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Temperament and Behavior Factors in a Community Sample of Youth with Selective Mutism

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TEMPERAMENT AND BEHAVIOR FACTORS IN A COMMUNITY SAMPLE OF YOUTH WITH SELECTIVE MUTISM

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Abstract

Temperament and Behavior Factors in a Community Sample of Youth with Selective Mutism

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Children with selective mutism often present as a very diverse population, with both oppositional (APA, 2013; Cohan et al., 2008; Steinhausen & Juzi, 1996), and anxious symptoms (APA, 2013; Kristensen, 2000; Vecchio & Kearney, 2009) most commonly reported. The first aim of the current study was to validate the presence of previously identified anxious and oppositional behavior factors in a community sample of youth with selective mutism. These factors were previously identified in a clinic sample of youth with selective mutism (Diliberto & Kearney, 2016). The second aim was to examine the association of anxious and oppositional behavior factors with specific behaviors on the CBCL consistent with activity level, social competence and social problems (Achenbach & Rescorla, 2001). The third aim of the study was to examine temperament domains according to activity, sociability, shyness and emotionality in children with selective mutism. Participants included 278 mothers of youth with selective mutism aged 6-10 years recruited from the Selective Mutism Group and social media groups for selective mutism.

Hypothesis 1a was that previously identified anxious and oppositional behavior factors would be replicated in a community sample of children with selective mutism (Diliberto & Kearney, 2016). Hypothesis 1a was not supported, therefore, Hypothesis 1b was that anxious and oppositional factors from CBCL items would be identified via exploratory and confirmatory

factor analyses in the community sample. Findings from Hypothesis 1b then served as the basis for the remaining hypotheses (i.e., Hypotheses 2a+). Hypotheses 2a-11a examined the association of anxious and oppositional behavior factors with CBCL activity, social competence and social problems subscale scores and specific items and EAS activity, sociability, shyness and emotionality subscale scores and items.

Hypotheses 2a-11a were only partially supported. The anxious factor was positively associated with shyness, negative emotionality and social problems, but a significant negative association was not found with activity, activity competence, social competence and sociability. The oppositional factor was associated with activity, social problems and negative emotionality, but a significant positive association was not found with activity competence, social competence, and sociability. Latent class analysis was used to determine if classes of selective mutism based on anxious, oppositional and inattention factors could be identified. A three-class model was derived: 1) highly anxious and oppositional, and moderately to highly inattentive, 2) moderately anxious and oppositional, and moderately to highly inattentive, and 3) mildly anxious, oppositional and inattentive. Further analyses were done to determine if classes were consistent with certain social competence items, and social problems, in addition specific facets of temperament. Findings provided support for classes of selective mutism based on anxious, oppositional and inattentive symptoms, and their association with specific behaviors and temperaments. Clinical implications, future directions and limitations were discussed.

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Chapter 1: Overview of Selective Mutism

Historical Overview

Selective mutism is currently classified as an anxiety disorder in the Diagnostic and Statistical Manual of Mental Disorders (fifth edition) (DSM-5; American Psychiatric Association, 2013). Children with selective mutism fail to speak in specific social situations, most commonly school, despite speaking in other situations (APA, 2013). The disturbance interferes with a person's communication and social, educational, or occupational achievement. The duration of the mutism must be at least one month and care should be taken not to diagnose a child during the first month of school when social withdrawal and reserved speech are common. Failure to speak cannot be due to lack of knowledge or comfort with the spoken language. Immigrant children who refuse to speak a new language may appear to warrant a selective mutism diagnosis (Elizur & Perednik, 2003). However, a diagnosis should only be given when the refusal to speak occurs after successfully learning the new language (APA, 2013). Children with selective mutism may present with a range of symptoms and refuse to speak for various reasons.

Historical accounts of children selectively withholding speech can be traced to the late 19th century. Adolf Kussmaul coined the term "aphasia voluntaria" in 1877. This term described children who would choose to not speak in certain situations even though they had the capacity to do so (Dow, Sonies, Scheib, Moss, & Leonard, 1995; Krysanski, 2003). Moritz Tramer used the term "elective mutism" in 1934 to mean that a child could effectively use language and that the disturbance was not in speech but in communication (Tramer, 1934; Wergeland, 1979). Both individuals emphasized the voluntary nature of mutism (Krysanski, 2003).

The International Classification of Diseases (ninth edition) (ICD-9; World Health Organization, 1979) was the first classification system to include a diagnostic category for elective mutism. The main symptoms involved sensitivity, social withdrawal, and shyness. Elective mutism appeared in the Diagnostic and Statistical Manual of Mental Disorders in 1980 (DSM-III). The defining feature was a continuous refusal to speak in all situations, despite having capabilities to speak and an understanding of the language (APA, 1980). The DSM-III-R required the disorder to include persistent refusal to speak in most, but not all, situations (APA, 1987). The child's behavior was viewed as elective and emphasized the voluntary nature of mutism (Dow et al., 1995). Elective mutism remains the diagnostic label in the International Classification of Diseases (tenth edition) (ICD-10; World Health Organization, 1992). Elective mutism is characterized by selectivity in speaking, with language competence in some situations but failure to speak in other (definable) situations.

The DSM-IV changed the diagnostic label of elective mutism to selective mutism and the criterion from "persistent refusal" to talk to "persistent failure" to speak (APA, 1994). The decision to change elective to selective was consistent with research that mutism resulted from anxious and not stubborn behavior (Baldwin & Cline, 1991; Black & Uhde, 1992; Dow et al., 1995; Lesser-Katz, 1986). These changes implied that a child was failing to speak due to overwhelming anxiety (Krysanski, 2003; Wong, 2010). The DSM-5 has classified selective mutism as an anxiety disorder (APA, 2013). This classification, however, may misrepresent the complex clinical picture of the disorder. Children with selective mutism may present with various symptoms that include anxiety but also defiance and speech and language problems (Cohan et al., 2008, Ford, Sladeczek, Carlson, & Kratochwill, 1998). The conceptualization of selective mutism based on various symptoms and corresponding classes may help clinicians

better understand the complexity of the disorder. Youth with selective mutism with varying symptoms would benefit from individualized assessment and treatment.

Prevalence

Selective mutism occurs in approximately 1.0-2.0% of youth across mental health settings (APA, 2013; Elizur & Perednik, 2003). Researchers utilizing DSM-IV-TR criteria in school-based samples report prevalence rates of 0.71-1.9% (Bergman, Piacentini, & McCracken, 2002; Chavira, Stein, Bailey, & Stein, 2004; Elizur & Perednik, 2003; Kumpulainen, Rasanen, Raaska, & Samppi, 1998). However, some studies reveal lower prevalence rates of 0.03-0.20% (Krysanski, 2003; Sharp, Sherman, & Gross, 2007). Researchers include samples of children from different settings such as clinics and schools and include various ages and countries (APA, 2013; Bergman et al., 2002; Carbone et al., 2010; Kumpulainen, 2002; Sharp et al., 2007; Viana, Beidel, & Rabian, 2009). The wide prevalence range reflects infrequent use of standardized assessment measures, inconsistent diagnoses, and use of different classification systems (Viana et al., 2009). Prevalence rates of selective mutism in immigrant children range from 2.2-28.0% (Elizur & Perednik, 2003; Steinhausen & Juzi, 1996). Speech and language delays may also be a risk factor for selective mutism. Youth with selective mutism reportedly have speech and language delays in up to 68% of cases (Carmondy, 2000; Cohan et al., 2008; Kolvin & Fundudis, 1981; Kristensen, 2000; Kurth & Schweigert, 1972; Rosler, 1981; Steinhausen & Juzi, 1996). Children who receive a diagnosis of selective mutism may thus present with varying symptoms, which is currently a large area of research focus (Cohan et al., 2008; Steinhausen & Juzi, 1996). The current study added to this focus by identifying individual symptoms and temperament domains of youth with selective mutism according to anxious and oppositional behavior factors

and behavioral classes. A third factor was also identified according to inattention, which will be expanded upon in later sections.

Age of Onset and Time of Referral

The age of onset for selective mutism might be 2.7-6.0 years (Black & Uhde, 1995; Cunningham, McHolm, Boyle, & Patel, 2004; Garcia, Freeman, Francis, Miller, & Leonard, 2004; Kristensen, 2000; Sharp et al., 2007; Steinhausen & Juzi, 1996). Selective mutism is most often recognized when children enter school and are expected to speak with individuals outside of the home (APA, 2013; Chavira et al., 2004; Sharp et al., 2007). Diagnosis most commonly occurs at age 5-8 years (Sharp et al., 2007). A lag between onset and diagnosis may occur because children are not referred to specialists until mutism affects classroom performance and social relationships. Internalizing problems are also less likely than externalizing problems to be the impetus for referral in community-based mental health clinics (Warren, 2004; Weisz & Weiss, 1991). Children with selective mutism with co-occurring disruptive behavioral problems may be noticed more readily and referred for services sooner than those with internalizing symptoms (Sharp et al., 2007).

Gender

Selective mutism reportedly occurs more often in girls than boys, with ratios ranging from 1.2-2.0:1 (Hayden, 1980; Karakaya et al., 2008; Kumpulainen et al., 1998; Steinhausen & Juzi, 1996; Wergeland, 1979; Wilkins, 1985). Children referred for treatment are more likely to be female (Cunningham et al., 2004; Dummit et al., 1997; Kristensen, 2000). Community and school-based samples reveal a more comparable gender ratio (Bergman et al., 2002; Elizur & Perednick, 2003). The DSM-5 reported a relatively even gender ratio (APA, 2013). Wong (2010) noted that gender differences are potentially accounted for by small sample sizes in

studies and the rare nature of the disorder. Males with selective mutism may have slightly higher rates of oppositional defiant disorder compared to females (Alyanak et al., 2013).

Settings

Youth with selective mutism most often withhold speech in the school environment (Bergman, Keller, Piacentini, & Bergman, 2008; Cunningham et al., 2004). Youth who withhold speech at school often do not speak to their teacher (Black & Uhde, 1995; Kumpulainen et al., 1998) and educators find it difficult to assess academic progress (APA, 2013; Johnson & Wintgens, 2001; Omdal, 2008). A child might be mute more often in the classroom than on the playground (Kumpulainen et al., 1998). Additionally, some children with selective mutism speak to a few select peers at school and some speak to no peers. A child with selective mutism may be less anxious and more defiant at home than at school (Cunningham et al., 2004; Edison et al., 2011; Schill, Kratochwill, & Gardner, 1996). Children with selective mutism may be seen as more anxious at school as a result of their lack of speech (Cunningham, McHolm, & Boyle, 2006).

Compensatory Behaviors

Children with selective mutism may rely on alternative forms of communication to function in the community or at school. These children may try to communicate via facial expressions, monosyllabic utterances, nodding, gesturing, pulling, pushing, pointing, writing, or grunting (APA, 2013; Conn & Coyne, 2014; Krysanski, 2003; Moldan, 2005; Omdal, 2007; 2008; Omdal & Galloway, 2007; 2008; Sharp et al., 2007; Schill et al., 1996; Shriver, Segool, & Gortmarker, 2011; Viana et al., 2009). However, some children with selective mutism and anxiety may offer little facial expressions or body movements and may avoid eye contact (Krolian, 1998).

Etiology

Various etiological perspectives exist regarding the development and maintenance of selective mutism. Etiological perspectives may include psychodynamic, behavioral, trauma and stress, family systems, biological, and diathesis-stress models. These perspectives are briefly described next.

Psychodynamic. Psychodynamic theorists suggest that selective mutism is an expression of unsettled intrapsychic issues stemming from infancy and toddlerhood (Shreeve, 1991). Intrapsychic issues that are unresolved may express themselves in the form of stranger danger (Shreeve, 1991), grief (Valner & Nemiroff, 1995), and unspoken aggression (Fernandez & Sugay, 2012). A psychodynamic perspective may also emphasize an unresolved conflict and assume a child has an oral or anal fixation. A child may have displaced anger toward a family member, be hiding a family's trusted secret, or regress to a nonverbal stage of development (Giddan & Milling, 1999; Hesselman, 1983; Lesser-Katz, 1986; Looff, 1971). This perspective has little empirical support (Krysanski, 2003; Wong, 2010). Psychodynamic conceptualizations have decreased in influence as behavioral theories have gained empirical support and been emphasized (Krysanski, 2003).

Behavioral. A behavioral perspective emphasizes that children with selective mutism remain mute to avoid stressful situations and obligations, reduce anxiety and fear, and gain privileges from caretakers (Cohan, Price, & Stein, 2006; Hesselman, 1983; Labbe & Williamson, 1984; Young, Bunnel, & Beidel, 2012). A child's mutism may be a learned strategy to avoid feeling anxious in social situations (Bögels et al., 2010; Leonard & Dow, 1993; Young et al., 2012). The child's mutism is often maintained by negative reinforcement, or anxiety reduction, that occurs when the child is not forced to speak (Bögels et al., 2010; Schill et al., 1996). Mute

behaviors are thus maladaptive responses to situations that produce anxiety (Krysanski, 2003; Powell & Dalley, 1995).

Mute behavior may also be reinforced by secondary gains such as gaining privileges, rewards, and attention from caregivers (Labbe & Williamson, 1984). Youth may withhold speech in expected social situations until given attention and rewards for speaking. Mutism, may therefore, be maintained by positive attention and rewards that accompany speech (Perednik, 2011).

Trauma and Stress. Exposure to a traumatic or stressful experience has been proposed as a potential causal factor in selective mutism (Dow et al., 1995). Andersson and Thomsen (1998) reported that one-third of their sample experienced a traumatic or stressful event during the time they were learning to speak. New environments such as the start of school may be traumatic for some children. Other possible traumatic or stressful experiences that may trigger mute behavior include parental divorce, birth of a sibling, death of a family member, life-threatening experience, dog bite, hospitalization or surgery, and frequent moves (Adams, 1970; Carr & Afnan, 1989; Conn & Coyne, 2014; Dow et al., 1995; Hesselman, 1983; Krohn, Weckstein, & Wright, 1992; Wright, Miller, Cook, & Littman, 1985; Zelenko & Shaw, 2000). Selective mutism has been found to rarely occur after a child has been physically or sexually maltreated, however (Adams & Glasner, 1954; Hayden, 1980). A child may stop talking to cope with a traumatic event (Wong, 2010). Mutism, thus may serve as a way to avoid negative feelings associated with the traumatic event. Clinicians treating youth with selective mutism should assess for the possibility of trauma or stress negatively impacting mutism symptoms.

Family Systems. Family systems theorists view a child's mutism as resulting from conflictual and faulty relationships (Anstendig, 1999; Goll, 1979; Steinhausen & Adamek, 1997;

Von Misch, 1952; Weber, 1950; Wright, 1968). Communication in family members is often limited and conflicts are not discussed (Zelenko & Shaw, 2000). Parents may be controlling of their child but feel ambivalent about their relationship (Krysanski, 2003). The family of a child with selective mutism may be overly dominant, overprotective, strict, and have marital disharmony (Remschmidt, Poller, Herpertz-Dahlmann, Hennighausen, & Gutenbrunner, 2001). Selective mutism has also been related to parent-child enmeshment and overdependence in the family (Atoynatan, 1986; Carr & Afnan, 1989; Hadley, 1994; Hayden, 1980; Lesser-Katz, 1986; Meyers, 1984; Subak, West, & Carlin, 1982; Yeganeh, Beidel, & Turner, 2006). Parents of children with selective mutism may inadvertently reinforce their child's mutism by providing attention for not speaking. Clinicians treating youth with selective mutism should assess whether parent-child interactions contribute to mutism symptoms.

Biological. Children with selective mutism with anxiety-related symptoms may have an overactive behavioral inhibition system resulting from neuropsychological deficits (Gray, 1982; 1987; Gray, Jordan, Ziegler, & Livingston, 2002). Gray's model (1982; 1987) states that the behavioral inhibition system is thought to govern avoidance behaviors in response to punishment and threat. Excessive activity of the behavioral inhibition system occurs when heightened reactivity to threat or punishment manifests as extreme anxiety. Davidson (1993) proposed that the brain's right and left anterior cortical systems are specialized for approach and withdrawal behaviors, specifically. A disruption in this system might inhibit approach behaviors and increase withdrawal in a child with selective mutism.

Children with selective mutism may also have impaired ability to process incoming auditory signals (Arie et al., 2007; Bar-Haim et al., 2004). Children with selective mutism with abnormal auditory efferent activity are impaired when asked to process auditory input during

vocalization (Arie et al., 2007). Speech may be avoided because speaking while processing incoming stimuli proves too difficult. Speech may be difficult for youth with selective mutism due to an overactive behavioral inhibition system and abnormal auditory efferent activity.

Diathesis-Stress. The etiology of selective mutism may involve a diathesis-stress perspective (Toppelberg, Tabors, Coggins, Lum, & Burger, 2005). Anxiety arises from activity in the neuropsychological system, the function of which is to detect danger and prepare the body to deal with the threat (Gazelle & Ladd, 2003). The reactivity or sensitivity of the neuropsychological system is largely inherited. The over-activity of this system corresponds to a high level of physiological sensitivity to experiencing arousal. A diathesis-stress perspective implies that, an overactive inhibition system, when combined with factors such as trauma, speech problems, and biological factors, may interact with a child's environment to produce selective mutism (Toppelberg et al., 2005). An overactive behavioral inhibition system, therefore, causes a child with selective mutism to become very sensitive and vulnerable to withdrawing and panicking in feared situations (Hirshfeld-Becker et al., 2007). An inherited vulnerability to an overactive behavioral inhibition system, for example, may remain dormant until mixed with speech problems and adverse environmental conditions, such as the start of school (Kazdin & Weisz, 1998). Children with inherited behavioral inhibition and speech and language delays may be teased by peers and withhold speech in the school setting.

Prognosis

Children with selective mutism have various outcomes. Many children present with a chronic course but others show decreased symptoms over several months (Kolvin & Fundudis, 1981; Omdal & Galloway, 2008). Few longitudinal studies exist to support a definitive course (Cohan et al., 2006; Remschmidt et al., 2001; Steinhausen, Wachter, Laimböck, & Metzke,

2006). Most longitudinal studies lack standardized assessments and contain small sample sizes (Steinhausen et al., 2006).

Selective mutism is generally viewed as a persistent disorder with a poor outcome (Kolvin & Fundudis, 1981; Remschmidt et al., 2001; Steinhausen et al., 2006). Adults diagnosed as children often continue to experience remaining effects such as poorer speaking behaviors, residual social phobia, and other anxiety disorders (APA, 2013; Steinhausen & Juzi, 1996). These individuals may show deficits in social communication that result in social withdrawal and economic impairments, including higher unemployment rates (Remschmidt et al., 2001). Complete remission has been reported to be 39-100% (Kurth & Schweigert, 1972; Remschmidt et al., 2001; Rosler, 1981; Steinhausen et al., 2006; Wergeland, 1979).

Selective mutism may be difficult to treat and persist for lengthier periods due to the influence of parental psychopathology. Parental psychopathology may influence how parents interpret, rate, and react to their child's behaviors (Comer & Kendall, 2004). Familial psychopathology may be an outcome predictor for children with selective mutism (Black & Uhde, 1995; Kolvin & Fundudis, 1981; Kristensen & Torgersen, 2002). Parental depression and anxiety have received the most attention.

Parents of children with selective mutism may be depressed (Hayden, 1980; Kristensen & Torgersen, 2002). Kolvin and Fundudis (1981) reported that 21% of fathers and 17% of mothers of children with selective mutism had depression. Wright and colleagues (1995) also reported borderline clinically significant depression in the mother of a child with selective mutism. Parental depression may influence perception of child behaviors. The depression-distortion bias explains that parents may perceive their child's behavior more negatively due to the negative bias inherent in depression (De Los Reyes & Kazdin, 2005; Richters, 1992). Dysphoric

caregivers, may therefore report lower levels of positive behaviors and higher levels of negative behaviors than independent observers of the child in the same situation (Mowbray, Lewandowski, Bybee, & Oyserman, 2005; Youngstrom, Izard & Ackerman, 1999). This finding is consistent with models of depression impairment, highlighting the absence of warmth and the presence of criticism (Chiariello & Orvaschel, 1995; Kaslow, Deering, & Racusin, 1994). Depression is associated with increased hostility, less responsiveness and more negative parent-child interactions (Lovejoy, Graczyk, O'Hare, & Neuman, 2000). Parents of youth with selective mutism who are depressed may therefore, respond to their children in a critical manner that exacerbates anxiety and mutism.

Parental anxiety may also influence and be associated with child anxiety (Hudson & Rapee, 2004; Whaley, Pinto, & Sigman, 1999). A parent with anxiety is likely to notice potential threats in their child's environment and act to protect and remove threats (Hudson, Comer, & Kendall, 2008). A disproportionately high rate of anxiety-based conditions, such as social phobia, are found in parents of children with selective mutism (Black & Uhde, 1995; Oerbeck, Stein, Wentzel-Larsen, Langsrud, & Kristensen, 2014; Viana et al., 2009). Parents of children with selective mutism are likely to be anxious, and genetic factors may be partly involved (Czajkowski, Roysamb, Reichborn-Kjennerud, & Tambs, 2010; Hettema, Neale, & Kendler, 2001). A history of mutism was reported in 18% of mothers and 9% of fathers of children with selective mutism in one study (Remschmidt et al., 2001). Taciturn personality traits were found in up to 50% of parents as well. Avoidant traits in parents may be linked to shy and behaviorally inhibited temperaments in youth. Parents of children with selective mutism may have a general preference for being alone and avoiding social situations (Kristensen &

Torgersen, 2001). Social inhibition in parents may serve as a model for social reticence in a child (APA, 2013).

Parental anxiety has been implicated in parental control. Parental control has been defined as overinvolvment in a child's routines and activities, an autocratic decision-making style, and instruction and overprotection of a child's behaviors in a given situation (Wood, McLeod, Sigman, Hwang, & Chu, 2003). Childhood anxiety may be reinforced (Manassis & Bradley, 1994) (McClure, Brennan, Hammen, & Le Brocque, 2001) by an anxious and overcontrolled parenting style. Parents of children with anxiety are generally more involved, more encouraging of avoidant behavior, and less encouraging of independence and autonomy than parents of children without anxiety (Barrett, Rapee, Dadds, & Ryan, 1996; Hudson & Rapee, 2001; Siqueland, Kendall, & Steinberg, 1996).

Edison and colleagues (2011) examined whether parents of children with selective mutism demonstrated greater control than parents of children with and without anxiety. These researchers also examined the influence of parental anxiety and individual child characteristics on parental control. Edison and colleagues examined a structured, verbally demanding as well as a free play situation to observe how varying contexts affect parent-child interactions. Parents of children with selective mutism granted more autonomy in free play compared to structured contexts. However, parents of children with selective mutism granted less autonomy in both contexts compared to parents of children with and without anxiety. Greater child anxiety was associated with greater control, less autonomy and child-initiated speaking, and younger child age.

A child expressing fear in social situations may evoke sympathy, concern, and frustration in parents (Rubin & Burgess, 2002). Parents may control the situation to protect their child from

feeling anxious or scared and protect themselves from feeling embarrassed (Ale, Mann, Menzel, Storch, & Lewin, 2013; Edison et al., 2011; Rubin, Cheah, & Fox, 2001). A child's overt anxiety may elicit parental controlling behaviors that can exacerbate the child's avoidance and prevent effective coping skills (Rapee, 1997; Rapee & Spence, 2004).

Summary and Study Direction

Selective mutism is currently categorized as an anxiety disorder (APA, 2013). However, children with selective mutism may present with symptoms beyond anxiety and refuse to speak for various reasons. Children with selective mutism may remain mute to gain attention and privileges from caretakers, avoid stressful situations or obligations, reduce anxiety and fear, and/or express defiance (Cohan et al., 2006; Hesselman, 1983; Labbe & Williamson, 1984; Young et al., 2012). Mutism may be the result of biological (Arie et al., 2007; Bar-Haim et al., 2004; Heilman et al., 2012) or family system variables (Anstendig, 1999; Goll, 1979; Steinhausen & Adamek, 1997; Wright, 1968; Zelenko & Shaw, 2000). Mutism as anxiety and defiance has received the most attention. Researchers have debated whether selective mutism is a severe variant of social anxiety disorder (Bergman et al., 2002; Silveira, Jainer, England, & Bates, 2004) or a symptom of oppositional defiant disorder (Black & Uhde, 1992; Bögels et al., 2010). This debate has led to interest in conceptualizing selective mutism according to maintaining variables such as anxiety and defiance. However, the conceptualization of selective mutism is further complicated by variability in social competence, social problems and temperament domains including activity, sociability, shyness, and emotionality in youth with selective mutism with anxious or oppositional presentations. These areas will be discussed throughout with an emphasis on the heterogeneity of selective mutism.

An overview of key findings is in Chapter 2. The current understanding of selective mutism based on categorical and dimensional approaches is provided. Findings regarding the main symptoms of selective mutism are discussed, including depression, anxiety, oppositionality, and social problems. Furthermore, an overview of temperament is provided. A particular focus involves activity, sociability, shyness, and emotionality in relation to selective mutism. The purpose of the current study, hypotheses, and methods and data analyses are then described.

Chapter 2: Literature Review

Categorical and Dimensional Approaches

Selective mutism has only recently been categorized as an anxiety disorder in the DSM-5 (APA, 2013). Previous versions of the DSM listed selective mutism under "Disorders Usually First Diagnosed in Infancy, Childhood, or Adolescence" (APA, 2000). This categorization reflected an uncertainty about the disorder's place in the nomenclature. The decision to categorize selective mutism in the anxiety disorders section of the DSM-5 was consistent with research that mutism resulted more from anxious than defiant or stubborn behavior (Beidel & Turner, 2005; Dow et al., 1995; Vecchio & Kearney, 2005; Zelenko & Shaw, 2000). This categorization implies that a child is failing to speak due to overwhelming anxiety, rather than choosing not to speak (Krysanski, 2003; Wong, 2010). Mutism is reported as a compensatory strategy to reduce anxiety in specific social situations (Carbone et al., 2010; Viana et al., 2009). Selective mutism is also reported with a temperamental and genetic link to anxiety, with a high degree of comorbid anxiety disorders (APA, 2013; Viana et al., 2009).

Categorical diagnostic systems such as the DSM-5 assume that mental disorders are discrete entities and that individuals with the same disorder will be a homogeneous group with similar symptoms and attributes of a disorder (Jones, 2012). Categorical diagnostic classification models help combine seemingly diverse symptoms into a single configuration (Millon, 1991; Widiger & Coker, 2003).

The classification of selective mutism as an anxiety disorder has many benefits for treatment professionals. The conceptualization of mutism as extreme anxiety provides a common starting point for mental health professionals. Selective mutism may be diagnosed if a child fails to speak in select social situations despite speaking in others (APA, 2013). The

diagnostic criteria does not specify the reason for mutism. However, clinicians may assume mutism is the result of extreme anxiety in social situations due to its categorization and because anxiety is a primary diagnostic feature. Prevalence rates, therefore, would be based on mutism due to extreme anxiety in uncomfortable, social situations (First, 2010). Current prevalence rates are reported between 0.03-2.0% for native born children (Bergman et al., 2002; Krysanski, 2003; Sharp et al., 2007) and 2.2-28.0% for immigrant children (Elizur & Perednik, 2003; Steinhausen & Juzi, 1996). The wide prevalence difference may reflect greater anxiety among immigrant children as they are exposed to a new language and culture (Viana et al., 2009). Therefore, conceptualizing selective mutism as an anxiety disorder allows for consistent diagnosis based on anxiety-driven mutism.

The categorization of selective mutism as an anxiety disorder has treatment utility. Selective mutism is a poorly understood disorder (Kristensen, 2000). Clinicians who are unfamiliar with treatment could conceptualize and treat selective mutism based on anxiety as the maintaining variable. Clinicians could utilize efficacious treatments, such as cognitive behavioral techniques, to reduce a child's anxiety in social situations (Blum et al. 1998; Krysanski, 2003). Clinicians familiar with behavioral treatments for anxiety would be able to provide effective and quality treatment for children with selective mutism.

The classification of selective mutism as an anxiety disorder has psychopharmacological treatment implications. Pharmacological treatment could be based on those effective for social anxiety disorder (Bergman et al., 2002; Black & Uhde, 1994; Wong, 2010). Selective serotonin reuptake inhibitors (SSRIs) have received the most attention (Black & Uhde, 1992; Dummit, Klein, Asche, Martin, & Tancer, 1996; Harvey & Milne, 1998; Lafferty & Constantino, 1998). Evidence of a serotonin imbalance exists in individuals with social anxiety and selective mutism

(Harvey & Milne, 1998; Sheehan, Raj, Trehan, & Knapp, 1993). SSRIs may enhance the treatment of selective mutism because they work directly on the inhibiting behavior (Carlson, Kratochwill, & Hohnston, 1999; Dunn & Dunn, 1997). SSRIs may reduce speech hesitancy in youth with selective mutism. Medication treatment for selective mutism has been reported as effective, but no large pharmacotherapy trials have been performed (Wong, 2010). Large pharmacological studies are needed to determine whether SSRIs are tolerable in young children. SSRIs have been reported to cause side effects in young adults, such as gastrointestinal disturbances, impaired sleep, and weight gain (Huang et al., 2013). The degree to which most of the adult psychopharmacological data can be extended to young children with selective mutism remains to be clarified. The conceptualization of selective mutism as an anxiety disorder may thus permit greater utilization of medication to treat this disorder.

A categorical approach is beneficial because it allows for clinicians to utilize existing treatments in selective mutism. However, a categorical approach may limit a full understanding of selective mutism heterogeneity. Categorical approaches often fail to include significant aspects of symptomatology into the diagnostic criteria of a disorder (Millon, 1991). Consistent findings reveal that selective mutism is characterized by features beyond anxiety. The DSM-5 acknowledges comorbid features such as speech and language problems (Carmondy, 2000; Cohan et al., 2008; Kolvin & Fundudis, 1981; Kristensen, 2000; Rosler, 1981; Steinhausen & Juzi, 1996) and oppositional behaviors (Black & Uhde, 1992; Cohan et al., 2008; Ford et al., 1998). These features are reportedly exacerbated and maintained as a result of anxiety, however. Clinicians without knowledge of the complex etiology of selective mutism may thus provide treatments that are ineffective and only partially address presenting symptoms. Therefore, the

conceptualization of selective mutism as a dimensional construct will allow for a more informed understanding of this complex disorder.

The classification of clinical disorders based on dimensions that exist along continuous distributions has been debated by researchers (Widiger & Coker, 2003; Widiger, 2005). A dimensional approach might examine the intensity, duration, and frequency of individual disorder symptoms (Fauman, 2002). A dimensional approach yields a greater amount of information and avoids losing information associated with a categorical approach (Helzer, Bucholz, & Gossop, 2008). Clinicians who are unfamiliar with selective mutism may conceptualize mutism with exclusively anxious symptoms. However, this is often not the case and so the presence of varying classes of selective mutism will be a prime focus of the current study (Cohan et al., 2008).

Dimensional approaches allow for richer conceptualization of the clinical presentation of selective mutism. Children with selective mutism have been reported with varying levels of depression (Ale et al., 2013; Giddan & Milling, 1999), anxiety (Cunningham et al., 2006; Diliberto & Kearney, 2016; Steinhausen & Juzi, 1996), defiance (Bögels et al., 2010; Cohan et al., 2008; Kristensen, 2001), and speech and language problems (Carmondy, 2000; Kristensen, 2000). Attention problems consistent with a co-morbid diagnosis of attention deficit hyperactivity disorder are generally not reported (Cunningham et al., 2006; Vecchio & Kearney, 2005). However, these studies are limited because they did not include item-level analyses to determine specific symptoms of inattention or hyperactivity.

Clinicians utilizing a dimensional approach could report on the presence of individual symptoms and their accompanying severity level. This approach allows for the integration of individual dimensions based on severity and frequency and can assist in determining treatment

based on specific symptoms (Brown & Barlow, 2005). The DSM-5 currently provides disorder specific severity measures for select disorders, including social anxiety. The severity measure for social anxiety disorder (social phobia) for youth ages 11-17 years is used by clinicians to monitor treatment progress (APA, 2013). No current severity measures are included in the DSM-5 for selective mutism.

Researchers have derived clinical presentations of selective mutism based on variations in individual symptoms and symptom intensities (Cohan et al., 2008; Diliberto & Kearney, 2016). Cohan and colleagues (2008) derived profiles of selective mutism based on varying severity of anxiety, opposition, and speech and language delays. These researchers derived three profiles of youth with selective mutism: exclusively anxious, anxious-mildly oppositional, and anxious-communication delayed. The exclusively anxious group was the least represented. Results suggest that children with selective mutism likely present with symptoms beyond anxiety. Diliberto and Kearney (2016) provided evidence of distinct groups of youth with selective mutism based on anxious or oppositional symptom presentations. These researchers argued for the individualized assessment and treatment of children with selective mutism based on their unique clinical presentation.

A dimensional approach may permit selective mutism to be specified according to etiological factors. Selective mutism has been reported as a specific phobia of speech (Omdal & Galloway, 2008), a developmental variant of social anxiety disorder (Bergman et al., 2002; Silveira et al., 2004), a symptom of oppositional defiant disorder (Black & Uhde, 1992; Bögels et al., 2010), and embarrassment resulting from a speech and language disorder (Cohan et al., 2008). Selective mutism might therefore include specifiers to define the specific etiology of the

disorder. The inclusion of specifiers would allow clinicians to describe and develop a treatment plan based on the specific disorder etiology.

A dimensional approach has been criticized, however. Conceptualization based on the severity of symptoms is more complex and time-consuming than diagnostic categories (First, 2010). Most clinicians prefer categorical models because this classification system allows for the quick diagnosis of clients (Samuel & Widiger, 2006). Furthermore, the categorical approach facilitates communication among professionals (Jones, 2012). Categorical approaches are familiar to most clinicians and they may generate recommendations based on diagnosis alone. Dimensional approaches have been criticized as being less useful for clinical practice.

A dimensional approach to classification would require the development of new scales to assess symptom severity in specific disorders (First, 2005). The development of rating scales is problematic because it would require additional time, funding, and training for clinicians using the DSM-5 (First, 2005). Furthermore, interrater agreement regarding individual symptom severity may be low. Clinicians would be forced to indicate not only if a symptom were present but the accompanying severity level as well. Clinicians would need to be trained on new measures assessing symptom severity and may be subjective in their ratings (Jones, 2012). Clinicians may believe that oppositional behavior in youth with selective mutism is the result of anxiety and rate this behavior as less severe than another rater (Ford et al., 1998; Yeganeh, Beidel, Turner, Pina, & Silverman, 2003).

The DSM-5 accounts for symptom severity in some clinical disorders. Social anxiety disorder, for example, may be characterized by a generalized subtype in which an individual fears most social situations (Widiger & Coker, 2003; Widiger & Samuel, 2005). The addition of clinical specifiers may create boundary problems. The categorization of selective mutism as a

manifestation of specific phobia, social anxiety disorder, oppositional defiant disorder, or a speech and language disorder may be criticized. Selective mutism may be conceptualized as an individual symptom of these disorders and not as a separate disorder with a clinical specifier. Clinicians may thus disagree on how to classify selective mutism symptoms.

An approach that utilizes both a dimensional and categorical approach for selective mutism has been emphasized (Cohan et al., 2008; Maser et al., 2009; Morey et al., 2012). A combined approach would appreciate the continuous nature of psychological constructs and the clinical utility of diagnostic categories (Regier, Narrow, Kuhl, & Kupfer, 2011). A categorical approach may need to include clinical specifiers or subtypes of selective mutism, with severity levels, to help account for the heterogeneity of the disorder (DiStefano & Kamphaus, 2006). The principal benefit of this approach would be to provide treatment professionals with additional information for the assessment and treatment of selective mutism.

An approach that integrates both a dimensional and categorical approach would appreciate the complex etiology of selective mutism. However, this approach may present challenges for clinicians. First, assessment would require a multifaceted approach, with integration of measures assessing symptoms beyond anxiety, including depression, attention problems, externalizing symptoms, and communication problems (Cohan, Chavira, & Stein, 2006; Hechtman, 1993). This approach may be time-consuming and costly for clinicians who are unsure of what measures to provide and how to integrate their findings. Second, treatment of selective mutism would be based on the severity of maintaining variables and the individual clinical presentation. Youth with selective mutism are commonly treated with cognitive behavioral techniques to reduce a child's anxiety in social situations (Blum et al. 1998; Krysanski, 2003). However, treatment for youth with selective mutism may need to address

complicating features such as depression, defiance, inattention and/or hyperactivity, and communication problems.

Selective mutism is currently classified as an anxiety disorder in the DSM-5 (APA, 2013). However, clinicians need to account for symptoms that occur beyond anxiety. A unique approach is needed to classify children with selective mutism based on the severity of symptoms and accompanying clinical profile. This approach would allow for enhanced communication between clinicians and researchers and permit individuals with selective mutism to be given the most appropriate treatment (DiStefano & Kamphaus, 2006; Meyers, McDermott, Webb, & Hagan, 2006; Robins & Guze, 1970). No system currently classifies selective mutism based on clinical presentation or class (Cohan et al., 2008). The following review provides evidence for the unique symptoms of youth with selective mutism and the implications for deriving classes based on these symptoms. The review begins with internalizing symptoms.

Internalizing Symptoms

Children with selective mutism are often described in clinical settings as anxious, submissive, dependent, depressed, shy, timid, reticent, inhibited, fearful, withdrawn, and compulsive. Children with selective mutism often appear to freeze when they are spoken to, blush, avoid eye contact, cling to parents, and resist separation (APA, 2000; 2013; Hesselman, 1983; Kopp & Gilberg, 1997; Kristensen, 1997; Lesser-Katz, 1986; Steinhausen & Juzi, 1996; Yeganeh et al., 2003). Symptoms of depression and anxiety have received the most attention and are described in more detail next.

Depression. Depression has been reported in select samples of children with selective mutism (Giddan & Milling, 1999; Kaplan & Escoli, 1973; Kopp & Gillberg, 1997). Steinhausen and Juzi (1996) reported one-third of their sample as being depressed. Giddan and Milling

(1999) reported depression with accompanying mood swings. Alyanak and colleagues (2013) utilized the Child Behavior Checklist (CBCL; Achenbach, 1991) for children with selective mutism. The CBCL withdrawn/depressed subscale score significantly predicted membership in the selective mutism group compared to a healthy control.

Depression has been linked to social struggles in youth (Bardone, Moffitt, Caspi, Dickson, & Silva, 1996; Kovacs & Devlin, 1998). The behaviors of youth with internalizing symptoms such as withdrawal and limited speech may increase the likelihood of negative interactions with others (Mesman & Koot, 2000). Children may consequently self-blame and develop negative cognitions (Qualter & Munn, 2005). Depression is not often reported in youth with selective mutism, however. Studies on youth with selective mutism tend to focus on the comorbidity or relationship to anxiety disorders. Therefore, researchers may not directly ask whether youth with selective mutism have comorbid depression. In addition, youth with selective mutism are often too young to effectively articulate their thoughts and feelings related to depression. However, depression may further complicate the clinical presentation of selective mutism and require interventions focused on depressive symptoms. Further research is needed on the presence and intensity of depressive symptoms in youth with selective mutism with varying clinical presentations.

Anxiety. Selective mutism is most commonly reported with symptoms of anxiety and anxiety disorders. Children with selective mutism are described by their parents as fearful (Zelenko & Shaw, 2000), anxious, obsessive, and prone to somatic complaints (Cunningham et al., 2006). Ford and colleagues (1998) reported that individuals with past or current selective mutism frequently reported symptoms of withdrawal, fear, timidity, and avoidance of social situations. Diliberto and Kearney (2016) reported on the individual anxiety symptoms in youth

with selective mutism seen in a clinic with an anxious presentation. Anxiety symptoms included "doesn't eat well," "would rather be alone than with others," "nervous," "fearful," "having sudden changes in mood," and "withdrawal." An anxious presentation was associated with social anxiety disorder symptoms in children with selective mutism. These symptoms are discussed in greater detail in the conceptualization section.

A strong correlation exists between mutism severity and specific phobia, generalized anxiety, separation anxiety and social anxiety disorder (Blum et al., 1998; Diliberto & Kearney, 2016; Vecchio & Kearney, 2005). Children with selective mutism meet criteria for other anxiety disorders in 61-100% of cases (Black & Uhde, 1992; Kristensen 2000; Manassis, Tannock, Garland, Minde, McInnes, & Clark, 2007; Vecchio & Kearney, 2005). Children with selective mutism meet criteria for specific phobia in 13-50% of cases (Black & Uhde, 1992; Kristensen, 2000; Manassis et al., 2003; Oerbeck et al., 2014). Generalized anxiety disorder also reportedly co-occurs with selective mutism (Oerbeck et al., 2014; Vecchio & Kearney, 2007). Children with selective mutism meet criteria for separation anxiety disorder in 17-32% of cases (Cunningham et al., 2004; Dow et al., 1995; Kristensen, 2000; Oerbeck et al., 2014).

A large percentage of children with selective mutism meet criteria for social phobia or avoidant disorder (Andersson & Thomsen, 1998; Beidel & Turner, 2005; Black & Uhde, 1995; Carbone et al., 2010; Dummit et al., 1997; Garcia et al., 2004; Vecchio & Kearney, 2005). Children with selective mutism often express fears of social embarrassment and judgment as well as physical symptoms of social anxiety (Standart & Le Couteur, 2003; Vecchio & Kearney, 2005; Yeganeh et al., 2003). Selective mutism has been proposed as an extreme manifestation (Black & Uhde, 1995; Dummit et al., 1997; Vecchio & Kearney, 2005) or developmental variant of social phobia (Bergman et al., 2002; Silveira et al., 2004). The conceptualization of selective

mutism as an extreme variant of social anxiety disorder allows for clinicians to provide treatment based on those efficacious for social anxiety disorder.

Vecchio and Kearney (2005) and Oerbeck and colleagues (2014) reported that all children with selective mutism in their samples received a comorbid diagnosis of social anxiety disorder. Another researcher reported comorbid social anxiety and selective mutism in 67.9% of cases (Kristensen, 2000). Elevations have been reported on the social anxiety sections of the Spence Preschool Anxiety Scale (SPAS; Spence, Rapee, McDonald, & Ingram, 2001) in children with selective mutism (Ale et al., 2013).

Ford and colleagues (1998) reported low volume and frequency of speech and less spontaneity of speech among youth with current or previous selective mutism. These characteristics strongly resemble the behavior of those with social phobia.

Children with selective mutism reportedly have elevated anxiety and social phobia symptoms compared to control children (Bergman et al., 2002; Chavira, Shipon-Blum, Cohan, & Stein, 2007; Cunningham et al., 2004; 2006; Elizur & Perednik, 2003; Kristensen, 2000). Bergman and colleagues (2002) reported elevated social anxiety symptoms at the initial assessment and follow-up of children with selective mutism compared to controls. Chavira and colleagues (2007) reported that children with selective mutism were diagnosed with social phobia and separation anxiety disorder at a significantly higher rate than control children.

As mentioned, selective mutism has been conceptualized as a severe manifestation of social anxiety (Black & Uhde, 1995; Dummit et al., 1997; Vecchio & Kearney, 2005). Yeganeh and colleagues (2006) found that clinicians reported more severe social anxiety symptoms in youth with selective mutism compared to social anxiety. Yeganeh and colleagues (2003)

reported that both clinicians and observers rated children with selective mutism and comorbid social anxiety as more socially anxious than children with social anxiety alone.

However, higher rates of social anxiety in children with selective mutism compared to children with social anxiety disorder alone are not always found. Young and colleagues (2012) utilized the Social Phobia and Anxiety Inventory for Children—Parent Version (SPAIC-PV; Beidel, Turner, & Morris, 2004) and the CBCL with children with selective mutism, social phobia, or no disorder. Parents reported comparable SPAIC-PV and CBCL internalizing total scores for children with selective mutism and social phobia compared to children with no disorder. Furthermore, Vecchio and Kearney (2005) examined children with selective mutism, anxiety disorders, and no disorder. No significant differences were found on the Anxiety Disorders Interview Schedule for Children—Parent version (ADIS-P; Silverman & Albano, 1996) with respect to the number of comorbid disorders across the selective mutism and anxiety disordered group.

Yeganeh and colleagues (2003, 2006) examined social anxiety in children with selective mutism and children with social phobia via observer, clinician, and child report. Children with selective mutism did not report greater levels of social anxiety compared to children with social phobia. No differences in anxiety were reported between children with selective mutism and children with social phobia during a peer interaction task (Yeganeh et al., 2003). Children with selective mutism relative to social phobia are often indistinguishable across self-report measures of general fears and social and trait anxiety (Yeganeh et al., 2003). Children with selective mutism are commonly theorized to be so overwhelmed by anxiety that speaking is impossible (Young et al., 2012). However, these studies utilized subjective assessments by parents and clinicians and findings may not accurately reflect a child's experience (Young et al., 2012).

Further research provides evidence of lower anxiety in children with selective mutism compared to social phobia. Manassis and colleagues (2003) found that children with selective mutism reported lower fear of negative evaluation and lower physiological, separation, and social anxiety than children with social phobia. Melfsen and colleagues (2006) used the German version of the Social Phobia and Anxiety Inventory for Children (SPAIK; Melfsen, Florin, & Warnke, 2001) to examine social anxiety symptoms across mental disorders. Children with selective mutism scored lower on the SPAIK than those with social anxiety disorder. Furthermore, Young and colleagues (2012) found that children with selective mutism experienced less physiological arousal than the social phobia group on a social interaction task. Children with selective mutism should have scores comparable to those with social phobia to support the classification of selective mutism as an extreme manifestation of social phobia (Melfsen, Walitza, & Warnke, 2006).

Some findings thus contradict the argument that selective mutism may be a severe variant of social anxiety (Anstendig, 1999). Children with social anxiety disorder may avoid social situations but children with selective mutism may withhold speech to reduce their anxiety (McInnes, Fung, Manassis, Fiksenbaum, & Tannock, 2004). Children with selective mutism selectively speak in socially anxious situations and therefore do not appear to be anxious (Yeganeh et al., 2003). Children with selective mutism may underreport anxiety as a result of behavioral avoidance (Kristensen, 2001).

These aforementioned studies support the notion that children with selective mutism present with varying internalizing symptoms and symptom intensities. Youth with selective mutism have been reported with more severe, comparative and less anxiety than youth with social anxiety disorder. Therefore, mixed findings have been presented as to whether selective

mutism is a severe manifestation of social anxiety disorder. Further research is needed to examine the individual anxiety and depressive symptoms in children with selective mutism with varying clinical presentations. Youth with a more anxious presentation may be reported with specific anxiety-related symptoms, including: withdrawing in social situations, sudden mood changes, and preferring to be alone (Diliberto & Kearney, 2016). These children may also cry and fuss in anxiety-provoking situations. Failure to speak may be maintained in some but not necessarily all youth with selective mutism by overwhelming internalizing symptoms. The following section provides an overview of externalizing behaviors in youth with selective mutism.

Externalizing Symptoms

Aggressive, oppositional, and defiant behaviors have been reported in children with selective mutism. Young children without adequate language may rely on these behaviors to communicate (Tremblay, 2000). Children with selective mutism have been depicted as stubborn, controlling, aggressive, disobedient, negative, suspicious, manipulative, sulky, oppositional, and demanding (APA, 2013; Andersson & Thomsen, 1998; Brown & Lloyd, 1975; Hesselman, 1983; Kolvin & Fundudis, 1981; Kratochwill, 1981; Krohn et al., 1992; Pustrom & Speers, 1964; Vasilyeva, 2013; Wergeland, 1979). Children with selective mutism may also display temper tantrums, lack flexibility, and be difficult to please (Kumpulainen et al., 1998; Steinhausen & Juzi, 1996).

Children with selective mutism are often described by their parents with defiant features. Kolvin and Fundudis (1981) reported poor malleability and a streak of negativism at school and home in some children with selective mutism according to parent report. Children demonstrated aggressive behavior at home and sulky behavior with strangers. These children reportedly

manipulated their environment to get their way and were described as having a "will of iron" (Rosenberg & Lindblad, 1978; Wright, 1968). Thomas and Chess (1977) described children with selective mutism as difficult to manage due to their persistent refusal to comply with caregiver requests. Omdal and Galloway (2007) reported that children with selective mutism interviewed using a computer administered questionnaire wrote about themes such as school refusal, testing authority, and lying.

Parents of children with selective mutism sometimes report symptoms of oppositional defiant disorder (Kolvin & Fundudis, 1981; Kristensen, 2001; Krohn et al., 1992). Behaviors such as negativism, defiance, and opposition have been reported in up to 90% of children with selective mutism (Krohn et al., 1992). Diliberto and Kearney (2016) reported specific externalizing behaviors in certain youth with selective mutism. These behaviors included "argues a lot," "demands a lot of attention," "stubborn, sullen or irritable," "temper tantrums or hot temper," and "whining." An oppositional presentation was associated with oppositional defiant disorder symptoms in children with selective mutism. These symptoms are discussed in greater detail in the conceptualization section.

Few studies exist regarding self-report of aggressive and defiant symptoms. Self-report requires an awareness and willingness to admit to externalizing behaviors, which may not be viable in young children with selective mutism. Case reports may shed some light. Yanof (1996) described a child with selective mutism who believed he could make other children fall down and get hurt if he thought about it. The child reported that he felt helpless and needed these abilities to make himself feel powerful. The child was thought to use silence and the wish to harm others to exert control in a difficult situation. Omdal and Galloway (2008) reported that all adults with childhood selective mutism described themselves as determined not to speak.

Two individuals believed speaking would cause others to 'win' and their identity to be lost. The older the child, the more important remaining mute was for the child's image. The determination to remain mute strengthened under pressure.

Symptoms of defiance and opposition may be moderate and reported as a reaction to fearful situations. Ford and colleagues (1998) found that parents of children with past or current selective mutism reported toileting problems, strong-willed behavior, avoidant behaviors, and oppositional behaviors. Oppositional behaviors included refusing to talk, being sullen, stubborn or irritable, arguing, being disobedient in school, whining, engaging in temper tantrums, and having a hot temper (Ford et al., 1998). The majority of these behaviors are included on the CBCL aggressive behavior scale. Kristensen (2001) found that parent-reported aggressive and externalizing behavior problems were twice more frequent among children with selective mutism than normal control children. Item-level analyses revealed that two items, "stubborn" and "screams a lot," best predicted membership in the selective mutism group. These behaviors may demonstrate defiance, a tendency to act out, or a reaction to fearful situations (Viana et al., 2009).

Yeganeh and colleagues (2003) examined oppositional behavior in children with selective mutism and comorbid social anxiety compared to children with social phobia alone. Children with both disorders were rated by parents with higher CBCL delinquency scores compared to children with social phobia alone. However, scores were in the normative range for both groups. Similarly, Yeganeh and colleagues (2006) found that children with selective mutism were diagnosed with oppositional defiant disorder at a higher rate via parent interview than children with social phobia. However, these results should be interpreted with caution. The diagnostic criteria for oppositional defiant disorder may not address specific behaviors reported by parents

of children with selective mutism (Black & Uhde, 1995; Ford et al., 1998; Steinhausen & Juzi, 1996). Children with selective mutism typically demonstrate avoidance behaviors such as refusing to speak or participate in activities (Black & Uhde, 1995; Dummit et al., 1997). Parents may misinterpret these behaviors as controlling or oppositional instead of an expression of severe social anxiety (Kristensen, 2000; Yeganeh et al., 2003).

Elevated externalizing behaviors are inconsistently reported. Externalizing behaviors and selective mutism are much less common than internalizing behaviors (Andersson & Thomsen, 1998; Dummit et al., 1997; Kristensen, 2001). Steinhausen and Juzi (1996) reported CBCL externalizing scores in the normal range in youth with selective mutism compared to same-aged peers. Cunningham and colleagues (2006) did not find a greater incidence of parent or teacher-reported oppositional defiant disorder symptoms in children with selective mutism compared to controls. Vecchio and Kearney (2005) found no difference in parent-reported oppositional defiant disorder symptoms among children with selective mutism, anxiety disorders, or no disorder. Additional research is needed to investigate whether oppositional behavior in children with selective mutism is indeed a common occurrence or one subsumed under anxiety (Cohan et al., 2008).

The variability in rates of oppositional behaviors in youth with selective mutism may be somewhat explained by the actor-observer phenomenon. This phenomenon posits that an individual attributes the cause of another's behavior based on the person's disposition and disregards the environment or context of the behavior (De Los Reyes & Kazdin, 2005). Parents of children with selective mutism may be more likely to report oppositional behaviors if the behavior is viewed as consistent with an aggressive or oppositional disposition. These behaviors are therefore, observed without consideration of the environment in which the behavior took

place. However, if oppositional behaviors, such as temper tantrums and refusal to speak are examined from the perspective of the environment in which they took place, parents may rate oppositional behaviors as consistent with severe anxiety (Cohan et al., 2008). Parents may therefore, report none or few oppositional symptoms if they occur within the context of an anxiety-provoking situation.

The aforementioned review supports the notion that children with selective mutism present with varying externalizing symptoms and symptom intensities. Mutism may be maintained in specific cases of youth with selective mutism by oppositional symptoms. An oppositional presentation should be validated by demonstrating little relationship to anxiety symptoms. Youth with an oppositional presentation should have few symptoms of anxiety to support conclusions of mutism maintained by defiance. These aims are a central focus of the current study.

Additional concerns may further complicate behavioral presentations in children with selective mutism. Social problems in youth are affected by anxiety, depressive symptoms (Harrington & Clark, 1998; Lewinsohn, Rohde, Klein, & Seeley, 1999; Pine, Cohen, Gurley, Brook, & Ma, 1998; Rubin, Bukowski, & Parker, 1998), and externalizing behavior problems (Frankel & Myatt, 1994; Frankel & Myatt, 1996; Gaertner, Fite, & Colder, 2010; Roussos et al., 1999). CBCL social problems and anxious/depressed scores have been moderately associated (Ford et al., 1998). Peer relationship problems at an early age can impact a child's reactivity to future interpersonal stressors and sensitize a child to expect, perceive, and overact in social situations (Boyce & Ellis, 2005; McDonald, Bowker, Rubin, Laursen, & Duchene, 2010). Furthermore, children with difficulty interacting with others may feel alienated and angry and engage in retaliatory aggression (Dodge et al., 2003). Children with selective mutism with co-

occurring internalizing and externalizing problems may thus have negative peer relationships. The following section expands upon social problems in children with selective mutism.

Social Problems

Children with selective mutism often do not initiate friendships or speak with other children (Sharkey & McNicholas, 2008). Mute behaviors may cause long-term problems with social functioning and peer interactions (Sharkey & McNicholas, 2008). Children may have difficulty making friends and be rejected by peers. Lack of speech often restricts involvement with other students, and teasing by peers is common (APA, 2000; Giddan, Ross, Sechler, & Becker, 1997). Furthermore, these children may play with younger peers as they often have limited social interactions and delayed development of language skills (Giddan et al., 1997). Children with selective mutism with speech and language problems may not speak for fear of being rejected for mispronouncing words (Ale et al., 2013). Selective mutism may place children at risk for long-term problems with respect to social adjustment and relationships (Kolvin & Fundudis, 1981).

Social problems have been examined via teacher and parent reports of children with selective mutism. Kumpulainen and colleagues (1998), using teacher report, found that 16% of children with selective mutism were rejected in class, 13% were rejected during classroom breaks, and 5% were bullied. Diliberto and Kearney (2016) reported that CBCL social problems were associated with anxious and oppositional behavioral presentations in youth with selective mutism. However, individual social problems were not examined and such an examination would be advisable for future research.

Social problems may result from severe social anxiety. Children with selective mutism with severe anxiety may withdraw from social interactions and be subsequently teased (Giddan

et al., 1997). These children may also cling to adults, cry, and avoid separation (APA, 2013; Wong, 2010). Furthermore, social problems are also related to externalizing behavior problems (Frankel & Myatt, 1994; Frankel & Myatt, 1996; Gaertner et al., 2010; Roussos et al., 1999). Several aspects of an externalizing disorder, such as impulsivity, attention deficits, and mood dysregulation, are aversive to peers and negatively impact peer relationships (Calkins, Gill, & Willford, 1999). However, youth with selective mutism are generally reported with behavior problems at home, and as well-behaved at school (Cohan et al., 2008). No known studies have examined the individual social problems in youth with selective mutism with varying clinical presentations.

Social problems are not always found when examined via self-report, however. Cunningham and colleagues (2006) reported that children with selective mutism believed they were accepted and well-liked by peers despite parent-reported social skills deficits. These results are consistent with an earlier study by Cunningham and colleagues (2004) that children with selective mutism are not victimized by peers more than control children. Victimization and bullying has been denied in some studies (Ale et al., 2013). However, these results are not consistent with other studies (Giddan et al., 1997; Sharkey & McNicholas, 2008; Zelenko & Shaw, 2000).

Diliberto and Kearney (2013) found, via parent report, that youth with selective mutism displayed a range of close friendships and were well-liked by other children. However, interpersonal difficulties were reported. Children with selective mutism had difficulty making friends but were able to maintain friendships. One factor that likely impacts the ability to make friends is a child's difficulty joining conversations and speaking with peers. Youth with

selective mutism with one or more friends may make new friendships with the help of a close peer.

Social problems may be the result of anxious or oppositional behaviors in children with selective mutism. However, no known studies have examined the individual social problems that occur as a result of anxiety or opposition in youth with selective mutism. The CBCL provides individual social problem symptoms (Achenbach & Rescorla, 2001). Parents of youth with selective mutism with anxiety symptoms may endorse CBCL items such as "gets teased a lot," "complains of loneliness," and "clings to adults or too dependent." Parents of youth with selective mutism with oppositional symptoms may report oppositional behaviors occurring more often at home than with peers. Further research is needed to examine whether social problems are unique to children with selective mutism with anxious or oppositional behaviors or whether social problems occur with both symptom types.

A review has been provided on co-occurring depression, anxiety, aggression, and social problems in youth with selective mutism. However, the clinical presentation of selective mutism is further complicated by varying temperaments according to classes or groups of children with selective mutism. Children with selective mutism within a specific behavioral class may demonstrate more severe mutism and behavior problems due to variations in temperament. The following section thus provides an overview of child temperament and discusses the temperamental domains of activity, sociability, shyness, and emotionality with respect to youth with selective mutism.

Temperament

Temperament is composed of consistent, basic traits that underlie the expression of activity, sociability, shyness, and emotionality (Goldsmith, Buss & Lemery, 1997). These traits

appear early in life and are the most heritable and stable aspects of temperament (Buss & Plomin, 1984; 1986; Rutter, 1987; Masi et al., 2003). Activity refers to duration, intensity, and frequency of an individual's actions. Sociability refers to a preference for being with others rather than being alone. Shyness refers to uneasiness or inhibition in unfamiliar social situations. Emotionality refers to the tendency to become upset easily and is composed of fear, sadness, and anger (Buss & Plomin, 1984; 1986).

Temperament is also influenced by individual differences in reactivity and self-regulation (Rothbart & Derryberry, 1981). Reactivity refers to the responsiveness, arousability, and excitability of one's behavioral and physiological systems (Rothbart & Derryberry, 1981). Reactivity is assessed by the latency and intensity of the response. Self-regulation refers to the behavioral and neural processes needed to regulate reactivity. These variables are assumed to have a constitutional basis influenced by experience, maturation, and heredity (Rothbart & Derryberry, 1981). Temperament is linked to underlying biological, motivational, and attentional systems that help explain differences in reactivity and self-regulation (Derryberry & Rothbart, 1997). The traits of activity, sociability, shyness, and emotionality are influenced by reactivity and self-regulation.

Maladaptive or extreme temperament traits have been associated with emotional and behavioral problems in youth (Kristensen & Torgersen, 2002; Prior, 1992; Rutter; 1987; Thomas, Chess, & Birch, 1986). The vulnerability model proposes that temperament can place individuals at risk for the development of psychopathology (Laceulle et al., 2014). Children with selective mutism, for example, are most often reported with a behaviorally inhibited temperament (Ford et al., 1998). Behavioral inhibition is characterized by a tendency to restrict exploration and avoid novel situations (Kagan, Reznick, & Gibbons, 1989). Inhibited

preschoolers and kindergarten children are reported as very quiet and subdued with unfamiliar persons, and may delay playing and speaking to unfamiliar children or adults (Kagan, Reznick, & Snidman, 1987). By early childhood, children who are behaviorally inhibited may avoid interacting in social situations (Kagan et al., 1987). Inhibited children are described as avoidant of speaking in social situations, less extroverted, less active, and more likely to have social anxiety disorder in adolescence (Caspi, Harrington, Milne, Arnell, & Moffit, 2003). Children with selective mutism tend to avoid speaking in social situations to reduce their anxiety (Young et al., 2012). Behavioral inhibition, therefore, could be a risk factor for selective mutism and support the vulnerability model for psychopathology.

Behavioral inhibition has been linked with specific levels of temperamental traits, including low activity and sociability and elevated shyness (Janson & Mathiesen, 2008). Oppositional defiant disorder, conversely, has been predicted by elevations on emotionality and activity (Stringaris, Maughan, & Goodman, 2010). These results suggest that youth with anxious or oppositional clinical presentations display varying temperaments. The following sections provide an overview of the temperament domains of activity, sociability, shyness, and emotionality in children with selective mutism.

Activity. Activity is a temperament component defined as energy expenditure (Korner et al., 1985). Activity in young children has been found to predict approach in new situations (Korner et al., 1985). Low activity has been associated with anxiety and depressive disorders in youth (Clark, Watson & Mineka, 1994; Ströhle, et al., 2007). Elevated activity has been associated with increased risk of externalizing problems, restlessness, and irritability (Van Egmond-Fröhlich, Weghuber, & de Zwaan, 2012).

Activity is typically measured as expenditure of physical energy, including vigor of movement and tempo (Buss & Plomin, 1984). Vigor is defined as the amount of movement or energy exhibited. Tempo refers to the speed of movement and the eagerness to move quickly (Buss, 1988). One measure of temperament emphasizes vigor, tempo, and a preference for activities that are quiet and low key versus exciting. An extremely active individual would be characterized by pervasive energy expenditure in frequency and tempo of movement. A behaviorally inhibited or depressed individual would be characterized by low energy expenditure and subdued movements (Buss, 1988). Few studies have examined the rate and speed of movement in youth with selective mutism. Kehle and colleagues (2012) reported on a child with selective mutism who was hesitant to move around her classroom. This child reportedly walked in slow motion.

Gosman and colleagues (2015) examined physical activity levels in youth with externalizing and internalizing disorders. Youth with externalizing disorders had higher levels of energy expenditure than those with internalizing disorders. A negative correlation was found between anxiety and depression severity and physical activity level. Youth with internalizing disorders may avoid engaging in physical activities for various reasons. First, physical activities often involve social interaction. Youth with internalizing disorders may avoid social activities due to fear of judgment. Specifically, youth with social anxiety disorder may overestimate the threat of social danger and subsequently avoid engaging with others (Alkozei, Cooper, & Creswell, 2013). Children with selective mutism may also avoid engaging in social activities due to fear of judgment. Ale and colleagues (2013) reported on a case study of a child with selective mutism who had increased anxiety and avoided extracurricular activities.

Second, some youth may avoid physical activity due to heightened anxiety sensitivity. Anxiety sensitivity is the belief that physiological and physical symptoms of arousal may cause loss of control, illness, embarrassment, and additional anxiety (Reiss & McNally, 1985; Rubin & Burgess, 2001). Anxiety sensitivity has been reported with behavioral inhibition and introversion (Clark et al., 1994; Viana & Gratz, 2012). Youth with an inhibited temperament demonstrate increased heart rate acceleration in unfamiliar situations and activities compared to control children (Hirshfeld-Becker, Biederman, & Rosenbaum, 2004; Kagan et al., 1987). Physical activities that generate physical and physiological reactions, such as sweating and an increased heart rate, may be avoided by children with increased anxiety sensitivity.

Children with anxiety disorders may have an interpretation bias regarding physiological and physical symptoms (Cohan et al., 2006). Children may believe that symptoms such as blushing or sweating will cause others to negatively evaluate them. Anxiety sensitivity, therefore, may cause some children to avoid activities that cause physical and physiological arousal (Clark & Wells, 1995).

Third, the neurobiology underlying selective mutism may negatively affect activity level. Children with selective mutism have difficulty shifting behavioral states to engage with others and are inhibited when asked to respond verbally and behaviorally (Heilman et al., 2012). Deficits in physiological response may interfere with a child's ability to mobilize activities and engage with others. Polyvagal theory explains that shifting between behavioral states is dependent upon the regulation of the nervous system. The nervous system contains an unmyelinated vagus, which allows for behavioral immobilization as a defense strategy. The nervous system also contains the sympathetic-adrenal system, which prepares the body for mobilization. Heilman and colleagues (2012) asked children with selective mutism to engage in

a social interaction and physical exercise task and examined their vagal response. Children with selective mutism had difficulty shifting between these two tasks and had a "sluggish" vagal break. A sluggish vagal break was expressed by a reduced cardiac vagal tone and a dampened heart rate. Children with selective mutism tend to have difficulties shifting behavioral states to engage with others and are behaviorally inhibited (Heilman et al., 2012).

Physiological reactions of youth with selective mutism have been compared to those with social anxiety. Children with selective mutism demonstrated lower heart rate, blood pressure, and skin conductance compared to youth with social anxiety disorder during a social interaction activity (Young et al., 2012). Findings suggest that physiological reactions of youth with selective mutism are reduced during social activities compared to youth with social anxiety. However, not speaking may serve as a successful strategy for reducing physiological reactions of anxiety.

Activity may also be examined by frequency of activities. The CBCL provides an activity competence scale score based on the number of sports, activities and jobs, and the mean participation and skill in these activities (Achenbach & Rescorla, 2001). Research examining activity in youth with selective mutism is sparse. Children with selective mutism may actually enjoy engaging in activities without the pressure to speak (APA, 2013).

Kumpulainen and colleagues (1998) reported that nearly half of the children in their sample with selective mutism took part in activities with classmates. Children who were inactive during class were also inactive during classroom breaks. Ford and colleagues (1998) found that parents of children with selective mutism reported their children as often physically active. Furthermore, Cunningham and colleagues (2004) reported that the number of sports, clubs, and activities enrolled in outside of school did not differ between the selective mutism and control

groups. Children with selective mutism reportedly participated in a club activity or music and art at a higher percentage than controls. After-school events and recreational activities with peers may help build friendships and limit peer victimization in youth with selective mutism (Hodges, Boivin, Vitaro, & Bukowski, 1999). Children may express interest in extra-curricular activities, however, attendance is dependent on their caregivers.

Future research is needed regarding activity level and the frequency of activities in youth with selective mutism with varying clinical presentations. Children with selective mutism with a more anxious presentation may be less active due to sensitivity to physiological arousal and social anxiety. However, youth with a more oppositional presentation may be more active and seek out activities with other children that do not demand speech. Activity is thus a main component of the current study.

Social Competence and Sociability. Social competence refers to the degree of effectiveness relating to and socializing with peers (Rose-Krasnor, 1997). This includes entering groups, initiating play, and asserting one's needs as well as prosocial behaviors such as smiling, sharing, and communicating (Howes & Phillipsen, 1998; Kontos & Wilcox-Herzog, 1997). Social competence develops during the preschool age as children become increasingly interactive with peers (Murphy, Laurie-Rose, Brinkman, & McNamara, 2007). Social competence tends to remain stable throughout the school years (Howes & Phillipsen, 1998). Children with high levels of social competence are able to recognize and respond to social cues exhibited by peers (Murphy et al., 2007).

The CBCL (Achenbach & Rescorla, 2001) provides a rating of social competence. Social competence is derived by examining how well a child gets along with siblings and parents, plays and works alone, participates in organizations, and has close friends and spends

time with those friends (Achenbach & Rescorla, 2001). Few studies have provided CBCL social competence scores in youth with selective mutism (Ford et al., 1998). Youth have been reported with social competence scores in the average range. However, an examination of the individual social competence items is necessary because youth with selective mutism may vary in peer and family interactions. Researchers have provided information regarding interpersonal relationships with parents, participation in organizations, and peer relationships.

Parent-child relationships in youth with selective mutism are typically described as enmeshed, conflictual, and overdependent (Hadley, 1994; Hayden, 1980; Lesser-Katz, 1986; Meyers, 1984; Subak et al., 1982; Yeganeh, et al., 2006). Youth with selective mutism may also argue, be difficult to please, and display temper tantrums with parents (Diliberto & Kearney, 2016; Kumpulainen et al., 1998; Steinhausen & Juzi, 1996). Cunningham and colleagues (2004) reported that the number of organizations, including sports and clubs enrolled in outside of school, did not differ between selective mutism and control groups. However, no known studies have examined whether the number of organizations differ between children with an anxious or oppositional presentation. Youth with anxiety, however, are generally reported to avoid activities with a social element (Standart & Le Couteur, 2003; Vecchio & Kearney, 2005; Yeganeh et al., 2003). Youth with an oppositional presentation may be less anxious and eager to engage in activities in which they do not have to speak.

Children with selective mutism have difficulty making friends (Diliberto & Kearney, 2013; Giddan et al., 1997). Children with selective mutism with significant anxiety may be rejected by peers due to withdrawal from social interactions (Diliberto & Kearney, 2016; Giddan et al., 1997). However, researchers have not examined whether the number of friendships differ between children with selective mutism with varying presentations. Youth with selective

mutism with oppositional behaviors may have lowered anxiety and opposition at school (Cunningham et al., 2006). These children, therefore, may be less likely to withdraw in social situations and have more friendships.

The Social Skills Rating Scale (SSRS; Gresham & Elliott, 1990) has also been utilized to examine social competence in youth with selective mutism. Social competence is examined by four factors: responsibility, cooperation, self-control, and assertion. Social responsibility includes tasks such as answering the phone or asking permission. Social cooperation includes tasks such as putting toys away or helping without being asked. Social control includes controlling one's temper or ending disagreements. Social assertion includes inviting others over and starting conversations.

Cunningham and colleagues (2004) found that children with selective mutism were rated lower on social responsibility, cooperation, control, and assertion than control children according to parent report. Teachers rated children with selective mutism lower on social assertion than control children. Children with selective mutism did not start conversations or invite peers to play in the classroom. Cunningham and colleagues (2006) reported that youth with selective mutism had nonverbal social cooperation scores comparable to control children. This suggests that children with selective mutism may effectively cooperate in social situations without speaking. However, social deficits were demonstrated in situations that did not require speaking. Parents reported that children were less socially confident, had difficulty making friends, and were less likely to join groups. A child's mutism may prevent opportunities to experience and practice social assertion during this time period (Rubin, LeMare, & Lollis, 1990; Spence, Donovan, & Brechman-Toussaint, 2000).

Carbon and colleagues (2010) assessed social competence in selectively mute, mixed anxiety, and control children. Parent report revealed that children with selective mutism had lower social responsibility than the mixed anxiety and control groups. The selective mutism and mixed anxiety groups were lower in social assertion and social control than controls. Children with selective mutism demonstrate less social competence in non-verbal and verbal social situations.

Sociability refers to the tendency to affiliate with others and to prefer being with others rather than alone (Cheek & Buss, 1981). Sociability may include social behavior, social competence, and social skills. Youth with selective mutism demonstrate variability in these domains, each of which is discussed next. Variability may be due to limited research on sociability in youth with selective mutism with anxious and oppositional behaviors.

The social behavior of youth with selective mutism has been compared to social anxiety disorder. Researchers have reported a large percentage of children with selective mutism meeting criteria for social anxiety or avoidant disorder (Black & Uhde, 1995; Dummit et al., 1997; Vecchio & Kearney, 2005). Individuals with social anxiety often avoid social situations or participate with subtle avoidance by averting eye contact and standing at the side of social interactions (Clark, 2001; Glick & Orsillo, 2011). Similarly, youth with selective mutism may actively avoid social interactions or engage in little interaction without speech (Standart & Le Couteur, 2003; Vecchio & Kearney, 2009; Yeganeh et al., 2003). Ale and colleagues (2013) reported on a case of a child with selective mutism. Parent report revealed that this child withdrew from social activities outside of school once beginning kindergarten and exhibited social anxiety when meeting new children.

Youth with selective mutism may engage in social situations without speaking (Biggs, Vernberg, & Wu, 2012). Clinicians may observe children with selective mutism willingly engage nonverbally with peers and adults. Children with selective mutism can make appropriate social responses such as smiling, and participate in games at recess (Yeganeh et al., 2003). Omdal and Galloway (2008) conducted an exploratory post hoc study with 6 adults who recovered from selective mutism in childhood and adolescence. Only two reported feeling social anxiety during childhood. None of the children with a current diagnosis of selective mutism withdrew in social situations at home or school. These children reportedly communicated effectively using body language, facial expressions, and gestures. Two children were described by parents as eager to socialize with others in situations not involving speech. One child was described as being very interested in participating in social activities and did not seem to worry about what others thought of them. Individuals reportedly varied in their willingness to engage in social situations. These findings suggest that some youth with selective mutism may be more sociable than others.

Children with selective mutism are often reported with comorbid social anxiety disorder (Black, 1996; Vecchio & Kearney, 2005). However, conflicting findings suggest that social anxiety does not consistently inhibit nonverbal socialization. Children with selective mutism may withhold speech to reduce feelings of social anxiety (Young et al., 2012). Additionally, Black (1996) asserted that youth with selective mutism and social anxiety remained mute despite receiving treatment for social anxiety disorder. This researcher questioned the rationale for why mutism would persist despite no longer experiencing social anxiety. Mutism may therefore be the result of complicating factors outside of extreme social anxiety. Other factors such as defiance may play a role in speech inhibition.

Further research is needed regarding whether certain groups of children with selective mutism are associated with comfort and eagerness to interact in social situations that do not demand speech. Children with selective mutism who are eager to socialize may refuse to speak for reasons other than overwhelming anxiety in social situations. Mutism may be the result of fear of speaking despite no longer experiencing social anxiety and/or defiant behavior for a select group of children with selective mutism. These children may actively participate in social situations without the demand of speech.

Shyness. Children with selective mutism are commonly reported as shy (APA, 2000; 2013; Kopp & Gilberg, 1997; Kristensen, 1997; Lesser-Katz, 1986; Steinhausen & Juzi, 1996; Yeganeh et al., 2003). Shyness is a dimension of temperament that corresponds to fearful distress. Shyness and sociability are reported as distinct temperament factors (Spence, Owens, & Goodyear, 2013). Shyness is manifested by tension, concern, discomfort, gaze aversion, and inhibition in the presence of strangers or unfamiliar persons (Buss, 1988; Buss & Plomin, 1984). Shyness is associated with low levels of approach (Shiner & Caspi, 2003). Sociability refers to the tendency to affiliate with others and a preference for being with others. Sociability is associated with comfort in social situations and high levels of approach (Cheek & Buss, 1981).

Shyness and behavioral inhibition have also been closely linked. Behavioral inhibition refers to a tendency for fearfulness and avoidance of novel situations, objects, and people (Buss & Plomin, 1984; Kagan, 1994; 2008; Rothbart & Bates, 1998). Behavioral inhibition in early childhood is associated with anxiety and mood disorders such as social phobia, selective mutism and depression (Gensthaler et al., 2016; Kagan & Snidman, 1991; Rosenbaum et al., 2000; Schwartz, Snidman, & Kagan, 1999). Children who are described as behaviorally inhibited are

reported with a seven times greater risk for developing social anxiety disorder according to meta-analysis (Clauss & Blackford, 2012).

Shyness has been described as a specific trait found in a behaviorally inhibited temperament (Kagan, 1994). Social, rather than non-social fearfulness has been reported to account for the relationship between behavioral inhibition and the development of anxiety disorders (Van Ameringen, Mancini, & Oakman, 1998). Kochanska and Radke-Yarrow (1992) found that early inhibition in infancy towards social stimuli rather than non-social situations predicted a child's failure to speak with unknown children at age 5 years. Gensthaler and colleagues (2016) examined retrospective accounts of behavioral inhibition in infants for youth with current selective mutism or social anxiety. Youth with selective mutism had a higher infant behavioral inhibition scores than youth with social anxiety. These findings suggest that behavioral inhibition has been shown to elicit more interactional than performance-based social fears, and predicted earlier development of social anxiety disorder (Hayward, Wilson, Lagle, Kraemer, Killen & Taylor, 2008).

Reticence to speak or interact in the presence of unfamiliar people during preschool years is one of the best indicators of behavioral inhibition (Kagan & Snidman, 1991). Children with selective mutism are seen as more behaviorally inhibited and shy than children without anxiety (Kristensen & Torgersen, 2002). Furthermore, behavioral inhibition and shyness are associated with an overactive inhibition system (Gray, 1982; 1987). The strong overlap of behavioral inhibition, shyness and selective mutism may indicate that selective mutism represents a more severe and speech-based form of behavioral inhibition (Anstendig, 1999). Shyness directly involves social fears and may be viewed as a social variant of behavioral inhibition in children with selective mutism (Hadley, 1994; Muris & Ollendick, 2005).

Children with selective mutism are shy and inhibited in up to 85% of cases (Ale et al., 2013; Baldwin & Cline, 1991; Black & Uhde, 1995; Ford et al., 1998; Kristensen & Torgersen, 2001; Steinhausen & Juzi, 1996; Vecchio & Kearney, 2009; Viana et al., 2009; Wong, 2010). Case studies (Ale et al., 2013; Zelenko & Shaw, 2000) reveal that children with selective mutism are described by their parents as shy and fearful in social situations. Children with selective mutism are reported with elevated scores on self-report measures of social anxiety and shyness (Carbone et al., 2010; Cunningham et al., 2004; Dummit et al., 1997; Steinhausen & Juzi, 1996). Wright and colleagues (1995) reported on a child with selective mutism who did not speak since preschool. The child indicated she did not speak because of shyness and separation concerns. Ford and colleagues (1998) utilized an open-ended questionnaire and found that shy and withdrawn behavior were commonly reported in youth with past or current selective mutism. Furthermore, shyness was ranked as the second most common reason for their child's mutism according to parent report. The desire to have control over one's environment was rated as the fifth most common reason for mutism. These findings suggest that children with selective mutism may remain mute for both anxious and oppositional reasons.

The Emotionality Activity Sociability Survey for Children: Parental Ratings has been utilized with parents of youth with selective mutism (EAS; Buss & Plomin, 1984). Kristensen and Torgersen (2002) examined temperament in children with selective mutism with and without language delay and in control children. Children with selective mutism with speech and language delays displayed elevated shyness and lower sociability than controls. However, maternal report revealed that children with selective mutism with speech and language delays were more sociable and less emotional than children with selective mutism without speech problems. Speech and language delays may be the more prominent presentation for children

with selective mutism and language delays. Therefore, these children may be less behaviorally inhibited. Children with selective mutism without language problems were rated as more shy and emotional and less active and social than control children.

This study is one of the first to examine temperament in children with selective mutism. Findings are limited because no additional behavioral measures were given to examine whether certain temperamental domains were associated with behavioral problems. Children with selective mutism with specific EAS shyness behaviors describing social withdrawal may have more severe anxiety, for example. Children with selective mutism who are reported as more sociable and less emotional may be reported with oppositional behaviors as well.

Diliberto and Kearney (2016) reported that shyness was not found with children with selective mutism with an oppositional presentation. However, the implications of this finding are unclear. Further research is needed to examine whether youth with selective mutism with oppositional behaviors approach unfamiliar children and situations more readily than children with anxiety without co-occurring oppositional behaviors. Children with selective mutism with an oppositional presentation may be interested in social engagement and withdraw solely due to concerns that they will have to speak.

Two types of non-social behavior in preschoolers has been reported during play sessions with unfamiliar peers: solitary-passive and social reticence (Henderson et al., 2004). Solitary passive behavior is characterized by solitary but constructive play with activities such as drawing and working on puzzles in the presence of other children. Social reticence is characterized by intent focus and orientation on other children as well as fear to join children in play. Children who are socially reticent tend to hover on the fringe of social activity, carefully watch other children, display overt anxiety, and remain unengaged in other activities. Social reticence is

directly related to behavioral inhibition and shyness (Fox, Henderson, Marshall, Nicholas, & Ghera, 2004).

Children who engage in passive-solitary play may be successfully shifting attention away from the fear-inducing social situation and effectively regulating anxiety (Eisenberg, Shepard, Fabes, Murphy, & Guthrie, 1998). The ability to shift attention may moderate the association between shyness and the development of internalizing disorders, including social anxiety disorder (Fox et al., 2004). The disengagement of attention from unfamiliar social situations may be particularly difficult for youth who are temperamentally fearful but who want to socialize with other children. These children face the challenge of managing feelings of anxiety and their desire to interact with peers. Children who are successfully able to shift their attention to their own play may appear less anxious and shy than behaviorally inhibited children (Ochsner & Gross, 2004).

Youth with selective mutism may demonstrate variability in their approach behaviors. Children with exclusively anxious symptoms may be interested but unable to approach other children due to overwhelming anxiety. Children with oppositional symptoms may be less anxious and engage with other children if invited and without the demand to speak. Future research, including the current study, is needed to test behaviors consistent with inhibition and sociability in youth with selective mutism. Youth with less anxiety may be quick to warm up to strangers, enjoy being with others, and eager to socialize.

Emotionality. Emotionality is the tendency to react intensely to emotion-generating stimuli (Strelau, 2008). Children with selective mutism are often described with features of negative emotionality or heightened, negative responses to distressing situations (Marakovitz, Wagmiller, Mian, Briggs-Gowan, & Carter, 2011). Negative emotionality includes aspects of

fear, distress, sadness, inhibition, irritability, anger proneness, frustration, and undercontrolled and disinhibited regulatory abilities (Caspi, Henry, McGee, Moffitt, 1995; Moffitt, Caspi, Dickson, Silva, & Stanton, 1996). Negative emotionality is a stable indicator of internalizing and externalizing disorders in children aged 1-10 years (Karevold, Roysamb, Ystrom, & Mathiesen, 2009). Heightened emotionality and shyness occur with a behaviorally inhibited temperament (Buss & Plomin, 1984).

Emotionality plays an important role in the development of psychological disorders, including depression and disruptive behavior and anxiety disorders (Frick & Morris, 2004; Nigg, Goldsmith, & Sachek, 2004; Reid, Patterson, & Snyder, 2002). Negative emotionality may be composed of three lower order components: fear, anger/frustration, and sadness. A child with a fearful temperament is more prone to develop an anxiety disorder. A child with a temperament characterized by high anger and frustration is more likely to develop a disruptive behavior disorder. A child whose temperament includes affective regulation difficulties is more likely to develop a depressive disorder (Blair, 2002; Bronson, 2000; Muris & Ollendick, 2005). Children with selective mutism display various heightened and negative emotional responses across different environments. Children with selective mutism display the lower-order components of emotionality, including components of depression (Giddan & Milling, 1999), anxiety (fear) (Cohan et al., 2008; Vecchio & Kearney, 2005), and oppositional behaviors (anger/frustration) (Cohan et al., 2008; Diliberto & Kearney, 2016; Vasilyeva, 2013).

Youth with selective mutism are reported with depression in some studies (Ale et al., 2013; Giddan & Milling, 1999). Children with difficulties regulating their mood in response to novel or stressful situations are at risk for depression (Muris, Merckelbach, Wessele, & Van de Ven, 1999). Sadness and mood swings in youth with selective mutism occur when faced with

new situations (Chess & Thomas, 1989). Children who display mood symptoms may be trying to escape from anxiety-provoking situations (Ford et al., 1998). Children with selective mutism may respond with sad, dysregulated affect in response to stressful situations that demand speech. Depression may occur as a long-term result and be related to anxiety.

Children with selective mutism may have depression resulting from social and academic problems. Kopp and Gillberg (1997) reported on a child with selective mutism who was depressed, often cried, and called himself names. He reportedly had poor grades and struggled to receive academic support due to not speaking. Depression in youth with selective mutism has also been reported with social problems. Negative peer evaluations have been strongly associated with depression (Chen, Cen, Li, & He, 2005). Youth with affective problems may struggle to regulate their mood in social situations and may be subsequently rejected by peers (Maughan, Rowe, Loeber, & Stouthamer-Loeber, 2003).

Emotionality has been examined as a temperamental component in few studies of children with selective mutism. Ford and colleagues (1998) assessed the intensity and quality of mood reactions of children with current or past selective mutism. Intensity of mood refers to energy response level, regardless of quality or direction (Muris & Ollendick, 2005). Quality of mood pertains to the amount of friendly, joyful, or pleasant behavior compared with unfriendly, crying, or unpleasant behavior (Muris & Ollendick, 2005). Quiet or moderate intensity of emotional reactions with neutral or positive tone were commonly reported by parents. Children with selective mutism may demonstrate neutral or positive moods in situations that do not demand speech. Situations involving speech demands are suspected to cause negative mood expressions (Ford et al., 1998).

Ford and colleagues (1998) also reported lowered adaptability in their sample. Children reportedly struggled responding well to new situations and with handling transition and change. Negative emotionality may be expressed as a result of discomfort in a new or uncomfortable situation (Chess & Thomas, 1989). Children with selective mutism may become quiet, retreat, withdraw, or cease activity when faced with new situations (Ford et al., 1998; Kagan et al., 1989; Yeganeh et al., 2003). Children with decreased ability to adapt to new situations displayed elevated CBCL anxious/depressed and withdrawn scores. Anxious behaviors may be a reaction to novelty and desire to escape from stressful situations.

Defiant behaviors may also occur in youth with selective mutism. Youth with selective mutism with a more defiant temperament may express anger/frustration in response to new, uncomfortable situations. Ford and colleagues (1998) and Diliberto and Kearney (2016) found endorsed CBCL items such as "strong-willed," "disobedient at school," "argues a lot," and "temper tantrums." Defiant behaviors occur mostly with parents and may be related to the desire to have control over one's environment (Ford et al., 1998; Wong, 2010). Defiant and manipulative behavior may be viewed as negative emotional reactions to non-preferred situations (Wergeland, 1979). These children may also argue and refuse to comply with adult requests. Children with selective mutism may argue in attempt to control their environment and avoid situations that are anxiety-provoking or non-preferred (Diliberto & Kearney, 2016; Ford et al., 1998). Depressive, anxious, and defiant behaviors are considered to be three manifestations of negative emotionality in response to stressful situations.

Temperament also contains a regulative factor referred to as "effortful control." Effortful control is the ability to control or regulate one's behavior under certain situations (Eisenberg & Fabes, 1992; Rothbart & Bates, 1998). High emotionality and low effortful control reportedly

cause children to be more prone to psychological disorders (Calkins & Fox, 2002; Muris and Ollendick, 2005; Lonigan & Phillips, 2001). The tendency to display behavioral inhibition is associated with the expression of high levels of negative emotions including anxiety, distress, and fear (Eisenberg & Fabes 1992). The development of effortful control enables a child to regulate emotions and to control their behavior across situations (Eisenberg, Liew, & Pidada, 2004). Children with selective mutism are often delayed in their speech and language acquisition and may therefore struggle to understand and regulate their emotions in developmentally appropriate ways (Carmondy, 2000).

Children with an inhibited temperament may have developed successful ways to reduce negative emotions and physiological reactions to stressful situations. Cortisol levels have been examined in preschool aged youth (De Haan, Gunnar, Tout, Hart, & Stansbury, 1998). Cortisol is a glucocorticoid that is released during times of acute stress. Cortisol is involved in the fight or flight response and temporarily reduces energy production (Lovallo & Thomas, 2000). Increased cortisol levels found at the start of school were associated with angry, aggressive, and assertive behavior compared to anxious behavior (De Haan et al., 1998). Children with an inhibited temperament might not show elevated cortisol in response to stressful situations because they avoid social and physical activities that would elevate cortisol. Findings suggest that youth may vary in their physiological response to stress. Those children with a more inhibited temperament may appear less anxious because they have found a successfully strategy to reduce their physiological arousal.

Psychophysiological measures have been utilized to examine anxiety in youth with selective mutism. Young and colleagues (2012) asked youth with selective mutism, social phobia, and no diagnosis to respond verbally to questions posed by a peer and read aloud before

an adult and peer. Children with selective mutism were rated as more anxious than the social phobia group according to clinician report. However, psychophysiological measures revealed that children with selective mutism experienced less arousal than the social phobia group during the social interaction tasks. Mutism may be a maladaptive but effective strategy to avoid negative emotions in stressful situations. However, these researchers did not examine physiological arousal according to whether youth had more anxious or oppositional behaviors. Youth with selective mutism with an oppositional presentation may struggle to regulate their aggressive behavior and be reported with elevated arousal. Therefore, these children may be reported with higher rates of negative emotionality characterized by anger/frustration.

Children with selective mutism present with various symptoms, including depression (Kaplan & Escoli, 1973; Kopp & Gillberg, 1997), anxiety (APA, 2013; Anstendig, 1999; Black & Uhde, 1995; Schwartz & Shipon-Blum, 2005; Sharp et al., 2007; Vecchio & Kearney, 2005), social problems (Cunningham et al., 2004; 2006; Sharkey & McNicholas, 2008), and varying temperaments (Ford et al., 1998; Kristensen & Torgersen, 2002). Researchers have attempted to conceptualize behavior profiles of selective mutism based on the presence and intensity of these behaviors, which is a key aim of the current study as well. The following section provides an overview of studies that have attempted to provide profiles/groups of selective mutism based on a collection of behaviors and temperamental expressions.

Conceptualization

Researchers have advocated for the development of groups/profiles of selective mutism to help differentiate varying symptom presentations (Cohan et al., 2008; Diliberto & Kearney, 2016). Selective mutism, therefore, could be conceptualized according to the primary symptoms of the disorder and its maintaining variables. Three studies (Cohan et al., 2008; Diliberto and

Kearney, 2016; Ford et al., 1998) have attempted to provide greater support for clinical groups/profiles of youth with selective mutism.

Cohan and colleagues (2008) utilized the Selective Mutism Group—Child Anxiety Network (SMG), an advocacy group that promotes understanding and support of selective mutism. Caregivers of youth aged 5-12 years meeting diagnostic criteria for selective mutism were eligible for the study. Questionnaires were mailed to participants about their child's communication delays, social and behavior problems, functional impairments, internalizing and externalizing symptoms, and expressive and receptive language abilities.

Cohan and colleagues (2008) utilized latent profile analyses to identify classes of children with selective mutism with similar symptoms and symptom severity of social anxiety, linguistic maturity, and behavior problems. Latent profile analysis serves to identify class membership among participants using continuous variables. This approach utilizes formal fit statistics to derive the appropriate number of classes among participants. Their goal was to refine the conceptualization of selective mutism based on empirically derived clinical profiles. The analysis supported a 3-class solution: anxious-mildly oppositional, anxious-communication delayed, and exclusively anxious.

The anxious-mildly oppositional group composed 44.6% of the sample. Borderline clinical scores for behavior problems and syntax and clinically significant social anxiety scores were found for this group. The finding of behavior problems in youth with selective mutism is supported by previous research (Black & Uhde, 1995; Dummit et al., 1997; Steinhausen & Juzi, 1996; Yeganeh et al., 2006). Cohan and colleagues (2008) reported that behavioral problems were found mainly in the home and likely the result of stubborn or controlling behavior in anxiety-provoking situations (Kristensen, 2001; Standart & Le Couteur, 2003). These

researchers reported that oppositional behaviors were not consistent with rule-breaking and aggression typically found in oppositional defiant disorder.

However, the most commonly reported oppositional behaviors included “gets angry when doesn’t get own way,’’ ‘‘slow in getting ready for bed,’’ ‘‘verbally fights with sisters and brothers,’’ and ‘‘refuses to eat food presented.’’ These behaviors may readily occur outside of anxiety-provoking situations and describe a child with selective mutism with opposition not due to feelings of anxiety. Furthermore, Diliberto and Kearney (2016) reported that children with selective mutism with an oppositional presentation “argued a lot.” The extent to which parent-reported oppositional behavior in children with selective mutism represents a unique group or is an expression of fear or anxiety remains unclear.

The anxious-communication delayed group composed 43.1% of the sample. Borderline scores for speech and clinically significant scores for social anxiety and syntax were found for this group. This group showed worse receptive language abilities than the exclusively anxious and anxious-mildly oppositional group. Furthermore, this group demonstrated greater selective mutism symptom severity and behavior problems than the exclusively anxious group. Developmental language delays were not severe enough to warrant diagnoses for receptive or expressive language disorders.

Findings suggested that the anxious-communication delayed group was the most impaired. These findings are inconsistent with previous reports that children with selective mutism with communication disorders have less severe clinical presentations than youth with selective mutism alone (Kristensen & Torgersen, 2002). Furthermore, parents may interpret reluctance to speak in anxiety-provoking situations as expressive language problems (Cohan et al., 2008).

The exclusively anxious group composed 12.3% of the sample. The exclusively anxious group displayed lower CBCL anxiety problems than the other two groups. The exclusively anxious group also showed stronger expressive and receptive language abilities than the anxious-communication delayed group. The co-occurrence of social anxiety and selective mutism is expected given previous literature suggesting their commonalities (Black & Uhde, 1995; Kristensen, 2000; Oerbeck et al., 2014). However, the exclusively anxious group may be a less complicated and severe clinical profile of selective mutism.

This finding of an exclusively anxious profile may have important treatment implications. These children may benefit from cognitive behavioral approaches to selective mutism based on anxiety management. However, the exclusively-anxious group was least represented in this study. This finding suggests that clinically significant anxiety is likely present in children with selective mutism but that other factors, such as opposition and speech and language problems, also play a role.

Consistent with previous research, all of the children showed elevated social anxiety, with variability on measures assessing communication delays and oppositional behaviors. Alternative treatments may be needed for children with selective mutism with more complex clinical presentations. A positive treatment outcome may occur if intervention focuses on parent training via contingency management for youth with oppositional behaviors (Krysanski, 2003). Furthermore, children with selective mutism may avoid speaking because they fear they will be teased for mispronouncing words (Krysanski, 2003; Rutter, 1977). Children with selective mutism with speech and language problems may benefit from working directly with a speech and language pathologist to help with language production.

Cohan and colleagues (2008) provided evidence of distinct clinical profiles in children with selective mutism. However, limitations are present. First, the individual items of youth with selective mutism were not provided in each profile. Clinical profiles were reported with clinically significant anxiety. However, further research is needed to determine the individual behavior problems that occur outside of anxiety-provoking situations. Treatment professionals could provide individualized assessment and treatment based on the individual symptoms and their impact on mutism (DiStefano & Kamphaus, 2006).

Second, Cohan and colleagues (2008) did not examine the impact of anxiety, oppositional, or speech and language problems on social problems. Mute behaviors are reported to cause long-term problems with social functioning and peer interactions (Sharkey & McNicholas, 2008). Youth with distinct clinical profiles may vary with respect to their individual social problems. Youth with selective mutism and co-occurring speech and language problems may be teased for mispronouncing words, and subsequently withhold speech (Ale et al., 2013). Children with selective mutism with severe anxiety may withdraw from social interactions and have difficulty making friends (Giddan et al., 1997). Youth with selective mutism with oppositional behaviors may demonstrate impulsivity and emotion dysregulation (Calkins et al., 1999). However, these youth may be more social than children with an anxious profile and be eager to make friends.

Third, these researchers did not provide measures of temperament. Behavior profiles of selective mutism may be further complicated by varying levels of activity, sociability, shyness, and emotionality. Youth with selective mutism with clinically significant anxiety may avoid physical activities and engagement with other peers (Ale et al., 2013). Youth with selective mutism with a less anxious clinical presentation may enjoy activities and play with other children

without the demand to speak. Youth with selective mutism with clinically significant anxiety may be seen as less active and sociable and more shy. Furthermore, emotionality plays an important role in the expression of affective problems, oppositionality, and anxiety. Findings of emotional reactions unique to each clinical profile would provide further evidence of distinct groups.

Ford and colleagues (1998) examined the characteristics of youth with previous or current selective mutism according to parent report. Parents reported oppositional behaviors such as refusing to talk, arguing, being sullen, stubborn or irritable, disobedience in school, whining, engaging in temper tantrums, and having a hot temper (Ford et al., 1998). These behaviors were commonly endorsed and reflected 71.7% of youth with selective mutism. Oppositional behaviors were reported as potential reactions to situations that demanded speech. However, this is speculative because these researchers did not examine whether these behaviors were reported outside of situations that demanded speech. Future research is needed to determine whether mutism is maintained by defiant or controlling behavior in a subset of youth with selective mutism.

Parents reported anxious behaviors such as being self-conscious or easily embarrassed, withdrawal, timidity, worrying, and separation anxiety. Children with selective mutism were reported with symptoms consistent with social anxiety disorder. Children were reported with limited speech and low volume in anxiety-provoking situations. Situations that included strangers, social events, and school were reported to exacerbate mutism symptoms. Furthermore, individuals who no longer met criteria for selective mutism continued to present with discomfort in social situations. However, these researchers did not indicate whether social anxiety symptoms were present in the entire sample or unique to a select subset of children.

Ford and colleagues (1998) also provided information regarding child temperament. These researchers assessed temperament across five domains including activity level, regularity, approach/withdrawal, adaptability, and distractibility. Children reportedly struggled responding well to new situations and with handling transition and change. Children with difficulty adapting to new situations displayed a behaviorally inhibited temperament. Furthermore, children with selective mutism with behavioral inhibition are reported to show negative mood when faced with new situations (Kagan et al., 1987). However, this study did not provide information regarding the specific negative emotion in response to new situations. Caregivers also reported distractibility in 43.8% of cases. However, these researchers reported that distractibility is not consistent with a behaviorally inhibited temperament and offered no further interpretations. Further research is needed to determine the impact of distractibility on mutism severity and co-occurring behaviors.

This study provides support for the varying behaviors and temperaments of children with selective mutism. However, limitations are present. First, the validity of the measure used to examine temperament is questionable because it assessed each temperament domain with only one question. Second, the domains of temperament utilized in this study were developed from researcher experience working with children with selective mutism. These domains do not correspond to a validated and psychometrically sound measure. Third, these researchers did not compare temperament domains according to the severity level of anxious or oppositional behaviors. Fourth, this study reported that children with selective mutism vary in their mood expression. However, these researchers did not assess whether mood states were representative of sadness, anger, or fear.

Future research is needed to address the individual behaviors of youth with selective mutism according to their presence and severity level. Children with selective mutism may present with anxious or oppositional symptoms, which may maintain non-speaking. Additional research is also needed on temperaments of youth with selective mutism according to a psychometrically sound measure. Children with selective mutism may differ on levels of activity, sociability, shyness, and emotionality.

Diliberto and Kearney (2016) examined the individual behaviors of youth with selective mutism in a clinic setting along the CBCL (Achenbach & Rescorla, 2001). A review of the most commonly endorsed items demonstrated a range of both anxious and oppositional behaviors. These behaviors were subjected to an exploratory and then confirmatory factor analysis and revealed two distinct factors of anxious and oppositional behaviors. Diliberto and Kearney (2016) sought validation for the behavior factors by examining their association with CBCL social problems and aggressive behaviors and Anxiety Disorder Interview Schedule for Children—Parent Rating (ADIS-P; Silverman & Albano, 1996) social anxiety and oppositional defiant disorder symptoms. Anxious and oppositional factor items are in Table 1.

Table 1.
Factors from Diliberto and Kearney (2016*)*

Anxious Factor	Oppositional Factor
Would rather be alone than with others	Argues a lot
Withdrawn, doesn't get involved with others	Temper tantrums or hot temper
Nervous, high strung or tense	Whining
Doesn't eat well	Stubborn, sullen or irritable
Sudden changes in mood or feelings	Demands a lot of attention
Too fearful or anxious	

Anxious behaviors were reported from the CBCL anxious/depressed and withdrawn/depressed scales. These items included "doesn't eat well," "would rather be alone than with others," "withdrawn, doesn't get involved with others," "nervous, high strung or

tense," and "sudden changes in mood or feelings." These items are explored in greater depth next.

Problematic eating may be understood as a specific fear of eating before others (Barlow, 1988; Beidel & Turner, 2007) or nausea as a result of anxiety felt while attempting to eat in social situations (Ressler & Nemeroff, 2000). Parental endorsement of this item requires further questioning. Social anxiety disorder is commonly associated with embarrassment while eating before others (Barlow, 1988; Beidel & Turner, 2007). Therefore, children with selective mutism may be scared to approach social groups and eat before others. This finding may provide support for limited sociability in youth with selective mutism.

Children with elevated anxious factor scores were withdrawn and preferred to be alone. Mutism may be a specific form of withdrawal because it removes the child from verbal interaction (Ford et al., 1998). A child may prefer being alone because it is too anxiety-provoking to be around other children and be asked to speak. Children with selective mutism may be perceived as nervous and fearful because they sometimes freeze and look away when others speak to them (APA, 2000; 2013; Hesselman, 1983; Lesser-Katz, 1986; Steinhausen & Juzi, 1996; Yeganeh et al., 2003). Diliberto and Kearney (2016) did not examine children's specific fears. However, fear of social situations is commonly reported (Dummit et al., 1997; Standart & Le Couteur, 2003; Vecchio & Kearney, 2005; Yeganeh et al., 2006). Youth with selective mutism with a more anxious presentation may be reported with lowered sociability, be less interested in engaging in activities involving others, and be seen as shy in social situations.

Furthermore, children with selective mutism were reported with sudden changes in mood or feelings. Mood changes are commonly reported in youth with difficulty adapting to new, stressful situations (Ford et al., 1998; Kagan et al., 1984). Negative emotions may occur, such as

sadness or fear when faced with a new situation (Chess & Thomas, 1989; Ford et al., 1998). Children who display mood swings may be attempting to escape from anxiety-provoking social situations that are new and demand speech. Youth with an anxious presentation may display specific negative emotional responses such as fear and anxiety in these situations.

Oppositional behaviors were also reported from the CBCL aggressive behavior scale and the other problems scale. These items included "argues a lot," "demands a lot of attention," "stubborn, sullen or irritable," "temper tantrums or hot temper," and "whining." These items are explored in greater depth next.

Children with selective mutism may argue to control their environment and avoid an anxiety-provoking situation. A child may delay certain actions, such as getting dressed or ready for bed, for example (Cohan et al., 2008). The child does not want to engage in a certain activity and thus postpones the action to control their environment. Similarly, a child may argue about being asked to speak in social situations (Cunningham et al., 2006), or about a task not involving speech. However, defiant behaviors may represent a tendency to act out and occur outside of anxiety-provoking situations (Viana et al., 2009). Additional research is needed to investigate whether oppositional behavior in children with selective mutism is indeed a common occurrence or one subsumed under anxiety (Cohan et al., 2008).

Children with selective mutism reportedly demanded attention. Children may be mute to divert attention from their parent's negative, and sometimes abusive, marital relationship (Rosenberg & Lindblad, 1978). Children with selective mutism often do not speak in school, so they may also be eager to be home and demand attention from a parent. However, the specifics of when these children demand attention is unknown. Youth with selective mutism with

elevated oppositional behaviors and low anxiety may be less anxious in social situations and more interested in peer attention.

Children with an oppositional presentation may be perceived by their parents as stubborn because the child remains mute when asked to speak. The child may appear to be refusing to speak because they likely speak comfortably at home (Cleave, 2009). Furthermore, youth with selective mutism may be more defiant at home, and with caregivers in social situations (Cunningham et al., 2004). Children with an oppositional presentation were reported to whine and have temper tantrums. These behaviors may be an attempt to assert control over stressful situations (Dummit et al., 1997; Ford et al., 1998). Extreme emotionality may also result in irritability and oppositional behaviors for some children with selective mutism (Scott & Beidel, 2011). Findings suggested that children with selective mutism may remain mute as a result of defiant behavior (Bögels et al., 2010).

An anxious factor was associated with social problems, social anxiety disorder symptoms, and aggressive behaviors. Elevated CBCL social problems scores have been previously found in this population (Steinhausen & Juzi, 1996). Children with selective mutism who are shy in social situations may have difficulty making friends and be teased by peers (APA, 2000; Giddan et al., 1997). A large percentage of children with selective mutism meet criteria for social phobia or avoidant disorder (Andersson & Thomsen, 1998; Beidel & Turner, 2005; Black & Uhde, 1995; Carbone et al., 2010; Dummit et al., 1997; Garcia et al., 2004; Vecchio & Kearney, 2005). Children with selective mutism often express fears of social embarrassment and judgment as well as physical symptoms of social anxiety (Standart & Le Couteur, 2003; Vecchio & Kearney, 2005; Yeganeh et al., 2003).

Anxious factor scores were associated with aggressive behavior. However, items frequently endorsed were not directly associated with physically aggressive behavior. The most commonly endorsed items on the aggressive behavior scale included "argues a lot," "demands a lot of attention," "stubborn, sullen or irritable," and "temper tantrums or hot temper." These results support Cohan and colleagues' (2008) findings of elevated behavior problems in children with selective mutism that may occur as a reaction to anxiety.

An oppositional factor was associated with aggressive behaviors and oppositional defiant disorder symptoms. This factor was also associated with social problems and inversely associated with social anxiety disorder symptoms. Some youth with selective mutism reportedly have externalizing behaviors such as defiance, arguing, temper tantrums, willful behavior, and negative mood reactions such as anger (Black & Uhde, 1994; Ford et al., 1998). Furthermore, oppositional factor scores were associated with oppositional defiant disorder symptoms and inversely related to social anxiety disorder symptoms. Findings suggested that oppositional behaviors were associated with oppositional defiant disorder and not due to social anxiety. Furthermore, the finding of an inverse relationship with social anxiety disorder may suggest that children with an oppositional profile are more sociable.

Social problems are also affected by externalizing behavior problems (Frankel & Myatt, 1994; Frankel & Myatt, 1996; Gaertner et al., 2010; Roussos et al., 1999). However, youth with selective mutism are reported as less defiant with peers than with parents (Cunningham et al., 2004). The individual social problem items were not examined. However, CBCL social problems may include items such as "speech problems" and "prefers being with younger kids." These items may occur with both anxious and oppositional presentations and be common characteristics of youth with selective mutism.

Diliberto and Kearney (2016) derived anxious and oppositional behavior factors of youth with selective mutism and provided validity for these factors by examining their association with social problems, aggressive behaviors, and symptoms of social anxiety and oppositional defiant disorder. However, this study is limited. First, these researchers reported co-occurring social problems in both groups. However, these researchers did not examine the individual social problems unique to each factor. Youth with selective mutism with elevated anxious factor scores may be reported with unique social struggles that prevent the development of peer relationships. Youth with elevated oppositional factor scores may be reported with little to no social problems that negatively impact peer relationships. These children may be reported with social problems that are common in youth with selective mutism such as "speech problems" and "prefers being with younger kids." This study did not address whether social problems are predicted more by internalizing symptoms such as anxiety and depression or externalizing symptoms such as defiance and aggression.

Second, Diliberto and Kearney (2016) found a strong relationship between anxious factor scores and heightened social anxiety disorder symptoms and oppositional factor scores and lowered social anxiety disorder symptoms. However, these researchers did not examine individual symptoms of social anxiety disorder and oppositional defiant disorder. Children with selective mutism may be eager to socialize without the demand to speak. Further research is needed to determine if anxious or oppositional factor scores are associated with higher rates of sociability. In addition, these researchers did not report the individual symptoms of social anxiety disorder and oppositional defiant disorder and their relationship with social problems and aggressive behaviors. Social anxiety and oppositional defiant disorder symptoms may exacerbate peer relationships and defiant behaviors.

Third, these researchers did not examine the temperaments of youth with selective mutism with elevated anxious and oppositional factor scores. The temperamental domains of activity, sociability, shyness, and emotionality may provide further evidence of distinct classes of selective mutism. The EAS activity scale distinguishes between quiet and active activities. Children with selective mutism with more oppositional and less anxiety symptoms may be more willing to engage in activities in which they do not have to speak. Shyness is a commonly reported temperamental domain of youth with selective mutism (APA, 2013; Melfsen et al., 2006; Young et al., 2012). Further research is needed to examine whether children with anxious or oppositional presentations differ in their rates of shyness and sociability. Children with lower rates of shyness and higher sociability may refuse to speak for reasons other than anxiety. Lastly, Diliberto and Kearney (2016) found heightened emotional reactions in both factors. An anxious factor included the item, "sudden changes in mood," whereas the oppositional factor included the item "temper tantrums or a hot temper." Youth with selective mutism may vary in the specific emotional reaction, and the intensity and frequency of that reaction. Further research is needed to assess the specific expression of emotionality in an anxious or oppositional presentations.

Previous research has supported the heterogeneity of selective mutism. However, few studies have provided the individual behaviors and temperaments of children with selective mutism that account for this heterogeneity but at the same time provide useful information for assessment and treatment purposes (Cohan et al., 2008; Diliberto & Kearney, 2016; Ford et al., 1998). Future research should examine commonly occurring behaviors, concurrent internalizing and externalizing symptoms and temperaments that are consistent with anxious and oppositional

factors. Findings would provide further evidence of distinct groups of children with selective mutism.

Purpose of the Present Study

A debate exists among professionals as to how selective mutism should be conceptualized (Black & Uhde, 1992). Children with selective mutism are often described in clinical settings as anxious, shy, timid, fearful, withdrawn, compulsive, and inhibited (APA, 2000; 2013; Kopp & Gilberg, 1997; Kristensen, 1997; Lesser-Katz, 1986; Steinhausen & Juzi, 1996). Children with selective mutism often have co-occurring social, generalized, and separation anxiety disorders (Blum et al., 1998).

Children with selective mutism have also been depicted as stubborn, aggressive, disobedient, controlling, manipulative, and defiant (APA, 2013; Andersson & Thomsen, 1998; Brown & Lloyd, 1975; Hesselman, 1983; Kolvin & Fundudis, 1981; Kratochwill, 1981; Pustrom & Speers, 1964; Wergeland, 1979). Children with selective mutism with co-occurring disruptive behavioral problems may be noticed more readily and referred for services sooner than those with internalizing symptoms (Sharp et al., 2007). However, further information is needed whether these youth present with more severe symptoms and require lengthier treatment.

The first aim of the study was to validate the presence of previously identified anxious and oppositional behavior factors in a community sample of youth with selective mutism. These anxious and oppositional behavior factors were previously identified in a clinic sample of youth with selective mutism (Diliberto & Kearney, 2016). Youth with selective mutism seen in a community setting are often recruited from schools. Children with selective mutism often fail to speak in school and their teacher may be the most accurate reporter of mutism symptoms (Bergman et al., 2002). Youth with selective mutism sampled in community settings may have

fewer academic and social impairments (Kumpulainen et al., 1998). However, these youth are still reported to have anxiety and aggressive behaviors (Kumpulainen et al., 1998).

Youth with selective mutism treated in clinic settings may be referred by teachers or parents due to social and academic impairments related to mutism (Vecchio & Kearney, 2005; Zelenko & Shaw, 2000). Children with selective mutism seen in a clinic setting may exhibit a more severe and chronic form of mutism and more severe psychopathology than children sampled from the community. Cohan and colleagues (2008) recruited participants from the SMG, an advocacy group for selective mutism. These children may have had a more severe manifestation of selective mutism, leading parents to seek information more readily than parents of youth recruited from school or other community settings. However, youth recruited from the SMG may be reported with less severe symptomatology than youth seen in a clinic setting. Therefore, the current study examined whether youth sampled from the community had similar but less severe symptoms than previously identified in a clinic setting (Diliberto & Kearney, 2016). The current study sought to replicate previously identified anxious and oppositional behavior factors in a community sample of children with selective mutism (Diliberto & Kearney, 2016). If previously identified anxious and oppositional behavior factors were not replicated, then commonly reported behaviors were examined to determine behavior factors in a community sample. Identified factors were used for the remaining study aims.

The second aim of the study was to examine the association of anxious and oppositional behavior factors with specific behaviors on the CBCL consistent with activity level, social competence and social problems (Achenbach & Rescorla, 2001). Youth with selective mutism with an anxious or oppositional presentation may differ with respect to activity and willingness to participate in social activities. This study examined whether youth with anxious and

oppositional factor scores, and classes of selective mutism, differed in regards to the level of engagement in activities and in social problems, including: "gets teased a lot," "clings to adults or too dependent," and "complains of loneliness" (Achenbach & Rescorla, 2001).

The third aim of the current study was to examine temperament domains in children with selective mutism with anxious and oppositional symptoms. The study utilized the Emotionality Activity Sociability Temperament Survey for Children: Parental Ratings (EAS; Buss & Plomin, 1984) to assess temperament with respect to activity, sociability, shyness, and emotionality according to anxious and oppositional factors and classes of selective mutism.

Children with selective mutism with greater symptoms of anxiety may be less energetic, and with more subdued movements, than youth with oppositional behaviors (Kehle et al., 2012). Children with an anxious presentation may also prefer quiet, inactive games compared to active ones. Children with an oppositional presentation, however, may be more sociable and active than youth with an anxious presentation (Cunningham et al., 2004). These children may engage in social activities without the demand to speak. Children with greater anxiety may prefer being alone and be reserved around others (Ford et al., 1998). Children with oppositional symptoms and less anxiety may make friends easily and warm up quickly to strangers. Youth with greater anxiety may also be more likely to cry easily in response to anxiety-provoking or stressful situations compared to youth with a more oppositional presentation (Ale et al., 2013). Youth with selective mutism with anxious and oppositional presentations were found with unique items on the EAS activity, sociability, shyness, and emotionality scales.

The current study is important to the field for various reasons. First, further research examining the classification of selective mutism is needed. Selective mutism is currently classified as an anxiety disorder (APA, 2013). However, as discussed, youth with selective

mutism have symptoms beyond anxiety. A unique approach is needed to classify children with selective mutism based on the severity of symptoms and accompanying class. This approach would allow for enhanced communication between clinicians and researchers and permit individuals with selective mutism to be given the most appropriate treatment (DiStefano & Kamphaus, 2006; Robins & Guze, 1970). Furthermore, clinicians may gain useful information regarding treatment time for each class. The current study provided evidence for unique clinical presentations of youth with selective mutism beyond anxiety.

Second, research examining the individual behaviors of youth with selective mutism within classes consistent with anxiety and opposition is limited. Parent report of behaviors found in youth with selective mutism can help clinicians provide prescriptive assessment for this population. Cohan and colleagues (2008) reported that measures used to assess children with selective mutism often are not standardized. Items most frequently endorsed on the CBCL in the current study could be included as part of an in-depth assessment. Furthermore, measures could be provided based on the child's behavioral presentation. A child with elevated anxiety may be assessed with measures germane to social and generalized anxiety. A child with elevated oppositional behaviors may be assessed with measures germane to behavior problems and defiance.

Third, findings of behavioral expressions of temperament could provide support for the unique presentation of activity, sociability, shyness, and emotionality in classes of selective mutism. Findings of distinct manifestations of sociability, for example, may provide evidence that some children with selective mutism are interested in engaging with others. A child with selective mutism with severe anxiety may be more likely diagnosed with social anxiety disorder compared to youth with elevated oppositional behaviors and low anxiety. Furthermore, the

behavioral expression of emotionality may differ depending on the child's presentation. Youth with selective mutism with heightened anxiety may fuss and cry in response to anxiety-provoking situations. Youth with selective mutism with greater oppositional behaviors may become angry and tantrum in stressful situations.

Fourth, parent report of behaviors and temperaments of youth with selective mutism can help provide prescriptive treatment. Clinicians addressing a child with selective mutism could implement treatment based on the child's behavioral presentation and individual symptoms. Clinicians have mainly used behavioral approaches specific for anxiety reduction in this population. However, interventions based on the child's presenting problems are most successful for treating children with selective mutism (Cohan et al., 2006). Treatment approaches and the length of treatment delivery may differ depending on a child's unique clinical presentation. Behavioral approaches such as systematic desensitization may be most useful in situations where the child restricts speech because of anxiety (Krysanski, 2003). Systematic desensitization involves learning to cope and overcome increasingly anxiety-provoking situations (Hung, Spencer, & Dronamraju, 2012). However, children with elevated oppositional behaviors and low anxiety may respond better to contingency management than anxiety-reduction techniques (Vecchio & Kearney, 2009). Contingency management involves a consequence system. Rewards are given for speaking in public places and disincentives are utilized for failing to speak when expected (Krysanski, 2003). These youth may also present with more severe symptoms requiring lengthier treatment compared to those with an exclusively anxious presentation.

Hypotheses

Hypotheses 1a-1b: Anxious and oppositional factors. Hypothesis 1a was that previously identified anxious and oppositional behavior factors would be replicated in a community sample of children with selective mutism (Diliberto & Kearney, 2016). CBCL items thus expected to comprise an anxious factor included: "doesn't eat well," "would rather be alone than with others," "withdrawn, doesn't get involved with others," "nervous, high strung or tense," and "sudden changes in mood or feelings." CBCL items thus expected to comprise an oppositional factor included: "argues a lot," "demands a lot of attention," "stubborn, sullen or irritable," "temper tantrums or hot temper," and "whining." If Hypothesis 1a was supported, then the finding would serve as the basis for the remaining hypotheses (i.e., Hypotheses 2+).

If Hypothesis 1a was not supported, then Hypothesis 1b was that anxious and oppositional factors from CBCL items would be identified via exploratory and confirmatory factor analyses in the community sample. Findings from Hypothesis 1b would then serve as the basis for the remaining hypotheses (i.e., Hypotheses 2+). Cross-validation was also conducted to identify whether any new factor structure derived from the community sample (Hypothesis 1b) would also fit the clinic data from Diliberto and Kearney (2016).

Hypotheses 2-2c: Anxious Factor and Activity. Hypothesis 2 was that a significant and inverse relationship was expected between EAS activity subscale scores and anxious factor scores. Thus, it was expected that EAS activity scores would predict anxious factor scores in an inverse direction. Hypothesis 2a was that specific EAS activity items: item 7 (when child moves about, child usually moves slowly) and item 17 (child prefers quiet, inactive games to more active ones) scores were expected to positively predict anxious factor scores. Youth with selective mutism have subdued movements in anxiety-provoking situations (Kehle et al., 2012).

Children with selective mutism may also avoid engaging in social activities due to fear of judgment (APA, 2013).

Hypothesis 2b was that specific EAS activity items: item 4 (child is always on the go), item 9 (child is off and running as soon as he/she wakes up in the morning), and item 13 (child is very energetic) were expected to demonstrate a significant, inverse association with anxious factor scores. Thus, these item scores were expected to predict anxious factor scores in an inverse direction.

Hypothesis 2c was that a significant and inverse relationship was expected between CBCL activity competence scores and anxious factor scores. Thus, CBCL activity competence scores were expected to significantly predict anxious factor scores, and be inversely related. The CBCL provides an activity competence score based on the number of sports and activities as well as ratings of participation and skill in these activities (Achenbach & Rescorla, 2001). Children with selective mutism with an anxious presentation may be less active due to sensitivity to physiological arousal and social anxiety.

Hypotheses 3-3c: Anxious Factor and Social Competence and Social Problems. Hypothesis 3 was that a significant and inverse relationship was expected between CBCL social competence scores and anxious factor scores, in addition to a significant and positive relationship between CBCL social problems scores and anxious factor scores. Hypothesis 3a was that CBCL social competence items: "gets along with his/her brothers and sisters" and "behaves with his/her parents" were expected to demonstrate a significant, positive relationship with anxious factor scores. Children with selective mutism often cling to parents and resist separation (APA, 2000; 2013; Hesselman, 1983; Kopp & Gilberg, 1997; Kristensen, 1997; Lesser-Katz, 1986;

Steinhausen & Juzi, 1996). These children may prefer to spend time with their parents and siblings instead of other children.

Hypothesis 3b was that specific CBCL social problems items: item 11 (clings to adults or too dependent), item 12 (complains of loneliness), and item 38 (get teased a lot) scores were expected to demonstrate a significant, positive association with anxious factor scores. Social competence and peer evaluations are negatively impacted by internalizing symptoms (Chen et al., 2005; Gaertner et al., 2010; Harrington & Clark, 1998; Pine et al., 1998). Hypothesis 3c was that specific CBCL social competence items: "number of organizations participated in" and "number of close friends" were expected to demonstrate a significant, inverse association with anxious factor scores. Thus, these item scores were expected to predict anxious factor scores, and be inversely related.

Hypotheses 4-4b: Anxious Factor and Sociability. Hypothesis 4 was that a significant and inverse relationship was expected between EAS sociability subscale scores and anxious factor scores. Thus, EAS sociability scores were expected to predict anxious factor scores, and be inversely related. Hypothesis 4a was that specific EAS sociability items: item 16 (child is something of a loner) and item 18 (when alone child feels isolated) were expected to demonstrate a significant, positive association with anxious factor scores. Sociability refers to the tendency to affiliate with others and to prefer being with others rather than alone (Cheek & Buss, 1981). Youth with internalizing disorders may desire to interact with other children but struggle to regulate symptoms of physiological and social anxiety. These youth may disengage from social situations and subsequently feel isolated (Eisenberg et al., 1998).

Hypothesis 4b was that specific EAS sociability items: item 3 (child likes to be with people), item 5 (child prefers playing with others rather than alone), and item 10 (child finds

people more stimulating than anything else) were expected to demonstrate a significant, inverse association with anxious factor scores. Thus, these item scores were expected to predict anxious factor scores, and be inversely related. As indicated, some youth with selective mutism are reported with social anxiety disorder and avoid social situations (APA, 2013).

Hypotheses 5-5b: Anxious Factor and Shyness. Hypothesis 5 was that a significant and positive relationship was expected between EAS shyness subscale scores and anxious factor scores. Hypothesis 5a was that specific EAS shyness items: item 1 (child tends to be shy) and item 14 (child takes a long time to warm up to strangers) were expected to demonstrate a significant and positive association with anxious factor scores.

Children with selective mutism are commonly reported as shy (APA, 2000; 2013; Kopp & Gilberg, 1997; Yeganeh et al., 2003). Shyness is a dimension of temperament that corresponds to fearful distress and is manifested by tension, concern, discomfort, gaze aversion, and inhibition in the presence of strangers or unfamiliar persons (Buss, 1988; Buss & Plomin, 1984). Shyness is associated with low levels of approach and discomfort in novel or uncomfortable situations (Cheek & Buss, 1981).

Hypothesis 5b was that specific EAS shyness items: item 8 (child makes friends easily), item 12 (child is very sociable), and item 20 (child is very friendly with strangers) were expected to demonstrate a significant and inverse association with anxious factor scores. Thus, these item scores were expected to predict anxious factor scores, and be inversely related. Some children with selective mutism are reported with high rates of social anxiety, and withdraw in social situations (Ford et al., 1998).

Hypothesis 6-6a: Anxious Factor and Emotionality. Hypothesis 6 was that a significant and positive relationship was expected between EAS emotionality subscale scores

and anxious factor scores. Hypothesis 6a was that specific EAS emotionality items: item 2 (child cries easily) and item 11 (child often fusses and cries) were expected to demonstrate a significant and positive association with anxious factor scores. Children with selective mutism may have difficulties regulating their mood and respond to novel or stressful situations by demonstrating mood swings or crying (Diliberto & Kearney, 2016; Ford et al., 1998). The EAS emotionality subscale includes three additional items, including: "child gets upset easily," "child tends to be somewhat emotional" and "child reacts intensely when upset." These items were expected to be associated with both the anxious and oppositional factors and were examined on an exploratory basis only.

Hypothesis 7-7c: Oppositional Factor and Activity. Hypothesis 7 was that a significant and positive relationship was expected between EAS activity subscale scores and oppositional factor scores. Hypothesis 7a was that a significant and positive relationship was expected between CBCL activity competence scores and oppositional factor scores. Youth with oppositional symptoms may be less likely to experience anxiety sensitivity and social anxiety while engaging in activities.

Hypothesis 7b was that specific EAS activity items: item 4 (child is always on the go), item 9 (child is off and running as soon as he/she wakes up in the morning), and item 13 (child is very energetic) were expected to demonstrate a significant and positive association with oppositional factor scores. Youth with selective mutism with lower rates of anxiety may enjoy engaging in activities without the pressure to speak (APA, 2013). Furthermore, youth with externalizing symptoms are reported with higher levels of energy expenditure than those with internalizing symptoms (Gossman et al., 2015). Hypothesis 7c was that other specific EAS items: item 7 (when child moves about, child usually moves slowly) and item 17 (child prefers

quiet, inactive games to more active ones) were expected to demonstrate a significant and inverse association with oppositional factor scores. Thus, these item scores were expected to predict oppositional factor scores, and be inversely related.

Hypotheses 8-8c: Oppositional Factor and Social Competence and Social Problems. Hypothesis 8 was that a significant and positive relationship was expected between CBCL social competence scores and oppositional factor scores, in addition to a significant and positive relationship between CBCL social problems scores and oppositional factor scores.

Hypothesis 8a was that specific CBCL social competence items: "number of organizations participated in" and "number of close friends" were expected to demonstrate a significant and positive association with oppositional factor scores. Researchers have not examined whether the number of friendships differ between children with selective mutism with varying clinical presentations. However, youth with selective mutism with an oppositional presentation may have lowered anxiety (Cunningham et al., 2006). These children may therefore, be less likely to withdraw in organized events and social situations and have more friendships. Children with features other than anxiety may be less "frozen in fear" and engage socially without speech (Yeganeh et al., 2003).

Hypothesis 8b was that specific CBCL social competence items: "gets along with his/her brothers and sisters," and "behaves with his/her parents" were expected to demonstrate a significant and inverse relationship with oppositional factor scores. Thus, these item scores were expected to predict oppositional factor scores, and be inversely related. Youth with selective mutism are reported to display oppositional behaviors mainly in the home (Cunningham et al., 2006). Hypothesis 8c was that specific CBCL social problems items: item 11 (clings to adults or too dependent), item 12 (complains of loneliness) and item 38 (gets teased a lot) were expected

to demonstrate a significant and inverse association with oppositional factor scores. Thus, these item scores were expected to predict oppositional factor scores, and be inversely related. Youth with selective mutism with an oppositional presentation may prefer being with peers, and report positive peer relationships.

Hypotheses 9-9b: Oppositional Factor and Sociability. Hypothesis 9 was that a significant and positive relationship was expected between EAS sociability subscale scores and oppositional factor scores. Hypothesis 9a was that specific EAS sociability items: item 3 (child likes to be with people), item 5 (child prefers playing with others rather than alone), and item 10 (child finds people more stimulating than anything else) were expected to demonstrate a significant and positive association with oppositional factor scores. As indicated, children with an oppositional presentation may not be anxious and may enjoy engaging with others. Hypothesis 9b was that specific EAS sociability items: item 16 (child is something of a loner) and item 18 (when alone child feels isolated) were expected to demonstrate a significant and inverse association with oppositional factor scores. Thus, these item scores were expected to predict oppositional factor scores, and be inversely related.

Hypotheses 10-10b: Oppositional Factor and Shyness. Hypothesis 10 was that a significant and inverse relationship was expected between EAS shyness subscale scores and oppositional factor scores. Thus, it was expected that EAS shyness scores would predict oppositional factor scores, and be inversely related. Hypothesis 10a was that specific EAS shyness items: item 8 (child makes friends easily), item 12 (child is very sociable), and item 20 (child is very friendly with strangers) were expected to demonstrate a significant and positive association with oppositional factor scores. Children with selective mutism who are not shy may be interested in social engagement and withdraw solely due to concerns that they will have to

speak (Ale et al., 2013). Hypothesis 10b was that specific EAS shyness items: item 1 (child tends to be shy) and item 14 (child takes a long time to warm up to strangers) were expected to demonstrate a significant and inverse association with oppositional factor scores. Thus, these item scores were expected to predict oppositional factor scores, and be inversely related. As indicated, youth with an oppositional presentation may be eager to socialize in nonverbal social situations.

Hypothesis 11-11a: Oppositional Factor and Emotionality. Hypothesis 11 was that a significant and positive relationship was expected between EAS emotionality subscale scores and oppositional factor scores. Hypothesis 11a was that specific EAS emotionality items: item 2 (child cries easily) and item 11 (child often fusses and cries) were expected to demonstrate a significant and inverse association with oppositional factor scores. Thus, these item scores were expected to predict oppositional factor scores, and be inversely related. Youth with selective mutism with elevated oppositional behaviors and low anxiety may demonstrate negative emotionality in the form of frustration and anger, not sadness (Muris & Ollendick, 2005). No items on the EAS emotionality subscale directly describe frustration or anger. A summary of Hypotheses 2+ are in Table 2 in Appendix A.

Chapter 3: Method

Participants

Participants included 278 mothers who reported that their child aged 6-10 years had received a diagnosis of selective mutism. Youth were 26.3% male (n = 73) and 73.7% female (n = 205). Youth were Caucasian (77.1%), Hispanic (6.8%), other or unreported (5.8%), multiracial/biracial (4.7%), Asian (3.9%), African American (1.1%), or Native American (0.4%). Mothers reported that their child had been or was in treatment for selective mutism for (1) zero months (i.e., had not received treatment) (14.7%), (2) more than zero but less than 3 months (7.6%), (3) 3-6 months (7.2%), (4) 6-9 months (5.8%), (5) 9-12 months (7.6%), or (6) more than 12 months (57.2%). The majority of youth (85.3%) received treatment for selective mutism.

Participants were located in the United States and in other countries. Participants in the United States (63.6%) were in the Northeast (16.5%), West (16.2%), Midwest (12.6%), Southeast (12.2%) and Southwest (6.1%) regions. Participants were also in the United Kingdom (10.8%), Canada (9.4%), Australia (5.4), New Zealand (2.9%), unknown location (2.9%), other (Basseterre, Portugal, Germany, Bahamas, India, South Africa, Puerto Rico, Germany, Netherlands, France, Romania) (2.8%), Ireland (1.1%), and Finland (1.1%). Complete participant (n=278) data were included for descriptive and exploratory factor analyses. However, six cases were excluded from further analyses because cases contained missing items found on factors that were identified via exploratory factor analysis.

Measures

Child Behavior Checklist (CBCL). The CBCL (Achenbach & Rescorla, 2001) (Appendix B) is a 118-item rating scale to measure internalizing and externalizing problems in children and adolescents aged 6-18 years. Parents/guardians rate their child's behavior on a Likert-type 3-point scale from "0" (not true) to "2" (very true or often true). The CBCL asks

parents to report the number of sports and hobbies the child participates in, time spent in the activity, and how well they do the activity. Parents are asked how active their child is in organizations and how well they complete their chores. Parents also report number of friends as well as the frequency of their child's contact and behavior with those friends and others. Academic performance is also reported. Demographic information such as the child's age, grade, gender, and ethnicity is also obtained.

The CBCL contains several narrow-band scales: anxious/depressed, withdrawn/ depressed, social problems, thought problems, attention problems, somatic complaints, rule-breaking behavior, and aggressive behavior. The CBCL also yields overall scores for total problems, internalizing problems, externalizing problems, and DSM-oriented scales. DSM-oriented scales include affective, anxiety, somatic, attention-deficit/hyperactivity, oppositional defiant, conduct, obsessive-compulsive, and post-traumatic stress. This measure also derives a total score for sluggish cognitive tempo.

The CBCL has been found to differentiate clinic and non-referred children (Schaffer, Fisher, & Lucas, 1998). The CBCL also successfully differentiates children with elevated internalizing symptoms from those with externalizing symptoms (Lengua, Sadowki, Friedrich, & Fisher, 2001). The CBCL is not, however, used to directly diagnose individuals with specific DSM disorders (Lemery-Chalfant et al., 2007; Lengua et al., 2001). Convergence has been reported between DSM-IV disorders and the statistically derived syndromes of the CBCL (APA, 2000: Bellina et al., 2012; Ferdinand, 2008).

The CBCL was standardized across 1,753 children who were representative with respect to ethnicity, geographic location, and SES. Norms were calculated separately for youth aged 6-11 and 12-18 years and for gender. Internal consistency reliability was reported for internalizing

(0.90), externalizing (0.94), and total problems (0.97); narrow-band scales range from 0.78-0.94. Test-retest reliabilities were satisfactory (0.82 - 0.92) for the narrow-band scales and for total problems (0.94), internalizing (0.91), and externalizing (0.92). Construct, content, and criterion-related validity of the measure have been found to be satisfactory (Achenbach & Rescorla, 2001; Sattler & Hoge, 2006).

The current study utilized individual behaviors (items) across the narrow-band scales and the social and activities competence scales. Cronbach's alpha in the current study was calculated for activity competence (0.73) based on the number of sports, activities and jobs, and the mean participation and skill in these activities. Cronbach's alpha was also calculated for social competence (0.55) based on the number of organizations, the mean participation in these organizations, how well the child gets along with siblings and parents, plays and works alone, and has close friends and spends time with those friends.

Selective Mutism Questionnaire (SMQ)

The SMQ (Bergman et al., 2008) (Appendix C) is a 23-item rating scale that was developed to assess the frequency of failing to speak across situations according to parent report in children with selective mutism. Parents/guardians rate their child's behavior as 0 (never), 1 (seldom), 2 (often), and 3 (always). Lower scores on the SMQ correspond to greater impairment of speaking behavior. The SMQ asks parents to report the child's failure to speak across three main areas (preschool/school; home/family; community). Parents also report the inference/distress experienced as a result of the mutism.

Significant correlations have been reported between SMQ scores and the Social Anxiety Scale for Children-Revised (SASC-R; La Greca & Stone, 1993), the Manifest Anxiety Scale for Children (MASC; March, Parker, Sullivan, Stallings, & Conners, 1997), and the Anxiety

Disorders Interview Schedule for DSM-IV--Child Version (ADIS-C; Silverman & Albano, 1996). Internal consistency reliability for the initial use of this measure in a sample of children with selective mutism was reported for total problems (0.97), home/family (0.88) and public/social (0.96). Convergent validity has been reported for this measure. The current study utilized the SMQ to identify mutism in community and school settings (see Procedures). Cronbach's alphas for this measure in the current study were calculated for total score (0.91), school items (0.89), home/family items (0.80), and public/social items (0.84).

EAS Temperament Survey for Children: Parental Ratings (EAS)

The EAS (Buss & Plomin, 1984; 1986) (Appendix D) is a 20-item questionnaire to measure a child's temperament. Parents/guardians rate their child's temperament on a Likert-type 5-point scale from '"1" (uncharacteristic) to "5" (characteristic). The EAS assesses activity, sociability, shyness, and emotionality with 5 items in each EAS subscale. The activity scale reflects speed of action and how intensely an individual engages in activities. The sociability scale reflects preference for social interaction or being alone. The shyness scale reflects inhibition in new social situations. The emotionality scale reflects how easily and intensely a child reacts in situations.

The EAS is intended for use in children aged 1-9 years but has been reliably used with adolescents (Goodyer, Ashby, Altham, Vize & Cooper, 1993; Spence et al., 2013). The 4-factor structure has been supported across studies (Boer & Westernberg, 1994; Bould, Joinson, Sterne & Araya, 2013). This questionnaire has demonstrated predictive validity in longitudinal studies (Bould, et al., 2013; Gjone & Stevenson, 1997; Mathiesen & Tambs, 1999; Spence et al., 2013). The EAS has been used in community (Field, Vega-Lahr, Scafidi, & Goldstein, 1987; Nærde,

Røysamb, & Tambs, 2010; Spence et al., 2013) and clinical samples (Lindhout, Markus, Hoogendijk, & Boer, 2009; Rettew, Stranger, McKee, Doyle, & Hudziak, 2006).

The current study utilized the EAS to identify individual activity, sociability, shyness, and emotionality items and subscale scores vis-a-vis anxious and oppositional factor scores in youth with selective mutism. Cronbach's alpha for this measure in the current study were calculated for activity (0.71), sociability (0.58), shyness (0.62) and emotionality (0.84).

Treatment Information

One additional question was asked regarding selective mutism treatment. Mothers were asked: "How long has your child been treated for selective mutism?" Mothers could report that their child has been in treatment for (1) zero months (my child has not received treatment for selective mutism), (2) less than 3 months, (3) 3-6 months, (4) 6-9 months, (5) 9-12 months, or (6) more than 12 months.

Procedure

Participants were recruited via the Selective Mutism Group (SMG). The SMG is an online support group that promotes understanding, research, and education about selective mutism. The SMG website (www.selectivemutism.org) provides detailed information on the diagnostic criteria of selective mutism. The SMG also has a Facebook page with 7,500+ members. An announcement describing the current study and its IRB approval notice was sent to the executive director of SMG for approval and was included in the research section of the SMG website (http://www.selectivemutism.org/research /research-studies-needing-your-participation). The announcement was also used to describe the current study on the SMG Facebook page and other Facebook support groups for selective mutism (Appendix E).

Advertisements on selective mutism Facebook groups directed participants to the SMG website to complete the study.

Mothers of children aged 6-10 years with selective mutism were sought. This age range was selected for various reasons. First, the CBCL 6-18 and EAS can be used with this age range. Second, negative emotionality is considered a stable indicator of internalizing and externalizing disorders during this age range (Karevold et al., 2009). Third, this age range allowed for sampling children with selective mutism during the most prevalent age of diagnosis and treatment (Bergman et al., 2002).

Mothers of children aged 6-10 years with reported selective mutism were made aware of the current study by viewing the announcement on the research page of the SMG website, on the SMG Facebook page, or other selective mutism Facebook support groups for caregivers of youth with selective mutism. The announcement was posted on other selective mutism Facebook groups to recruit participants who did not belong to SMG but had a child with selective mutism. Facebook groups included those based in the United States, Australia, New Zealand, and Scotland. Mothers who were interested in participating in the current study accessed the Qualtrics link listed in the announcement. The first part of the Qualtrics link included information on the study and an opportunity to provide informed consent. Participants responded to the informed consent by accessing a forced choice yes/no option. Participants that chose "yes" voluntarily agreed to participate in the study and claimed to be at least 18 years of age. Consenting participants then completed the CBCL, SMQ, EAS, Parental Ratings, and one question regarding selective mutism treatment. The current study did not include information on maternal education or social economic status. Participants could elect to provide their email

address at the end of the study to be entered in a drawing to win a $20 gift card for their participation. This project was approved by the UNLV IRB (Approval #767188-4).

The announcement and informed consent specified that responses should be provided only by mothers of youth with selective mutism aged 6-10 years. Mothers of youth with selective mutism aged 1-5 and 11-17 years were thus excluded. Fathers of youth with selective mutism of any age who provided responses were excluded because of the interest in a consistent parent informant (De Los Reyes & Kazdin, 2005). Data submitted from identical IP addresses were deleted. Qualtrics recorded a unique IP address for each respondent based on location.

Participants read an informed consent that specified interest in participants who were mothers of youth with selective mutism aged 6-10 years. However, youth whose mothers completed the study were not assessed in person through a valid, psychometrically sound interview. Therefore, selective mutism severity was identified by examining the SMQ. The SMQ includes information regarding the severity of mutism across various settings and situations. The SMQ was utilized to verify the presence and severity of mutism in at least one school or community situation. Mothers must have endorsed one or more of the following SMQ items as seldom or never: item 5 (When appropriate, my child speaks to most teachers or staff at school), item 6 (When appropriate, my child speaks in groups or in front of the class), item 13 (When appropriate, my child speaks with other children who s/he doesn't know), or item 16 (When appropriate, my child speaks to store clerks and/or waiters).

A total of 310 participants provided their consent to participate in the current study. However, 32 responses were excluded for one or more of the following reasons: (1) participants dropped out after providing consent or failed to complete one or more of the measures (n = 6), (2) the study was completed by a person other than the child's mother (i.e., grandparent, father,

sister, or treatment provider) (n = 8), (3) the child was not within the specified age range (n = 11), or (4) mutism did not meet the severity criteria on specific SMQ items (n = 9). Excluded youth had significantly lower EAS shyness ($t(26)= -3.02$, $p < .01$), and EAS emotionality scores ($t(32) = -4.43$, $p > .000$) than participants. Excluded youth did not significantly differ on SMQ severity ($t(24) = -0.22$, $p > .05$), EAS activity ($t(26) = -0.26$, $p > .05$) and EAS sociability ($t(26) = 0.51$, $p > .05$) scores compared to participants. Six additional cases were deleted after performing exploratory factor analysis due to missing data on items found to represent factors.

Data Analyses

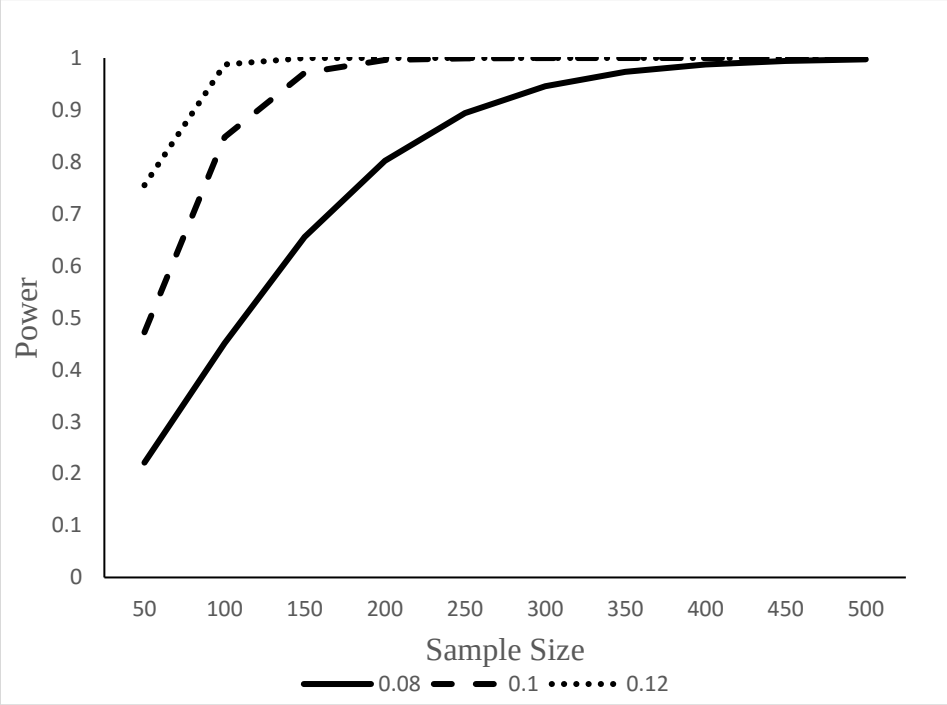
Power analysis. A power analysis for the current study was conducted to determine necessary sample size. Power analysis for the EFA/CFA model involved the "not close fit" method, and was implemented in SAS (Friendly, 2000; MacCullum, Browne, & Sugawara, 1996). Within structural equation modeling, traditional hypothesis testing for assessing data-model fit is generally not appropriate. In traditional hypothesis testing, the null hypothesis is that there is no difference in the amount of error between the proposed and actual observed model. Traditional hypothesis testing constitutes rejecting a model that is not an exact fit to the population data. However, virtually all models of data are approximations and a certain amount of misspecification is accepted. Therefore, the "not close fit" method was utilized and addresses sample size by rejecting a not-close-fitting model. Specifically, the null hypothesis is defined as a "not close fit" to the actual, observed model ($H0 = \varepsilon \geq 0.05$). The null hypothesis includes estimates of residual error resulting from the observed compared to the hypothesized model. The root mean square error of approximation (RMSEA; ε) is defined as the residual error rate and is used to specify a not close-fitting model. RMSEA <.05 is considered a close fit, RMSEA = .05 to .08 is considered a fair fit, and RMSEA > .08 to .12 is considered a poor fit. If RMSEA is <

.05, then one would reject the null hypothesis that the model does "not have close fit" in support of the model. The alternative model (H1 = ε < .05) would thus be supported. The model and data would thus be considered a close fit and the amount of misspecification is considered appropriate.

Figure 1 displays the results of the power analysis. The power analysis is used to determine the size of sample needed to reject a poor fitting model at specified error rates. The power analysis was based on the following assumptions: (a) alpha = .05, (b) close fit equivalent to RMSEA = < .05, (c) "not close fit" considered at RMSEA = .08, .10, and .12, (d) model degrees of freedom equal to 66 (df = k(k + 1)/2). These degrees of freedom are derived from k=11, where k is the number of identified items from the previous confirmatory factor analysis (Diliberto & Kearney, 2016). Power was estimated for sample sizes ranging between 50 and 500 in 50 person increments (e.g., *N* = 50, 100, 150, …, 500). RMSEA was set at .08, .10, and .12 to examine the power of rejecting a not close fitting model at these rates. Power to reject a not close fitting model is used to support a close fitting model. The analysis suggested that a sample size for 200 has 86% power for rejecting a not close fitting model for RMSEA = .08, 99.99% power for RMSEA = .10, and > 99.99% power for RMSEA = .12. Additional analyses were conducted with equivalent assumptions, but lowering of the degrees of freedom to 55 and 43 based on previous analyses (Diliberto & Kearney, 2016). A sample size of 200 and the most stringent power calculation based on a RMSEA of .08 results in at least 80.2% and 71.49% power to reject a not close fitting model in support of a close fitting model.

Figure 1.

Power Analysis for EFA/CFA



Hypotheses (1a+ Analyses)

Hypothesis 1a-1b. Hypothesis 1a was that previously identified anxious (Factor 1) and oppositional behavior factors (Factor 2) would be replicated in a community sample of children with selective mutism (Diliberto & Kearney, 2016). Confirmatory factor analysis (CFA) via EQS was used to confirm these factors utilizing 3 goodness-of-fit indices: comparative fit index (CFI), Bollen incremental fit index (IFI), and standardized root mean square residual (SRMR). Acceptable goodness-of-fit in this study was defined as CFI and IFI values of .90+ and SRMR values of <.10 (Kline, 2005). Hypothesis 1a was not supported based on these fit indices values.

Therefore, Hypothesis 1b was that anxious and oppositional factors from CBCL items would be identified in the community sample. Descriptive analysis, and then exploratory and confirmatory factor analyses, were conducted to determine factors for the community data.

Items with a mean of 0.50 or higher were considered for exploratory factor analysis (i.e., highly endorsed items). Exploratory factor analysis was performed based on specified recommendations for a) factor extraction, b) criteria for retaining factors for rotation; c) rotation method, and d) interpretability of factors (Costello & Osborne, 2005; Osborne, 2014).

Factors were initially extracted utilizing the exploratory/common factor analysis, which is a preferred method over principal components analysis. Principal components analysis computes the analysis without taking into account the underlying latent structure of the variables. It is assumed that the measured variables are of interest, instead of the underlying latent constructs. The exploratory/common factor analysis is designed to model the latent constructs with the observed variables. The principal axis factoring method of exploratory factor analysis was used for extraction and accounted for the non-normal distribution of the data.

The number of factors to retain for rotation was determined by considering: i) Scree plot, which involves examining a graph of the eigenvalues and looking for the natural bend in the data. The number of data points above the bend indicates an approximate number of factors to retain, ii) Parallel analysis (Horn, 1965), which involves generating random, uncorrelated data and comparing eigenvalues of the random data to eigenvalues from the EFA. Factors with eigenvalues significantly above the mean of the random eigenvalues are retained, and iii) Minimum Average Partial (MAP) criteria (Velicer, 1976), which seeks to determine the unique variance between factors.

The unrotated results from the factor analysis were rotated with the specified number of factors to retain to clarify the results and maximize item loadings within factors. The promax rotation method, which is an oblique method, was utilized due to the correlation amongst items (Thompson, 2004). Item loadings within the pattern matrix were then examined. The rotated

factor solution, with a specified number of factors, was examined to determine whether the solution was interpretable. Factors were interpretable if they contained 4+ items with an item loading of .32+ that loaded solely onto one factor (MacCallum, Browne, & Sugawara, 1996; Raubenheimer, 2004) and identified a single construct.

Factors identified from exploratory factor analysis were then subjected to confirmatory factor analysis via EQS. Factors were confirmed if they met acceptable goodness of fit indices values: CFI and IFI values of .90+ and SRMR values of <.10 (Kline, 2005). Factors were not confirmed based on these goodness of fit indices values. Confirmatory factor analysis often does not replicate findings from exploratory factor analysis for various reasons. In a typical application of confirmatory factor analysis, items are hypothesized to load onto single factors and their cross-loading values set at zero. However, cross-loading values are rarely exactly zero and loadings that vary from zero are likely to cause model misfit (McCrae, Zonderman, Bond, & Paunonen, 1996). Post-hoc modifications allow for adjusting cross-loading values to a value other than zero but may result in fitting a model based on chance (MacCallum, Roznowski, & Necowitz, 1992).

Confirmatory factor analysis is often used to determine whether the identified factor structure can be replicated within a similar sample (Osborne & Fitzpatrick, 2012). The discovery of replication gives researchers confidence that these particular factors are also found in similar samples. However, CFA was utilized for this purpose for hypothesis 1c and not 1b. Confirmatory factor analysis is also often used in very large samples, in which half of the sample is subjected to exploratory factor analysis and the second half is subjected to confirmatory factor analysis (Osborne & Fitzpatrick, 2012). However, this procedure would result in a subject to item ratio of 4:1 in the current study, which is likely to result in an over 60% error rate in the

factor structure (Costello & Osborne, 2005). This procedure was therefore, not utilized in the current study. The results of the exploratory factor analysis were thus retained for further analyses based on interest in identifying clusters of symptoms among youth with selective mutism. Factors derived from Hypothesis 1b served as the basis for the remaining hypotheses (i.e., Hypotheses 2+). Confirmatory analysis was then conducted via the lavaan package in R with missing data accounted for to identify whether a new factor structure derived from the community sample (Hypothesis 1b) would also fit the clinic data from Diliberto and Kearney (2016).

Hypothesis 2+

The remaining hypotheses were examined via correlations and multiple linear regressions. Hypotheses 2-11 were that CBCL activity competence, social competence, and social problems scale scores and EAS activity, sociability, shyness and emotionality scale scores would be associated with Factor 1 (anxious behaviors) and Factor 2 (oppositional behaviors) scores, in different ways. CBCL social problems, EAS shyness and EAS emotionality scores were expected to be positively associated, and CBCL activity competence, EAS activity and EAS sociability scores were expected to be negatively associated with anxious factor scores. CBCL activity competence, CBCL social problems, EAS activity, EAS sociability and EAS emotionality scores were expected to be positively associated, and EAS shyness scores were expected to be negatively associated with oppositional factor scores. These scale scores served as predictors for Factor 1 and 2 scores. Furthermore, individual items on the CBCL social competence and social problems, and EAS activity, sociability, shyness and emotionality scales, were expected to be associated with Factor 1 (anxious behaviors) and Factor 2 (oppositional

behaviors), in different ways. Specific individual items on these CBCL and EAS scales served as predictors for Factor 1 and Factor 2 scores. Table 2 provides a list of these items.

First, correlational analyses were used to determine the direction and strength of the relationship between CBCL activity competence, social competence, and social problems and EAS subscales scores and items with Factor 1 (anxious behaviors) and Factor 2 (oppositional behaviors) scores. Correlational analyses were also used to identify potential predictors beyond those hypothesized. Therefore, all CBCL social problems items that were significantly ($p < .05$) associated with Factor 1 or 2 were included in multiple regression analyses. Second, multiple linear regressions were used to examine the predictive association of CBCL activity competence, social competence, and social problems scores, and EAS activity, sociability, shyness and emotionality scores with Factor 1 (anxious behaviors) and Factor 2 (oppositional behaviors) scores. Factor scores were entered as predictors to control for the interaction of factor scores on outcome. Third, multiple linear regressions were used to examine the association of the items within the EAS and specified CBCL subscales with Factor 1 and 2 scores.

Further analyses were needed to determine if classes of selective mutism were present that varied in both the presence and severity of anxious and oppositional symptoms and had distinct social problems, social competence, and temperament dimensions. Latent class analysis, multivariate analysis of variance, and post-hoc tests were thus conducted. The current sample of youth with selective mutism was also compared with the previously derived sample of youth in the clinic setting (Diliberto & Kearney, 2016) to determine if youth differed in severity of internalizing, externalizing and other behaviors on the CBCL. This analysis was used to determine if elevated syndrome-scales helped explain findings of different factors across the clinic and community samples.

Latent Class, Multivariate, Post-hoc and Comparative Analyses

Latent Class Analysis. Latent class analysis (LCA) is a statistical technique that utilizes continuous indicators to identify groups considered to be the best fit or most parsimonious representation of data (Bartholomew, 1987, Linzer & Lewis, 2011). LCA assumes the presence of an underlying and unobserved continuous latent variable to explain the patterns among participants. LCA, therefore, is used to determine whether patterns exist among how persons endorsed certain items (Agresti, 2002; Hagenaars & McCutcheon, 2002; Linzer & Lewis, 2011). LCA is a "variable-centered" approach and utilizes categorical variables to identify groupings based on item endorsement (McCutcheon, 1987). LCA was performed on the CBCL items from the anxious, oppositional, and inattention factors identified in the current study. LCA was used to determine whether combinations of the latent variables of anxiety, inattention, and opposition could explain and identify groups based on a pattern of responding within these factors.

Latent class analysis was conducted with the poLCA package in R (Linzer & Lewis, 2011; R Development Core Team, 2010). PoLCA fits LCA models of increasing complexity to determine the best number of latent categories to be retained. The best fitting model (i.e., number of latent classes) was determined by considering entropy, and the following goodness of fit indices: Akaike Information Criterion (AIC; Akaike, 1973) and Bayesian Information Criterion (BIC; Schwartz, 1978). Entropy measures the ability of the analyses to provide distinct classes. Entropy values greater than 0.80 and approaching 1 indicate clear delineation of classes (Celeux & Soromenho, 1996; Ramaswamy, DeSarbo, Reibstein, & Robinson, 1993). Larger entropy values indicate clearer latent class identification but values above 0.80 are considered adequate (Celeux & Soromenho, 1996). Models with the lowest AIC and BIC values are often considered the best-fitting models. Models in which AIC and BIC values increase often signify

an over-extraction in the number of latent classes (Nylund, Asparouhov, & Muthén, 2007). Monte Carlo simulation studies indicate that BIC is likely to better correctly identify the correct number of latent classes than AIC (Lin & Dayton 1997; Forster 2000). Model fit is also based on considering the overall parameters and overall meaningfulness of the model for explaining the data (Nylund et al., 2007). The number of parameters must not exceed the total number of observations for a model to be considered identifiable and considered for selection (Linzer & Lewis, 2011). Models are also considered less defined and inconsistent with distinct classes when mean scores across classes overlap (Celeux & Soromenho, 1996).

A series of models in poLCA were fit by increasing the number of continuous latent variables from one to eight. An 8-class model stopping point was determined by (a) lack of clinical utility of interpreting a large number of distinct classes; (b) previous findings of three or fewer classes (Cohan et al., 2008); and (c) current best practices suggest fitting a model with one or two more classes than expected. The evaluation of model fit involved the AIC and BIC indices and entropy values.

Multivariate analysis of variance. A one-way multivariate analysis of variance (MANOVA) was conducted to examine meaningful differences in activity and social competence, social problems, and temperament subscale scores in the newly identified classes of selective mutism (Table 12).

Post hoc. Tukey honest significant difference (HSD) criterion post hoc tests were conducted to determine how these subscale scores differed across classes (Table 13). Six separate MANOVAs with Tukey honest significant difference (HSD) criterion post hoc tests were also conducted to determine if individual items within CBCL activity and social

competence and social problems scales and EAS temperament scales differed across classes (Table 14).

Comparative Analysis. An independent-samples t-test was conducted to compare CBCL syndrome scale scores in the clinic and community selective mutism samples (Table 15). The clinic and community samples differed in size (57 vs 278), which precluded interpretation based on Levene's test for equality of variances (Levene, 1960). Therefore, 57 cases were first randomly selected from the community data. Second, the mean CBCL T scores, and their standard deviations from the random selection, were compared to the entire community sample to determine consistency. The select sample was consistent with the overall sample. Equality of variances was therefore, assumed.

Chapter 4: Findings of the Study

Hypotheses 1a-1b: Anxious and Oppositional Factors

Hypothesis 1a was that previously identified anxious and oppositional behavior factors would be replicated in a community sample of children with selective mutism. CBCL items expected to comprise an anxious factor included: "doesn't eat well," "would rather be alone than with others," "withdrawn, doesn't get involved with others," "nervous, high strung or tense," and "sudden changes in mood or feelings." CBCL items expected to comprise an oppositional factor included: "argues a lot," "demands a lot of attention," "stubborn, sullen or irritable," "temper tantrums or hot temper," and "whining." Confirmatory factor analysis (CFA) did not meet *a priori* goodness-of-fit index levels (CFI = 0.81, IFI = 0.81, SMR = 0.08). Hypothesis 1a was thus not supported. Findings from Hypothesis 1b then served as the basis for the remaining hypotheses (i.e., Hypotheses 2+).

Hypothesis 1b was that anxious and oppositional factors from CBCL items would be identified via exploratory and confirmatory factor analyses from the present sample of community youth. Descriptive analysis revealed 35 CBCL items with a mean of 0.50 or higher. However, item 65 (refuses to talk) was excluded in further analyses. This behavior is a key aspect of nearly all children with selective mutism and thus was not expected to differ across behavior factors. The other CBCL items (n = 34) were thus retained (Table 3).

Table 3.
CBCL Items with a Mean Score of 0.50+

Item		Mean score
1.	Acts too young for age	0.70
3.	Argues a lot	0.95
4.	Fails to finish things he/she starts	0.78
8.	Can't concentrate, can't pay attention for long	0.55
9.	Can't get his/her mind off certain thoughts; obsessions	0.92
10.	Can't sit still, restless, or hyperactive	0.53
11.	Clings to adults or too dependent	1.12
14.	Cries a lot	0.51
17.	Daydreams or gets lost in his/her thoughts	0.60
19.	Demands a lot of attention	0.76
22.	Disobedient at home	0.65
24.	Doesn't eat well	0.63
27.	Easily jealous	0.58
29.	Fears certain animals, situations, or places other than school	0.93
30.	Fears going to school	0.58
31.	Fears he/she might think or do something bad	0.54
32.	Feels he/she has to be perfect	1.04
42.	Would rather be alone than with others	0.68
45.	Nervous, high strung or tense	0.92
50.	Too fearful or anxious	1.23
56F.	Physical problems without known medical cause: Stomachaches	0.60
58.	Picks nose, skin, or other parts of body	0.51
64.	Prefers being with younger kids	0.52
69.	Secretive, keeps things to self	0.60
71.	Self-conscious or easily embarrassed	1.21
75.	Too shy or timid	1.55
78.	Inattentive or easily distracted	0.50
83.	Stores up too many things he/she doesn't need	0.54
86.	Stubborn, sullen or irritable	0.95
87.	Sudden changes in mood or feelings	0.72
95.	Temper tantrums or hot temper	0.74
109.	Whining	0.65
111.	Withdrawn, doesn't get involved with others	0.63
112.	Worries	1.13

Exploratory Factor Analysis

Items in Table 3 were analyzed via the principal axis method of factor analysis, which revealed 9 factors with an eigenvalue greater than one. Parallel analysis, MAP, and the scree plot test were utilized to determine the number of factors to retain and rotate. Parallel analysis

indicated 4 factors and both MAP criteria and the scree plot test indicated the presence of 3 factors. The promax rotation was performed for both the three and four-factor solution and pattern matrixes were compared to determine the most appropriate factor solution.

The four-factor solution revealed factor 1 was composed of 11 items that described specific worries and behaviors consistent with anxiety, factor 2 was composed of 9 items consistent with opposition, factor 3 was composed of 5 items that described inattention and factor 4 was composed of 4 items and described withdrawn behaviors consistent with anxiety. Factors 1 and 4 both described anxiety, and items in both factors were consistent with shyness, nervousness and withdrawal. The four-factor solution was not considered to be an appropriate fit of the data because both factors 1 and 4 described anxiety and a three-factor solution was then examined.

The three-factor solution revealed factor 1 was composed of 14 items that described specific worries, behaviors and somatic complaints consistent with anxiety, factor 2 was composed of 8 items that described oppositional behaviors, and factor 3 was composed of 5 items that described inattention (Table 4). Factor 2 had 1 additional item that also loaded onto Factor 1 and was therefore, not included. Factor 3 had 1 additional item, "acts too young for his/her age," which revealed an adequate loading, but did not appear to measure the construct of inattention.

Factor 1 was composed of 14 items: 11 (clings to adults or too dependent), 29 (fears certain animals, situations, or places other than school), 30 (fears going to school), 31 (fears he/she might think or do something bad), 32 (feels he/she has to be perfect), 42 (would rather be alone than with others), 45 (nervous, high strung or tense), 50 (too fearful or anxious), 56F (physical problems without known medical cause: stomachaches), 69 (secretive, keeps things to

self), 71 (self-conscious or easily embarrassed), 75 (too shy or timid), 111 (withdrawn, doesn't get involved with others), and 112 (worries). This factor was labeled as an anxious factor.

Factor 2 was composed of 8 items: 3 (argues a lot), 19 (demands a lot of attention), 22 (disobedient at home), 27 (easily jealous), 86 (stubborn, sullen or irritable), 87 (sudden changes in mood or feelings), 95 (temper tantrums or hot temper) and 109 (whining). This factor was labeled as an oppositional factor. Factor 3 was composed of 5 items: 4 (fails to finish things he/she starts), 8 (can't concentrate, can't pay attention for long), 10 (can't sit still, restless, or hyperactive), 17 (daydreams or gets lost in his/her thoughts), and 78 (inattentive or easily distracted). This factor was labeled as an inattentive factor. Factor 1, Factor 2 and Factor 3 met earlier identified criteria for distinct and meaningful factors and were thus included for further analyses. Six cases were missing 1 or more items within Factors 1, 2 or 3 and were removed for further analyses.

Table 4.
Exploratory Factor Analysis with Promax Rotation of 3 Factors

Items	Factor 1	Factor 2	Factor 3
Too fearful or anxious	**.70**	.03	-.08
Worries	**.68**	.03	-.02
Fears certain animals, situations or places other than school	**.62**	-.05	.03
Nervous, high strung or tense	**.61**	.07	.01
Fears going to school	**.58**	.05	-.09
Self-conscious or easily embarrassed	**.58**	-.09	.01
Fears he/she might think or do something bad	**.55**	-.07	.01
Withdrawn, doesn't get involved with others	**.53**	-.02	.06
Clings to adults or too dependent	**.53**	.11	-.02
Too shy or timid	**.52**	-.07	-.00
Feels he/she has to be perfect	**.51**	-.03	-.05
Would rather be alone than with others	**.45**	-.07	.17
Physical problems without known cause: stomachaches	**.43**	.10	-.03
Secretive, keeps things to self	**.38**	.02	.12
Can't get his/her mind off certain thoughts; obsessions	.30	.18	.27
Doesn't eat well	.19	.13	-.02
Temper tantrums or hot temper	-.05	**.89**	-.14
Disobedient at home	-.11	**.78**	.01
Argues a lot	-.25	**.73**	.17
Stubborn, sullen or irritable	.10	**.66**	-.08
Sudden changes in mood or feelings	.29	**.54**	-.02
Demands a lot of attention	.07	**.53**	.09
Whining	.09	**.50**	-.01
Easily jealous	.03	**.43**	.09
Cries a lot*	**.31**	**.35**	.02
Picks nose, skin or other parts of body	.05	.18	.18
Can't concentrate, can't pay attention for long	-.07	-.05	**.86**
Inattentive or easily distracted	-.01	-.01	**.82**
Daydreams or gets lost in his/her thoughts	.17	-.30	**.66**
Fails to finish things he/she starts	-.09	.18	**.60**
Can't sit still, restless, or hyperactive	-.07	.19	**.60**
Acts too young for his/her age	.03	.16	.34
Stores up too many things he/she doesn't need	.15	.15	.27
Prefers being with younger kids	.06	.16	.25

*Item loaded onto 2 factors

Confirmatory Factor Analysis

Confirmatory factor analysis (CFA) on items derived from exploratory factor analysis (EFA) for the 3-factor structure in the current data did not meet specified goodness-of-fit index

levels (CFI = 0.84, IFI = 0.84, SMR = 0.06, RMSEA = 0.06). Factors derived from EFA were retained and utilized for further analyses.

Cross-validation of Clinic Data *(*Diliberto & Kearney, 2016*)*

Cross-validation was also conducted via confirmatory factor analysis using the lavaan package in R to identify whether any new factor structure derived from the community sample (Hypothesis 1b) would also fit the clinic data from Diliberto and Kearney (2016). Confirmatory factor analysis did not meet specified goodness-of-fit index levels (CFI = 0.38, SMR = 0.13, RMSEA = 0.16). These findings suggest that factors derived from Diliberto and Kearney (2016) are a better fit for children with selective mutism in the clinic sample than those in the community sample.

Demographic Comparisons

Oppositional factor scores ($t(270) = 1.17$, $p > .05$) and anxious factor scores ($t(270) = -0.38$, $p > .05$) did not significantly differ across gender. The length of treatment time ($t(270) = 0.25$, $p > .05$), SMQ total scores ($t(270) = 1.34$, $p > .05$), SMQ school subscale scores ($t(270) = 1.58$, $p > .05$), SMQ home/family subscale scores ($t(270) = 0.61$, $p > .05$), and SMQ social situations subscale scores ($t(270) = 1.03$, $p > .05$), also did not significantly differ across gender.

Oppositional factor scores ($F(3, 249) = 0.18$, $p > .05$) and anxious factor scores ($F(3, 249) = 0.14$, $p > .05$) did not significantly differ across major ethnic groups. The length of treatment time ($F(3, 249) = 1.28$, $p > .05$), SMQ total scores ($F(3, 249) = 1.63$, $p > .05$), SMQ school subscale scores ($F(3, 249) = 0.59$, $p > .05$), SMQ home/family subscale scores ($F(3, 249) = 1.67$, $p > .05$), and SMQ social situations subscale scores ($F(3, 249) = 1.57$, $p > 0.5$) also did not significantly differ across major ethnic groups (Caucasian, Hispanic,

multiracial/biracial, and Asian). The remaining ethnic groups (other, unreported, African American and Native American) were excluded from comparative analyses due to low sample size.

Hypotheses 2+

Correlation matrixes. CBCL social problems items beyond those hypothesized were significantly correlated with Factor 1 and 2. These included: item 34 (feels others are out to get him/her), item 36 (gets hurt a lot, accident-prone), item 38 (gets teased a lot), item 48 (not liked by other kids), item 62 (poorly coordinated or clumsy), and item 64 (prefers being with younger kids). Item 27 (easily jealous) was excluded from correlational analyses because it is included on Factor 2. Item 11 (clings to adults or too dependent) was found on Factor 1 and was excluded from correlation and regression analyses involving Factor 1. Thus, hypothesized CBCL social problems items (11 (Factor 2 only), 12 and 38), and 6 additional social problems items (25, 34, 36, 48, 62, and 64) were included in multiple regression analyses.

Multiple regressions.

***Hypotheses 2-2c: Anxious Factor and Activity*.** Hypothesis 2 was that a significant and inverse relationship was expected between EAS activity subscale scores and anxious factor scores. Thus, it was expected that EAS activity scores would predict anxious factor scores in an inverse direction. EAS activity scores were a nonsignificant predictor of anxious factor scores but an inverse relationship was found (β = -0.06, t = -1.35, $p > .05$). Hypothesis 2 was not supported.

Hypothesis 2a was that specific EAS activity items: item 7 (when child moves about, child usually moves slowly) and item 17 (child prefers quiet, inactive games to more active ones) were expected to positively predict anxious factor scores. EAS item 7 scores were a

nonsignificant predictor of anxious factor scores, and an inverse relationship was found, contrary to expectation (β = -0.07, t = -1.28, p > .05). As hypothesized, EAS item 17 scores were a positive, significant predictor of anxious factor scores (β = 0.40, t = 6.77, p < .000). Hypothesis 2a was partially supported (Table 5 for activity regressions).

Hypothesis 2b was that specific EAS activity items: item 4 (child is always on the go), item 9 (child is off and running as soon as he/she wakes up in the morning), and item 13 (child is very energetic) were expected to demonstrate a significant, inverse association with anxious factor scores. Thus, these item scores were expected to predict anxious factor scores in an inverse direction. EAS item 4 scores (β = -0.06, t = -0.83, p > .05) and EAS item 13 scores (β = -0.01, t = -0.24, p > .05) were nonsignificant predictors of anxious factor scores, but were inversely related. EAS item 9 scores were a nonsignificant predictor of anxious factor scores, and positively related, contrary to expectation (β = 0.00, t = 0.08, p > .05). Hypothesis 2b was not supported.

Hypothesis 2c was that a significant and inverse relationship was expected between CBCL activity competence scores and anxious factor scores. Thus, CBCL activity competence scores were expected to significantly predict anxious factor scores, and be inversely related. CBCL activity competence scores were a nonsignificant predictor of anxious factor scores, and positively related, contrary to expectation (β = 0.03, t = 0.78, p > .05). Hypothesis 2c was not supported.

Hypotheses 3-3c: Anxious Factor and Social Competence and Social Problems. Hypothesis 3 was that a significant and inverse relationship was expected between CBCL social competence scores and anxious factor scores, in addition to a significant and positive relationship between CBCL social problems scores and anxious factor scores. CBCL social competence

scores were a nonsignificant predictor of anxious factor scores, and positively related, contrary to expectation (β = 0.09, t = 1.83, p > .05). CBCL social problems scores were a positive and significant predictor of anxious factor scores (β = 0.50, t = 9.78, p < .001). Hypothesis 3 was partially supported (Table 6 for social competence regressions, Table 7 for social problems regressions).

Hypothesis 3a was that CBCL social competence items: "gets along with his/her brothers and sisters" and "behaves with his/her parents" were expected to demonstrate a significant, positive relationship with anxious factor scores. A CBCL social competence item (gets along with his/her brothers and sisters) was a nonsignificant predictor of anxious factor scores (β = 0.01, t = 0.18, p > .05). A CBCL social competence item (behaves with his/her parents) was a nonsignificant predictor of anxious factor scores, and inversely related, contrary to expectation (β = -0.06, t = -0.89, p > .05). Hypothesis 3a was not supported.

Hypothesis 3b was that specific CBCL social problems items: item 11 (clings to adults or too dependent), item 12 (complains of loneliness), and item 38 (get teased a lot) were expected to demonstrate a significant, positive association with anxious factor scores. However, item 11 was identified on the anxious factor and was not included in regression analyses. As hypothesized, item 12 (β = 0.25, t = 4.85, p < .001) and item 38 (β = 0.25, t = 4.56, p < .001) were positive and significant predictors of anxious factor scores. Hypothesis 3b was supported. Preliminary correlation analyses revealed that all CBCL social problems items were significantly associated with anxious factor scores. Therefore, eight social problems items (excluding item 27: easily jealous and item 11: clings to adults or too dependent) were included in the multiple regression analyses and revealed additional predictors. Item 34 (feels others are out to get him/her) (β =

0.11, $t = 2.03$, $p < .05$) and item 62 (poorly coordinated or clumsy) ($\beta = 0.18$, $t = 2.91$, $p < .01$) were significant and positive predictors of anxious factor scores.

Hypothesis 3c was that specific CBCL social competence items: "number of organizations participated in" and "number of close friends" were expected to demonstrate a significant, inverse association with anxious factor scores. Thus, these item scores were expected to predict anxious factor scores, and be inversely related. The number of organizations participated in was a nonsignificant predictor of anxious factor scores ($\beta = -0.09$, $t = -1.26$, $p > .05$). As hypothesized, the number of close friends was a significant predictor of anxious factor scores, and inversely related ($\beta = -0.36$, $t = -4.97$, $p < .001$). Hypothesis 3c was partially supported.

Hypothesis 4-4b: Anxious Factor and Sociability

Hypothesis 4 was that a significant and inverse relationship was expected between EAS sociability subscale scores and anxious factor scores. Thus, EAS sociability scores were expected to predict anxious factor scores, and be inversely related. EAS sociability scores were a nonsignificant predictor of anxious factor scores but an inverse relationship was found ($\beta = -0.00$, $t = -0.09$, $p > .05$). Hypothesis 4 was not supported (Table 8 for sociability regressions).

Hypothesis 4a was that specific EAS sociability items: item 16 (child is something of a loner) and item 18 (when alone child feels isolated) were expected to demonstrate a significant, positive association with anxious factor scores. As hypothesized, EAS sociability item 16 ($\beta = 0.18$, $t = 2.86$, $p < .01$) and item 18 scores ($\beta = 0.22$, $t = 3.97$, $p < .000$) were positive and significant predictors of anxious factor scores. Hypothesis 4a was supported.

Hypothesis 4b was that specific EAS sociability items: item 3 (child likes to be with people), item 5 (child prefers playing with others rather than alone), and item 10 (child finds

people more stimulating than anything else) were expected to demonstrate a significant, inverse association with anxious factor scores. Thus, these item scores were expected to predict anxious factor scores, and be inversely related. As hypothesized, EAS item 3 scores significantly predicted anxious factor scores, and were inversely related (β = -0.24, t = -3.67, p < .001). EAS item 5 scores (β = -0.07, t = -1.10, p > .05) and EAS item 10 scores (β = -0.00, t = -0.02, p > .05) were nonsignificant predictors of anxious factor scores. Hypothesis 4b was partially supported.

Hypotheses 5-5b: Anxious Factor and Shyness

Hypothesis 5 was that a significant and positive relationship was expected between EAS shyness subscale scores and anxious factor scores. As hypothesized, EAS shyness scores were a positive and significant predictor of anxious factor scores (β = 0.27, t = 5.09, p < .001). Hypothesis 5 was supported (Table 9 for shyness regressions).

Hypothesis 5a was that specific EAS shyness items: item 1 (child tends to be shy) and item 14 (child takes a long time to warm up to strangers) were expected to demonstrate a significant and positive association with anxious factor scores. As hypothesized, EAS item 1 (β = 0.18, t = 3.12, p < .01) and EAS item 14 scores were positive and significant predictors of anxious factor scores (β = 0.18, t = 3.25, p < .01). Hypothesis 5a was supported.

Hypothesis 5b was that specific EAS shyness items: item 8 (child makes friends easily), item 12 (child is very sociable) and item 20 (child is very friendly with strangers) were expected to demonstrate a significant and inverse association with anxious factor scores. Thus, these item scores were expected to predict anxious factor scores, and be inversely related. As hypothesized, EAS item 8 scores (β = -0.21, t = -3.48, p < .01) and EAS item 12 scores (β = -0.16, t = -2.46, p < .05) significantly predicted anxious factor scores, and were inversely related. EAS 20 scores

(β = -0.03, t = -0.54, p > .05) were a nonsignificant predictor of anxious factor scores. Hypothesis 5b was partially supported.

Hypothesis 6-6a: Anxious Factor and Emotionality

Hypothesis 6 was that a significant and positive relationship was expected between EAS emotionality subscale scores and anxious factor scores. As hypothesized, EAS emotionality scores were a positive and significant predictor of anxious factor scores (β = 0.12, t = 2.63, p < .01). Hypothesis 6 was supported (Table 10 for emotionality regressions).

Hypothesis 6a was that specific EAS emotionality items: item 2 (child cries easily) and item 11 (child often fusses and cries) were expected to demonstrate a significant and positive association with anxious factor scores. As hypothesized, EAS item 2 scores were a positive and significant predictor of anxious factor scores (β = 0.17, t = 2.08, p < .05). EAS item 11 scores were a nonsignificant, and inverse predictor of anxious factor scores, contrary to expectation (β = -0.05, t = -0.71, p > .05). Hypothesis 6a was not supported. Preliminary correlation analyses revealed that all EAS emotionality items were significantly associated with anxious factor scores. Therefore, all EAS emotionality items were included in the multiple regression analyses. As expected, EAS item 6 (child tends to be somewhat emotional) was a significant and positive predictor of anxious factor scores (β = 0.18, t = 2.41, p < .05). However, EAS item 15 (child gets upset easily) (β = 0.14, t = 1.74, p > .05) and EAS item 19 (child reacts intensely when upset) (β = 0.03, t = 0.46, p > .05) were positive but nonsignificant predictors of anxious factor scores.

Hypothesis 7-7c: Oppositional Factor and Activity

Hypothesis 7 was that a significant and positive relationship was expected between EAS activity subscale scores and oppositional factor scores. EAS activity scores were a positive and

significant predictor of oppositional factor scores (β = 0.10, t = 2.09, p < .05). Hypothesis 7 was supported. Hypothesis 7a was that a significant and positive relationship was expected between CBCL activity competence scores and oppositional factor scores. CBCL activity competence scores were a positive but nonsignificant predictor of oppositional factor scores (β = 0.02, t = 0.54, p > .05). Hypothesis 7a was not supported.

Hypothesis 7b was that specific EAS activity items: item 4 (child is always on the go), item 9 (child is off and running as soon as he/she wakes up in the morning), and item 13 (child is very energetic) were expected to demonstrate a significant and positive association with oppositional factor scores. EAS item 4 (β = 0.08, t = 1.02, p > .05), EAS item 9 (β = -0.03, t = -0.44, p > .05) and EAS item 13 scores (β = 0.13, t = 1.65, p > .05) were nonsignificant predictors of oppositional factor scores. Hypothesis 7b was not supported.

Hypothesis 7c was that other specific EAS items: item 7 (when child moves about, child usually moves slowly) and item 17 (child prefers quiet, inactive games to more active ones) were expected to demonstrate a significant and inverse association with oppositional factor scores. Thus, these item scores were expected to predict oppositional factor scores, and be inversely related. EAS item 7 scores were a nonsignificant predictor of oppositional factor scores (β = 0.03, t = 0.59, p > .05). EAS item 17 scores were a significant but positive predictor of oppositional factor scores, contrary to expectation (β = 0.18, t = 2.78, p < .01). Hypothesis 7c was not supported.

Hypotheses 8-8c: Oppositional Factor and Social Competence and Social Problems

Hypothesis 8 was that a significant and positive relationship was expected between CBCL social competence scores and oppositional factor scores, in addition to a significant and positive relationship between CBCL social problems scores and oppositional factor scores.

CBCL social competence scores were a nonsignificant predictor of oppositional factor scores, and inversely related, contrary to expectation (β = -0.06, t = -1.02, p > .05). As hypothesized, CBCL social problems scores were a positive and significant predictor of oppositional factor scores (β = 0.29, t = 4.27, p < .001). Hypothesis 8 was partially supported.

Hypothesis 8a was that specific CBCL social competence items: "number of organizations participated in" and "number of close friends" were expected to demonstrate a significant and positive association with oppositional factor scores. The number of organizations participated in (β = -0.01, t = -0.29, p > .05) and the number of close friends (β = -0.11, t = -1.72, p > .05) were nonsignificant predictors of oppositional factor scores, and were inversely related, contrary to expectation. Hypothesis 8a was not supported.

Hypothesis 8b was that specific CBCL social competence items: "gets along with his/her brothers and sisters," and "behaves with his/her parents" were expected to demonstrate a significant and inverse relationship with oppositional factor scores. Thus, these item scores were expected to predict oppositional factor scores, and be inversely related. A CBCL social competence item (gets along with his/her brothers and sisters) was a nonsignificant predictor of oppositional factor scores (β = -0.09, t = -1.44, p > .05). As hypothesized, a CBCL social competence item (behaves with his/her parents) significantly predicted oppositional factor scores, and was inversely related (β = -0.53, t = -8.05, p < .001). Hypothesis 8b was partially supported.

Hypothesis 8c was that specific CBCL social problems items: item 11 (clings to adults or too dependent), item 12 (complains of loneliness) and item 38 (gets teased a lot) were expected to demonstrate a significant and inverse association with oppositional factor scores. Thus, these item scores were expected to predict oppositional factor scores, and be inversely related. CBCL

item 11 was a significant but positive predictor of oppositional factor scores, contrary to expectation (β = 0.23, t = 3.89, p < .001). CBCL item 12 scores (β = -0.04, t = -0.69, p > .05) and CBCL item 38 scores (β = 0.08, t = 1.25, p > .05) were nonsignificant predictors of oppositional factor scores. Hypothesis 3c was not supported. Preliminary correlation analyses revealed that all CBCL social problems items were significantly correlated with oppositional factor scores. Therefore, nine social problem items (excluding item 27: easily jealous) were included in the multiple regression analyses and revealed additional predictors. Item 34 (Feels others are out to get him/her (β = 0.19, t = 2.92, p < .05) and item 64 (Prefers being with younger kids) (β = 0.11, t = 2.02, p < .05) were significant predictors of oppositional factor scores.

Hypotheses 9-9b: Oppositional Factor and Sociability

Hypothesis 9 was that a significant and positive relationship was expected between EAS sociability subscale scores and oppositional factor scores. EAS sociability scores were a nonsignificant predictor of oppositional factor scores (β = 0.03, t = 0.68, p > .05). Hypothesis 9 was not supported.

Hypothesis 9a was that specific EAS sociability items: item 3 (child likes to be with people), item 5 (child prefers playing with others rather than alone) and item 10 (child finds people more stimulating than anything else) were expected to demonstrate a significant and positive association with oppositional factor scores. EAS item 3 (β = -0.12, t = -1.73, p > .05), EAS item 5 (β = 0.01, t = 0.20, p > .05) and EAS item 10 scores (β = 0.02, t = 0.41, p > .05) were nonsignificant predictors of oppositional factor scores. Hypothesis 9a was not supported.

Hypothesis 9b was that specific EAS sociability items: item 16 (child is something of a loner) and item 18 (when alone child feels isolated) were expected to demonstrate a significant and inverse association with oppositional factor scores. Thus, these item scores were expected to

predict oppositional factor scores, and be inversely related. Item 16 was a nonsignificant predictor of oppositional factor scores (β = 0.07, t = 1.03, p > .05). Item 18 was a positive and significant predictor of oppositional factor scores, contrary to expectation (β = 0.14, t = 2.40, p < .05). Hypothesis 9b was not supported.

Hypotheses 10-10b: Oppositional Factor and Shyness

Hypothesis 10 was that a significant and inverse relationship was expected between EAS shyness subscale scores and oppositional factor scores. Thus, it was expected that EAS shyness scores would predict oppositional factor scores, and be inversely related. EAS shyness scores were a nonsignificant predictor of oppositional factor scores (β = -0.00, t = -0.02, p > .05). Hypothesis 10 was not supported.

Hypothesis 10a was that specific EAS shyness items: item 8 (child makes friends easily), item 12 (child is very sociable), and item 20 (child is very friendly with strangers) were expected to demonstrate a significant and positive association with oppositional factor scores. EAS item 8 (β = - 0.04, t = -0.59, p > .05) and EAS item 20 scores (β = 0.02, t = 0.40, p > .05) were nonsignificant predictors of oppositional factor scores. EAS item 12 was a significant and inverse predictor of oppositional factor scores, contrary to expectation (β = -0.15, t = -1.99, p < .05). Hypothesis 10a was not supported.

Hypothesis 10b was that specific EAS shyness items: item 1 (child tends to be shy) and item 14 (child takes a long time to warm up to strangers) were expected to demonstrate a significant and inverse association with oppositional factor scores. Thus, these item scores were expected to predict oppositional factor scores, and be inversely related. EAS item 1 (β = 0.09, t = 1.47, p > .05) and EAS item 14 scores (β = 0.06, t = 0.96, p > .05) were nonsignificant predictors of oppositional factor scores. Hypothesis 10b was not supported.

Hypothesis 11-11a: Oppositional Factor and Emotionality

Hypothesis 11 was that a significant and positive relationship was expected between EAS emotionality subscale scores and oppositional factor scores. As hypothesized, EAS emotionality scores were a positive and significant predictor of oppositional factor scores ($\beta = 0.35$, $t = 6.60$, $p < .000$).

Hypothesis 11a was that specific EAS emotionality items: item 2 (child cries easily) and item 11 (child often fusses and cries) were expected to demonstrate a significant and inverse association with oppositional factor scores. Thus, these item scores were expected to predict oppositional factor scores, and be inversely related. EAS item 2 scores ($\beta = 0.10$, $t = 1.41$, $p > .05$) were a nonsignificant predictor of oppositional factor scores. EAS item 11 scores were a positive and significant predictor of oppositional factor scores ($\beta = 0.14$, $t = 2.15$, $p < .05$). Hypothesis 11a was not supported.

Correlation analyses revealed that all EAS emotionality items were significantly correlated with oppositional factor scores. Therefore, all EAS emotionality items were included in the multiple regression analyses. As expected, EAS item 15 (child gets upset easily) ($\beta = 0.22$, $t = 3.02$, $p < .01$) and EAS item 19 scores (child reacts intensely when upset) ($\beta = 0.24$, $t = 3.71$, $p < .001$) were positive and significant predictors of oppositional factor scores. EAS item 6 (child tends to be somewhat emotional) scores were a nonsignificant predictor of oppositional factor scores ($\beta = -0.05$, $t = -0.75$, $p > .05$).

Table 5.

Correlations and Multiple Regressions with CBCL Activity Competence and EAS Activity

		Factor 1					
Dependent Variable	*Coefficient*	*t*	*β*	B	SE B	F	R2
Overall Model EAS Activity						11.34***	0.17
CBCL Activity Competence	-0.05	0.78	0.03	0.02	0.02		
Activity Sum	-0.23**	-1.35	-0.06	-0.08	0.06		
Activity: Item 4	-0.16**	-0.83	-0.06	-0.31	0.37		
Activity: Item 7	0.05	-1.28	-0.07	-0.35	0.27		
Activity: Item 9	-0.04	0.08	0.00	0.02	0.29		
Activity: Item 13	-0.11	-0.24	-0.01	-0.09	0.39		
Activity: Item 17	0.41**	6.77***	0.40	2.01	0.29		
		Factor 2					
Dependent Variable	*Coefficient*	*t*	*β*	B	SE B	F	R2
Overall Model EAS Activity						2.46	0.04
CBCL Activity Competence	-0.04	0.54	0.02	0.01	0.02		
Activity Sum	0.02	2.09*	0.10	0.10	0.05		
Activity: Item 4	0.09	1.02	0.08	0.28	0.28		
Activity: Item 7	0.03	0.59	0.03	0.12	0.20		
Activity: Item 9	0.05	-0.44	-0.03	-0.09	0.22		
Activity: Item 13	0.11	1.65	0.13	0.48	0.29		
Activity: Item 17	0.13*	2.78**	0.18	0.61	0.18		

* $p < .05$, ** $p < .01$, *** $p < .001$

EAS Item 4: Child is always on the go; EAS Item 7: When child moves about, child usually moves slowly; EAS Item 9: Child is off and running as soon as he/she wakes up in the morning; EAS Item 13: Child is very energetic; EAS Item 17: Child prefers quiet, inactive games to more active ones

Table 6

Correlations and Multiple Regressions with CBCL Social Competence

			Factor 1				
Dependent Variable	*Coefficient*	*t*	*β*	B	SE B	F	R2
Overall Model Social Competence						8.20***	0.16
CBCL Social Competence	-0.22**	1.83	0.09	0.05	0.03		
Number of Organizations	-0.18*	-1.26	-0.09	-0.74	0.58		
Number of Close Friends	-0.25**	-4.97***	-0.36	-2.46	0.49		
How well get along: siblings	-0.05	0.18	0.01	0.10	0.54		
How well get along: parents	-0.10	-0.89	-0.06	-0.61	0.68		
			Factor 2				
Dependent Variable	*Coefficient*	*t*	*β*	B	SE B	F	R2
Overall Model Social Competence						22.16***	0.35
CBCL Social Competence	-0.19**	-1.02	-0.06	-0.02	0.02		
Number of Organizations	-0.05	-0.29	-0.01	-0.10	0.34		
Number of Close Friends	-0.10	-1.72	-0.11	-0.49	0.28		
How well get along: siblings	-0.25**	-1.44	-0.09	-0.45	0.31		
How well get along: parents	-0.57**	-8.05***	-0.53	-3.20	0.39		

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 7.
Correlations and Multiple Regressions with CBCL Social Problems

Factor 1							
Dependent Variable	*Coefficient*	*t*	*β*	B	SE B	F	R2
Overall Model CBCL Problems						25.28***	0.43
Social Problems T Score	0.68**	9.78***	0.50	0.37	0.03		
Social Problems: Item 12	0.45**	4.85***	0.25	2.21	0.45		
Social Problems: Item 25	0.36**	1.89	0.11	1.27	0.67		
Social Problems: Item 34	0.42**	2.03*	0.11	1.26	0.62		
Social Problems: Item 36	0.35**	1.70	0.10	1.05	0.61		
Social Problems: Item 38	0.46**	4.56***	0.25	2.97	0.65		
Social Problems: Item 48	0.29**	-0.33	-0.02	-0.27	0.81		
Social Problems: Item 62	0.38**	2.91**	0.18	1.87	0.64		
Social Problems: Item 64	0.23**	0.89	0.04	0.39	0.43		
Factor 2							
Dependent Variable	*Coefficient*	*t*	*β*	B	SE B	F	R2
Overall Model CBCL Problems						8.85***	0.23
Social Problems T Score	0.50**	4.27***	0.29	0.14	0.03		
Social Problems: Item 11	0.32**	3.89***	0.23	1.31	0.33		
Social Problems: Item 12	0.18**	-0.69	-0.04	-0.26	0.38		
Social Problems: Item 25	0.25**	1.65	0.11	0.89	0.53		
Social Problems: Item 34	0.33**	2.92**	0.19	1.46	0.50		
Social Problems: Item 36	0.21**	0.52	0.03	0.26	0.49		
Social Problems: Item 38	0.25**	1.25	0.08	0.66	0.52		
Social Problems: Item 48	0.16**	-0.59	-0.04	-0.39	0.65		
Social Problems: Item 62	0.23**	0.83	0.06	0.42	0.61		
Social Problems: Item 64	0.27**	2.02*	0.11	0.72	0.35		

* $p < .05$, ** $p < .01$, *** $p < .001$

Item 11: Clings to adults or to dependent; Item 12: Complains of loneliness; Item 25: Doesn't get along with other kids; Item 34: Feels others are out to get him/her; Item 36: Gets hurt a lot; accident prone; Item 38: Gets teased a lot; 9. Item 48: Not liked by other kids; Item 62: Poorly coordinated or clumsy; Item 64: Prefers being with younger kids

Table 8.
Correlations and Multiple Regressions with EAS Sociability

Factor 1							
Dependent Variable	*Coefficient*	*T*	*β*	B	SE B	F	R2
Overall Model EAS Sociability						15.55***	0.22
Sociability Sum	-0.27**	-0.09	-0.00	-0.00	0.07		
Sociability: Item 3	-0.37**	-3.67***	-0.24	-1.20	0.32		
Sociability: Item 5	-0.24**	-1.10	-0.07	-0.34	0.31		
Sociability: Item 10	-0.14*	-0.02	-0.00	-0.00	0.31		
Sociability: Item 16	0.34**	2.86**	0.18	0.83	0.29		
Sociability: Item 18	0.26**	3.97***	0.22	1.04	0.26		
Factor 2							
Dependent Variable	*Coefficient*	*T*	*β*	B	SE B	F	R2
Overall Model EAS Shyness						2.97*	0.05
Sociability Sum	-0.06	0.68	0.03	0.04	0.06		
Sociability: Item 3	-0.14*	-1.73	-0.12	-0.43	0.24		
Sociability: Item 5	-0.04	0.20	0.01	0.04	0.24		
Sociability: Item 10	-0.01	0.41	0.02	0.09	0.23		
Sociability: Item 16	0.13*	1.03	0.07	0.23	0.22		
Sociability: Item 18	0.16**	2.40*	0.14	0.48	0.20		

* $p < .05$, ** $p < .01$, *** $p < .001$

EAS Item 3: Child likes to be with people; EAS Item 5: Child prefers playing with others rather than alone; EAS Item 10: Child finds people more stimulating than anything else; EAS Item 16: Child is something of a loner; EAS Item 18: When alone child feels isolated

Table 9.
Correlations and Multiple Regressions with EAS Shyness

			Factor 1				
Dependent Variable	*Coefficient*	*T*	*β*	B	SE B	F	R2
Overall Model EAS Shyness						18.35***	0.25
Shyness Total	0.49**	5.09***	0.27	0.48	0.09		
Shyness: Item 1	0.30**	3.12**	0.18	1.18	0.37		
Shyness: Item 8	-0.34**	-3.48**	-0.21	-0.99	0.28		
Shyness: Item 12	-0.38**	-2.46*	-0.16	-0.78	0.32		
Shyness: Item 14	0.29**	3.25**	0.18	1.49	0.45		
Shyness: Item 20	-0.18**	-0.54	-0.03	-0.18	0.34		
			Factor 2				
Dependent Variable	*Coefficient*	*T*	*β*	B	SE B	F	R2
Overall Model EAS Shyness						3.36**	0.06
Shyness Total	0.21**	-0.02	-0.00	-0.00	0.08		
Shyness: Item 1	0.16**	1.47	0.09	0.43	0.29		
Shyness: Item 8	-0.13**	-0.59	-0.04	-0.13	0.22		
Shyness: Item 12	-0.21**	-1.99*	-0.15	-0.49	0.24		
Shyness: Item 14	0.10	0.96	0.06	0.34	0.35		
Shyness: Item 20	-0.03	0.40	0.02	0.10	0.26		

* $p < .05$, ** $p < .01$, *** $p < .001$

EAS Item 1: Child tends to be shy; EAS Item 8: Child makes friends easily; EAS Item 12: Child is very sociable; EAS Item 14: Child takes a long time to warm up to strangers; EAS Item 20: Child is very friendly with strangers

Table 10.
Correlations and Multiple Regressions with EAS Emotionality

Factor 1							
Dependent Variable	*Coefficient*	*t*	*β*	B	SE B	F	R2
Overall Model EAS Emotionality						11.48***	0.17
Emotionality Sum	0.39**	2.63**	0.12	0.15	0.05		
Emotionality: Item 2	0.35**	2.08*	0.17	0.76	0.37		
Emotionality: Item 6	0.36**	2.41*	0.18	0.98	0.40		
Emotionality: Item 11	0.22**	-0.71	-0.05	-0.22	0.31		
Emotionality: Item 15	0.35**	1.74	0.14	0.64	0.37		
Emotionality: Item 19	0.26**	0.46	0.03	0.15	0.32		
Factor 2							
Dependent Variable	*Coefficient*	*t*	*β*	B	SE B	F	R2
Overall Model EAS Emotionality						22.80	0.30
Emotionality Sum	0.52**	6.60***	0.35	0.28	0.04		
Emotionality: Item 2	0.41**	1.41	0.10	0.33	0.23		
Emotionality: Item 6	0.34**	-0.75	-0.05	-0.19	0.25		
Emotionality: Item 11	0.40**	2.15*	0.14	0.43	0.19		
Emotionality: Item 15	0.47**	3.02**	0.22	0.71	0.23		
Emotionality: Item 19	0.44**	3.71***	0.24	0.77	0.20		

* $p < .05$, ** $p < .01$, *** $p < .001$

EAS Item 2: Child cries easily; EAS Item 6: Child tends to be somewhat emotional; EAS Item 11: Child often fusses and cries; EAS Item 15: Child gets upset easily; EAS Item 19: Child reacts intensely when upset

Latent Class Analysis

The three-class solution fit the data best (BIC = 14031.64). AIC was not interpretable because no minimum was reached. The 3-class (Entropy=0.90) and 4-class solutions (Entropy=0.93) were considered distinct. Models 5-8 were not identifiable because the number of parameters exceeded the total number of observations.

The 3 and 4-class models were examined to determine which solution was appropriate. First, a one-way ANOVA with a Tukey honest significant difference (HSD) post hoc analysis was used to determine whether the classes were significantly different in anxiety, opposition and inattention factor scores. Second, the classes were examined to determine which solution was

consistent with theory and appropriately distinguished clusters of youth with selective mutism with varying levels of anxiety, opposition and inattention. In the 3-class solution, Class 1 (M = 20.6, SD = 2.94) had significantly higher anxiety factor scores compared to Class 2 (M = 11.93, SD = 2.72, $p < .000$) and Class 3 (M = 7.89, SD = 3.81, $p < .000$). Class 2 had significantly higher anxiety factor scores compared to Class 3 ($p < .000$). Class 1 (M =8.87, SD = 4.25) had significantly higher oppositional factor scores compared to Class 2 (M = 7.46, SD = 2.95, $p < .001$) and Class 3 (M = 2.47, SD = 2.04, $p < .000$). A small but nonsignificant overlap (0.25) was found between Classes 1 and Class 2 on standard errors in oppositional scores on a graphical view of error bars. Class 2 had significantly higher oppositional factor scores compared to Class 3 ($p < .000$). Class 1 (M = 4.50, SD = 2.75) and Class 2 (M = 3.65, SD = 2.62) did not differ significantly on attention problems factor scores ($p = 0.52$). Class 3 (M = 1.05, SD = 1.53) had significantly lower scores compared to Class 1 ($p < .000$) and Class 2 ($p < .000$). The three-class model revealed Classes 1-3 were significantly different in anxiety and oppositional factor scores. Class 3 had significantly less attention problems than classes 1 and 2.

In the 4-class solution, Class 1 (M = 20.61, SD = 3.03) had significantly higher anxiety factor scores compared to Class 2 (M = 11.75, SD = 3.34, $p < .000$), Class 3 (M = 7.81, SD = 3.99, $p < .000$), and Class 4 (M = 11.19, SD = 3.14, $p < .000$). Class 2 had significantly higher anxiety scores compared to Class 3 ($p < .000$) but did not significantly differ from Class 4 ($p > .05$). Class 3 had significantly higher anxiety scores compared to Class 4 ($p < .000$). Class 1 (M = 9.01, SD = 4.21) had significantly higher oppositional factor scores compared to Class 2 (M = 6.27, SD = 3.42, $p < .000$), Class 3 (M = 1.82, SD = 1.51, $p < .000$), and Class 4 (M = 7.44, SD = 2.64, $p < .01$). Class 2 had significantly higher oppositional scores compared to Class 3 ($p < .000$) but did not significantly differ from Class 4 ($p > .05$). Class 3 had significantly higher

oppositional scores compared to Class 4 ($p < .000$). Class 2 (M = 6.39, SD = 1.73) had significantly higher inattention factor scores compared to Class 1 (M = 4.43, SD = 2.76), Class 3 (M = 0.91, SD = 1.26) and Class 4 (M = 1.75, SD = 1.37). Class 1 had significantly higher inattention scores compared to Class 2 ($p < .000$) and Class 3 ($p < .000$). Class 4 had significantly higher inattention scores compared to Class 3 ($p < .05$). The four-class model revealed that Classes 1-4 were significantly different in inattention factor scores. However, Classes 2 and 4 were not significantly different across both anxious and oppositional factor scores.

In the 3-class solution, anxiety scores were elevated among opposition and inattention for each class. Anxious behaviors are consistent for all youth with selective mutism and youth are commonly described as withdrawn, shy and fearful (APA, 2013; Diliberto & Kearney, 2016). Furthermore, inattention scores increased as anxiety and oppositional scores became elevated. Attention problems in the current study may be understood as consistent with hypervigilance in anxiety provoking situations or due to co-occurring externalizing behaviors (Kristensen, 2001; Puliafico & Kendall, 2006). In the 4-class solution, anxiety scores were not consistently elevated among opposition and inattention for each class. Furthermore, inattention scores were high in Class 2 despite moderate anxiety and oppositional symptoms. The 3-class solution most clearly represented distinct and definable classes of youth with selective mutism based on elevations in anxiety, opposition and inattention.

The three-class model was then graphed by including the average score for each class on the CBCL items within the anxiety (items 11, 29, 30, 31, 32, 42, 45, 50, 56F, 69, 71, 75, 111, and 112), oppositional (items 3, 19, 22, 27, 86, 87, 95, 109), and inattention (items 4, 8, 17, 78) factors (Figure 2). Furthermore, significant differences were found for anxiety and oppositional

scores across classes, and thus scores were labeled as mild, moderate and high. Inattention scores were not significantly different across Classes 1 and 2 but were significantly different from Class 3. Inattention scores were thus labeled as "mild" for Class 3 and "moderate to high" for Classes 1 and 2 to reflect the lack of statistical distinction between scores. In the 3-class model, Class 1 was a "highly anxious and oppositional, and moderately to highly anxious" group and composed 27.2% of the sample. Class 2 was a "moderately anxious and oppositional, and moderately to highly inattentive" group and composed 35.7% of the sample. Classes 1 and 2 had inattention scores that were not statistically different and were thus labeled to reflect elevations greater than mild but between moderate to high. Class 3 was a "mildly anxious, oppositional and inattentive" group and composed 37.1% of the sample. Class 3 included moderate to high elevations on individual anxiety items, including being too fearful, shy and self-conscious. A chi-square test of independence revealed the percentage of participants in each class did not differ by gender, X^2 (2, N = 272) = 3.29, $p > .05$. Table 11 displays the results of the latent class analysis.

Table 11.
Fit Indices for Latent Class Analysis

# of classes	Df	BIC	AIC	Entropy
1	218	14998.24	14803.53	1.00
2	163	14126.48	13733.45	0.90
3	108	14031.64	13440.29	0.90
4	53	14100.76	13311.09	0.93
5	-2	14205.94	13217.95	0.94
6	-57	14338.33	13152.02	0.96
7	-112	14520.55	13135.92	0.96
8	-167	14716.31	13133.36	0.96

Df = degrees of freedom; BIC= Bayesian Information Criterion; AIC= Akaike Information Criterion

Figure 2. Latent Class Analysis

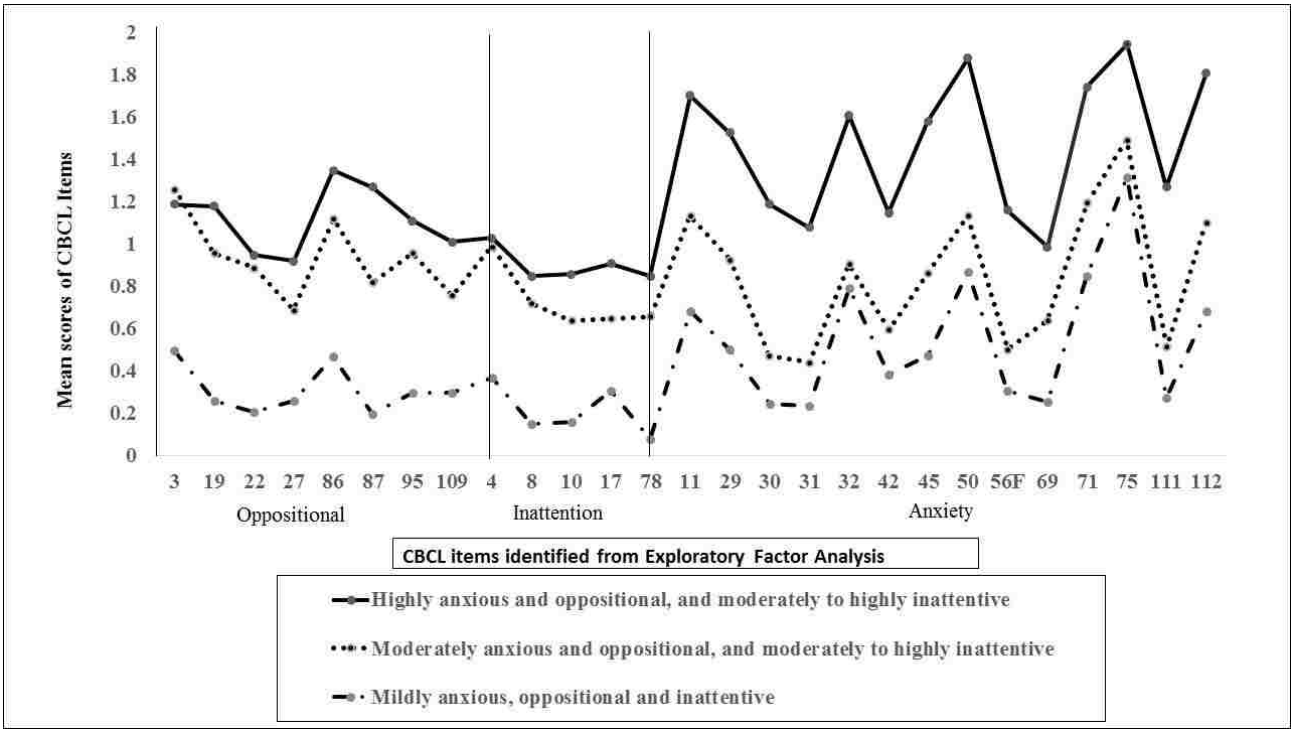


Figure Note: 3: Argues a lot; 4: Fails to finish things he/she starts; 8: Can't concentrate, can't pay attention for long; 10: Can't sit still, restless, or hyperactive; 17. Daydreams or gets lost in his/her thoughts; 19: Demands a lot of attention; 22: Disobedient at home; 27: Easily jealous; 30: Fears going to school;31: Fears he/she might think or do something bad; 32: Feels he/she has to be perfect; 42: Would rather be alone than with others; 45: Nervous, high strung or tense; 50: Too fearful or anxious; 56F: Physical problems without known medical cause: stomachaches; 69: Secretive, keeps things to self; 71: Self-conscious or easily embarrassed; 75: Too shy or timid; 78: Inattentive or easily distracted; 86: Stubborn, sullen or irritable; 87: Sudden changes in mood or feelings; 95: Temper tantrums or hot temper; 109: Whining; 111: Withdrawn, doesn't get involved with others; 112: Worries

Multivariate Analysis of Variance and Post-hoc Analyses

Overall, results of the multivariate analysis of variance (MANOVA) revealed a statistically significant difference in CBCL activity competence, social competence and social problems scores, and EAS subscales scores in combination, among the three classes of selective mutism, ($F(14,520) = 16.06$, $p < .000$; Wilks' Lambda = 0.48, partial eta^2 = 0.30). Significant differences among classes were reported for CBCL social competence ($F(2, 266) = 7.23$, $p <$ .01), CBCL social problems ($F(2, 266) = 100.83$, $p < .000$), EAS activity ($F(2, 266) = 3.46$, $p <$

.05), EAS shyness $F(2, 266) = 27.65$, $p < .001$), EAS sociability ($F(2, 266) = 7.19$, $p < .01$), and EAS emotionality scores ($F(2, 266) = 31.44$, $p < .001$). A significant difference was not found among groups on CBCL activities competence scores ($F(2, 266) = 0.94$, $p > .05$) (Table 12).

Post hoc analyses using the Tukey honest significant difference (HSD) criterion were utilized to compare meaningful differences in subscale scores and items on activity and social competence, social problems and temperament across classes (Table 13). Class 1 (M = 38.90, SD = 8.20) had significantly lower CBCL social competence scores when compared to Class 3 (M = 44.59, SD = 10.24, $p < .01$). CBCL social problems scores were significantly different between all classes. Class 1 (M = 67.06, SD = 8.38) had significantly higher social problems scores compared to Class 2 (M = 59.00, SD = 6.00, $p < .000$) and Class 3 (M = 53.60, SD = 3.975.82, $p < .000$). Class 2 had significantly higher social problems scores compared to Class 3 ($p < .000$). Class 1 (M = 14.52, SD = 4.13) had significantly lower EAS activity scores compared to Class 3 (M = 16.12, SD = 3.66, $p < .05$). Class 1 (M = 13.31, SD = 4.43) had significantly lower EAS sociability scores compared to Class 3 (M = 15.44, SD = 3.44, $p < .01$). Class 1 (M = 22.78, SD = 2.44) had significantly higher EAS shyness scores compared to Class 2 (M = 21.08, SD = 2.98, $p < .01$) and Class 3 (M = 19.29, SD = 3.55, $p < .000$). Class 2 had significantly higher EAS shyness scores compared to Class 3 ($p < .000$). Class 1 (M = 19.52, SD = 4.49) had significantly higher EAS emotionality scores compared to Class 2 (M = 17.20, SD = 4.44, $p < .01$) and Class 3 (M = 14.01, SD = 4.85, $p < .000$). Class 2 had significantly higher EAS emotionality scores compared to Class 3 ($p < .000$).

Overall, Class 1 displayed higher EAS shyness and emotionality and CBCL social problems scores. Class 3 displayed higher EAS activity and sociability and CBCL activity competence and social competence scores. Significant CBCL and EAS items across classes are

provided (Table 14). The clinical implications of significant differences in CBCL and EAS subscales and item scores across classes is expanded upon in the discussion section.

Table 12.
Multivariate Analysis of Variance of Classes among EAS and CBCL Subscale Scores

Variable	M	SD	F
Overall			16.06***
EAS Activity			3.46*
Class 1	14.52	4.13	
Class 2	15.81	4.48	
Class 3	16.12	3.66	
EAS Sociability			7.19**
Class 1	13.31	4.43	
Class 2	14.63	3.20	
Class 3	15.44	3.44	
EAS Shyness			27.65***
Class 1	22.78	2.44	
Class 2	21.08	2.98	
Class 3	19.29	3.55	
EAS Emotionality			31.44***
Class 1	19.52	4.49	
Class 2	17.20	4.44	
Class 3	14.01	4.85	
CBCL Activities Competence			0.94
Class 1	41.90	11.36	
Class 2	42.52	10.11	
Class 3	44.06	11.07	
CBCL Social Competence			7.23**
Class 1	38.90	8.20	
Class 2	42.01	10.29	
Class 3	44.59	10.24	
CBCL Social Problems			101.83***
Class 1	67.06	8.38	
Class 2	59.00	6.00	
Class 3	53.60	3.97	

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 13.

Tukey HSD Post Hoc Across Classes for Subscale Scores

	Class Comparison		
Dependent Variable			Mean Difference
CBCL Activity Competence	Class 1	Class 2	0.62
		Class 3	2.15
	Class 2	Class 3	1.53
CBCL Social Competence	Class 1	Class 2	3.10
		Class 3	5.68**
	Class 2	Class 3	2.57
CBCL Social Problems	Class 1	Class 2	8.06***
		Class 3	13.46***
	Class 2	Class 3	5.40***
EAS Activity	Class 1	Class 2	1.28
		Class 3	1.59*
	Class 2	Class 3	0.30
EAS Sociability	Class 1	Class 2	1.32
		Class 3	2.12**
	Class 2	Class 3	0.80
EAS Shyness	Class 1	Class 2	1.69**
		Class 3	3.49***
	Class 2	Class 3	1.79***
EAS Emotionality	Class 1	Class 2	2.32**
		Class 3	5.51***
	Class 2	Class 3	3.19***

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 14.
Tukey HSD Post Hoc Across Classes for Significant CBCL and EAS Items

	Class Comparison		
Dependent Variable			Mean Difference
CBCL Social Competence			
Number of Organizations	Class 1	Class 2	0.36*
		Class 3	0.40*
How many close friends	Class 1	Class 2	0.54**
		Class 3	0.75***
How well get along: parents	Class 2	Class 3	0.43**
CBCL Social Problems			
Item 11: Clings to adults	Class 1	Class 2	0.58***
		Class 3	1.02***
	Class 2	Class 3	0.44***
Item 12: Complains of loneliness	Class 1	Class 2	0.61***
		Class 3	0.72***
Item 25: Doesn't get along with other kids	Class 1	Class 2	0.24**
		Class 3	0.42***
	Class 2	Class 3	0.18*
Item 34: Feels others out to get him/her	Class 1	Class 2	0.37***
		Class 3	0.52***
Item 36: Gets hurt a lot, accident-prone	Class 1	Class 2	0.32**
		Class 3	0.52***
	Class 2	Class 3	0.20*
Item 38: Gets teased a lot	Class 1	Class 2	0.41***
		Class 3	0.52***
Item 48: Not liked by other kids	Class 1	Class 3	0.29***
Item 62: Poorly coordinated or clumsy	Class 1	Class 2	0.43***
		Class 3	0.60***
Item 64: Prefers being with younger kids	Class 1	Class 3	0.47***
	Class 2	Class 3	0.44***
EAS Activity			
Item 17: Child prefers quiet, inactive games compared to more active ones	Class 1	Class 2	0.79***
		Class 3	0.89***
EAS Sociability			
Item 3: Child likes to be with people	Class 1	Class 2	0.78***
		Class 3	1.01***
Item 5: Child prefers playing with others rather than alone	Class 1	Class 3	0.54*
Item 16: Child is something of a loner	Class 1	Class 2	0.67**
		Class 3	0.99***
Item 18: When alone child feels isolated	Class 1	Class 2	0.58**
		Class 3	0.80***
EAS Shyness			

Item 1: Child tends to be shy	Class 1	Class 3	0.92***
Item 8: Child makes friends easily	Class 3	Class 1	0.92***
		Class 2	0.48*
Item 12: Child is very sociable	Class 1	Class 2	0.58**
		Class 3	1.05***
	Class 2	Class 3	0.47*
Item 14: Child takes a long time to warm up to strangers (Shyness)	Class 1	Class 2	0.31*
		Class 3	0.48***
Item 20: Child is very friendly with strangers	Class 1	Class 3	0.43*
	Class 2	Class 3	0.35*
EAS Emotionality			
Item 2: Child cries easily	Class 1	Class 2	0.52*
		Class 3	1.18***
	Class 2	Class 3	0.66**
Item 6: Child tends to be somewhat emotional	Class 1	Class 2	0.57**
		Class 3	0.96***
	Class 2	Class 3	0.40*
Item 11: Child often fusses and cries	Class 1	Class 3	1.08***
	Class 2	Class 3	0.71***
Item 15: Child gets upset easily	Class 1	Class 2	0.48*
		Class 3	1.29***
	Class 2	Class 3	0.81***
Item 19: Child reacts intensely when upset	Class 1	Class 3	1.10***
	Class 2	Class 3	0.80***

* $p < .05$, ** $p < .01$, *** $p < .001$

Comparative Analysis

CBCL anxious/depressed ($t(112) = -3.17$, $p < .01$), thought problems ($t(112) = -3.78$, $p < .001$), and aggressive behavior ($t(112) = -2.49$, $p < .05$) scales scores were significantly higher in the community compared to the clinic sample of youth with selective mutism. CBCL withdrawn/depressed ($t(112) = 0.18$, $p > .05$), somatic complaints ($t(112) = -1.47$, $p > .05$), social problems ($t(112) = -1.21$, $p > .05$), attention problems ($t(112) = -1.46$, $p > .05$), and rule-breaking behavior ($t(112) = -1.09$, $p > .05$) scales scores did not differ across the clinic and community samples.

Attention problems did not significantly differ between groups. However, the anxious/depressed subscale was significantly higher in the community sample and likely

contributes to the heightened attention problems. These findings are expanded upon in the discussion section.

Table 15.

CBCL T Scores Across Clinic and Community Samples

	Clinic		Community		
CBCL Scales	M	SD	M	SD	T
Anxious/Depressed	59.86	8.40	65.42	10.22	-3.17**
Withdrawn/Depressed	68.37	7.37	68.09	9.02	0.18
Somatic Complaints	57.14	9.55	59.67	8.85	-1.47
Social Problems	56.74	7.75	58.47	7.60	-1.21
Thought Problems	55.65	7.11	61.05	8.11	-3.78***
Attention Problems	56.25	7.75	58.56	9.16	-1.46
Rule-Breaking Behavior	53.26	5.48	54.47	6.38	-1.09
Aggressive Behavior	54.21	6.38	57.35	7.08	-2.49*
Internalizing Problems	63.26	9.52	66.65	8.69	-1.98*
Externalizing Problems	49.63	9.85	54.56	9.12	-2.77**
Total Problems	56.39	9.98	60.54	8.90	-2.35*

* $p < .05$, ** $p < .01$, *** $p < .001$

Chapter 5: Discussion

Children with selective mutism in the current study presented with different behaviors than youth sampled from a clinic. The current study derived anxious (Factor 1), oppositional (Factor 2), and inattention (Factor 3) behavior factors in a community sample of 278 children with selective mutism using exploratory factor analysis. Two factors based on anxiety and opposition were expected based on previous research in a clinic setting (Diliberto & Kearney, 2016). However, a third factor consistent with inattention was identified in youth in community settings.

Temperament components of activity, shyness, sociability, and emotionality, in addition to specific behaviors on the CBCL consistent with activity level, social competence, and social problems, were expected to be associated with anxious and oppositional factor scores in different ways. Low activity, and sociability and high shyness and emotionality, in addition to low social competence and high social problems were expected to be associated with anxious factor scores. As expected, high shyness, emotionality and social problems were associated with anxious factor scores. Inverse and nonsignificant associations were found between 1) activity and 2) sociability and anxious factor scores. In addition, positive but nonsignificant associations were found between 1) activity competence and 2) social competence and anxious factor scores.

Low shyness, and high sociability, emotionality, and activity, in addition to high social competence and high social problems, were expected to be associated with oppositional factor scores. As expected, high activity, social problems and emotionality were significantly associated with oppositional factor scores. In addition, positive but nonsignificant associations were found between 1) activity competence and 2) sociability and oppositional factor scores. A negative and nonsignificant association was found between 1) social competence and 2) shyness

scores and oppositional factor scores. Latent class analysis was utilized to determine if classes of children with selective mutism could be identified based on activity level, social competence, and temperament. Three classes were identified, and were conceptualized as 1) highly anxious and oppositional, and moderately to highly inattentive, 2) moderately anxious and oppositional, and moderately to highly inattentive, and 3) mildly anxious, oppositional and inattentive.

The following section first begins with an overview of the individual behaviors identified in the anxious, oppositional, and inattention factors. Second, activity levels, social competence, social problems, and temperament are discussed in their relationship with factor scores, in addition to their manifestation in classes of selective mutism. An in-depth explanation of these findings and related clinical implications is discussed. Limitations of the current study and recommendations for future research are outlined as well.

Factor 1 (Anxious Behaviors)

The current study attempted to replicate the anxious factor (Factor 1) that was previously identified from a sample of youth with selective mutism treated in a clinic setting (Diliberto & Kearney, 2016). The symptoms of Factor 1 derived from the current study described anxiety. However, the factor was composed of items that differed from youth in the clinic setting. The items are understood as symptoms of social anxiety disorder and included: 11 (clings to adults or too dependent), 29 (fears certain animals, situations, or places other than school), 30 (fears going to school), 31 (fears he/she might think or do something bad), 32 (feels he/she has to be perfect), 42 (would rather be alone than with others), 45 (nervous, high strung or tense), 50 (too fearful or anxious), 56F (physical problems without known medical cause: stomachaches), 69 (secretive, keeps things to self), 71 (self-conscious or easily embarrassed), 75 (too shy or timid), 111 (withdrawn, doesn't get involved with others), and 112 (worries). These findings support

previous conclusions that symptoms of anxiety in youth with selective mutism are consistent with social anxiety disorder symptoms (Diliberto & Kearney, 2016; Vecchio & Kearney, 2005).

Social anxiety disorder is characterized by a "marked fear or anxiety about one or more social situations in which the individual is exposed to possible scrutiny by others" (APA, 2013). Social anxiety disorder is often comorbid with selective mutism and may be conceptualized as a developmentally specific, severe, young child variant of social anxiety disorder (Anstendig, 1999; Bögels et al., 2010; Cunningham et al., 2006; Dow et al., 1995; Kristensen, 2000; Melfsen et al., 2006; Stein, Chavira, & Jang, 2001). Symptoms of both disorders often include avoiding social situations, expecting humiliation, experiencing high distress in social situations, and a fear of speaking to strangers and being judged (Westernberg, 1998). Furthermore, both social anxiety disorder and selective mutism are maintained by a fear of negative evaluation by others related to one's performance in social situations (Vecchio & Kearney, 2005). The DSM-5 specifies that the fear or anxiety in social situations may be expressed as a failure to speak in social situations, consistent with selective mutism (APA, 2013). The diagnostic criteria and co-occurring symptoms of social anxiety disorder are consistent with factor 1 items.

Youth with selective mutism were described as shy and self-conscious and were reported to worry often. Children with selective mutism may be perceived as shy because they often do not speak in the school setting and avoid social interactions. These youth may worry about being humiliated or judged if they speak in class or with their peers (Muris & Ollendick, 2015; Westernberg, 1998). Although information regarding the specifics of youth's worries was not collected, previous researchers have reported worries in the context of social anxiety for youth with selective mutism (Christon et al., 2012). Youth may remain mute to avoid feeling humiliated and consequently are unable to practice speaking in feared situations, such as school.

Furthermore, youth with selective mutism may worry about being pressured to speak (Moldan, 2005). Speaking in public is considered an expected, everyday occurrence. However, children with selective mutism are unable to conform to this expectation. Youth may remain mute because they are unable to meet this expectation and worry about increasing speech expectations if they do begin to speak.

Children with selective mutism were reported as withdrawn, often kept things to themselves and preferred to be alone. Children with selective mutism are often reported as behaviorally inhibited and demonstrate difficulties engaging socially (Asendorf, 1993; Crozier, 1999; Kristensen & Torgersen, 2002). When children with behavioral inhibition are faced with anxiety-inducing situations, they may become quiet and withdraw (Kagan, Reznick, & Snidman, 1987). Mutism may be a specific form of withdrawal, as it removes the child from verbal interaction (Ford et al., 1998). A child may prefer being alone because it is too anxiety-provoking to be around other children and be asked to speak. Similarly, youth were commonly described as nervous, fearful and dependent. These children may be perceived as nervous and fearful because they sometimes freeze and look away when others speak to them (APA, 2000; 2013; Hesselman, 1983; Lesser-Katz, 1986; Steinhausen & Juzi, 1996; Yeganeh et al., 2003). Furthermore, these children are often dependent on their parents and will cling to them and resist separation (Hesselman, 1983; Kopp & Gilberg, 1997; Kristensen, 1997; Lesser-Katz, 1986; Steinhausen & Juzi, 1996; Yeganeh et al., 2003). These behaviors may be directly related to their fear of social situations (Dummit et al., 1997; Standart & Le Couteur, 2003; Vecchio & Kearney, 2005; Yeganeh et al., 2006).

Youth with selective mutism were reported to often feel as though they had to be perfect and feared they might think or do something bad. These items are very similar and describe a

fear of doing something wrong. Perfectionism is a personality trait associated with social anxiety disorder (Egan, Wade, & Shafran, 2011) and is defined as the tendency to establish excessively high standards for one's performance, and be overly critical upon failure to meet those standards (Frost, Marten, Lahart, & Rosenblate, 1990). The self-presentational model of social anxiety proposes that anxiety arises from doubts about one's ability to make a desired social impression and thus increases one's presentational concerns. Additionally, individuals with social anxiety make predictions that their peers expect high standards, and require them to be perfect (Moscovitch & Hofmann, 2007). Perfectionism, in social anxiety, therefore, exists in a bi-directional relationship with an overestimation of standards imposed on them, and an underestimation of their ability to achieve such standard (Hofmann, 2007).

Cox and Chen (2015) examined perfectionism within the context of a speech task and reported perfectionism as a potential predictor of social anxiety disorder. Kolvin and Wright (1981) reported that children with selective mutism spoke significantly later than control children. Children with selective mutism may avoid speaking because they fear they will be teased (Krysanski, 2003; Rutter, 1977) or be unable to adequately articulate their thoughts and fail to meet their own and others' expectations. However, this conclusion is speculative, as the current study did not collect information regarding whether perfectionism was speech-related.

Perfectionism may also relate to a child's fear of attending school due to concerns that they will be unable to meet expectations with their peers and academics. Youth who fear and subsequently avoid school due to perfectionistic concerns may also experience somatic complaints, such as stomachaches. Social phobia and selective mutism often share somatic (sweating, blushing, stomachaches, headaches), behavioral (avoidance of feared situations) and cognitive (fear of judgment) symptoms (APA, 2013). Youth may experience temporary relief

from somatic complaints when avoiding feared situations, but experience an initial worsening of these symptoms when they are forced to engage in feared situations, such as school (Chess & Thomas, 1989; Rothbart & Bates, 1998). The following section describes items in Factor 2.

Factor 2 (Oppositional Behaviors)

The current study attempted to replicate symptoms of opposition previously identified in an oppositional factor from a clinic sample (Diliberto & Kearney, 2016). The symptoms of Factor 2 derived from the current study described opposition. However, the factor was composed of items that differed from youth in the clinic setting. The items included: item 3 (argues a lot), item 19 (demands a lot of attention), item 22 (disobedient at home), item 27 (easily jealous), item 86 (stubborn, sullen or irritable), item 87 (sudden changes in mood or feelings), item 95 (temper tantrums or hot temper) and item 109 (whining). These findings support previous conclusions that symptoms of opposition in youth with selective mutism are consistent with oppositional defiant disorder symptoms (Diliberto & Kearney, 2016). These items are explored in further depth below.

Youth with selective mutism were reported to argue a lot and be disobedient at home. However, findings are difficult to interpret because there are no data as to the reason for arguing or for the disobedience. Higher rates of oppositional defiant disorder symptoms, including verbal arguments and disobedience are reported, at home compared to school (Cunningham et al., 2004; Kristensen, 2000). Children with selective mutism may display oppositional behaviors to assert control on their environment. A child may delay certain actions, such as getting dressed or ready for bed, for example (Cohan et al., 2008). The child does not want to engage in a certain activity and therefore postpones the action or argues to control their environment. Similarly, a child may argue about being asked to speak in social situations (Cunningham et al.,

2006), or about a task not involving speech. Researchers caution that avoidant or controlling behaviors may be an expression of anxiety and not defiance (Cohan et al., 2008). However, many youth with selective mutism speak comfortably at home and display few symptoms of anxiety in this environment (Edison et al., 2011). Therefore, disobedience or noncompliance may be related to efforts to want to control the environment outside of speech situations and may reflect defiant behavior not related to anxiety. Furthermore, the current study also found evidence of parent-child conflict, which will be expanded upon in later sections.

Youth with selective mutism were reported to demand attention. Children with selective mutism may be perceived as demanding attention for various reasons. Children may be mute to divert attention from their parent's negative, and sometimes abusive, marital relationship (Rosenberg & Lindblad, 1978). However, the current study did not examine the relationship between marital conflict and mutism. Furthermore, children with selective mutism may have a closed off, shy, reticent, socially isolated, disharmonious, and broken family (Black & Uhde, 1995; Elizur & Perednik, 2003; Hayden, 1980; Kristensen & Torgersen, 2008; Steinhausen & Adamek, 1997; Wergeland, 1979). Parents may provide little attention or verbal stimulation. Furthermore, the socio-cultural narrative that attention is dangerous and fuels little independence or self-soothing may cause minimized parent-child attachment and increased attention-seeking (Waters, 2011). Children with selective mutism may seek increased attention as an effective way to meet an unmet need (Waters, 2011). Children with selective mutism often do not speak in school, so they may be eager to get home and demand attention from a parent, additionally.

Youth with selective mutism were reported to become easily jealous. Poor peer relationships may be directly related to jealousy for some youth with selective mutism. Mute behaviors may cause long-term problems with social functioning and peer interactions (Sharkey

& McNicholas, 2008). Children may have difficulty making friends and be rejected by peers. Youth who experience peer rejection have greater expectations for future rejection and are sensitive to perceiving ambiguous events as consistent with rejection (McLachlan, Zimmer-Gembeck, & McGregor, 2010). These perceptions give rise to social problems, including jealousy and controlling behaviors in peer relationships (Ayduk, Downey, & Kim, 2001; Zimmer-Gembeck & Skinner, 2008). In addition, rejection sensitivity can lead to actual rejection as youths may be avoidant of peer relationships for fear of rejection, but jealous of other's relationships (von Salisch, 2001). Further research is needed regarding the specifics of jealousy in these youth. However, this behavior is consistent with low social competence and sociability.

Children with selective mutism were reported as stubborn, sullen, or irritable. Youth may be perceived by their parents as being stubborn because the child remains mute when asked to speak. The child may appear to be refusing to speak because they likely speak comfortably at home (Cleave, 2009). A child with selective mutism may be trying to control their anxiety by remaining mute (Dummit et al., 1997; Ford et al., 1998; Hadley, 1994). Furthermore, children with selective mutism were reported to whine, have temper tantrums and sudden changes in their mood or feelings. Children with selective mutism are commonly reported as having difficulty adapting to new and often stressful situations (Ford et al., 1998; Kagan, Reznick, Clarke, Snidman & Garcia-Coll et al., 1984). Subsequently, negative emotions may occur, such as fear, anger and sadness when faced with a new situation (Chess & Thomas, 1989; Ford et al., 1998). Children who whine, display temper tantrums and mood swings may be attempting to escape from anxiety-provoking social situations that are new and demand speech. However, this behavior may also be related to disobedience and reflect efforts to delay certain actions, like

completing chores or getting up for school (Cohan et al., 2008; Dummit et al., 1997; Ford et al., 1998). These results suggest that oppositional behaviors co-occur with anxiety and result from efforts to ameliorate feelings of discomfort from anxiety-provoking or uncomfortable situations. The following section describes items in Factor 3.

Factor 3 (Inattention)

The current study identified a third factor consistent with inattention in youth with selective mutism in a community setting. Overall, youth with selective mutism are reported to have co-occurring attention deficit hyperactivity disorder in 4-10% of cases (Black & Uhde, 1995, Dummit et al., 1997). However, few researchers have included symptom-level analyses of attention deficit hyperactivity disorder, or examined the impact of these symptoms in the school setting (Gray et al., 2002; Kristensen, 2001; Steinhausen & Juzi, 1996). Overall, inattention/attention problems may remain undetected due to withdrawn nature of these youth in the classroom setting (Kristensen, 2001). Furthermore, academic problems tend to be associated with the inability to assess academic knowledge due to mutism and not attention problems (APA, 2013; Johnson & Wintgens, 2001; Omdal, 2008).

Shy youth with co-occurring language disorders have been reported with attention deficits (Caspi & Silva, 1995; Snowling, Bishop, Stothard, Chipchase, & Kaplan, 2006). Attention problems in young childhood predicted symptoms of anxiety and depression in a large cohort study of preadolescent boys and girls (Leech, Larkby, Day, & Day, 2006). Attention problems in youth with selective mutism is thus important for diagnostic validity, impairment, and treatment considerations. The inattention factor in the current study was composed of 5 items: item 4 (fails to finish things he/she starts), item 8 (can't concentrate, can't pay attention for long), item 10 (can't sit still, restless, or hyperactive), item 17 (daydreams or gets lost in

his/her thoughts) and item 78 (inattentive or easily distracted). These items are explored in further depth below.

Youth were reported to have difficulty maintaining attention and often seemed restless. Emotion-based cognitive facets, such as an attentional bias towards perceived danger may interfere with the child's ability to maintain attention (APA, 2000; 2013; Beck & Clark, 1988; Puliafico & Kendall, 2006; Weissman, Antinoro, & Chu, 2008). Youth may also experience physiological and physical reactions (e.g. rapid heart rate, sweating, shaking, fidgeting) when feeling threatened and struggle to effectively regulate these reactions (Reiss & McNally, 1985; Rubin & Burgess, 2001). Specifically, Rapee and Heimberg's (1997) model suggests that socially anxious individuals are quick to assume they are being negatively evaluated and struggle to disengage from these concerns. Youth with selective mutism may worry about being asked a question by a teacher or peer and be unable to disengage from these concerns in order to effectively attend to academic material (Jarrett & Ollendick, 2008). Therefore, attentional biases towards perceived threat cause narrowed attention and limit one's ability to effectively attend to the learning environment.

Youth with selective mutism were reported to often daydream or get lost in their thoughts. Parents and teachers of youth with selective mutism often report that youth appear to freeze, stare blankly and seem unresponsive to questions or to their surroundings (APA, 2013; Yeganeh et al., 2003). As mentioned, youth may be pre-occupied with physiological symptoms of anxiety and potential threats in their environment, and disengage from others to avoid having to speak. Youth who daydream or appear to get lost in their thoughts likely have difficulty maintaining focus in anxiety-provoking environments, such as school.

Youth with selective mutism were reported to fail to finish things. Failure to complete tasks, such as school work or chores, may be related to distractibility. Youth may begin a task but disengage due to distraction by other activities or people in their environment (Lapointe et al., 2013). Additionally, youth may have low distress tolerance towards non-preferred or difficult situations or tasks (Wergeland, 1979). Specifically, youth with selective mutism may become overwhelmed when asked to complete tasks such as homework or chores (Cohan et al., 2008). Additionally, youth with selective mutism often do not speak in class (APA, 2013; Black & Uhde, 1995; Kumpulainen et al., 1998), and are often unable to ask for help on assignments they do not understand (Johnson & Wintgens, 2001; Omdal, 2008). Parents may be describing difficulties with completing work from the classroom.

Attention problems in youth with selective mutism may also be related to co-occurring externalizing disorders. Children with selective mutism are reported with oppositional defiant disorder in 6-10% of cases (Black & Uhde, 1992). Oppositional defiant disorder and attention deficit hyperactivity disorder co-occur in up to 50% of cases (Nock et al., 2007; Waschbusch, 2002). Overall, attention problems may remain undetected and are not typically considered in the assessment and treatment of selective mutism (Kristensen, 2001). The high comorbidity of oppositional defiant disorder and attention deficit hyperactivity disorder supports conclusions that ADHD may occur in a subset of youth with selective mutism.

Thorough diagnostic procedures are needed to confirm ADHD as a comorbid diagnosis in youth with selective mutism. First, ADHD symptoms exist on a continuum across school aged youth, with 6.7-12.0% of children meeting strict criteria for a diagnosis (Smalley et al., 2007). The presence of attention problems may not reflect a separate diagnosis and instead reflect a normative continuum of symptoms. Second, first degree relatives of individuals with ADHD are

two to eight times more likely than relatives of unaffected individuals to also meet criteria for ADHD (Faraone et al., 2005). No known researchers have documented reports of attention deficit hyperactivity disorder in parents of youth with selective mutism. Third, ADHD is considered diagnostically valid when it occurs as a primary diagnosis and not secondary to anxiety disorders (APA, 2013; Faraone et al., 2005). Fourth, maternal CBCL ratings of attention problems in the current study were associated with aggression and anxiety, a finding supported in other studies (Oerbeck & Kristensen, 2008).

Successful distinction of the primary diagnosis is needed to inform the antecedent of attention problems, and inform both ongoing assessment and treatment. Further research is needed to determine the extent to which attention problems in youth with selective mutism are consistent with anxiety, opposition and/or comorbid attention deficit hyperactivity disorder. The following sections discuss activity level, social competence, social problems, and temperament among clinical presentations of selective mutism.

Temperament

Activities. Overall, EAS activity subscale scores were a nonsignificant predictor of anxious factor scores and a positive predictor of oppositional factor scores. Anxious factor scores tended to be associated with lower activity, supporting findings that youth with selective mutism with elevated anxiety tend to be less energetic (Kehle et al., 2012). Youth with elevated oppositional scores were more likely to be reported as "always on the go" and "very energetic" but this association was nonsignificant. Item-level review indicates that both factors were significantly associated with a youth's preference for quiet, inactive games compared to more active games. Youth with selective mutism are behaviorally inhibited, and may engage in activities that do not require speaking (Young et al., 2012).

Activities in youth with selective mutism are further understood by examining CBCL activity competence. The CBCL activity competence scale score is based on the number of sports, activities and jobs, and the mean participation and skill in these activities. Activity competence scores were a nonsignificant predictor of anxious or oppositional factor scores. Overall, mothers reported that youth engaged in various sports including swimming, gymnastic, dancing, and football. These findings are unexpected and inconsistent with evidence suggesting that youth with anxiety avoid physical activities due to fear that they will experience loss of control, illness, embarrassment, and additional anxiety (Reiss & McNally, 1985; Rubin & Burgess, 2001). However, youth with selective mutism may enjoy sports where they do not have to speak and therefore, distinguish physiological arousal associated with playing a sport from arousal felt while speaking (Ford et al, 1998; Heilman et al., 2012). Mothers also reported that youth engaged in various sedentary activities including making art, reading and playing video games. The activities may be accomplished alone, or with a parent, sibling, or peer. Children with selective mutism may actually enjoy engaging in activities without the pressure to speak (APA, 2013) and not experience social anxiety when engaging in preferred tasks with others.

The current study also identified classes of selective mutism based on varying levels of anxiety, oppositionality, and inattention and examined whether EAS activity and CBCL activity competence scores differed across classes. Overall, EAS activity scores were significantly different but CBCL activity competence scores did not differ across classes. Class 1, the "highly anxious and oppositional, and moderately to highly inattentive" group had significantly higher scores on EAS item, "child prefers quiet, inactive games compared to more active ones" compared to Class 1 and Class 2, where mild to moderate anxiety was reported. Youth with less

severe anxiety symptoms may be somewhat less inhibited and willing to engage in activities with greater levels of activity and socialization.

Findings must be interpreted with caution, as it is unclear whether the number of and amount of participation in sports and activities is based on engagement in the home, school or outside social situations. Furthermore, activities such as making art, reading and playing video games do not require youth to speak with unfamiliar persons. Youth with selective mutism with varying rates of anxiety, opposition and inattention may engage in activities and sports, but overall tend to prefer interactions that do not necessitate speech and are inactive. These findings support conclusions that youth with selective mutism are behaviorally inhibited (Bergman et al., 2002; Ford et al., 1998).

Social Competence

CBCL social competence is determined by how well a child gets along with siblings and parents, plays and works alone, participates in organizations, and has close friends and spends time with those friends. Overall, CBCL social competence scores were a nonsignificant predictor of anxious and oppositional factor scores. However, item-level analyses revealed that social competence was associated with anxiety and opposition in different ways.

First, the number of organizations was a nonsignificant predictor of anxious or oppositional factor scores. Organizations reported included those that involved significant social interaction, such as church group, cub scouts, dance club, cheerleading, and girl scouts. Previous researchers have reported that the number of organizations enrolled outside of school did not differ between selective mutism and control groups (Cunningham et al. 2004). Furthermore, the current study does not support that youth with higher anxiety avoid activities with a social element (Standart & Le Couteur, 2003; Vecchio & Kearney, 2005; Yeganeh et al., 2003).

However, the number of organizations participated in significantly differed across the three identified classes of selective mutism. Class 1, the "highly anxious and oppositional, and moderately to highly inattentive" group participated in the fewest organizations. Youth with severe anxiety may have greater difficulty effectively regulating their anxiety and joining social groups (Reiss & McNally, 1985; Rubin & Burgess, 2001). However, some youth may not experience social anxiety and remain mute as a way to reduce their anxiety and engage with others (Young et al., 2012). Furthermore, youth with selective mutism may not experience social anxiety when engaging in preferred tasks with persons they are comfortable with. Youth may engage in sports and activities that involve interacting with others but do not necessitate speech (APA, 2013). Second, youth with elevated oppositional factor scores were reported to get along worse with their parents compared to same aged peers. Youth with elevated anxious factor scores were also reported to get along worse with their parents but the relationship was nonsignificant. Furthermore, how well youth got along with their parents differed significantly across classes of selective mutism. Youth in Class 2, the "moderately anxious and oppositional, and moderately to highly inattentive" group were reported to get along worse with their parents compared to Class 3, the "mildly anxious, oppositional and inattentive" group.

Children with selective mutism may display oppositional behaviors to assert control on their environment. A child may delay certain actions, such as getting dressed or ready for bed, for example (Cohan et al., 2008). Similarly, a child may argue about being asked to speak in social situations (Cunningham et al., 2006), or about a task not involving speech. Children were also reported to worry a lot, feel they had to be perfect, and fear they might do something bad. Wood and colleagues (2003) reported that anxious children tend to have parents, primarily mothers, who are more controlling than parents of non-anxious children. Anxious mothers tend

to grant less autonomy, criticize and catastrophize more, and display less warmth and positivity than non-anxious mothers. Youth whose mothers grant less autonomy, but also criticize and display little positivity may cling to parents, cry, and argue during times of separation (Pustrom & Speers, 1964; Wergeland, 1979; Wilkins, 1985; Wright et al., 1985).

Third, the youth's ability to get along well with siblings was a nonsignificant predictor of anxious and oppositional factor scores. Youth with elevated oppositional factor scores tended to get along worse with siblings compared to same-aged peers but the relationship was nonsignificant. No known studies have documented the relationship between a child with selective mutism and their unaffected sibling. Studies on siblings have primarily focused on twins and have shown that selective mutism may be more prevalent among monozygotic twins. The siblings may reinforce each other's lack of speech and this may lead to a more chronic presentation (Segal, 1999). Twins with selective mutism may speak almost exclusively with each other and find comfort in their shared experiences. The current study did not assess whether youth with selective mutism came from families with only one child with selective mutism or whether the child also had a mute sibling. Overall, the child's ability to get along well with their siblings did not significantly differ across the three identified classes of selective mutism. Youth likely display negative behaviors such as arguing, being disobedient, and having temper tantrums with parents but maintain positive relationships with their siblings.

Fourth, youth were reported to have very few close friends across both anxious and oppositional factor scores. However, the relationship was significant only for anxious factor scores, suggesting that youth with elevated anxiety may have somewhat more difficulty making and keeping friends. In addition, the number of close friends the child had differed significantly across the three identified classes of selective mutism. Overall, youth were reported to have

between 1 and 3 close friends. Youth with selective mutism may have difficulty making friends because they are unable to speak with peers (Diliberto & Kearney, 2013). Youth in Class 3, the "mildly anxious, oppositional and inattentive" group was reported with the most friends. Youth with lower anxiety and externalizing behaviors may be somewhat more willing to approach other children and demonstrate more prosocial behaviors with peers (Calkins et al., 1999). Youth in Class 1 and 2 were reported to have moderate to high anxiety, opposition and inattention symptoms. These children may also have limited interactions with other children because they cling to adults, cry, and avoid separation (APA, 2013; Wong, 2010). A child's mutism may prevent opportunities to practice asserting oneself in groups, and exchanging information necessary to make friends during the crucial time of social development (Rubin, LeMare, & Lollis, 1990; Spence, Donovan, & Brechman-Toussaint, 2000). Furthermore, several externalizing symptoms, such as temper tantrums, being stubborn, impulsivity, and mood dysregulation, are aversive to peers and negatively impact peer relationships.

Social Problems

CBCL social problems scores were a significant predictor of both anxious and oppositional factor scores. Elevated CBCL social problems scores have been previously found in this population (Diliberto & Kearney, 2016; Steinhausen & Juzi, 1996). Social problems may result from severe social anxiety. Children with selective mutism may withdraw from social interactions and be subsequently teased (Giddan et al., 1997). Social problems may also occur for a child who has temper tantrums, argues, whines, is stubborn and demands attention (Diliberto & Kearney, 2016).

Item-level analyses revealed that specific social problems were differentially associated with anxious and oppositional factors. As predicted, youth with elevated anxious factor scores

were reported to complain of loneliness and be teased a lot. Youth may have difficulty making friends because they do not initiate conversation or play, and may be teased by their peers (Giddan et al., 1997). The current study also examined the predictive relationship between additional social problems items, given significant correlations between all social problem items and factor scores. Youth with elevated anxious factor scores were also reported to "feel others were out to get them" and be "poorly coordinated or clumsy." Youth who are teased and rejected by peers have greater expectations for future rejection and are sensitive to perceiving ambiguous events as consistent with rejection (McLachlan, Zimmer-Gembeck, & McGregor, 2010). These perceptions cause youth to remain isolated and concerned that peers may be out of get them due to previous experiences (von Salisch, 2001). Furthermore, developmental coordination disorder has been reported to co-occur in 17% of cases of youth with selective mutism (Kristensen, 2000). Studies of abnormal motor performance in children may demonstrate a relationship between abnormal motor performance and social timidity and shyness (Ekornas, Lundervold, Tjus, & Heimann, 2010).

Oppositional factor scores and the items, "clings to adults or too dependent," "complains of loneliness" and "gets teased a lot," were not found with a significant, inverse relationship, contrary to hypotheses. Youth with elevated oppositional factor scores were significantly predicted by the item, "clings to adults or too dependent." As mentioned, youth with selective mutism are commonly reported to cling to parents and resist separation into anxiety provoking situations (APA, 2013; Yeganeh et al., 2003). However, youth with elevated oppositional factor scores were not reported to complain of loneliness or be rejected by peers. These findings suggest that once these youth successfully separate from their parents, they may effectively regulate their anxiety by engaging in passive-solitary play. Youth who play by themselves may

be neglected by other children because they do not hover on the fringe of social anxiety, but reduce the possibility of being teased by other children (Ochsner & Gross, 2004).

Youth with oppositional factor scores were also reported to "feel others were out to get them" and "prefer playing with younger kids." Youth with selective mutism may have had previous experiences with rejection due to negative behaviors, such as temper tantrums and whining. These youth may remain isolated due to concerns that peers may continue to reject them due to previous experiences, a finding found with youth with elevated anxiety (von Salisch, 2001). Furthermore, children with selective mutism with less severe anxiety may play with younger children, as they often have limited social interactions and delayed development of language skills and are less likely to be rejected by younger children (Giddan et al., 1997). The current study also examined whether CBCL social problems scores significantly differed across the three classes of selective mutism. Overall, CBCL social problems scores differed significantly across all classes. Social problems, therefore, are uniquely affected by the severity and presence of anxiety, opposition and inattention symptoms in selective mutism. Class 3, the "mildly anxious, oppositional and inattentive" group had significantly lower social problems scores than classes characterized by moderate to severe opposition and/or inattention. Class 1, the "highly anxious and oppositional, and moderately to highly inattentive" group had the highest total social problems and the highest scores on all social problems items.

Item-level analyses across groups revealed that Class 1 had significantly higher scores than Class 2 (moderately anxious and oppositional, and moderately to highly inattentive) and Class 3 on the item, "gets hurt a lot, accident-prone." Class 1 also had significantly higher scores than Class 3 on the item, "poorly coordinated or clumsy." Motor clumsiness often co-occurs with attention problems (Gillberg & Gillberg, 1998; Kooistra, Crawford, Dewey, Cantell, & Kaplan,

2005). Youth with attention problems and co-occurring oppositional behaviors have fine and gross motor deficits in up to 25% of cases (Kooistra et al., 2005). Youth with selective mutism and motor problems may benefit from occupational therapy services to remediate fine and gross motor deficits and improve body awareness.

Youth in Class 1 also had significantly higher scores than Class 3 on items specific to separating from parents and interacting with peers, specifically, "clings to adults or too dependent," "feels others are out to get him/her," "doesn't get along with other kids," "gets teased a lot," "complains of loneliness," "not liked by other kids" and "prefers being with younger kids." Youth in Class 1 were considered to be the most impaired in regard to severity of anxiety, opposition and inattention. Social problems severity was consistent with elevated anxiety and behavior problems.

Two forms of solitude, anxious solitude (passive anxious withdrawal) and solitude that is due to peer exclusion/rejection may be implicated in the social problems of youth with selective mutism (Asendorpf, 1990; Bowker, Bukowski, Zargarpour, & Hoza, 1998; Gazelle & Ladd, 2003). Social anxiety conflicts with the desire to interact with others, and causes the child to withdraw into solitary play/behavior (Asendorpf, 1990). Anxious solitude includes verbal inhibition and often children play alone while watching others play (Coplan, 2000). Anxious solitude occurs in the context for familiar and unfamiliar peers for youth with selective mutism (Kagan, 1997). Solitude may also occur when youth are excluded by not including them or refusing to let them join in the play.

Children with selective mutism often do not speak in school and may be excluded from social interactions at school entry (Bergman et al., 2008: Cunningham et al., 2004. Anxious solitude may place children at risk for being excluded due to negative behaviors, including being

shy, awkward, and lacking social initiative (Gazelle & Ladd, 2003). Furthermore, anxious solitude is associated with submissive tendencies, which makes exclusion more likely (Kooistra et al., 2005). Aggression, manipulative or controlling behaviors, and other aversive behaviors such as temper tantrums, and disobedience may also contribute to peer exclusion (Asendorpf, 1990). Children who experience rejection and are excluded from play may worry about being excluded in the future and continue to withdraw socially. Youth who have not experienced exclusion but exhibit severe anxiety and social avoidance may worry about how they might be treated by peers. Youth with selective mutism whom have been excluded might feel hopeless to change their peer interactions and continue to remain isolated (Alloy, Kelly, Mineka, & Clemens, 1990). Children with selective mutism may also play with younger children as they often have limited social interactions and delayed development of language skills and are less likely to be rejected by younger children (Giddan et al., 1997).

Youth who experience early exclusion may have greater stability in anxious solitude over time, compared to peers who are accepted by their peers. Youth with selective mutism who develop and maintain one or two close friendships may be less vulnerable to chronic anxious solitude. Anxious solitary children who have positive peer interactions may be able to overcome social fears and reduce overall social anxiety.

Sociability

Sociability refers to the tendency to affiliate with others and to prefer being with others rather than alone (Cheek & Buss, 1981). Overall, EAS sociability subscale scores were a nonsignificant predictor of anxious or oppositional factor scores. Contrary to expectation, youth with elevated oppositional factor scores were not more sociable than youth with elevated anxious factor scores. The social behavior of youth with selective mutism has been compared to social

anxiety disorder (Vecchio & Kearney, 2005). Individuals with social anxiety often avoid social situations or participate with subtle avoidance by averting eye contact and standing at the side of social interactions (Clark, 2001; Glick & Orsillo, 2011). However, youth with selective mutism in the current study were reported to participate in a variety of activities, sports, and organizations that involved socialization. These findings support conclusions that youth with selective mutism differ from those with social anxiety disorder and may be more willing to participate in social interactions that do not necessitate speaking (Biggs et al., 2012; Standart & Le Couteur, 2003; Vecchio & Kearney, 2009; Yeganeh et al., 2003). Furthermore, children with selective mutism may withhold speech to reduce feelings of social anxiety (Young et al., 2012) and allow for non-verbal social interaction.

However, findings of youth's participation in activities does not permit conclusions that youth with selective mutism are considered sociable. Item-level analyses revealed that anxious factor scores were inversely predicted by the item, "child likes to be with people." Oppositional factor scores were also inversely associated with this item, however, the relationship was nonsignificant. Youth with selective mutism are often reported to freeze, or withdraw in novel or uncomfortable social situations (Ale et al., 2013; Yeganeh et al., 2003). Youth with selective mutism may enjoy being around other people only after the child's mutism is accepted by others or the child begins speaking comfortably. However, peers, parents and teachers may attempt to force a child to speak and find that the child becomes upset, and avoids situations in which they will be prompted to speak (Bögels et al., 2010; Schill et al., 1996). Therefore, the child is perceived to not like being around other people.

Anxious factor scores were significantly predicted by the item, "child is something of a loner." Anxious and oppositional factor scores were significantly predicted by the item, "when

alone child feels isolated." These findings are consistent with social reticence, an intent focus and orientation on other children as well as fear to join children in play. Children who are socially reticent tend to hover on the fringe of social activity, carefully watch other children, display overt anxiety, and remain unengaged in other activities (Fox et al., 2004). Youth with selective mutism may desire to engage in non-verbal play with their peers but are unable to ask to join groups, and fear they will be rejected or forced to speak (Diliberto & Kearney, 2016; Giddan et al., 1997). Youth with selective mutism and co-occurring oppositional behaviors may also feel isolated because also are unable to ask to join groups and may have a history of rejection due to co-occurring aggression, emotional outbursts and defiance (Calkins, Gill, & Willford, 1999).

The current study also examined whether EAS sociability scores significantly differed across the three classes of selective mutism. Overall, EAS sociability scores significantly differed across classes. Class 3, the "mildly anxious, oppositional and inattentive" group were reported with the highest sociability scores. Youth in Class 3 were most likely to "prefer to play with others rather than alone" compared to youth in Class 1, the "highly anxious and oppositional, and moderately to highly inattentive" group. Youth in Class 1 were often described as a loner and likely to feel isolated when alone. As indicated, youth with severe anxiety are unlikely to assert themselves into social groups (Cunningham et al., 2004). Youth with severe anxiety, and co-occurring attention problems and opposition may subsequently be teased due to overt displays of anxiety, social immaturity, and difficulties managing their mood (Gaertner et al., 2010; Roussos et al., 1999). Youth in Class 1 may be most likely to spend time alone due to these challenges. Overall, sociability, or the inherent desire to be around others, was not strongly associated with selective mutism.

Shyness

Shyness is a dimension of temperament that corresponds to fearful distress (Spence et al., 2013). As predicted, EAS shyness scores were a significant predictor of anxious factor scores but not oppositional factor scores. Children with selective mutism are commonly reported as shy and behaviorally inhibited, (APA, 2013; Ford et al., 1998; Kopp & Gilberg, 1997; Yeganeh et al., 2003). Shyness directly involves social fears and may be viewed as a social variant of behavioral inhibition in children with selective mutism (Hadley, 1994; Muris & Ollendick, 2005).

EAS shyness scores were a nonsignificant predictor of oppositional factor scores. These findings may suggest that youth with oppositional symptoms appear less shy to mothers. However, as reported, these youths are not more sociable and not more likely to engage with others. Instead, youth with selective mutism with oppositional features may be less anxious and more aggressive at home but continue to be shy and behaviorally inhibited outside of the home (Cunningham et al., 2004; Edison et al., 2011). Youth with selective mutism are described as shy in 85% of cases, and so youth who are eager to interact with others may represent a small minority of youth with selective mutism (Ale et al., 2013; Ford et al., 1998; Vecchio & Kearney, 2009; Wong, 2010).

Item-level analyses further revealed that youth with selective mutism with elevated anxiety factor scores are behaviorally inhibited. Anxious factor scores were significantly predicted by the item, "child takes a long time to warm up to strangers." Youth with selective mutism are commonly reported as slow to warm up and behaviorally inhibited around unknown persons (Ford et al., 1998). Furthermore, anxious factor scores were inversely predicted by the item, "child makes friends easily." As mentioned, youth with selective mutism struggle to make

friends because they are unable to ask to join groups and may be rejected because they are unable to ask questions or share information about themselves (Diliberto & Kearney, 2013; Giddan et al., 1997). Furthermore, both anxious and oppositional factor scores were inversely predicted by the item, "child is very sociable." These findings support conclusions that youth with selective mutism are consistently viewed as shy.

The current study also examined whether EAS shyness scores significantly differed across the three classes of selective mutism. Overall, EAS shyness scores significantly differed across classes. Youth in Class 3, the "mildly anxious, oppositional and inattentive" group had significantly lower shyness scores compared to Class 1, the "highly anxious and oppositional, and moderately to highly inattentive" group and Class 2, the "moderately anxious and oppositional, and moderately to highly inattentive" group.

As expected, youth who were in groups with high anxiety were significantly more shy than youth with low anxiety scores. Anxious factor items were consistent with social anxiety disorder and support conclusions that youth who are very shy are also very socially anxious (Ale et al., 2013; Ford et al., 1998).

Item-level analyses between classes revealed significant differences on specific EAS shyness items. Youth in Class 1, the highly anxious and oppositional, and moderately to highly inattentive" group were reported with significantly higher scores on the item, "child tends to be shy" compared to Class 3, "the mildly anxious, oppositional and inattentive group." Youth in Class 1 were also reported with significantly lower scores on the item "child is very sociable" and higher scores on the item, "takes a long time to warm up to strangers" compared to Class 2, the "moderately anxious and oppositional, and moderately to highly inattentive group" and Class 3. As expected, youth with more severe anxiety and oppositional scores were more behaviorally

inhibited and less likely to approach others. Oppositional behaviors, were not found to moderate shyness. Oppositional behaviors, such as temper tantrums, arguing, and disobedience likely correspond to interactions with parents and are unlikely to increase approach behaviors (Cunningham et al., 2004). Furthermore, oppositional behaviors have been reported to be exacerbated and maintained as a result of anxiety (Cohan et al., 2008; Diliberto & Kearney, 2016).

Second, Class 3 reported significantly higher scores on the item "child makes friends easily" compared to Class 1 and Class 2. In addition to having more severe anxiety, youth in groups 2 and 3 had externalizing symptoms that likely contributed to peer problems. Youth in Classes 2 and 3 may have had conflicting approach and avoidance motivations consistent with shyness (Asendorpf, 1990). Youth may want to approach other children to play but feel frustrated and angry because their anxiety and mutism prevents being able to ask to join others (Diliberto & Kearney, 2013; McLachlan et al., 2010). Mutism and avoidance of social interaction may exacerbate feelings of anxiety, anger and frustration and further isolate youth with selective mutism from their peers.

Shyness was found to be a significant contributor of temperament for youth with selective mutism and was consistent with behavioral inhibition. Behavioral inhibition may be considered a prodrome of clinical anxiety and consistent in youth with selective mutism (Gensthaler et al., 2016). Future researchers and early intervention services should consider screening for extreme behavioral inhibition in early childhood to facilitate early intervention for children at risk of developing selective mutism or other severe anxiety disorders (Gensthaler et al., 2016).

Emotionality

Children with selective mutism are often described with features of negative emotionality or heightened, intense, negative responses to distressing situations (Marakovitz, et al., 2011). As predicted, EAS emotionality scores were a significant predictor of both anxious and oppositional factor scores. Children acquire the ability to interpret, regulate and understand their emotions by age 7-8 years (Doohan & Carrère, 2005; Eisenberg & Fabes, 1992). However, children with selective mutism are often delayed in their speech and language acquisition and may therefore struggle to understand and regulate their emotions in developmentally appropriate ways (Carmondy, 2000). Therefore, youth with selective mutism likely present with deficiencies in emotion regulation, and may be impatient, angry, and frustrated quickly and experience emotional reactions easily (Barkley, 2010).

Item level analyses revealed that specific EAS emotionally items differentially predicted anxious and oppositional factor scores. Specifically, the items "child tends to be somewhat emotional" and "child cries easily" were significantly predictive of anxious factor scores but not oppositional factor scores. EAS item "child often fusses and cries" was a nonsignificant predictor of anxious factor scores, contrary to expectation. Youth with selective mutism may withdraw, complain of somatic symptoms, cry, cling to adults, or avoid feared situations (Achenbach, 1991; Chess & Thomas, 1989; Rothbart & Bates, 1998). Furthermore, behaviorally inhibited youth tend to be overly controlled, constricted, and display non-adaptive behaviors in response to anxiety-provoking situations (Kagan, 1998; Kagan, Snidman, Zentner, & Peterson, 1999). Youth with selective mutism with heightened anxiety may be sensitive to stress and cry easily but overall, appear less emotional and more regulated than youth with oppositional behaviors. EAS emotionality items "child gets upset easily," "child reacts intensely when upset"

and “child often fusses and cries” were significantly predictive of oppositional factor scores but not anxious factor scores. Oppositional defiant disorder has been linked to deficits in the ability to self-regulate, which are essential to prevent or control the expression of negative emotions (Greene & Doyle, 1999). Negative emotions in externalizing disorders tend to manifest as irritability, frustration and anger and are more intense and observable.

The current study also examined whether EAS emotionality scores significantly differed across the three classes of selective mutism. Overall, EAS emotionality scores differed significantly across classes, suggesting that negative emotionality is differentially associated with varying levels of anxiety, opposition and inattention. Youth in Class 3, the “mildly anxious, oppositional and inattentive” group were reported with significantly lower emotionality scores compared to other classes. Youth with lower levels of anxiety, oppositional and inattentive symptoms may be more successful with modulating emotional expressing by remaining mute (Dummit et al., 1997; Ford et al., 1998; Hadley, 1994). Youth in Class 1, the “highly anxious and oppositional, and moderately to highly inattentive” group were reported with significantly higher emotionality scores compared to other classes. Youth with selective mutism with co-occurring anxiety and opposition have been reported with aggressive and defiant behaviors at home but not at school (Cunningham et al., 2004). Youth may therefore demonstrate highly constrained and rigid behavior in fearful situations, such as school. However, youth may engage in reactive behaviors in comfortable environments. Youth may become upset and angry when asked to complete non-preferred tasks such as chores or homework, and argue with parents (Cohan et al., 2008; Diliberto & Kearney, 2016).

Item-level review of EAS emotionality items across classes reveals further differentiation. Youth in Class 1 had significantly higher scores on all EAS emotionality items,

including “child cries easily,” “child tends to be somewhat emotional,” “child often fusses and cries,” “child gets upset easily” and “child reacts intensely when upset” compared to the other 2 classes. Youth with elevated levels of anxiety, opposition and inattentive symptoms may be unsuccessful with regulating emotional expressions in situations that are highly distressing or anxiety provoking. Specifically, youth with elevated oppositional behaviors may be more comfortable to express negative, and intense emotions in comfortable environments, such as home, and lack the ability to effectively regulate (Cunningham et al., 2004; Green & Doyle, 1999). Youth with high levels of anxiety may also be unable to effectively regulate their emotions and respond in a very restricted and rigid manner in anxiety provoking situations. Overall, youth with selective mutism display elevations in negative emotionality. The exploration of underlying mechanisms such as deficiencies in emotion regulation may aid in further understanding the heterogeneity within selective mutism. In addition, examination of how youth with selective mutism understand, react to and modulate negative emotionality is essential for treatment. The clinical implications section offers further discussion on the importance of therapeutic interventions aimed at emotion regulation for youth with selective mutism.

Summary of Findings

Overall, youth with selective mutism tended to engage in quiet activities, were shy and emotional, and were not viewed as sociable. Three classes of selective mutism were identified: 1) highly anxious and oppositional, and moderately to highly inattentive, 2) moderately anxious and oppositional, and moderately to highly inattentive, and 3) mildly anxious, oppositional and inattentive. Overall, Class 1 displayed higher EAS shyness and emotionality and CBCL social problems scores. Class 3 displayed higher EAS activity and sociability and CBCL activity

competence and social competence scores. Clinical implications of the current findings are discussed next.

Clinical Implications

The current study is among the first to assess behaviors of children with selective mutism using the Internet as the means of data collection (Bergman et al., 2008). This method allowed for a substantial sample size. The current literature on selective mutism is limited by case samples and small sample sizes (Steinhausen et al., 2006). The large sample size permitted conclusions regarding common behaviors in this population needing clinical attention. Therefore, clinicians treating this population can have greater confidence regarding the symptoms of clinical significance and accompanying class.

The current study also expanded upon previous findings of anxious and oppositional factors of youth with selective mutism (Diliberto & Kearney, 2016). The current study validated findings that anxious and oppositional behaviors are common in this population, but identified symptoms unique to the community setting. Youth sampled from the community setting were reported with problems maintaining attention. Youth in the community sample had more severe anxiety and aggressive behaviors than youth seen in a clinic, which may have accounted for the increased inattention.

The finding of more severe anxiety and aggression in youth in community settings was unexpected. Youth treated in the clinic ranged from 3-11 years, whereas, youth in the current study were 6-10 years of age. The age of onset for selective mutism might be 2.7-6.0 years (Black & Uhde, 1995; Cunningham et al., 2004; Garcia et al., 2004; Kristensen, 2000; Sharp et al., 2007). Youth in the community may have had selective mutism for a longer period of time, and therefore had more severe social anxiety, social problems, and aggressive behaviors.

Furthermore, in a clinic setting, anxiety-related attention problems may be overlooked when compared with youth with disruptive behaviors (Kendall, Panichelli-Mindel, Sugarman, & Callahan, 1997; Wren, Scholle, Heo, & Comer, 2003). Parents of youth with selective mutism may not report attention problems due to increased concern for their child's mutism. Additionally, clinicians may not assess for attention problems, as these areas are not usually of clinical concern for anxious youth. Sensitive identification of attention problems in anxious youth is of clinical importance and guides appropriate treatment.

The current study expanded upon Diliberto and Kearney's (2016) findings of social problems by reporting the individual social problems according to behavior factor and class of selective mutism. Overall, youth presented with many social problems that are likely exacerbated by shyness, social anxiety, negative emotionality and defiance. Clinicians should consider including interventions that focus on social skills and social competence for these youth. The current study also validated Cohan and colleagues' (2008) findings that classes/profiles of selective mutism consistently are composed of elevated anxiety. LCA results from the current study suggest that selective mutism is not characterized by only anxiety but individuals with selective mutism can be sorted by the severity of anxiety and the presence and severity of oppositional and attentional problems (Cohan et al., 2008; Ford et al., 1998; Manassis et al., 2003; Steinhausen & Juzi, 1996). Attention problems may be explained by hypervigilance and the inability to focus in situations in which the child feels anxious, such as school (Nock, Kazdin, Hiripi, & Kessler, 2007). These findings support conclusions that youth with selective mutism have co-occurring symptoms beyond anxiety that likely complicate treatment (Cohan et al., 2008).

The current study also has implications for the conceptualization of selective mutism. Selective mutism is current categorized as an anxiety disorder in the DSM-5 (APA, 2013). Categorical diagnostic systems such as the DSM-5 assume that mental disorders are discrete entities and that individuals with the same disorder will be a homogeneous group with similar symptoms and attributes of a disorder (Jones, 2012). Whereas, a dimensional approach allows for the conceptualization of selective mutism based on the presence and severity of symptoms. The current study found support for combining these approaches. Three classes of selective mutism were identified according to the presence and severity of anxious, oppositional and inattentive symptoms. However, symptoms consistent with social anxiety disorder were found across all three classes. Selective mutism is most commonly understood as a severe, developmental variant of social anxiety disorder (Bergman et al., 2002; Silveira et al., 2004) and comorbid in 67.9-100% of cases (Kristensen, 2000; Oerbeck et al., 2004; Vecchio & Kearney, 2005). A combined approach would retain selective mutism as an anxiety disorder, but include clinical subtypes or specifiers based on the severity of anxiety and co-occurrence of opposition, speech and language problems and inattention. The principal benefit of this approach would be to provide treatment professionals with additional information for the assessment and treatment of selective mutism.

Assessment Implications

The current findings are important for assessment reasons. Standardized assessment techniques for social, emotional and behavioral problems are lacking, and often if standardized measures are used, measures lack psychometric integrity (Cohan et al., 2006). This study addressed Cohan and colleagues' (2006) concern that measures used to assess children with selective mutism often are not standardized. Items most frequently endorsed on the CBCL in the

current study may be included as part of an in-depth assessment. The first step, therefore, would involve determining the child's behavioral class.

Youth with selective mutism in the current study were reported as shy and socially anxious. Therefore, youth with selective mutism would benefit from further assessment to determine the extent of anxiety. Measures such as the Social Anxiety Scale for Children-Revised (SASC-R; La Greca & Stone, 1993) and the Spence Children's Anxiety Scale (SCAS; Spence, 1997) could be utilized. Elevations on these scales would support the notion that social and/or generalized anxiety is consistent in children with selective mutism.

A large percentage of youth in the current study presented with moderate to severe oppositional behaviors. Therefore, both oppositional and anxiety-related behaviors should be assessed. The Conners 3rd edition—Parent Version (Conners 3-P; Conners, 2008) and the Eyberg Child Behavior Inventory (ECBI; Eyberg & Pincus, 1999) may be utilized to assess for aggression and oppositional defiant disorder symptoms (Conners, 2008). The Teacher Report Form and the Conners--Teacher Version (Conners, 2008) would provide a more comprehensive picture of the child's oppositional behaviors outside the home.

Youth were also reported with inattention. Clinicians should assess whether attention problems occur outside of anxiety-provoking situations. Successful differential diagnosis of attention deficit hyperactivity disorder and anxiety disorders can be informed by accessing the presence of and type of worries that accompany attention problems (Reddy & Hale, 2007). Youth with selective mutism may report social anxiety symptoms, such as fear of having to speak in front of the class. In addition, youth with selective mutism may struggle with classroom material, but be unable to ask for help, and avoid eye contact when addressed (Black & Uhde, 1995; Kumpulainen et al., 1998). Furthermore, distinct cognitive mechanisms distinguish

attention problems in youth with anxiety from those with attention deficit hyperactivity disorder (Barkley, 1997a; Beck & Clark, 1988; Jarrett & Ollendick, 2008; Kendall, 2000; Puliafico & Kendall, 2006). Youth with attention deficit hyperactivity disorder tend to have more neurobiological based attention deficits, such as working memory and processing speed deficits, in addition to executive functioning deficits (Barkley, 1997a). Attention deficit hyperactivity disorder may be a warranted diagnosis for some children with selective mutism and elevated levels of inattention (APA, 2013). However, clinicians need to consider whether the youth presents with executive functioning deficits, and attention problems outside of anxiety-provoking situations.

Several behavioral rating scales may be used to assess attention problems in youth with selective mutism. The Conners' Parent Rating Scale, 3rd edition may be used to assess the severity of symptoms of attention deficit hyperactivity disorder (Conners 3-P; Conners, 2008). The Conners 3rd edition--Teacher Version (Conners, 2008) would also provide a more comprehensive picture of attention problems at school. The Conners-3 also includes items that alert clinicians as to specific problems, such as anxiety, oppositional defiance and depression and help differentiate attention problems related to ADHD from anxiety. The CBCL attention problems scale has also been shown to effectively distinguish between anxiety-disordered youth with and without ADHD (Jarrett et al., 2012). The CBCL may be used to supplement behavioral observations and diagnostic interviewing to identify symptoms of inattention due to ADHD among anxious youth. The Anxiety Disorders Interview Schedule-Child/Parent Version (ADIS-C/P; Silverman & Albano, 1996) is a commonly used interview for youth with selective mutism. Clinicians should utilize the ADHD module, which has established strong concurrent validity

with both parent-report and performance based measures of ADHD (Jarrett, Wolff, & Ollendick, 2007).

Treatment Implications

The current findings are important for treatment reasons, though the current study was not treatment-oriented. Clinicians addressing a child with selective mutism should implement treatment based on the child's behavioral class and individual symptoms. Cognitive behavioral interventions have been the main treatment approach for this population. However, interventions based on the child's presenting problems are most successful for treating children with selective mutism (Cohan et al., 2006).

All youth in the current study presented with symptoms of anxiety. Therefore, cognitive behavioral techniques are implicated and considered a first-line treatment for youth with selective mutism. The aim of behavioral therapies is to reward verbal behavior while gradually exposing the child to greater anxiety-provoking situations (Krysanski, 2003). These behavioral techniques would be most useful in situations where the child restricts speech because of anxiety. Treatment may include an exposure-based hierarchy paired with progressive muscle relaxation and guided imagery (Cohan et al., 2006; Compton et al., 2004). Examples of initial tasks for children following an exposure-based hierarchy include the child speaking to the parent in the therapy room first without the therapist present and then with the therapist, playing games that involve short verbal responses, and asking the child's parent to record the child's voice to play back for the therapist (Bergman et al., 2013). Exposures should be paired with progressive muscle relaxation, focused breathing and prompting the child to visualize enjoyable images.

Youth in the current study were reported with anxiety, but were found to participate in a range of sports and activities. The participation in sports has been cited as context for learning

social skills and dampening social anxiety (Rapee & Spence, 2004; Spence, Donovan, & Brechman-Toussaint, 1999). The involvement in sports and other social activities are recognized as contributing to the development of social interaction skills where youth learn to cooperate and communicate with their peers, respect rules and learn non-verbal and verbal cues (Smith, 2003). Participation in organized sports has been cited as a protective factor for shy children and reported to reduce anxiety (Findlay & Coplan, 2008). Team sport could be included in cognitive behavioral programs as part of social skill training to reduce anxiety and increase socialization.

A reward system is also beneficial, where the child is praised and encouraged to speak in increasingly anxiety-provoking situations. Other examples of exposure activities include asking the child to speak in community settings such as shopping centers and eventually the child's school (Vecchio & Kearney, 2009). Examples of school-based exposures include having the child speak in non-classroom areas such as the playground, mouthing words to the teacher and other peers, and eventually whispering and producing one or two word statements to peers and the teacher.

The majority of youth (62.9%) in the current study presented with moderate to severe oppositional symptoms, in addition to anxiety. Children with elevated oppositional symptoms and co-occurring anxiety likely restrict speech due to anxiety and to exert control on their environment. Children with moderate to severe oppositional behaviors may also maintain their mutism because there is no consequence for failing to speak. Therefore, children with selective mutism with oppositional behaviors may benefit from parent training in addition to anxiety-reduction techniques (Bergman & Keller, 2007). Furthermore, oppositional behavior may manifest as refusal to engage in exposures and comply with treatment recommendations (Drabick, Gadow, & Loney, 2008).

A positive treatment outcome may occur if intervention focuses on parent training for non-compliant behaviors that occur outside of anxiety-provoking situations and non-compliant speech-related behaviors. Youth were commonly reported to argue, demand attention and be disobedient at home. Behavioral parent training is a formal skill-based approach where parents received training on how to increase their child's prosocial or positive behaviors and decrease problematic behaviors, such as defiance, arguing and aggression (Kazdin, 2005). Parent training provides skills for how to ignore inappropriate behaviors, praise positive behaviors, utilize time-outs, give commands, and increase communication with their child. This approach has demonstrated efficacy for externalizing behavior problems and to improve parent-child relationships (Serketich & Dumas, 1996).

Youth may also have temper tantrums, become irritable and stubborn when told to speak in social situations. Contingency management involves a consequence system where rewards are given for speaking in public places and disincentives are utilized for failing to speak when expected (Krysanski, 2003). Parents are taught to ignore attempts to communicate nonverbally and respond positively to the child when they attempt to speak. Punishment may involve a loss of privileges such toys, television time, or early bed time (Vecchio & Kearney, 2009). Punishments and rewards should be pre-established to help the child be motivated to comply with the speech task. Routines should be established so that the child has a lot of opportunities to speak in public.

A contingency management system may also be implemented in school. Coordination is encouraged between the child's teacher and parent. The teacher is asked to provide opportunities for the child to speak in class and then report back to the child's parents on the exposure outcome. A contingency management system in the classroom should involve exposures that are

progressively more anxiety-provoking. The current study demonstrated that children with oppositional behaviors also displayed anxiety-related symptoms. Therefore, the goal when working with children with oppositional behaviors is to reduce their anxiety and employ a consequence system to encourage speech.

Youth in the current study were also reported with heightened emotionality. Youth may benefit from interventions aimed at emotion identification and regulation. First, focused breathing is a simple technique that can help regulate distress in anxiety-provoking situations (Hung et al., 2012). Second, parents are primary figures in helping children develop emotion regulation skills, particularly during times of distress, anxiety or pain (von Salisch, 2001). A child expressing fear in social situations may evoke concern, sympathy, and frustration in parents (Rubin & Burgess, 2002). Parents who speak for their child limit opportunities for their child to learn how to tolerate and regulate difficult emotions (Brown & Dunn, 1996). Clinicians should speak to parents about managing their own emotions, and for parents to encourage youth to tolerate distress associated with speaking.

Youth were also reported to commonly have symptoms consistent with inattention. Inattention may be explained by hypervigilance and the inability to focus in situations in which the child feels anxious, such as school (Nock, Kazdin, Hiripi, & Kessler, 2007). This conclusion is speculative, but based on increased inattention with anxiety severity. Differentiation between attention problems solely associated with anxiety, and selective mutism with comorbid ADHD is important for treatment purposes. Attention problems in youth with selective mutism may decrease as function of reduced anxiety after the child is gradually exposed to and speaks in progressively anxiety provoking situations. However, youth with co-occurring attention deficit hyperactivity disorder requires a separate treatment approach. Pharmacological treatment for

ADHD is considered a first-line treatment approach. Medications, such as psychostimulants and norepinephrine reuptake inhibitors are recommended to treat the core symptoms of inattention, hyperactivity and impulsiveness (Charach et al., 2011). Multimodal interventions that include behavioral interventions such as parent skills training, counseling, classroom management strategies and learning assistance programs offer the greatest therapeutic outcomes for ADHD. Youth, therefore, with selective mutism and co-occurring ADHD require exposure based approaches to reduce anxiety and behavioral interventions to improve concentration, attention, and focus and reduce hyperactivity (MTA Cooperative Group, 1999).

Study Limitations

Study Design

Findings from the current study should be considered with caution due to several limitations. First, the CBCL was used to obtain common symptoms. Parents may underestimate their child's symptoms because the mutism may occur primarily in the classroom. Cohan and colleagues (2008) reported that parents may indicate less anxiety and more oppositional behaviors than teachers. However, parents may misinterpret their child's withdrawal and refusal to speak as oppositional. Teachers also may report higher social anxiety than parents (Levin-Decanini, Connolly, Simpson, Suarez, & Jacob, 2013). The examination of behavioral reports in the classroom could further determine the specifics of anxiety, opposition, inattention and temperamental domains at school.

Second, the cross-sectional design of the study precludes conclusions regarding the vulnerability model. The vulnerability model proposes that temperament can place individuals at risk for the development of psychopathology (Laceulle et al., 2014). The current study was not longitudinal and conclusions cannot be drawn regarding whether specific components of

temperament are risk factors for psychopathology. However, temperament is considered a stable construct, therefore, associations of temperament and symptoms of psychopathology found in the study are promising (Buss & Plomin, 1984; 1986; Goldsmith et al., 1997). A longitudinal study following young children with a family history of selective mutism would be critically important to understand the developmental trajectory of temperament associated with selective mutism.

Source of Data Collection

The large sample size is a notable strength of the study. However, the study was completed online, which may have implications for data validity. A number of unique concerns arise. First, youth whose mothers completed the study were not assessed in person through a valid, psychometrically sound interview. Therefore, diagnostic symptoms consistent with selective mutism were not observed. Conclusions regarding the diagnosis of selective mutism was based solely upon parent report through surveys. The lack of a diagnostic interview also precludes an assessment of co-occurring diagnoses. However, inclusionary criteria were based on common situations and settings that youth with selective mutism struggle to speak (SMQ; Bergman et al., 2008), such as in front of the class and with unfamiliar adults. Furthermore, the majority of youth (85.3%) were receiving treatment for selective mutism and were likely diagnosed with selective mutism by their treatment provider. Additionally, the survey was only available on sites for parents and/or family members of youth with selective mutism. Individuals who completed the survey likely were seeking support for an individual with selective mutism, and completed the survey with interest in research knowledge for selective mutism. Furthermore, the survey was included on the Selective Mutism Group website, where diagnostic information is available for parents to read and determine whether their child's behaviors are consistent with selective mutism.

The SMG is considered an optimum sample source for several reasons. First, the group provided a large sample size for a disorder with a relatively low prevalence rate. Second, sampling was not limited to one geographic area. Third, mothers of the SMG were likely to be well-informed about selective mutism. Conversely, however, the sample may be biased towards parents of youth who are college-educated and with higher social economic status (SES) (Cohan et al., 2008).

Second, concerns arise regarding the quality of the data collected (Mezzacappa, 2000). Internet samples are often viewed as a relatively homogeneous, and used mainly by Caucasian, middle to upper-class individuals (Azar, 2000; Buchanan, 2000; Krantz & Dalal, 2000). Therefore, concerns arise regarding the generalizability of findings to individuals in the United States. The ethnicity diversity in the current study was similar to findings from the U.S. Census in 2010. The most recent census reports ethnic composition as Caucasian (72.4%), Hispanic (16.3%), African American (12.6%), Asian (4.8%), bi-racial (2.9%), American Indian (0.9%), and Pacific Islander (0.2%). African-American youth with selective mutism in the current study may be under-represented (U.S. Census Bureau, 2013). Participants from countries outside the United States were 36.40% of the sample, but likely did not adequately represent the youth with selective mutism or ethnic composition within each country. However, the availability of the study to individuals outside of the United States allowed for greater sample size and ethnic representation.

The great accessibility of the Internet makes web-based surveys vulnerable to be completed by respondents who do not fulfil participant criteria (i.e. not a mother of a 6-10-year-old child with selective mutism) (Skitka & Sargis, 2006). Additionally, participants may have completed the measures haphazardly and without reading the items for understanding

(Buchanan, 2000). However, this study included self-selected samples. Participants who self-select to be a part of a study provide more complete, clearer responses than individuals who do not self-select, such as undergraduate psychology students (Pettitt, 2002). Additionally, measures completed in person are similarly susceptible to fake or dishonest responses (Gosling, Vazire, Srivastava, & John, 2004)

Another limitation is the use of the Internet for recruitment, which may have limited the generalizability of the findings. Mothers who completed this study may have children who differ from mothers who were unable or unwilling to complete this study. For example, those who did not participate in the survey may have children with lower levels of symptom severity, less impairment and distress, and may be more likely to have received effective treatment of selective mutism (Ford et al., 1998). Thus, it is unclear how accurately the current findings reflect the general selective mutism community population or the treatment seeking population. Replication in schools and in large clinical settings would be valuable and would yield stronger data regarding the phenomenology and temperament of selective mutism.

Suggestions for Future Research

Research examining temperament and behavioral classes of children with selective mutism is in the early stages. First, future researchers should examine whether behavioral classes differ between home and school environment. Future research would benefit from considering the perspective of the child's teacher. The Teacher Report Form (TRF) could be utilized to determine whether classes from the CBCL are also found via the TRF (Achenbach, 1991). In addition, the TRF may also be completed online, consistent with the use of the online version of the CBCL in the current study.

Second, social problems were reported for youth with selective mutism, but teacher report of social problems was not obtained. Teachers of youth with selective mutism may complete the Child Behavior Scale (CBS; Ladd & Profilet, 1996), a measure of aggressive, withdrawn and prosocial behaviors. This measure also has teachers provide specific information regarding whether children are excluded as playmates, ignored by peers, and rejected when requesting to join groups. Teacher observation of peer interactions at school, specifically focusing on exclusion, rejection and conflict are needed to assess how comorbid symptoms of anxiety and opposition affect peer relationships among youth with selective mutism.

Third, child report of their symptoms may help clinicians better understand whether anxiety is contributing to the mutism. Previous researchers have questioned whether children with selective mutism are mute in social situations because they are too scared to speak or whether the social situation itself causes anxiety (Anstendig, 1999; Dummit et al., 1997; Ford et al., 1998; Yeganeh et al., 2003). Youth were reported to engage in a variety of sports, organizations and activities. However, it is unknown whether youth were speaking comfortably in these situations or were mute as a way to regulate anxiety. Future research is needed on whether children with selective mutism experience high anxiety in social situations that do not demand speech. These situations may include playing a game with other children, writing on the chalkboard, using public restrooms, eating in front of others, taking tests, and having one's picture taken. Future researchers could utilize behavioral observations, and measures that assess anxiety and can be completed nonverbally such as the Anxiety Disorders Interview Schedule-Child Version (ADIS-C; Silverman & Albano, 1996), the Social Anxiety Scale for Children-Revised (SASC-R; La Greca & Stone, 1993) and the Spence Children's Anxiety Scale (SCAS; Spence, 1997).

Fourth, researchers should assess temperament longitudinally to determine the predictability of temperament for selective mutism. In particular, emotionality was determined to be a strong predictor of both anxious and oppositional factors. The current study examined negative emotionality overall but further research is needed to determine if reactivity and emotion-regulation, specifically, differ between varying presentations of selective mutism. Emotion regulation, is conceptualized as the capacity to adjust one's own arousal to adapt to the environment. Reactivity, relates both to children's promptness to respond to emotional antecedents and coping responses following negative emotions (Rothbart & Bates, 2006). The Emotion-Regulation Checklist (ERC; Shields & Cicchetti, 1997) may be used to assess these dimensions in youth with selective mutism and may be completed by parents and teachers regarding preschool and school-aged children. The Emotion-Regulation Checklist has been widely used and shown excellent reliability (Curtis & Cicchetti, 2007; Kim, Cicchetti, Rogosch, & Manly, 2009).

Fifth, some youth in the current study were identified as having attention problems. The current study did not include measures specific to attention-deficit/hyperactivity disorder. Therefore, it is unknown whether attention problems are consistent with a comorbid diagnosis of attention deficit hyperactivity disorder or resulting from hypervigilance and distractibility related to anxiety. Thus, when behavioral symptoms are difficult to distinguish or differentiate and cognitive symptoms are unavailable, neurocognitive methods may be necessary to delineate emotion-based attentional problems in youth with anxiety from those with ADHD-related attentional deficits (Reddy & Hale, 2007). Clinicians and researchers should consider utilizing both neurocognitive methods, and symptom rating scales to inform appropriate diagnosis and both pharmacological and psychological treatment approaches (Reddy & Hale, 2007).

Researchers should continue to assess the symptoms of inattention in youth with selective mutism to improve assessment and intervention practices for youth with severe anxiety and co-occurring attention problems.

Appendix A: Hypotheses 2+ According to Factors, Subscales and Items

Table 2.

Hypotheses 2+ According to Factors, Subscales and Items

Hypotheses	CBCL and EAS Subscales and Items
Hypothesis 2	EAS activity scores associated with anxious factor scores (inverse)
	EAS activity items associated with anxious factor scores (positive)
Hypothesis 2a	When child moves about, child usually moves slowly (EAS)
	Child prefers quiet, inactive games to more active ones (EAS)
EAS activity items and CBCL activity competence scores associated with anxious factor scores (inverse)	
Hypothesis 2b	Child is very energetic (EAS)
	Child is always on the go (EAS)
	Child is off and running as soon as he/she wakes up in the morning (EAS)
Hypothesis 2c	CBCL activity competence score
Hypothesis 3	CBCL social competence (inverse) and CBCL social problems scores (positive) associated with anxious factor scores
	CBCL social competence and social problems items associated with anxious factor scores (positive)
Hypothesis 3a	Gets along with his/her brothers and sisters (CBCL social competence)
	Behaves with his/her parents (CBCL social competence)

Hypothesis 3b	Clings to adults or too dependent (CBCL social problems)
	Complains of loneliness (CBCL social problems)
	Get teased a lot (CBCL social problems)
CBCL social competence items associated with anxious factor scores (inverse)	
Hypothesis 3c	Number of organizations participated in (CBCL social competence)
	Number of close friends (CBCL social competence)
Hypothesis 4	EAS sociability scores associated with anxious factor scores (inverse)
EAS sociability items associated with anxious factor scores (positive)	
Hypothesis 4a	Child is something of a loner (EAS)
	When alone child feels isolated (EAS)
EAS sociability items associated with anxious factor scores (inverse)	
Hypothesis 4b	Child likes to be with people (EAS)
	Child prefers playing with others rather than alone (EAS)
	Child finds people more stimulating than anything else (EAS)
Hypothesis 5	EAS shyness scores associated with anxious factor scores (positive)
EAS shyness items associated with anxious factor scores (positive)	
Hypothesis 5a	Child tends to be shy (EAS)
	Child takes a long time to warm up to strangers (EAS)
EAS shyness items associated with anxious factor scores (inverse)	
Hypothesis 5b	Child makes friends easily (EAS)
	Child is very sociable (EAS)
	Child is very friendly with strangers (EAS)

Hypothesis 6	EAS emotionality scores associated with anxious factor scores (positive)
EAS emotionality items associated with anxious factor scores (positive)	
Hypothesis 6a	Child cries easily (EAS)
	Child often fusses and cries (EAS)
Hypothesis 7	EAS activity scores associated with oppositional factor scores (positive)
CBCL activity competence scores (positive) and EAS activity items (positive) associated with oppositional factor scores	
Hypothesis 7a	CBCL activity competence score
Hypothesis 7b	Child is very energetic (EAS)
	Child is always on the go (EAS)
	Child is off and running as soon as he/she wakes up in the morning (EAS)
EAS activity items associated with oppositional Factor scores (inverse)	
Hypothesis 7c	When child moves about, child usually moves slowly (EAS)
	Child prefers quiet, inactive games to more active ones (EAS)
Hypothesis 8	CBCL social competence (positive) and CBCL social problems scores (positive) associated with oppositional factor scores
CBCL social competence items associated with oppositional factor scores (positive)	
Hypothesis 8a	Number of organizations participated in (CBCL social competence)
	Number of close friends (CBCL social competence)
CBCL social competence (inverse) and CBCL social problems (inverse) items associated with oppositional factor scores	

Hypothesis 8b	Gets along with his/her brothers and sisters (CBCL social competence)
	Behaves with his/her parents (CBCL social competence)
Hypothesis 8c	Clings to adults or too dependent (CBCL social problems)
	Complains of loneliness (CBCL social problems)
	Gets teased a lot (CBCL social problems)
Hypothesis 9	EAS sociability scores associated with oppositional factor scores (positive)
EAS sociability items associated with oppositional Factor scores (positive)	
Hypothesis 9a	Child likes to be with people (EAS)
	Child prefers playing with others rather than alone (EAS)
	Child finds people more stimulating than anything else (EAS)
EAS sociability items associated with oppositional factor scores (inverse)	
Hypothesis 9b	Child is something of a loner (EAS)
	When alone child feels isolated (EAS)
Hypothesis 10	EAS shyness scores associated with oppositional factor scores (inverse)
EAS shyness items associated with oppositional factor scores (positive)	
Hypothesis 10a	Child makes friends easily (EAS)
	Child is very sociable (EAS)
	Child is very friendly with strangers (EAS)
EAS shyness items associated with oppositional factor scores (inverse)	
Hypothesis 10b	Child tends to be shy (EAS)
	Child takes a long time to warm up to strangers (EAS)

Hypothesis 11	EAS emotionality scores associated with oppositional factor scores (positive)
EAS emotionality items associated with oppositional Factor scores (inverse)	
Hypothesis 11a	Child cries easily (EAS)
	Child often fusses and cries (EAS)

Appendix B: Child Behavior Checklist

ASEBA

Please print **CHILD BEHAVIOR CHECKLIST FOR AGES 6-18**

For office use only
ID #

CHILD'S FULL NAME First Middle Last

CHILD'S GENDER ☐ Boy ☐ Girl

CHILD'S AGE

CHILD'S ETHNIC GROUP OR RACE

TODAY'S DATE Mo._____ Date _____ Yr. _____

CHILD'S BIRTHDATE Mo._____ Date _____ Yr. _____

GRADE IN SCHOOL _____

NOT ATTENDING SCHOOL ☐

Please fill out this form to reflect *your* view of the child's behavior even if other people might not agree. Feel free to print additional comments beside each item and in the space provided on page 2. ***Be sure to answer all items.***

PARENTS' USUAL TYPE OF WORK, even if not working now. *(Please be specific — for example, auto mechanic, high school teacher, homemaker, laborer, lathe operator, shoe salesman, army sergeant.)*

FATHER'S TYPE OF WORK _____

MOTHER'S TYPE OF WORK _____

THIS FORM FILLED OUT BY: (print your full name)

_____

Your gender: ☐ Male ☐ Female

Your relation to the child:

☐ Biological Parent ☐ Step Parent ☐ Grandparent
☐ Adoptive Parent ☐ Foster Parent ☐ Other (specify)_____

I. Please list the sports your child most likes to take part in. For example: swimming, baseball, skating, skate boarding, bike riding, fishing, etc.

☐ None

	Compared to others of the same age, about how much time does he/she spend in each?				Compared to others of the same age, how well does he/she do each one?			
	Less Than Average	Average	More Than Average	Don't Know	Below Average	Average	Above Average	Don't Know
a. _____	☐	☐	☐	☐	☐	☐	☐	☐
b. _____	☐	☐	☐	☐	☐	☐	☐	☐
c. _____	☐	☐	☐	☐	☐	☐	☐	☐

II. Please list your child's favorite hobbies, activities, and games, other than sports. For example: stamps, dolls, books, piano, crafts, cars, computers, singing, etc. (Do *not* include listening to radio or TV.)

☐ None

	Compared to others of the same age, about how much time does he/she spend in each?				Compared to others of the same age, how well does he/she do each one?			
	Less Than Average	Average	More Than Average	Don't Know	Below Average	Average	Above Average	Don't Know
a. _____	☐	☐	☐	☐	☐	☐	☐	☐
b. _____	☐	☐	☐	☐	☐	☐	☐	☐
c. _____	☐	☐	☐	☐	☐	☐	☐	☐

III. Please list any organizations, clubs, teams, or groups your child belongs to.

☐ None

	Compared to others of the same age, how active is he/she in each?			
	Less Active	Average	More Active	Don't Know
a. _____	☐	☐	☐	☐
b. _____	☐	☐	☐	☐
c. _____	☐	☐	☐	☐

IV. Please list any jobs or chores your child has. For example: paper route, babysitting, making bed, working in store, etc. (Include both paid and unpaid jobs and chores.)

☐ None

	Compared to others of the same age, how well does he/she carry them out?			
	Below Average	Average	Above Average	Don't Know
a. _____	☐	☐	☐	☐
b. _____	☐	☐	☐	☐
c. _____	☐	☐	☐	☐

Be sure you answered al items. Then see other si

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Please print. Be sure to answer all items.

V. 1. About how many close friends does your child have? (Do *not* include brothers & sisters)
☐ None ☐ 1 ☐ 2 or 3 ☐ 4 or more

2. About how many times a week does your child do things with any friends outside of regular school hours? (Do *not* include brothers & sisters)
☐ Less than 1 ☐ 1 or 2 ☐ 3 or more

VI. Compared to others of his/her age, how well does your child:

	Worse	Average	Better	
a. Get along with his/her brothers & sisters?	☐	☐	☐	☐ Has no brothers or sisters
b. Get along with other kids?	☐	☐	☐	
c. Behave with his/her parents?	☐	☐	☐	
d. Play and work alone?	☐	☐	☐	

VII. 1. Performance in academic subjects. ☐ Does not attend school because _____

Check a box for each subject that child takes	Failing	Below Average	Average	Above Average
a. Reading, English, or Language Arts	☐	☐	☐	☐
b. History or Social Studies	☐	☐	☐	☐
c. Arithmetic or Math	☐	☐	☐	☐
d. Science	☐	☐	☐	☐
e. _____	☐	☐	☐	☐
f. _____	☐	☐	☐	☐
g. _____	☐	☐	☐	☐

Other academic subjects–for example: computer courses, foreign language, business. Do *not* include gym, shop, driver's ed., or other nonacademic subjects.

2. Does your child receive special education or remedial services or attend a special class or special school?
☐ No ☐ Yes—kind of services, class, or school:

3. Has your child repeated any grades? ☐ No ☐ Yes—grades and reasons:

4. Has your child had any academic or other problems in school? ☐ No ☐ Yes—please describe:

When did these problems start?_____
Have these problems ended? ☐ No ☐ Yes–when?

Does your child have any illness or disability (either physical or mental)? ☐ No ☐ Yes—please describe:

What concerns you most about your child?

Please describe the best things about your child.

Be sure you answered all item

Please print. Be sure to answer all items.

Below is a list of items that describe children and youths. For each item that describes your child ***now or within the past 6 months*** please circle the ***2*** if the item is ***very true or often true*** of your child. Circle the ***1*** if the item is ***somewhat or sometimes true*** o your child. If the item is ***not true*** of your child, circle the ***0***. Please answer all items as well as you can, even if some do not seen to apply to your child.

0 = Not True (as far as you know) **1 = Somewhat or Sometimes True** **2 = Very True or Often True**

0 1 2 1. Acts too young for his/her age
0 1 2 2. Drinks alcohol without parents' approval (describe):_____
_____
0 1 2 3. Argues a lot
0 1 2 4. Fails to finish things he/she starts
0 1 2 5. There is very little he/she enjoys
0 1 2 6. Bowel movements outside toilet
0 1 2 7. Bragging, boasting
0 1 2 8. Can't concentrate, can't pay attention for long
0 1 2 9. Can't get his/her mind off certain thoughts; obsessions (describe): _____
_____
0 1 2 10. Can't sit still, restless, or hyperactive
0 1 2 11. Clings to adults or too dependent
0 1 2 12. Complains of loneliness
0 1 2 13. Confused or seems to be in a fog
0 1 2 14. Cries a lot
0 1 2 15. Cruel to animals
0 1 2 16. Cruelty, bullying, or meanness to others
0 1 2 17. Daydreams or gets lost in his/her thoughts
0 1 2 18. Deliberately harms self or attempts suicide
0 1 2 19. Demands a lot of attention
0 1 2 20. Destroys his/her own things
0 1 2 21. Destroys things belonging to his/her family or others
0 1 2 22. Disobedient at home
0 1 2 23. Disobedient at school
0 1 2 24. Doesn't eat well
0 1 2 25. Doesn't get along with other kids
0 1 2 26. Doesn't seem to feel guilty after misbehaving
0 1 2 27. Easily jealous
0 1 2 28. Breaks rules at home, school, or elsewhere
0 1 2 29. Fears certain animals, situations, or places, other than school (describe): _____
_____
0 1 2 30. Fears going to school
0 1 2 31. Fears he/she might think or do something bad
0 1 2 32. Feels he/she has to be perfect
0 1 2 33. Feels or complains that no one loves him/her
0 1 2 34. Feels others are out to get him/her
0 1 2 35. Feels worthless or inferior
0 1 2 36. Gets hurt a lot, accident-prone
0 1 2 37. Gets in many fights
0 1 2 38. Gets teased a lot
0 1 2 39. Hangs around with others who get in trouble
0 1 2 40. Hears sounds or voices that aren't there (describe): _____
_____
0 1 2 41. Impulsive or acts without thinking
0 1 2 42. Would rather be alone than with others
0 1 2 43. Lying or cheating
0 1 2 44. Bites fingernails
0 1 2 45. Nervous, highstrung, or tense
0 1 2 46. Nervous movements or twitching (describe): __
_____
_____
0 1 2 47. Nightmares
0 1 2 48. Not liked by other kids
0 1 2 49. Constipated, doesn't move bowels
0 1 2 50. Too fearful or anxious
0 1 2 51. Feels dizzy or lightheaded
0 1 2 52. Feels too guilty
0 1 2 53. Overeating
0 1 2 54. Overtired without good reason
0 1 2 55. Overweight
56. Physical problems ***without known medical cause:***
0 1 2 a. Aches or pains (***not*** stomach or headaches)
0 1 2 b. Headaches
0 1 2 c. Nausea, feels sick
0 1 2 d. Problems with eyes (***not*** if corrected by glasses (describe): _____
0 1 2 e. Rashes or other skin problems
0 1 2 f. Stomachaches
0 1 2 g. Vomiting, throwing up
0 1 2 h. Other (describe): _____
_____

 Be sure you answered all items. Then see other sid

Please print. Be sure to answer all items.

0 = Not True (as far as you know) **1 = Somewhat or Sometimes True** **2 = Very True or Often True**

0 1 2 57. Physically attacks people
0 1 2 58. Picks nose, skin, or other parts of body (describe): _____
_____
0 1 2 59. Plays with own sex parts in public
0 1 2 60. Plays with own sex parts too much
0 1 2 61. Poor school work
0 1 2 62. Poorly coordinated or clumsy
0 1 2 63. Prefers being with older kids
0 1 2 64. Prefers being with younger kids
0 1 2 65. Refuses to talk
0 1 2 66. Repeats certain acts over and over; compulsions (describe): _____
_____
0 1 2 67. Runs away from home
0 1 2 68. Screams a lot
0 1 2 69. Secretive, keeps things to self
0 1 2 70. Sees things that aren't there (describe): _____
_____
_____
0 1 2 71. Self-conscious or easily embarrassed
0 1 2 72. Sets fires
0 1 2 73. Sexual problems (describe): _____
_____
_____
0 1 2 74. Showing off or clowning
0 1 2 75. Too shy or timid
0 1 2 76. Sleeps less than most kids
0 1 2 77. Sleeps more than most kids during day and/or night (describe): _____
_____
0 1 2 78. Inattentive or easily distracted
0 1 2 79. Speech problem (describe): _____
_____
0 1 2 80. Stares blankly
0 1 2 81. Steals at home
0 1 2 82. Steals outside the home
0 1 2 83. Stores up too many things he/she doesn't need (describe): _____
_____
_____
0 1 2 84. Strange behavior (describe): _____
_____
0 1 2 85. Strange ideas (describe): _____
_____
0 1 2 86. Stubborn, sullen, or irritable
0 1 2 87. Sudden changes in mood or feelings
0 1 2 88. Sulks a lot
0 1 2 89. Suspicious
0 1 2 90. Swearing or obscene language
0 1 2 91. Talks about killing self
0 1 2 92. Talks or walks in sleep (describe): _____
_____
0 1 2 93. Talks too much
0 1 2 94. Teases a lot
0 1 2 95. Temper tantrums or hot temper
0 1 2 96. Thinks about sex too much
0 1 2 97. Threatens people
0 1 2 98. Thumb-sucking
0 1 2 99. Smokes, chews, or sniffs tobacco
0 1 2 100. Trouble sleeping (describe): _____
_____
0 1 2 101. Truancy, skips school
0 1 2 102. Underactive, slow moving, or lacks energy
0 1 2 103. Unhappy, sad, or depressed
0 1 2 104. Unusually loud
0 1 2 105. Uses drugs for nonmedical purposes (***don't*** include alcohol or tobacco) (describe): _____
_____
_____
0 1 2 106. Vandalism
0 1 2 107. Wets self during the day
0 1 2 108. Wets the bed
0 1 2 109. Whining
0 1 2 110. Wishes to be of opposite sex
0 1 2 111. Withdrawn, doesn't get involved with others
0 1 2 112. Worries
113. Please write in any problems your child has that were not listed above:
0 1 2 _____
0 1 2 _____
0 1 2 _____

Please be sure you answered all items.

APPENDIX C: Selective Mutism Questionnaire (SMQ) ©

Please consider your child's behavior in the last two weeks and rate how frequently each statement is true for your child.

AT SCHOOL

1. When appropriate, my child talks to selected peers (his/her friends) at school.	Always	Often	Seldom	Never
2. When appropriate, my child talks to most peers at school.	Always	Often	Seldom	Never
3. When my child is asked a question by his/her teacher, s/he answers.	Always	Often	Seldom	Never
4. When appropriate, my child asks his or her teacher questions.	Always	Often	Seldom	Never
5. When appropriate, my child speaks to most teachers or staff at school.	Always	Often	Seldom	Never
6. When appropriate, my child speaks in groups or in front of the class.	Always	Often	Seldom	Never

HOME/ FAMILY

7. When appropriate, my child talks to family members living at home when other people are present.	Always	Often	Seldom	Never
8. When appropriate, my child talks to family members while in unfamiliar places.	Always	Often	Seldom	Never
9. When appropriate, my child talks to family members that don't live with him/her (e.g. grandparent, cousin).	Always	Often	Seldom	Never
10. When appropriate, my child talks on the phone to his/her parents and siblings.	Always	Often	Seldom	Never

11. When appropriate, my child speaks with family friends who are well-known to him/her.	Always	Often	Seldom	Never	
12. My child speaks to at least one babysitter.	Always	Often	Seldom	Never	

IN SOCIAL SITUATIONS (OUTSIDE OF SCHOOL):

13. When appropriate, my child speaks with other children who s/he doesn't know.	Always	Often	Seldom	Never	
14. When appropriate, my child speaks with family friends who s/he doesn't know.	Always	Often	Seldom	Never	
15. When appropriate, my child speaks with his or her doctor and/or dentist.	Always	Often	Seldom	Never	
16. When appropriate, my child speaks to store clerks and/or waiters.	Always	Often	Seldom	Never	
17. When appropriate, my child talks when in clubs, teams or organized activities outside of school.	Always	Often	Seldom	Never	N/A

INTERFERENCE/DISTRESS*

18. How much does not talking interfere with school for your child?	Not at all	Slightly	Moderately	Extremely
19. How much does not talking interfere with family relationships?	Not at all	Slightly	Moderately	Extremely
20. How much does not talking interfere in social situations for your child?	Not at all	Slightly	Moderately	Extremely
21. Overall, how much does not talking interfere with life for your child?	Not at all	Slightly	Moderately	Extremely
22. Overall, how much does not talking bother your child?	Not at all	Slightly	Moderately	Extremely

23. Overall, how much does your child's not talking bother you?	Not at all	Slightly	Moderately	Extremely

Scoring: Always=3; Often=2; Seldom=1; Never=0

*These items are not included in the total score and are for clinical purposes only.

APPENDIX D: Emotionality Activity Sociability Scale (EAS)

1. Child tends to be shy (Shyness)
    a. Uncharacteristic (Not at all like your child)
    b. Somewhat uncharacteristic (Not very much like your child)
    c. Neither uncharacteristic nor characteristic
    d. Somewhat characteristic (sort of like your child)
    e. Characteristic (very much like your child)
2. Child cries easily (Emotionality)
    a. Uncharacteristic (Not at all like your child)
    b. Somewhat uncharacteristic (Not very much like your child)
    c. Neither uncharacteristic nor characteristic
    d. Somewhat characteristic (sort of like your child)
    e. Characteristic (very much like your child)
3. Child likes to be with people (Sociability)
    a. Uncharacteristic (Not at all like your child)
    b. Somewhat uncharacteristic (Not very much like your child)
    c. Neither uncharacteristic nor characteristic
    d. Somewhat characteristic (sort of like your child)
    e. Characteristic (very much like your child)
4. Child is always on the go (Activity)
    a. Uncharacteristic (Not at all like your child)
    b. Somewhat uncharacteristic (Not very much like your child)
    c. Neither uncharacteristic nor characteristic
    d. Somewhat characteristic (sort of like your child)
    e. Characteristic (very much like your child)
5. Child prefers playing with others rather than alone (Sociability)
    a. Uncharacteristic (Not at all like your child)
    b. Somewhat uncharacteristic (Not very much like your child)
    c. Neither uncharacteristic nor characteristic
    d. Somewhat characteristic (sort of like your child)
    e. Characteristic (very much like your child)
6. Child tends to be somewhat emotional (Emotionality)
    a. Uncharacteristic (Not at all like your child)
    b. Somewhat uncharacteristic (Not very much like your child)
    c. Neither uncharacteristic nor characteristic
    d. Somewhat characteristic (sort of like your child)
    e. Characteristic (very much like your child)
7. When child moves about, child usually moves slowly* (Activity)
    a. Uncharacteristic (Not at all like your child)
    b. Somewhat uncharacteristic (Not very much like your child)
    c. Neither uncharacteristic nor characteristic

    d. Somewhat characteristic (sort of like your child)
    e. Characteristic (very much like your child)
8. Child makes friends easily* (Shyness)
    a. Uncharacteristic (Not at all like your child)
    b. Somewhat uncharacteristic (Not very much like your child)
    c. Neither uncharacteristic nor characteristic
    d. Somewhat characteristic (sort of like your child)
    e. Characteristic (very much like your child)
9. Child is off and running as soon as he/she wakes up in the morning (Activity)
    a. Uncharacteristic (Not at all like your child)
    b. Somewhat uncharacteristic (Not very much like your child)
    c. Neither uncharacteristic nor characteristic
    d. Somewhat characteristic (sort of like your child)
    e. Characteristic (very much like your child)
10. Child finds people more stimulating than anything else (Sociability)
    a. Uncharacteristic (Not at all like your child)
    b. Somewhat uncharacteristic (Not very much like your child)
    c. Neither uncharacteristic nor characteristic
    d. Somewhat characteristic (sort of like your child)
    e. Characteristic (very much like your child)
11. Child often fusses and cries (Emotionality)
    a. Uncharacteristic (Not at all like your child)
    b. Somewhat uncharacteristic (Not very much like your child)
    c. Neither uncharacteristic nor characteristic
    d. Somewhat characteristic (sort of like your child)
    e. Characteristic (very much like your child)
12. Child is very sociable* (Shyness)
    a. Uncharacteristic (Not at all like your child)
    b. Somewhat uncharacteristic (Not very much like your child)
    c. Neither uncharacteristic nor characteristic
    d. Somewhat characteristic (sort of like your child)
    e. Characteristic (very much like your child)
13. Child is very energetic (Activity)
    a. Uncharacteristic (Not at all like your child)
    b. Somewhat uncharacteristic (Not very much like your child)
    c. Neither uncharacteristic nor characteristic
    d. Somewhat characteristic (sort of like your child)
    e. Characteristic (very much like your child)
14. Child takes a long time to warm up to strangers (Shyness)
    a. Uncharacteristic (Not at all like your child)
    b. Somewhat uncharacteristic (Not very much like your child)
    c. Neither uncharacteristic nor characteristic
    d. Somewhat characteristic (sort of like your child)

e. Characteristic (very much like your child)

15. Child gets upset easily (Emotionality)
    a. Uncharacteristic (Not at all like your child)
    b. Somewhat uncharacteristic (Not very much like your child)
    c. Neither uncharacteristic nor characteristic
    d. Somewhat characteristic (sort of like your child)
    e. Characteristic (very much like your child)
16. Child is something of a loner* (Sociability)
    a. Uncharacteristic (Not at all like your child)
    b. Somewhat uncharacteristic (Not very much like your child)
    c. Neither uncharacteristic nor characteristic
    d. Somewhat characteristic (sort of like your child)
    e. Characteristic (very much like your child)
17. Child prefers quiet, inactive games to more active ones * (Activity)
    a. Uncharacteristic (Not at all like your child)
    b. Somewhat uncharacteristic (Not very much like your child)
    c. Neither uncharacteristic nor characteristic
    d. Somewhat characteristic (sort of like your child)
    e. Characteristic (very much like your child)
18. When alone child feels isolated * (Sociability)
    a. Uncharacteristic (Not at all like your child)
    b. Somewhat uncharacteristic (Not very much like your child)
    c. Neither uncharacteristic nor characteristic
    d. Somewhat characteristic (sort of like your child)
    e. Characteristic (very much like your child)
19. Child reacts intensely when upset (Emotionality)
    a. Uncharacteristic (Not at all like your child)
    b. Somewhat uncharacteristic (Not very much like your child)
    c. Neither uncharacteristic nor characteristic
    d. Somewhat characteristic (sort of like your child)
    e. Characteristic (very much like your child)
    f. Characteristic (very much like your child)
20. Child is very friendly with strangers * (Shyness)
    a. Uncharacteristic (Not at all like your child)
    b. Somewhat uncharacteristic (Not very much like your child)
    c. Neither uncharacteristic nor characteristic
    d. Somewhat characteristic (sort of like your child)
    e. Characteristic (very much like your child)

* Reverse Scored Items: 7, 8, 12, 16, 17, 18, 20

Appendix E: Announcement

University of Nevada, Las Vegas: Temperament and Behavior Factors in a Community Sample of Youth with Selective Mutism (aged 6-10 years)

INVESTIGATOR(S): Christopher Kearney, PhD & Rachele Diliberto, MA

The purpose of this study is to examine maternal perception of symptoms and temperament in different children who have selective mutism. Eligible participants include mothers of 6- to 10-year old children with selective mutism.
We are asking to use your data for research purposes. You will be asked to complete 3 questionnaires online examining the behavior and temperament of your child. Your participation in this research project is voluntary and should last between 15-25 minutes. Participants may enter into a drawing to win a $20.00 Amazon gift card for providing their email address at completion of the study.

You can participate by going to:
https://unlv.co1.qualtrics.com/SE/?SID=SV_9Yao5PZSYYnSDid
For questions or concerns about the study, you may contact Christopher Kearney at **chris.kearney@unlv.edu** or Rachele Diliberto at rachele.diliberto@unlv.edu

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