted at the Clinic. The examiner employed shaping, modeling, and prompting to increase the amount and audibility of Tori's speech. In addition, a videotape which depicted Tori reading and speaking in her home was played in session. Tori began to mouth and whisper to the examiner during session 4. Tori's contingency plan was reviewed in session 5, but no modifications were made. Mrs. T. was instructed to establish routines for Tori in which she would have the opportunity and expectation to speak.

Treatment sessions 6 and 7 were exposures conducted in the Clinic. Modeling, prompting, and shaping were employed. A videotape depicting Tori reading at home was watched with Tori in session. Following the videotape review, Tori's speech was shaped from a whisper to normal speech (audibility 10). By session 7, Tori began reading to the examiner in the Clinic. Session 9 was an in-vivo exposure session conducted at a nearby fast-food restaurant. The examiner reviewed the behavioral hierarchy and role-played the situation with Tori prior to conducting the social exposure. Modeling, prompting, and shaping were employed. Tori successfully ordered her food independently.

Treatment sessions 8, 10, and 11, were conducted with Mrs. T. These sessions were primarily focused on modifying parent commands for speech. Tori's contingency plan was reviewed, but no changes were made. Following session 11, tangible reinforcers were replaced with social reinforcers.

Tori's final treatment session (12) was conducted at the Clinic. Tori maintained a conversation with the examiner throughout the session. Mrs. T. reported that Tori
began speaking comfortably in all social situations, including school. Tori had made new friends and interacted with them on a regular basis, so the post-treatment assessment was scheduled. Tori did not meet criteria for a disorder during the post-treatment or 3-month follow-up assessment. She continued to speak in all social settings and even telephoned the examiner periodically to report accomplishments such as speaking in the school play.

A summary of Tori’s progress is presented in Table 9. The table summarizes amount of words spoken, whispered, and mouthed across treatment as reported by parent and child. Figures 21 (words spoken), 22 (words whispered), and 23 (words mouthed) represent visual displays of Tori’s progress across treatment as reported by parent and child. Teacher data were not obtained because Tori’s teacher refused to complete the daily logs.

Clinical Diagnoses

The ADIS primary diagnosis for all children at pre-treatment was selective mutism. The selective mutism section of the ADIS was re-administered at post-treatment to determine treatment success. Of the seven participants who completed this assessment, six no longer met criteria for selective mutism. Thus, 86% of participants who completed the post-treatment assessment met criteria for treatment success.

The ADIS-P primary diagnoses at post-treatment were social phobia (3 participants), selective mutism (1 participant), and attention-deficit-hyperactivity disorder (1 participant). Two participants were not interviewed and two did not meet criteria for any ADIS-P diagnosis. The ADIS-P primary diagnoses at 3-month follow-up were social phobia (3 participants), selective mutism (1 participant), and attention-deficit-
hyperactivity disorder (1 participant). Three participants were not interviewed and one did not meet criteria for any ADIS-P diagnosis. Table 10 summarizes these results.

Selective mutism was the ADIS-C primary diagnosis for two children at pre-treatment. Six children did not participate in the pre-treatment interview. The ADIS-C primary diagnosis for one child was separation anxiety disorder. The ADIS-C was re-administered at post-treatment to determine treatment success. Four children did not participate in the post-treatment interview. Four children did not meet ADIS-C criteria for selective mutism. Selective mutism was the ADIS-C primary diagnosis for one child at post-treatment. Thus, 80% of children who completed the ADIS-C at post-treatment met criteria for treatment success.

The ADIS-C primary diagnoses at post-treatment were social phobia (2 participants) and selective mutism (1 participant). Four participants were not interviewed and two did not meet criteria for any ADIS-C diagnosis. The ADIS-C primary diagnosis at 3-month follow-up was social phobia (1 participant). Five participants were not interviewed and three did not meet criteria for any ADIS-C diagnosis. Table 10 summarizes these results.

ADIS-P comorbid diagnoses at pre-treatment were social phobia (9 participants), separation anxiety disorder (2 participants), specific phobia (2 participants), generalized anxiety disorder (1 participant), enuresis (1 participant), oppositional defiant disorder (1 participant), and attention-deficit-hyperactivity disorder (1 participant). ADIS-P comorbid diagnosis at post-treatment was social phobia (1 participant). Two participants were not interviewed and six participants did not meet criteria for any comorbid diagnoses. ADIS-P comorbid diagnosis at 3-month follow-up was social phobia (1
participant). Three participants were not interviewed and five participants did not meet criteria for any comorbid diagnoses. Table 11 summarizes these results.

ADIS-C comorbid diagnoses at pre-treatment were social phobia (2 participants) and specific phobia (1 participant). Six participants were not interviewed. Five participants did not meet criteria for any ADIS-C comorbid diagnosis. Four participants were not interviewed. Four participants did not receive any comorbid diagnosis at 3-month follow-up and five participants were not interviewed. Table 11 summarizes these results.

Associated Symptomatology

All participants completed the CBCL at pre-treatment. Seven participants completed the CBCL at post-treatment. Two participants were unable to be reached for post-treatment assessment. Six participants completed the CBCL at 3-month follow-up. Three participants were unable to be reached for 3-month follow-up assessment. Given the small sample size, formal analyses were not conducted on CBCL data. Table 12 summarizes CBCL internalizing, externalizing, and total T scores at pre-treatment, post-treatment, and 3-month follow-up.

Pre-treatment TRF data were collected for seven participants. Data were unavailable for two participants because one child had not entered school yet and one teacher declined participation in the study. Post-treatment TRF data were only available for three participants. Two participants were unable to be reached for post-treatment assessment and four participants were not in school at the time of the assessment. Three-month follow-up data were collected for four participants. Three participants were
unable to be reached for follow-up assessment and two participants were not in school at the time of the assessment. Given the small sample size, formal analyses were not conducted on TRF data. Table 13 summarizes TRF internalizing, externalizing, and total T scores at pre-treatment, post-treatment, and 3-month follow-up.

**Daily Measures**

Data from parent, child, and teacher ratings of speech are summarized in Tables 1-9. Figures 1-23 visually represent progress across treatment for each participant with respect to number of words spoken, whispered, and mouthed in public. Table 14 and Figure 24 illustrate treatment progress for each participant from baseline to post-treatment. Baseline scores represent average number of words spoken in public per day during the two-week period prior to treatment. Post-treatment scores represent average number of words spoken in public at treatment end. The average number of words spoken in public based on parent ratings was 11.32 at baseline and 74.93 at post-treatment. The average number of words spoken in public based on child ratings was 4.99 at baseline and 77.03 at post-treatment. The average number of words spoken in public based on teacher ratings was 15.32 at baseline and 68.98 at post-treatment. Figures 26-34 visually represent data from parent, child, and teacher ratings of anxiety.

**Within-group Comparisons**

In addition to visual displays of data, statistical analyses were performed on parent, child, and teacher ratings of average number of words spoken in public per day. To test the hypothesis that treatment A produced more effects than treatment B, two-way
within group ANOVAs were conducted for parent, child, and teacher ratings of average number of words spoken in public per day. For purposes of ANOVAs, data were pooled across participants. Results indicated children displayed significantly greater speech during treatment A than treatment B based on parent ratings ($F = 13.84; p < .01$). Results further indicated children displayed significantly greater speech during treatment A than treatment B based on child ratings ($F = 12.59; p < .05$). Tables 15 and 16 summarize these results. No significant differences were found between treatment A and treatment B based on teacher report. Due to missing data, two-way within group ANOVAs of teacher ratings could only be conducted for three participants. Table 17 summarizes these results.

Treatment Effect Size

Cohen’s $d$ was calculated to measure treatment effect size based on parent, child, and teacher ratings. For purposes of the Cohen’s $d$, three paired samples $t$ tests were computed comparing treatment A and treatment B means per participant for average number of words spoken in public per day. Table 18 summarizes participant averages for treatment A and treatment B conditions based on parent, child, and teacher ratings. Paired samples $t$ tests indicated children displayed significantly greater speech during treatment A than treatment B based on parent ratings ($T= 3.70; p < .01$), child ratings ($T= 4.96; p < .01$), and teacher ratings ($T= 2.82; p < .05$).

Dunlap, Cortina, Vaslow, and Burke (1996) presented a formula for calculating effect size for repeated measures designs. Dunlap and colleagues’ (1996) formula accounts for the correlation between measures so that effect size will not be
overestimated. Large correlations make the effect more noticeable because they reduce standard error. Correlations between treatment A and treatment B for parent (.944), child (.976), and teacher (.901) ratings of speech were all large. To avoid an overestimation of effect size, Cohen's $d$ was computed from the paired samples $t$ tests with consideration of the correlation between treatments A and B using the formula proposed by Dunlap and colleagues (1996). Results indicated moderate, large, and small effect sizes for parent (.412), child (.834), and teacher (.254) ratings, respectively.

Reliability, Integrity, and Credibility

For reliability purposes, an additional graduate student attended 67% of the interviews, yielding 100% interater agreement on clinical diagnoses. A trained undergraduate or graduate student observed and rated 76% of sessions, yielding 100% ratings of adherence to treatment protocols. Treatment credibility ratings were obtained from seven participants. Treatment A received an average credibility rating of 9.5 (on a scale from 0-10) and treatment B received an average credibility rating of 7.86 (on a scale from 0-10). Table 19 summarizes the credibility ratings.
CHAPTER 5

DISCUSSION

This study is the first to examine the differential effectiveness of two behavioral treatments for selective mutism while employing a single-case experimental design with documentation of treatment outcomes, calculation of effect size, and measures of treatment integrity. The results indicate that exposure-based therapy and contingency management are effective behavioral interventions for selective mutism. The majority of children (86%) met criteria for treatment success at post-treatment assessment. Only one child met criteria for selective mutism at post-treatment assessment, but she withdrew from treatment prematurely due to family problems unrelated to the study. In addition, parent, child, and teacher ratings showed significant improvements in speech from baseline to post-treatment. Rates of speech increased over 600% from baseline to end of treatment. Furthermore, the results indicated that exposure-based therapy was more effective than contingency management. Parent, child, and teacher ratings revealed that children displayed more improvements in speech during exposure therapy phases than contingency management phases. These results support the contention that behavioral treatment strategies are effective for alleviating symptoms of selective mutism.
Several studies have illustrated the effectiveness of behavioral approaches such as contingency management, reinforcement, shaping, stimulus fading, systematic desensitization, and modeling in the treatment of selective mutism (Cohan, Chavira, & Stein, 2006; Pionek Stone et al., 2002). Furthermore, many researchers and clinicians employ treatment approaches that combine multiple behavioral interventions. However, studies have not shown differential effects between behavioral approaches such as modeling or positive reinforcement or between one behavioral approach and combined behavioral approaches such as stimulus fading and shaping (Pionek Stone et al., 2002). The present study systematically compared two combined behavioral approaches. Treatment A combined stimulus fading, modeling, shaping, systematic desensitization, prompting, and behavioral hierarchies into an exposure-based therapy protocol. Treatment B combined positive reinforcement, social reinforcement, token economies, consequences, and parent training into a contingency management protocol. Treatment gains were shown across sessions during both behavioral approaches. However, children displayed more improvements in speech during exposure therapy phases than contingency management phases. This is the first study to empirically show exposure therapy to be more effective than contingency management in treating this population. Exposure therapy is aimed at alleviating a child’s anxiety and increasing amount of speech in social settings. These results support a consensus in the research that selective mutism is linked to social phobia (Black & Uhde, 1995; Steinhausen & Juzi, 1996;
Vecchio & Kearney, 2005) and warrant behavioral assessment strategies and treatment approaches that rely on exposure-based practices (Kearney & Vecchio, 2006).

Treatment outcome studies on selective mutism are scarce. Much of the literature on selective mutism has consisted of retrospective record reviews, uncontrolled single case reports, or single case research designs with poor methodologies (Cohan et al., 2006; Pionek Stone et al., 2002). The present study is the first to employ a single case research design with control, measures of treatment integrity, calculation of effect sizes, and documentation of treatment outcomes. All participants received each treatment approach separately. Treatment was administered in a randomized and counterbalanced manner such that participants started with treatment A and followed the ABBABAAB pattern or started with treatment B and followed the BAABABBA pattern. Treatment integrity raters were used to ensure that each treatment protocol was adhered to and that alternate treatments were not employed concurrently. This study is the first to collect daily logs from parents, children, and teachers to evaluate degree of mutism. Daily ratings of behavior collected from multiple sources allowed for the comparison of speech patterns across situations. Furthermore, daily ratings of behavior documented treatment outcomes for exposure therapy and contingency management protocols. Clinicians should use daily ratings to design a treatment plan according to a child’s speech patterns in various situations. In addition, daily ratings allow for clinicians to monitor fluctuations in a child’s behavior and indicate whether treatment procedures are progressing effectively (Vecchio & Kearney, 2006).

This study further demonstrated treatment efficacy by calculating Cohen’s $d$ for effect size. Cohen’s $d$ is an index of the relationship between treatment and outcome.
Child ratings of speech indicated a large treatment effect size and parent ratings of speech indicated a moderate treatment effect size. The documentation of treatment outcomes and greater experimental control allowed this study to provide evidenced-based support for the use of exposure therapy for treating selective mutism.

This study has several general implications for the assessment and treatment of selective mutism. Clinicians should bear in mind that addressing selective mutism is an extensive and time-consuming process. Assessment should be comprehensive and ongoing and include input from multiple sources via structured diagnostic interviews, standardized instruments, and behavioral observations and daily logs. In this study, parents, children, and teachers were required to monitor and record speaking patterns on a daily basis. Daily monitoring not only allows clinicians to track fluctuations in a child’s behavior but also assesses whether treatment procedures are effective.

Treatment requires intense intervention in various settings. In addition, treatment usually necessitates multiple sessions and may need to be more frequent than traditional weekly psychotherapy. All participants in this study completed ten or more sessions and the average number of sessions was 18. Sessions were conducted in the Clinic, at the client’s home or school, or in various public settings throughout the community. Exposure sessions are usually time-consuming, but travel time to and from community exposures can also be very lengthy. Thus, much of therapy for this population requires extensive out-of-office time. Therefore, clinicians must decide whether to accept cases of selective mutism and how to structure reimbursement (Vecchio & Kearney, 2007).

This study also has more specific implications for the assessment of selective mutism. The nature of this problem warrants a behavioral assessment approach that
allows clinicians to determine variables that maintain mutism. A functional analysis of speaking patterns and anxiety levels provides good understanding of the antecedents and consequences that contribute to a child’s mute behavior (Kearney & Vecchio, 2006; Schill et al., 1996). Clinicians should assess for key antecedents such as demands or requests from others and key consequences such as parent or teacher acquiescence or accommodation of mute behavior by friends and family members (Vecchio & Kearney, 2006). Analogue assessment should be focused toward anxiety symptomatology so effective behavioral approaches can be tailored to meet the specific needs of children with selective mutism.

The treatment implications of this research highlight a need to examine specific treatment approaches as well as components within the contingency management and exposure therapy protocols. Not all treatment components were needed throughout the course of this study nor did every participant require each technique. For example, some children were immediately comfortable speaking to the examiner and so shaping and stimulus fading were not necessary to elicit speech in the Clinic. Similarly, some parents declined to incorporate tangible consequences into the contingency management plan. Each mutism case needs to be thoroughly assessed on an ongoing basis to establish the treatment utility of specific interventions. Future randomized, controlled studies are needed to dismantle the effects of both interventions and determine which features of exposure therapy and contingency management are essential.

Furthermore, not all treatment modalities work best for all types of cases. For example, contingency management may be best suited for children with more oppositional and stubborn traits, where as exposure therapy may be more effective for
children with excessive shyness and social anxiety. Certain interventions may be contraindicated based on a child’s clinical presentation. For example, Cohan and colleagues (2006) speculated that self-modeling may not work well with overly anxious children. Furthermore, techniques such as prompting and shaping may work well in community settings, where as other techniques such as systematic desensitization and graduated exposures may work best in more controlled settings (Cohan et al., 2006). Clinicians should thus bear in mind that, when treating selective mutism, a “one-size-fits-all” approach is not necessarily effective (Kearney & Vecchio, 2006).

Although this was not a dismantling study, the findings consistently demonstrated that exposure therapy produced more treatment effects than contingency management. Parents also rated the exposure therapy treatment as more effective than the contingency management approach. Parents believed exposure-based psychotherapy was more influential than parent training. Several speculations can be made as to why exposure therapy might have worked better than contingency management. First, the nature of the study compared individual psychotherapy to parent-focused treatment. Exposure-based therapy was primarily therapist-driven, focused directly on a child, and approximated traditional individual psychotherapy. On the other hand, contingency management was parent-focused and relied heavily on parent cooperation and compliance.

The main focus of contingency management was to involve a family in the implementation and design of the treatment plan. However, the therapist did not have direct contact with the child or direct influence on treatment adherence. Perhaps this treatment approach would have been more effective if children were involved in parent sessions. Overall, parent training was not as effective as exposure therapy. These
findings are consistent with research supporting individual behaviorally oriented psychotherapy as the most common treatment for selective mutism (Dow et al., 1995). Family therapy is rarely employed without individual therapy. However, many researchers support the combined use of individual and family therapy because involving the family may decrease length of treatment (Carr & Afnan, 1989; Dow et al., 1995; Hoffman & Laub, 1986; Lazarus et al., 1983). Likewise, perhaps parent training can be effective and reduce length of treatment if employed concurrently with individual therapy. Future studies are needed to further evaluate this issue.

Another explanation for the differential effectiveness of the two approaches is that exposure therapy is perhaps a better mechanism of action for selective mutism. The maintaining factor in selective mutism is often social anxiety. Selective mutism is an avoidant behavioral response to anxiety in which a child avoids the anxiety-provoking situation by withholding speech. To correct this problem, the child needs to be exposed to the avoided situation. Exposure therapy was perhaps more successful than contingency management because sessions were aimed at alleviating a child’s social anxiety in various situations. Cunningham, McHolm, and Boyle (2006) support the use of graduated exposure treatments designed to increase speaking and participation in nonverbal social activities.

Another possible reason contingency management was not as effective may be that parents are often hesitant to recognize their child’s mutism as a behavioral problem. In addition, many parents in this study failed to recognize that they often inadvertently reinforced their child’s behavior. Perhaps parents’ conceptualization of selective mutism as a manifestation of anxiety contributed to acquiescence or failure to adhere to the
contingency management protocol. As mentioned, many parents declined to utilize consequences for failure to display target behaviors. Parents often noted that they did not want to "punish" their child for anxiety or "pressure" him to speak. Clinicians need to provide parents with psychoeducation as they often do not recognize selective mutism as a behavioral condition (Sharp et al., 2006).

A third possible explanation for the differential effectiveness of the two treatment approaches may be that distinct factors maintain mute behavior. Perhaps some children remain mute in public due to fundamental social skills deficits and/or social anxiety, while other children remain mute for attention or tangible reinforcement. Thus, clinicians should consider the possibility of different subtypes of selective mutism; selective mutism maintained predominantly by social skills deficits or social anxiety or selective mutism maintained predominantly by oppositional behaviors. Treatment approaches will vary depending on the maintaining factors present, so a functional analysis of speaking patterns (Kearney & Vecchio, 2006) should be conducted. The treatment of children with selective mutism predominately maintained by social anxiety should focus on exposing children to feared social and performance situations. The treatment of children with selective mutism predominately maintained by social skills deficits should first aim to improve social skills. The treatment of children with selective mutism predominately maintained by oppositional behaviors should focus on behavior modification and elimination of secondary gains for mute behavior.

A major limitation of this study was limited sample size. Given the small sample size, analyses were limited. Data from the ADIS, CBCL, TRF, and much of the data from the daily logs were presented for information purposes only. The low prevalence of
selective mutism contributed to the difficulty in obtaining a larger sample size. Another possible contributing factor was lack of awareness of this disorder in the community. Parents often do not recognize the problem behavior because their children speak freely at home, while others may see selective mutism as shyness that children will outgrow. Some parents of children with selective mutism may not have volunteered to participate in the study because they were unaware of the problem. Furthermore, some parents may not have been aware of the study because they did not have access to the media sources that advertised it.

Another problem with the sampling was that 21 children with selective mutism were excluded from the study because they met one or more exclusionary criteria. Additionally, three (3) children decided not to participate in the study and three (3) children began participation in the study but dropped out prematurely. The high attrition rates and large number of children who met exclusionary criteria may have created sampling biases. Of the 27 children with selective mutism excluded from the study, 19 (70.4%) were male and 8 (29.6%) were female. However, 77.8% of the participants who remained in the study were female and 22.2% were male. In addition, 11 children were excluded because they had non-English speaking parents and/or English was not the primary language spoken in the home. These children were excluded because it was uncertain if any language discrepancy superseded the mutism and because a bilingual clinician was unavailable to conduct assessment or treatment. This is a problem that needs to be addressed because many bilingual children display selective mutism. Future studies should address the prevalence of selective mutism in Hispanic-American and Asian-American populations, assess for acculturation, standardize assessment measures
on these populations, and create valid and reliable culturally sensitive instruments for assessing bilingual children with selective mutism.

A further limitation of the study was differences in participant compliance with respect to ratings of anxiety and speech. Overall, parents had a high rate of compliance with very little missing daily data. However, two children chose not to complete daily logs and teacher ratings were unavailable for three children. Follow-up data were not available for three children and post-treatment data were unattainable for two children. Missing data limited comparisons and analyses that could be made.

Another limitation pertains to the design of the study. While data were collected to compare Treatment A to Treatment B, no systematic methods were taken to measure the effects of the interventions comprising the exposure therapy and contingency management protocols. Perhaps some components of the exposure therapy or contingency management protocol worked better than others and perhaps some components were unnecessary. Future controlled dismantling studies should separately examine components to see which interventions within each treatment approach are most or least effective. Another difficulty with the design of the study is possible overlap between treatments A and B. The randomized and counterbalanced ABBABAAB design helps control for carry-over effects and allows researchers to separate effects of treatments A and B. However, avoiding overlap in the two treatments entirely may be impossible. Parents were instructed not to use contingency management techniques during exposure therapy phases. However, placing a parental command on a child to answer the telephone may be construed as an exposure. Furthermore, controlling for social praise by others during exposure sessions may be impractical. Social praise could
be interpreted as a reinforcer and hence part of the contingency management protocol. Parents, teachers, and family members were instructed not to provide reinforcement during the exposure phases. Future studies should evaluate other ways to separate the two treatment approaches.

A further limitation of the study was the absence of manipulation checks between sessions. While parents were reminded not to administer alternating interventions between sessions, no systematic methods were taken to measure parental adherence to treatment protocols. Future studies should include manipulation checks and measures of treatment integrity for parents and teachers.

Future research should replicate the current study with a larger sample size and include more assessment measures and long-term follow-up. More research should examine the treatment utility of the analogue assessment approach proposed by Schill and colleagues (1996) and Kearney and Vecchio (2006). In general, more research and specific measures are needed to assess selective mutism. Efforts should be taken to include bilingual children in research studies and to increase participation from teachers and other family members in treatment. Furthermore, a great need exists for relatively large controlled outcome studies with dismantling designs to provide empirically supported interventions to treat selective mutism. Treatment studies evaluating predictors of treatment success and dropout would contribute significantly to the literature on selective mutism.

While the research on selective mutism has increased over the past 15 years, this is an area of clinical psychology that demands more attention. Clinicians, teachers, and parents need to be better informed about the nature of selective mutism to reduce lag time.
between symptom onset and treatment referral (Sharp et al., 2006). Strong working alliances between community organizations, physicians, school psychologists, advocacy groups, and researchers are needed to expand research possibilities (Cohan et al., 2006). Future research would benefit the field of psychology and ultimately help children with selective mutism overcome social anxiety and allow them to speak in public. This is especially crucial because, without treatment, these children suffer socially, developmentally, and academically.

The current study provides additional support for the use of behavioral interventions for selective mutism. More specifically, the randomized controlled design of this study provided empirical support for the differential effectiveness of exposure-based therapy. The study has several implications for classification, assessment, and treatment of selective mutism. Selective mutism should be viewed as an anxiety problem and children should be regularly assessed for anxiety symptomatology and speech patterns. Doing so allows therapists to tailor effective behavioral approaches such as exposure therapy and contingency management to the specific needs of children with selective mutism.

Clinicians also need to understand the urgency of this population. Many children spend years in silence before their mutism is brought to clinical attention. Parents are often frustrated, have low expectations for treatment success, and have negative outlooks on their child's academic and social future. Frequent contact with family members and teachers is a must. In general, successfully addressing selective mutism is a highly rewarding but time-consuming process (Vecchio & Kearney, 2007).
APPENDIX I

Figure 1

Participant 1 Progress Across Treatment

Note. A = Exposure Therapy, B = Contingency Management.
Figure 2

Participant 1 Progress Across Treatment

Note. A = Exposure Therapy, B = Contingency Management.
Figure 3

Participant 1 Progress Across Treatment

Note. A = Exposure Therapy, B = Contingency Management.
Figure 4

Participant 2 Progress Across Treatment

Note. A = Exposure Therapy, B = Contingency Management.
Figure 5

Participant 2 Progress Across Treatment

Note. A = Exposure Therapy, B = Contingency Management.
Participant 2 Progress Across Treatment

Words Mumbled per Day in Public

Session 1  Session 2  Session 3  Session 4

Parent A  Parent B  Child A  Child B  Teacher A  Teacher B

Note. A = Exposure Therapy, B = Contingency Management.
Note. A = Exposure Therapy, B = Contingency Management.
Figure 8

**Participant 3 Progress Across Treatment**

Note. A = Exposure Therapy, B = Contingency Management.
Figure 9

**Participant 4 Progress Across Treatment**

Note. A = Exposure Therapy, B = Contingency Management.
Participant 4 Progress Across Treatment

Note. A = Exposure Therapy, B = Contingency Management.
Participant 4 Progress Across Treatment

Words Muttered per Day in Public

Note. A = Exposure Therapy, B = Contingency Management.
Figure 12

Participant 5 Progress Across Treatment

Note. A = Exposure Therapy, B = Contingency Management.
Figure 13

Participant 5 Progress Across Treatment

Note. A = Exposure Therapy, B = Contingency Management.
Participant 5 Progress Across Treatment

Note. A = Exposure Therapy, B = Contingency Management.
Figure 15

Participant 6 Progress Across Treatment

Note. A = Exposure Therapy, B = Contingency Management.
Figure 16

Participant 7 Progress Across Treatment

Note. A = Exposure Therapy, B = Contingency Management.
Figure 17

Participant 7 Progress Across Treatment

Note. A = Exposure Therapy, B = Contingency Management.
Figure 18

Participant 7 Progress Across Treatment

Note. A = Exposure Therapy, B = Contingency Management.
Note. A = Exposure Therapy, B = Contingency Management.
Figure 20

Participant 8 Progress Across Treatment

Note. A = Exposure Therapy, B = Contingency Management.
Figure 21

Participant 9 Progress Across Treatment

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<tr>
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</table>

Session 1 | Session 2 | Session 3 | Session 4 | Session 5 | Session 6

- Parent A - Parent B - Child A - Child B - Teacher A - Teacher B

Note. A = Exposure Therapy, B = Contingency Management.
Figure 22

Participant 9 Progress Across Treatment

Note. A = Exposure Therapy, B = Contingency Management.
Figure 23

Participant 9 Progress Across Treatment

Note. A = Exposure Therapy, B = Contingency Management.
Figure 24

Participant Averages Baseline vs. Post-treatment

Figure 25

Participant Averages Treatment A vs. Treatment B

Note. A = Exposure Therapy, B = Contingency Management.
Figure 26

![Participant 1 Anxiety Ratings](image)

Note. A = Exposure Therapy, B = Contingency Management.
Participant 2 Anxiety Ratings

Note. A = Exposure Therapy, B = Contingency Management.
Figure 28

Participant 3 Anxiety Ratings

Note. A = Exposure Therapy, B = Contingency Management.
Note. A = Exposure Therapy, B = Contingency Management.
Figure 30

**Participant 5 Anxiety Ratings**

Note. A = Exposure Therapy, B = Contingency Management.
Figure 31

Participant 6 Anxiety Ratings

Note. A = Exposure Therapy, B = Contingency Management.
Figure 32

Note. A = Exposure Therapy, B = Contingency Management.
Figure 33

Participants 8 Anxiety Ratings

Note. A = Exposure Therapy, B = Contingency Management.
Figure 34

Participant 9 Anxiety Ratings

Note. A = Exposure Therapy, B = Contingency Management.
Note. A = Exposure Therapy, B = Contingency Management.
Figure 36

Note. A = Exposure Therapy, B = Contingency Management.
Figure 37

Participant 3

Note. A = Exposure Therapy, B = Contingency Management.
Figure 38

Note. A = Exposure Therapy, B = Contingency Management
Figure 39

Note. A = Exposure Therapy, B = Contingency Management
Participant 6

Note. A = Exposure Therapy, B = Contingency Management
Figure 41

Note. A = Exposure Therapy, B = Contingency Management
Figure 42

Note. A = Exposure Therapy, B = Contingency Management
Figure 43

Note. A = Exposure Therapy, B = Contingency Management
Table 1  Participant 1 Progress Across Treatment

<table>
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Note: Treatment A = Exposure Therapy, Treatment B = Contingency Management.

P = Parent Ratings, C = Child Ratings, T = Teacher Ratings.
**Table 2  Participant 2 Progress Across Treatment**

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Note. Treatment A = Exposure Therapy, Treatment B = Contingency Management.
P = Parent Ratings, C = Child Ratings, T = Teacher Ratings.
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Note. Treatment A = Exposure Therapy, Treatment B = Contingency Management.

P = Parent Ratings, C = Child Ratings, T = Teacher Ratings.
Table 4  Participant 4 Progress Across Treatment

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Note: Treatment A = Exposure Therapy, Treatment B = Contingency Management.

P = Parent Ratings, C = Child Ratings, T = Teacher Ratings.
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Note. Treatment A = Exposure Therapy, Treatment B = Contingency Management.
P = Parent Ratings, C = Child Ratings, T = Teacher Ratings.
Table 6  Participant 6 Progress Across Treatment

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Average Number of Words Mouthed Per Day in Public
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Note. Treatment A = Exposure Therapy, Treatment B = Contingency Management.
P = Parent Ratings, C = Child Ratings, T = Teacher Ratings.
Table 7  Participant 7 Progress Across Treatment

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Note. Treatment A = Exposure Therapy, Treatment B = Contingency Management.
P = Parent Ratings, C = Child Ratings, T = Teacher Ratings.
Table 8  Participant 8 Progress Across Treatment

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Note. Treatment A = Exposure Therapy, Treatment B = Contingency Management.

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### Table 9  
**Participant 9 Progress Across Treatment**

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*Note. Treatment A = Exposure Therapy, Treatment B = Contingency Management.*

*P = Parent Ratings, C = Child Ratings, T = Teacher Ratings.*
Table 10  Primary Diagnoses

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Note. ADIS-P = Anxiety Disorders Interview Scale for Children, Parent Version, ADIS-C = Anxiety Disorders Interview Scale for Children, Child Version, ADHD = attention-deficit hyperactivity disorder, SAD = separation anxiety disorder.
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Note. ADIS-P = Anxiety Disorders Interview Scale for Children, Parent Version, ADIS-C = Anxiety Disorders Interview Scale for Children, Child Version, SAD = separation anxiety disorder, GAD = generalized anxiety disorder, ADHD = attention-deficit hyperactivity disorder, ODD = oppositional defiant disorder.
Table 12  
Associated Symptoms

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Note: CBCL = Child Behavior Checklist.
### Table 13  Teacher Reported Associated Symptoms

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Note. TRF = Teacher Report Form.
Table 14  Participant Averages Baseline vs. Post-treatment

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Note. P = Parent Ratings, C = Child Ratings, T = Teacher Ratings.
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Note. A = Exposure Therapy, B = Contingency Management.
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<td>20.4</td>
</tr>
<tr>
<td>B6</td>
<td>55.1</td>
<td>28.3</td>
</tr>
</tbody>
</table>

Note. A = Exposure Therapy, B = Contingency Management.
Table 17  Within Group Comparisons Treatment A vs. Treatment B Teacher

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Average Number of Words Spoken Per Day in Public</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Session A1</td>
<td>3.3</td>
<td>5.8</td>
</tr>
<tr>
<td>Session A2</td>
<td>8.0</td>
<td>3.4</td>
</tr>
<tr>
<td>Session A3</td>
<td>14.3</td>
<td>5.6</td>
</tr>
<tr>
<td>Session A4</td>
<td>32.1</td>
<td>24.2</td>
</tr>
<tr>
<td>Session A5</td>
<td>51.6</td>
<td>43.1</td>
</tr>
<tr>
<td>Session A6</td>
<td>33.3</td>
<td>10.4</td>
</tr>
<tr>
<td>Session B1</td>
<td>7.1</td>
<td>7.5</td>
</tr>
<tr>
<td>Session B2</td>
<td>7.8</td>
<td>5.2</td>
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<tr>
<td>Session B3</td>
<td>9.7</td>
<td>5.9</td>
</tr>
<tr>
<td>Session B4</td>
<td>40.0</td>
<td>21.8</td>
</tr>
<tr>
<td>Session B5</td>
<td>46.7</td>
<td>34.7</td>
</tr>
<tr>
<td>Session B6</td>
<td>45.8</td>
<td>17.0</td>
</tr>
</tbody>
</table>

Note. A = Exposure Therapy, B = Contingency Management.
Table 18  Participant Averages Treatment A vs. Treatment B

<table>
<thead>
<tr>
<th></th>
<th>Treatment A</th>
<th></th>
<th>Treatment B</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>P</td>
<td>C</td>
<td>T</td>
<td>P</td>
</tr>
<tr>
<td>Average Number of Words Spoken Per Day in Public</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participant 1</td>
<td>30.3</td>
<td>58.7</td>
<td>2.3</td>
<td>0.5</td>
</tr>
<tr>
<td>Participant 2</td>
<td>84.0</td>
<td>62.1</td>
<td>0.0</td>
<td>76.6</td>
</tr>
<tr>
<td>Participant 3</td>
<td>76.9</td>
<td>95.1</td>
<td>84.7</td>
<td>68.0</td>
</tr>
<tr>
<td>Participant 4</td>
<td>49.4</td>
<td>70.0</td>
<td>35.3</td>
<td>30.7</td>
</tr>
<tr>
<td>Participant 5</td>
<td>86.3</td>
<td>23.1</td>
<td></td>
<td>95.4</td>
</tr>
<tr>
<td>Participant 6</td>
<td>58.3</td>
<td>57.7</td>
<td></td>
<td>42.1</td>
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<td>Participant 7</td>
<td>70.4</td>
<td></td>
<td>22.8</td>
<td>38.9</td>
</tr>
<tr>
<td>Participant 8</td>
<td>51.7</td>
<td>37.4</td>
<td></td>
<td>16.8</td>
</tr>
<tr>
<td>Participant 9</td>
<td>51.6</td>
<td>58.6</td>
<td></td>
<td>35.8</td>
</tr>
</tbody>
</table>

Note. Treatment A = Exposure Therapy, Treatment B = Contingency Management.

P = Parent Ratings, C = Child Ratings, T = Teacher Ratings.
Table 19  Credibility Ratings

<table>
<thead>
<tr>
<th>Participant</th>
<th>Treatment A</th>
<th>Treatment B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant 1</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Participant 2</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Participant 3</td>
<td>10.0</td>
<td>10.0</td>
</tr>
<tr>
<td>Participant 4</td>
<td>9.5</td>
<td>5.5</td>
</tr>
<tr>
<td>Participant 5</td>
<td>7.0</td>
<td>8.0</td>
</tr>
<tr>
<td>Participant 6</td>
<td>10.0</td>
<td>5.0</td>
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<tr>
<td>Participant 7</td>
<td>10.0</td>
<td>9.0</td>
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<tr>
<td>Participant 8</td>
<td>10.0</td>
<td>10.0</td>
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<tr>
<td>Participant 9</td>
<td>10.0</td>
<td>7.5</td>
</tr>
<tr>
<td>Average</td>
<td>9.5</td>
<td>7.9</td>
</tr>
</tbody>
</table>

Note. A = Exposure Therapy, B = Contingency Management.
APPENDIX II

CHILD DAILY RATINGS OF ANXIETY (DRA)

DIRECTIONS: Rate your anxiety (nervous, tense, scared, fearful) on a 0-10 scale where 0 = none and 10 = extreme. Use any number from 0 to 10.

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>none</td>
<td>some</td>
<td>extreme</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>DATE</th>
<th>ANXIETY</th>
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<tbody>
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<td></td>
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</table>
CHILD DAILY RATINGS OF BEHAVIORS (DRB)

DIRECTIONS: Record the numbers of words you spoke, whispered or mouthed today in the following situations. Rate how loud your speech was on a 0-10 scale where 0 = no one could hear you and 10 = everyone could hear you. Use any number from 0 to 10.

<table>
<thead>
<tr>
<th>no one</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>7</td>
<td>8</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>everyone</td>
<td></td>
<td></td>
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</tbody>
</table>

**SCHOOL**

# words spoken # words whispered # words mouthed Audibility

**PHONE**

# words spoken # words whispered # words mouthed Audibility

**PUBLIC**

# words spoken # words whispered # words mouthed Audibility

DIRECTIONS: Record the people that you spoke, whispered or mouthed to today in the following situations, by answering yes or no. Yes indicates that you communicated with the person and no means you did not. Please circle YES or NO.

**SCHOOL**

Mouthed teacher YES NO classmate YES NO other person YES NO

Whispered teacher YES NO classmate YES NO other person YES NO

Spoke teacher YES NO classmate YES NO other person YES NO

**PHONE**

Whispered family member YES NO friend YES NO teacher YES NO

Spoke family member YES NO friend YES NO teacher YES NO

**PUBLIC**

Mouthed family YES NO friend YES NO teacher YES NO

Whispered family YES NO friend YES NO teacher YES NO

Spoke family YES NO friend YES NO teacher YES NO

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APPENDIX III

Information Sheet

This sheet is to be filled out by one or both parents/guardians. The information you provide will be coded numerically and will in no way be associated with you or your child. Please feel free to skip an item if you don’t feel comfortable answering it; however it is hoped that you will respond honestly to all items.

1. Child’s name: _____________________________________________

2. Child’s birth date: _____________________________________________

3. Child’s Gender: (circle one) M F

4. Child’s Ethnicity: (circle one)
   Asian  African-American  European-American  Hispanic  Multiracial/Biracial  Native American  Other
   Please indicate whether you are the child’s PARENT or GUARDIAN by circling one.

5. Mother’s/Guardian’s name: _____________________________ age: ________________

6. Father’s/Guardian’s name: _____________________________ age: ________________

7. Did mother/guardian graduate from high school? Yes No
   How many years, if any, did mother/guardian attend school after high school? __________

8. Did father/guardian graduate from high school? Yes No
   How many years, if any, did father/guardian attend school after high school? __________

9. Mother’s/Guardian’s occupation: ____________________________________________

10. Father’s/Guardian’s occupation: ____________________________________________

11. Number of hours mother/guardian works outside the home per week?________________

12. Number of hours father/guardian works outside the home per week?_________________

13. Age (in years) and gender of all siblings:
   age:______gender: M F age:______gender: M F age:______gender: M F
   age:______gender: M F age:______gender: M F age:______gender: M F

14. Marital status of parents/guardians currently? (circle one)
   married  never married  separated  divorced
15. Marital status of parents/guardians 1 year ago? (circle one)
   married    never married    separated    divorced

16. How stable is your marriage now? (circle one) very stable somewhat stable not stable

17. How stable was your marriage 1 year ago? (circle one) very stable somewhat stable not stable

18. If parents/guardians are separated or divorced, circle one of the following:
   joint custody    mother has custody    father has custody

19. If parents do not have joint custody, how many hours per month does the non-custodial parent spend with the child? ____________

20. Is one or both of the custodial parents remarried? Yes No
   If yes, (circle one):  Both are remarried  Only mother is remarried  Only father is remarried

21. Is your child adopted? Yes No

22. Has child's mother ever been to therapy for any mental condition? Yes No
   Dates attended: ________________________ What reason: ________________________

23. Has child's father ever been to therapy for any mental condition? Yes No
   Dates attended: ________________________ What reason: ________________________

24. Has the child been in therapy for any behavioral problem or mental conditions? Yes No
   Dates attended: ________________________ What reason: ________________________

25. Has child's sibling(s) ever been to therapy for any mental condition? Yes No
   Dates attended: ________________________ What reason: ________________________

26. Has the child ever taken medication for any mental condition? Yes No
   Dates taken: ________________________ What medication: ________________________

27. Is there a history of selective mutism in your family? Yes No
   Relation ________________________

28. Is there a history of shyness in your family? Yes No
   Relation ________________________

29. Is there a history of anxiety in your family? Yes No
   Relation ________________________

30. Does your family participate in religion on a regular basis? Yes No

31. Is your child also religious? Yes No

32. What is your family’s average annual income? ________________________
In the future, the researcher may want to make brief contact with you again as a follow-up. Of course, your cooperation would, again, be entirely voluntary. Please provide the following information if it is all right that someone contact you later.

Name and Mailing address: ____________________________________________

________________________________________

________________________________________

________________________________________

Telephone number:

home: ________________________________

work: ________________________________
APPENDIX IV

PARENT DAILY RATINGS OF CHILD ANXIETY (DRCA)

DIRECTIONS: Rate your child's anxiety (nervous, tense, scared, fearful) on a 0-10 scale where 0 = none and 10 = extreme. Use any number from 0 to 10.

<table>
<thead>
<tr>
<th>DATE</th>
<th>ANXIETY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</tbody>
</table>

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PARENT DAILY RATINGS OF CHILD BEHAVIORS (DRCB)

DIRECTIONS: Record the numbers of words your child spoke, whispered or mouthed today in the following situations. Rate how loud your child’s speech was on a 0-10 scale where 0= not at all audible and 10 = completely audible. Use any number from 0 to 10.

<table>
<thead>
<tr>
<th>0 1 2 3 4 5 6 7 8 9 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>not audible</td>
</tr>
<tr>
<td>moderately</td>
</tr>
<tr>
<td>completely</td>
</tr>
</tbody>
</table>

**IN PUBLIC**

<table>
<thead>
<tr>
<th># words spoken</th>
<th># words whispered</th>
<th># words mouthed</th>
<th>Audibility</th>
</tr>
</thead>
</table>

**ON THE PHONE**

<table>
<thead>
<tr>
<th># words spoken</th>
<th># words whispered</th>
<th># words mouthed</th>
<th>Audibility</th>
</tr>
</thead>
</table>

**AT HOME**

<table>
<thead>
<tr>
<th># words spoken</th>
<th># words whispered</th>
<th># words mouthed</th>
<th>Audibility</th>
</tr>
</thead>
</table>

DIRECTIONS: Record the people that your child spoke, whispered or mouthed to today in the following situations, by answering yes or no. Please circle YES or NO.

**IN PUBLIC**

- **Mouthed**
  - family
  - friend
  - teacher
  - other person

- **Whispered**
  - family
  - friend
  - teacher
  - other person

- **Spoke**
  - family
  - friend
  - teacher
  - other person

**PHONE**

- **Whispered**
  - family member
  - friend
  - teacher

- **Spoke**
  - family member
  - friend
  - teacher

**AT HOME**

- **Mouthed**
  - family member
  - friend
  - other person

- **Whispered**
  - family member
  - friend
  - other person

- **Spoke**
  - family member
  - friend
  - other person

Did your child speak, whisper, or mouth to someone that he/she does not normally speak to? **YES NO**

If yes, please indicate who and describe the amount and audibility of words communicated

---

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APPENDIX V

TEACHER DAILY RATINGS OF STUDENT ANXIETY (DRSA)

DIRECTIONS: Rate the student's anxiety (nervous, tense, scared, fearful) on a 0-10 scale where 0 = none and 10 = extreme. Use any number from 0 to 10.

<table>
<thead>
<tr>
<th>DATE</th>
<th>ANXIETY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</tbody>
</table>
TEACHER DAILY RATINGS OF STUDENT BEHAVIORS (DRSB)

DIRECTIONS: Record the numbers of words the student spoke, whispered or mouthed today in school. Rate how loud the student's speech was on a 0-10 scale where 0 = not at all audible and 10 = completely audible. Use any number from 0 to 10.

<table>
<thead>
<tr>
<th># words spoken</th>
<th># words whispered</th>
<th>total # words mouthed</th>
<th>Audibility</th>
</tr>
</thead>
</table>

DIRECTIONS: Record whom the student spoke, whispered or mouthed to today in the following situations, by answering yes or no. Please circle YES or NO.

IN CLASSROOM
Mouthed
classmate YES NO friend YES NO teacher YES NO
Whispered
classmate YES NO friend YES NO teacher YES NO
Spoke
classmate YES NO friend YES NO teacher YES NO
DURING RECESS
Mouthed
classmate YES NO friend YES NO teacher YES NO
Whispered
classmate YES NO friend YES NO teacher YES NO
Spoke
classmate YES NO friend YES NO teacher YES NO
AT LUNCH
Mouthed
classmate YES NO friend YES NO teacher YES NO
Whispered
classmate YES NO friend YES NO teacher YES NO
Spoke
classmate YES NO friend YES NO teacher YES NO
DURING SPECIALS
Mouthed
classmate YES NO friend YES NO teacher YES NO
Whispered
classmate YES NO friend YES NO teacher YES NO
Spoke
classmate YES NO friend YES NO teacher YES NO

Did the student speak directly to his/her teacher in the classroom? YES NO

If yes, please indicate how many other students were present ___________ (none, entire class, etc.).
APPENDIX VI

TREATMENT PROTOCOLS

Consultation Session

Review the results of the assessment with the family and make an appropriate recommendation. Inform the family of the time commitment involved (i.e., 2 sessions per week and homework assignments for 12–24 weeks). If the family agrees to participate in this treatment program, have them sign an informed consent statement. Outline the basic principles and goals of each treatment approach. Explain to the family that the treatment approaches will alternate from session to session. Inform the family that an undergraduate assistant or the examiner will be contacting the family and the teacher on a daily basis to obtain ratings of anxiety and measurements of speech. Explain the concept of anxiety and the rating scale to the child in detail. Be sure that the child understands this. Thoroughly review these logs with the family and give them a copy. Ensure that the parents and child understand the ratings and measurements of speech. Go over any questions of concerns raised by the child or parents and schedule the first session.
EXPOSURE THERAPY TREATMENT PROTOCOL

Session 1
1. Meet with the child individually and briefly outline the treatment program and discuss goals of treatment. Describe the role as "coach" who will help the child to being speaking in school and other social settings.
2. Explain the concepts of shaping, stimulus fading, and in vivo exposure. Invite questions about treatment from the child. Explain exposure hierarchies and create one for the child.
3. If the child has not yet spoken to you, use shaping (modeling and prompting) and continue with a plan focusing on the lower level behaviors on the hierarchy. If the child speaks to you, proceed to steps 4 and 5.
4. Allow the child to talk about topics of interest in a conversation for a brief period. Take turns asking/answering questions with the child. Have the child produce questions by himself/herself.
5. If the child can read, take turns reading a book out loud with the child.
6. Give a homework assignment depending on the results of this session (i.e., did the child speak to you and was the child comfortable speaking to you). Example homework assignments include bringing in a favorite book to next individual session, preparing to give a two minute mini oral report on a topic of choice, reading or speaking into a tape recorder for 20 minutes and bringing it to next session).
7. Meet briefly with the parents. Outline the expected course of therapy.
8. Go over any questions or concerns raised by the child or parents. Reconfirm date for next session.

Session 2
1. Go over any questions or concerns raised since the previous session.
2. Review progress since the previous session.
3. Review the homework assignment given in the previous session.
4. Repeat steps 3-5 from session 1.
5. Go over any questions or concerns raised by the child or parents.
6. Give a homework assignment based on the results of this session. Reconfirm date for next session.

Session 3-4
1. Repeat steps 1-3 from session 2.
2. If the child reads aloud and gives an oral report comfortably in session, progress to step 3.
3. Inform the child ahead of time, and introduce another person into the session. Take turns reading aloud with the child, giving short reports, and asking/answering questions.
4. If the child comfortably completes step 3, inform them ahead of time and gradually introduce new individuals into the session and repeat step 3.
5. Go over any questions or concerns raised by the child or parents.
6. Give a homework assignment based on the results of this session. Reconfirm date for next session.

Session 5
1. Go over any questions or concerns raised since the previous session.
2. Review progress since the previous session.
3. Review the homework assignment given in the previous session.
4. Practice short social conversations with the child in session.
5. Have the child engage in short conversations with other individuals outside of the therapy room.
6. Go over any questions or concerns raised by the child or parents.
7. Give a homework assignment based on the results of this session. Reconfirm date for next session.

Session 6-7
1. Repeat steps 1-3 from session 5.
2. Begin exposures in public places where the child feels comfortable and will have the opportunity or expectation to speak to others.
3. If necessary, use shaping to elicit speech from the child in public and model for the family.
4. Go over any questions or concerns raised by the child or parents.
5. Give a homework assignment based on the results of this session (i.e., have parents repeat exposure before next session). Reconfirm date for next session.

Session 8-9
1. Repeat steps 1-5 from sessions 6-7 with introducing a new individual with whom the child does not speak to (e.g., teacher, friend from school).
2. If necessary, use a procedure focusing on the lower levels of the hierarchy (i.e., have the child speak in the setting with the new individual on the other side of the room, have the individual gradually move closer to the child until normal distance for a conversation is reached.
3. Go over any questions or concerns raised by the child or parents.
4. Give a homework assignment based on the results of this session (i.e., have parents repeat exposure before next session). Reconfirm date for next session.

Session 10+
1. Go over any questions or concerns raised since the previous session.
2. Review progress since the previous session.
3. Review the homework assignment given in the previous session.
4. Bring exposures to the school. Repeat steps from previous sessions using shaping, approximations, and stimulus fading procedures. Move along a hierarchy until the child speaks in class when expected to speak. Example hierarchy: child speaks/reads to the therapist alone in the classroom, child speaks/reads to the therapist with the teacher in the classroom, child speaks/reads to the teacher with the therapist present, child speaks/reads to a few classmates the child is
comfortable with, child reads in a small reading group; child speaks to classmates in class, child speaks in class when expected to.

5. Therapist is gradually removed from the exposures.
6. Go over any questions or concerns raised by the child or parents.
7. Give a homework assignment each session depending on progress made. For example, assign for the child to stay after school or come before school to read to the teacher one-on-one. Reconfirm with teacher the date of the next school exposure.
8. Once the final step on the hierarchy is reached, schedule a final post-treatment assessment session. Inform the family that someone from the psychology department will be contacting them in 3 months to collect follow-up data.
CONTINGENCY MANAGEMENT TREATMENT PROTOCOL

Session 1
1. Meet with the parents and outline the expected course of therapy. Go over any questions or concerns. Explain the concept of contingency management (i.e., the modification of behavior via the control or manipulation of contingencies that will focus on increasing rewards for speaking at school/social settings and decreasing rewards or increasing negative consequences for not speaking at school/social settings). Explain that this procedure may begin with lower level behaviors (e.g., whispering at school) and involve shaping (i.e., reinforcing successive approximations of speech until normal communication is reached).
2. Establish a parent-based reward and consequence system for speaking/not speaking.
3. Go over any questions or concerns raised by the parents. Reconfirm date for next session.

Session 2
1. Go over any questions or concerns raised since the previous session.
2. Review the concept of contingency management with the parents. Review success with the plan and make changes if necessary.
3. Go over any questions or concerns raised by the parents. Reconfirm date for next session.

Session 3
1. Repeat steps 1-2 from session 2.
2. Begin to establish routines for the child in which they will have the opportunity/expectation to speak.
3. Focus the remaining of the session on modifying parent commands for speech.
4. Go over any questions or concerns raised by the parents.
5. Give a homework assignment based on this session. Reconfirm date for next session.

Session 4
1. Go over any questions or concerns raised since the previous session
2. Review progress since the previous session. Make changes to the rewards/consequences as needed.
3. Review parents' success with commands. If necessary, establish new commands and/or modify routines for the child.
4. Begin to introduce social reinforcers to replace primary reinforcers.
5. Go over any questions or concerns raised by the parents.
6. Give a homework assignment based on this session. Reconfirm date for next session.

Session 5+
1. Repeat steps 1-6 from session 4.
2. Schedule a final post-treatment assessment session. Inform the family that someone from the psychology department will be contacting them in 3 months to collect follow-up data.
APPENDIX VII

TREATMENT INTEGRITY QUESTIONS

Exposure therapy
If necessary, were shaping, modeling, and prompting used?
Was the hierarchy mentioned and discussed?
Did the in vivo exposures follow the hierarchy?
Were homework assignments pertaining to the exposure given?
Did the session focus solely on Treatment A?

Contingency management
Was the treatment session held only with the parents?
Where the concepts of contingencies, reinforcement, and shaping discussed?
Where consequences, rewards, and target behaviors clearly identified?
Were homework assignments pertaining to the plan given to the parents?
Did the session focus solely on Treatment B?
APPENDIX VIII

TREATMENT CREDIBILITY QUESTIONS:

On a scale of 0-10 where 0 = completely not due to the treatment approach and 10 = completely due to the treatment approach please answer the following questions

HOW WOULD YOU ATTRIBUTE THE CHANGES IN YOUR CHILD'S BEHAVIOR TO THE CONTINGENCY MANAGEMENT BASED TREATMENT APPROACH?

HOW WOULD YOU ATTRIBUTE THE CHANGES IN YOUR CHILD'S BEHAVIOR TO THE EXPOSURE BASED TREATMENT APPROACH?
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