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

By

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Bachelor of Arts – History
University of Nevada, Reno
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A thesis submitted in partial fulfillment
of the requirements for the

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Abstract

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

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Selective mutism (SM) is a childhood disorder characterized by a failure to speak in certain situations (e.g., school, social situations; APA, 2013). SM is best assessed using a comprehensive multimodal strategy (Dow et al., 1995; Krysanski, 2003; Viana et al., 2009; Wong, 2010), including parent reports of a child's behavior. One commonly used parent report measure is the Child Behavior Checklist (CBCL; Achenbach & Rescorla, 2001). The purpose of the present study was to identify specific CBCL items that may help substantiate SM subtypes in children. The study used confirmatory factor analysis to determine whether a two-factor structure (anxious and oppositional behavior) identified in past studies (Diliberto & Kearney, 2016; 2018) fits a new sample of children with SM. The study also examined whether factor scores from past studies (Diliberto & Kearney, 2016; 2018) and the present study predict subscale scores on the Selective Mutism Questionnaire (SMQ; Bergman et al., 2008), a measure of SM symptom severity. CBCL-based profiles may help clinicians quickly and accurately assess for SM subtypes in children. The study results revealed that a modified two-factor structure fit a new sample of children with SM and that the anxious factor score predicted SMQ subscale scores. The study results also revealed that the oppositional factor score did not predict SMQ subscale scores. Additional analyses were conducted to determine whether factor scores predict SMQ

subscale scores across gender, age group, and median cutoff scores. Finally, clinical implications and study limitations were explored, and recommendations were made for future research.

Table of Contents

List of Tables

Chapter 1: Introduction

Researchers' and clinicians' understanding of selective mutism (SM) has evolved over the past few decades. Historical terms for the disorder, such as "voluntary aphasia" (Kussmaul, 1877) and "elective mutism" (Tramer, 1934), imply that children with SM intentionally choose not to speak (Viana et al., 2009). Researchers and clinicians have commonly used the term "selective mutism" since the publication of the *Diagnostic and Statistical Manual of Mental Disorders, 4th Edition* in 1994 (DSM-IV; APA). The term "selective mutism" reflects the increased understanding that the disorder is characterized by a child's lack of speech only in specific contexts or settings (Muris & Ollendick, 2015). The term also invites the possibility that a child may be withholding speech for various reasons. For instance, a child may exhibit an anxious response to perceived threats in the environment or an oppositional response to exert control over the environment (Krysanski, 2003; Sharp et al., 2007).

Researchers have also developed a wide range of assessment tools for SM (Dow et al., 1995; Krysanski, 2003; Viana et al., 2009; Wong, 2010). Available tools and procedures for assessing a child with SM include clinical interviews of the parents and the child, a developmental history, functional analysis, clinician observations, teacher and parent observations, and assessments of speech and language abilities. Nonetheless, the current literature on the assessment of SM has specific limitations. Questions remain regarding specific anxious and oppositional behavior factors among children with the disorder and whether these factors are predictive of specific aspects of SM.

The present study was designed to help address these limitations by examining a proposed two-factor structure (anxious and oppositional behavior) from items on the Child Behavior Checklist (CBCL; Achenbach & Rescorla, 2001) in a new sample of children with SM.

The CBCL is a 113-item questionnaire measuring a child's behavioral, emotional, and social functioning over the preceding six months, as reported by a child's parent on a 3-point Likert-type scale. The study determined the fit of a previously determined factor structure via confirmatory factor analysis (CFA). CFA is a commonly used statistical technique for confirming the fit of a hypothesized factor structure to observed data such as items on a questionnaire (Tabachnick & Fidell, 2013). The present study examined, via regression analyses, whether factor scores from past studies (Diliberto & Kearney, 2016; 2018) and the present study better predict subscale scores on the Selective Mutism Questionnaire (SMQ; Bergman et al., 2008), a measure of SM symptom severity.

The following chapter reviews the literature on SM. The chapter includes diagnostic criteria, a historical overview, epidemiology, prognosis, risk factors, effects, assessment, psychological and pharmacological treatment, and SM subtypes. The chapter concludes with the purposes of the present study and study hypotheses. Following the literature review is a chapter outlining the methods of the study. The methods chapter includes descriptions of the participants, measures, procedure, and data analyses. Following the methods of the study is a chapter describing the results of the study and a chapter discussing the significance of the results. The discussion chapter includes a review of the relationship of the present study to previous research, the clinical implications of the present study, the limitations of the present study, and recommendations for future research.

Chapter 2: Literature Review

Diagnostic Criteria

Selective mutism (SM) is characterized by a child's failure to speak in certain situations, such as school and other public situations, while able to speak normally in other situations (such as at home). To meet *Diagnostic and Statistical Manual of Mental Disorders, 5th Edition* (DSM-V) criteria for SM, a child must exhibit symptoms for at least one month (beyond the first month of school), and the inability to speak must not be attributable to language deficits, a communication disorder, autism spectrum disorder, schizophrenia, or another psychotic disorder (APA, 2013). A child cannot be diagnosed with SM during the first month of school because anxiety during that period could be developmentally appropriate (Viana et al., 2009). The conceptualization of the disorder and resulting diagnostic criteria have changed significantly over time.

Historical Overview

Researchers and clinicians originally referred to SM as *aphasia voluntaria* ("voluntary aphasia"; Kussmaul, 1877) and later referred to SM as "elective mutism" (Tramer, 1934). Both terms imply that children with SM intentionally choose not to speak, and the terms assume that children with SM act in an oppositional and manipulative manner (Viana et al., 2009). The World Health Organization (WHO) chose to retain the term "elective" in the *International Classification of Diseases, 10th Revision* (ICD-10), published in 1992. The American Psychiatric Association (APA) changed the name of the disorder to "selective mutism" with the publication of the *Diagnostic and Statistical Manual of Mental Disorders, 4th Edition* (DSM-IV; 1994). The term "selective" is considered a more neutral way to describe a child's motives and emphasizes that lack of speech occurs only in specific contexts or settings (Muris & Ollendick, 2015). The

term also allows for the possibility that a child is withholding speech due to an anxious response to perceived threat in the environment (Krysanski, 2003; Sharp et al., 2007). The APA retained the name "selective mutism" in the *Diagnostic and Statistical Manual of Mental Disorders, 5th Edition* (DSM-V; 2013), the most recent version of the publication. The WHO changed the name of the disorder to “selective mutism” in the *International Classification of Diseases, 11th Revision* (ICD-11), the most recent version of the publication (WHO, 2018).

Epidemiology

SM is a relatively uncommon disorder, with prevalence rates ranging from 0.11% to 1.90% (Muris & Ollendick, 2015). The differences in the observed prevalence rates are due to the rarity of the disorder and to differences among diagnostic criteria for SM in the DSM-IV (APA, 1994), DSM-V (APA, 2013), ICD-10 (WHO, 1992), and ICD-11 (WHO, 2018; Viana et al., 2009).

The mean age of onset for SM is 2.7-4.1 years (Cunningham et al., 2004; Garcia et al., 2004; Kristensen, 2000), and SM is more prevalent in girls than in boys (2:1 average ratio; Dummit et al., 1997). Though SM symptoms may be present at a young age, the symptoms often are not noticed until a child enters school. The mean age of diagnosis of SM is 6.5 years (Ford et al., 1998). SM has a mean duration of 8 years (Remschmidt et al., 2001). By adolescence, many children previously diagnosed with SM may no longer qualify for the diagnosis but may exhibit symptoms of other psychiatric disorders (Remschmidt et al., 2001; Steinhausen et al., 2006).

Prognosis

The prognosis for children with SM varies greatly and is related to age at follow-up. In a study of 24 children diagnosed with SM at a young age (M = 6 years) and followed up 5-10 years later, 3 (12.5%) were markedly improved (no evidence of mutism), 8 (33%) were moderately

improved (some residual evidence of mutism), and 13 (54%) were slightly improved (beginning to show signs of relating to and speaking to others) or not improved (Kolvin & Fundudis, 1981). Among 30 children and adolescents diagnosed with SM between ages 3 and 9 years in another study, 21 (70%) were in full remission (no longer met diagnostic criteria), 5 (17%) were somewhat improved (speaking freely in some but not all settings), and 4 (13%) were not improved (continuing to meet diagnostic criteria) at a 5-year follow-up (Oerbeck et al., 2018).

Outcomes are better for children assessed at an older age. Among 41 teenagers and young adults diagnosed with SM as children, 16 (39%) were in full remission, 12 (29%) were markedly improved, 8 (20%) were mildly improved, and 5 (12%) were not improved (symptomatology was unchanged) (Remschmidt et al., 2001). Among 33 young adults diagnosed with SM as children in another study, 19 (57.6%) were in full remission, 8 (24.2%) were markedly improved (frequent spontaneous speech in new environments with some remaining feelings of uneasiness), and 6 (18.2%) were slightly improved (speaking only when not avoidable; Steinhausen et al., 2006).

SM-related problems may continue into adolescence and adulthood, though individuals previously diagnosed with SM may no longer meet criteria for an SM diagnosis. Individuals diagnosed with SM as children may as adults meet criteria for other psychiatric disorders, such as anxiety disorders, depressive disorders, substance use disorders, and attention-deficit/hyperactivity disorder. Individuals previously diagnosed with SM may also continue to perform poorly at school or work and continue to have communication problems (Remschmidt et al., 2001; Steinhausen et al., 2006).

Risk Factors

Various risk factors may also affect the development and prognosis of SM. Children who develop the disorder may be subject to various maladaptive family factors. Children with SM may also disproportionately experience adverse life events and the stresses that coincide with arrival to a new country. Children with SM may also disproportionately suffer from maladaptive temperamental, neurodevelopmental, and genetic factors. These factors are important to consider when assessing and treating the disorder and are described in the following sections.

Family Factors

SM, anxiety, and shyness are found disproportionately among family members of children with SM. Remschmidt et al. (2001) found that 18% of mothers, 9% of fathers, and 18% of siblings of children with SM also report current SM symptoms. Parents and siblings of children with SM also disproportionately report a history of SM diagnosis (Black & Uhde, 1995). Social anxiety disorder (SAD)—an anxiety disorder closely related to SM—and shyness are present among 38.9% of mothers of children with SM and 31.5% of fathers of children with SM. Comparatively, SAD and shyness are present among 3.7% of mothers of children without SM and among 0.9% of fathers of children without SM (Kristensen & Torgersen, 2001). Avoidant personality disorder (AvPD)—an extreme variant of SAD—is found among 17.5% of parents of children with SM and among 4.7% of parents of children without SM (Chavira et al., 2007). Disproportionately high rates of SM, anxiety, and shyness among family members of children with SM may mean that family psychopathology is a significant risk factor for the development of SM.

Other maladaptive family factors related to SM include parental divorce and parental attitudes. Parents of children with SM have higher divorce rates than parents of children without

SM. The parents of 23% of children with SM in one study were currently or recently separated, and the parents of 13% of children with SM were currently divorced (Black & Uhde, 1995). Researchers have found mixed evidence for a relationship between parental attitudes and SM in children. Edison et al. (2011) found that parents of children with SM are significantly more controlling and protective than parents of children with other anxiety disorders and parents of children with no anxiety disorders. Conversely, Alyanak et al. (2013) found that parental attitude did not significantly differ between parents of children with SM and parents of children in a non-clinical control group. Overall, children of separated and divorced parents have higher rates of SM diagnosis than children of married parents, indicating that parental separation and divorce may be a risk factor for SM. Further research is warranted to determine if parental attitudes are related to the development of SM.

Adverse Life Experiences

Various adverse life experiences are related to the diagnosis of SM in children. Hayden (1980) reported that 77% of children with SM experienced physical abuse, and 30% experienced sexual abuse. Other researchers report lower but still elevated rates of physical or sexual abuse (13%) among children with SM (Black & Uhde, 1995). In another study, 47% of children with SM had experienced one of three significant stressful life events: the death of someone close, alcoholism among family members, or transferring schools (Kumpulainen et al., 1998). Conversely, other researchers found no evidence of recent stressful life events among children with SM (Kopp & Gillberg, 1997). Children with SM also experience higher rates of hospitalization. Black and Uhde (1995) reported that 23% of children with SM experienced overnight hospitalization. While researchers have found some evidence to the contrary, studies generally indicate that adverse life experiences may be a risk factor for SM.

Immigration Status

Immigrant children—who often learn a country's dominant language as their second language—have an increased rate of SM diagnosis compared to native-born children. Immigrant children in Israel have a 2.2% prevalence rate of SM versus native Israeli children who have a 0.47% prevalence rate of SM (Elizur & Perednik, 2003). In European countries, prevalence rates of SM in immigrant children range from 22.7% to 39.0% versus rates of 0.18% to 2.00% among native children (Kopp & Gillberg, 1997; Kumpulainen et al., 1998; Steinhausen & Juzi, 1996). In North American countries, prevalence rates of SM in immigrant children range from 20.5% to 22% versus 0.71% among native children (Bergman et al., 2002; Manassis et al., 2007). Immigration status may thus be a risk factor for SM.

Temperamental Factors

Behavioral inhibition is a temperamental construct characterized by fear and avoidance of novel environmental stimuli and is seen disproportionately among children with SM. Feared and avoided environmental stimuli can include new people, situations, and objects. Early characteristics of behavioral inhibition—being reserved and engaging less in spontaneous speech in front of unfamiliar persons—are similar to common symptoms of SM (Garcia-Coll et al., 1984), and clinicians and parents report that many children with SM are behaviorally inhibited (Muris et al., 2016; Young et al., 2012).

Constructs similar to behavioral inhibition are also seen among children with SM. Shyness is one such construct. Clinicians and teachers report shyness in 63-85% of children with SM (Kumpulainen et al., 1998; Steinhausen & Juzi, 1996). Parents rate children with SM significantly higher on measures of shyness and significantly lower on measures of sociability than children without SM (Kristensen & Torgersen, 2002). Parents of children with SM also

highly endorse certain items on the Child Behavior Checklist (CBCL; Achenbach, 1991) that further indicate elevated shyness and behavioral inhibition: “Shy or timid” (84.3%), “Refuses to talk” (78.0%), and “Self-conscious or easily embarrassed” (74.8%; Ford et al., 1998). CBCL items may thus be a useful barometer of various types of SM.

Many children with SM also exhibit anxiety and anxiety-related symptoms. Parents and teachers rated children with SM as having significantly more anxiety and obsessive-compulsive symptoms than children in a non-clinical control group (Cunningham et al., 2004). Parents and teachers also reported significantly higher levels of internalizing symptoms, withdrawal symptoms, and attention problems in children with SM, compared to children in non-clinical control groups (Bergman et al., 2002; Vecchio & Kearney, 2005). Children with SM also received high scores on measures of withdrawal and low scores on measures of adaptability (Ford et al., 1998).

Many children with SM also develop co-morbid anxiety disorders similar to SM. SAD is the most common comorbid disorder in children with SM. Between 44.4% and 100% of children with SM are also diagnosed with SAD (Arie et al., 2007; Kristensen, 2000; Manassis et al., 2007; Vecchio & Kearney, 2005). AvPD is also commonly comorbid with SM; 97.0% of children with SM are diagnosed with SAD, AvPD, or both (Black & Uhde, 1992). Specific phobia is also commonly diagnosed with SM; 50.0% of children with SM are also diagnosed with specific phobia (Manassis et al., 2003). Separation anxiety disorder also commonly co-occurs with SM; 31.5% of children with SM are also diagnosed with separation anxiety disorder (Kristensen, 2000).

Although many children with SM exhibit anxiety symptoms, the symptoms are sometimes less severe than anxiety symptoms exhibited by children with SAD. One sample of

children with SM scored significantly lower on a measure of social anxiety symptom severity than children with SAD (Melfsen et al., 2006). Another sample of children with SM also exhibited less physiological arousal than children with SAD and children in a non-clinical control sample when asked to maintain a conversation with another child and read aloud before a small audience (Young et al., 2012). Elevated levels of behavioral inhibition and co-morbid anxiety disorder symptoms and diagnoses of children with SM may provide evidence for possible anxiety-related subtypes of SM (Cohan et al., 2008; Diliberto & Kearney, 2016; 2018; Mulligan et al., 2015).

Oppositionality is another temperamental construct among children with SM. In an early study of SM using DSM-III-R criteria, clinicians described 90% of children in the sample as controlling, negative, or oppositional (Krohn et al., 1992). Parents also reported elevated levels of externalizing symptoms in children with SM compared to children in a non-clinical control group (Kristensen, 2001). Parents also reported on the CBCL elevated levels of refusal to talk (78.0%); stubbornness, sullenness, or irritability (71.7%); argumentativeness (58.3%); disobedience at school (48.0%); whining (45.7%); and temper tantrums or hot temper (44.1%) among children with SM (Ford et al., 1998), indicating a possible oppositional subtype of children with the disorder that can be identified using the CBCL. This finding is important for the present study.

Similarly, some children with SM display specific symptoms of oppositional defiant disorder (ODD) or qualify for a diagnosis of ODD. Researchers found that 20-29% of children with SM exhibit symptoms of ODD and other aggressive behavior disorders (Steinhausen & Juzi, 1996; Yeganeh et al., 2006), and clinicians have diagnosed ODD in 6.8-29.0% of children

with SM (Arie et al., 2007; Black & Uhde, 1995; Yeganeh et al., 2006). One major aim of the present study was to determine an oppositional profile of SM based on CBCL items.

In contrast, Cunningham et al. (2006) found no significant differences between children with SM and controls on measures of parent-reported and teacher-reported oppositional symptoms. When comparing children with SM, children with other anxiety disorders, and children with no anxiety disorders, Vecchio and Kearney (2005) also found no significant differences on measures of parent-reported and teacher-reported oppositional symptoms. The presence of oppositional behaviors among some children with SM provides evidence for possible opposition-related subtypes of children with the disorder (Cohan et al., 2008; Diliberto & Kearney, 2016; 2018; Mulligan et al., 2015).

Neurodevelopmental Factors

A significant correlation exists between SM and neurodevelopmental problems such as speech and language disorders. In one sample of children with SM, 30.3% also exhibited speech and language abnormalities at the time of diagnosis (Steinhausen et al., 2006). In another sample, 38.0% had already received diagnoses for one or more speech and language disorders at the time of diagnosis (Steinhausen & Juzi, 1996). Comorbid speech and language disorders among children with SM include receptive language disorder, expressive language disorder, mixed receptive-expressive language disorder, phonological disorder, articulation disorder, stuttering, and cluttering (Ford et al., 1998; Kristensen, 2000; Steinhausen & Juzi, 1996; Steinhausen et al., 2006).

Children with SM also exhibit deficits in expressive language abilities compared to children with SAD. In one study, children with SM provided verbal story narratives that were significantly shorter than children with SAD. Also, group differences are confined to expressive

language ability. Children with SM did not exhibit significant differences in nonverbal cognitive and receptive language abilities than children with SAD (McInnes et al., 2004).

Children with SM also demonstrate significantly reduced abilities in various specific speech and language skills compared to children without SM. Children with SM score significantly lower on tests of receptive vocabulary skills, phonological awareness abilities, and understanding of grammatical constructs than children in a non-clinical control group, but not compared to children with other anxiety disorders (Manassis et al., 2007). Co-morbid speech and language disorder diagnoses and symptoms of children with SM provide evidence for possible speech and language-related subtypes of SM (Cohan et al., 2008; Mulligan et al., 2015).

Some children with SM endorse symptoms related to sensory and self-regulation issues. The symptoms often manifest as increased inattention, impulsivity, hyperactivity, and aggression. Moldan (2005) found impulsivity, hyperactivity, and aggression symptoms in a case study of a 6-year-old girl with SM. While playing board games with the therapist and the client's mother, the client knocked over and threw game pieces and stole other players' game pieces. The client also said, "Mine. Mine. Mine." to the therapist and client's mother after grabbing a game piece (pp. 301-302).

Conversely, other children with SM are less inattentive, impulsive, and hyperactive than children without SM. Teachers reported that a sample of children with SM endorsed significantly fewer attention-deficit/hyperactivity disorder (ADHD) symptoms than children in a non-clinical control group (Cunningham et al., 2004). Co-morbid sensory and self-regulation symptoms exhibited by some children with SM provide evidence for possible sensory and self-regulation-related subtypes of the disorder (Diliberto & Kearney, 2018; Mulligan et al., 2015).

Children with SM also exhibit various memory deficits compared to children without SM. Children with SM have significant deficits in visual and spatial working memory and short-term visual memory compared to children in a non-clinical control group, but not when compared to children with other anxiety disorders (Manassis et al., 2007).

Fine and gross motor difficulties are another type of neurodevelopmental problem among children with SM. Parents reported that 42.6% of children with SM exhibit developmental delay in gross motor functioning and 25.9% exhibit developmental delay in fine motor functioning. Comparatively, parents reported that 7.4% of children in a non-clinical control group exhibit developmental delay and 0.9% exhibit developmental delay in fine motor functioning (Kristensen, 2002). Among children diagnosed with SM, 17.0% qualified for a diagnosis of developmental coordination disorder, 29.6% qualified for a diagnosis of enuresis, and 14.8% qualified for a diagnosis of encopresis. Comparatively, 0.9% of children in a matched control group qualified for a diagnosis of developmental coordination disorder, 7.4% qualified for a diagnosis of enuresis, and 1.9% qualified for a diagnosis of encopresis (Kristensen, 2000).

Children with SM also exhibit auditory processing deficits. Malfunctioning in the middle-ear acoustic reflex (MEAR) pathway may result in abnormal auditory efferent activity (AEA)—the experience of the sound of one's voice during vocalization. The proper functioning of the MEAR pathway involves contractions in the middle-ear muscles that lessen an ability to hear one’s voice during speech (Muris & Ollendick, 2015). Some children with SM exhibit a decrease in the functioning of the MEAR pathway. A deficit in the MEAR pathway can lead to an impaired ability to attenuate the sounds of one's voice and can result in a diminished ability to process incoming auditory stimuli. A deficit in the MEAR pathway can also contribute to speech avoidance (Arie et al., 2007; Bar-Haim et al., 2004; Muchnik et al., 2013).

Genetic Factors

Researchers found evidence that the presence of a specific allele (*rs2710102*) in the *contactin-associated protein-like* 2-gene (*CNTNAP2*) is related to SM and social anxiety symptoms. In a study featuring the DNA of 106 children with SM, the presence of *rs2710102* was significantly related to the presence of SM symptoms (Stein et al., 2011). In a similar study featuring the DNA of 1028 young adults, the presence of *rs2710102* was associated with significantly increased odds of scoring greater than one standard deviation above the mean on two measures of social anxiety symptoms and traits (Stein et al., 2011). The results demonstrate that a specific genetic variation may increase the likelihood of experiencing SM-like symptoms.

Many risk factors influence the development of SM, including family factors, adverse life events, immigration, temperament, and neurodevelopmental and genetic factors. Clinicians would benefit from more accurate and comprehensive assessment tools that would enable them to better detect the risk factors for SM and to explore how the risk factors influence a child's presentation of the disorder. Learning more about the subtypes of SM, for example, could lead to the development of better assessment tools that would bring clinicians closer to these goals.

Effects

Children with SM experience various academic and social consequences as a result of the disorder. SM and poor school performance are significantly correlated. Many children with SM do not speak at all while at school, do not speak during certain situations at school, or do not speak to teachers or other individuals at school (Bergman et al., 2002; Kumpulainen et al., 1998). A large percentage of children with SM (45.1%) are referred to special education programs (Ford et al., 1998) and others (32%) perform below average academically (Kumpulainen et al., 1998).

SM and poor social relations are also significantly correlated. Parents and teachers rate children with SM as more socially impaired than children with attention-deficit/hyperactivity disorder (ADHD) and other anxiety disorders (Cunningham et al., 2004; Levin-Decanini et al., 2013). According to teacher reports, 16% of children with SM are rejected by peers during class, 13% are rejected by peers during breaks, and 5% are bullied by peers (Kumpulainen et al., 1998).

Children with SM also exhibit deficits in various types of social skills. Children with SM have significantly lower levels of social assertion and social responsibility compared to children in a mixed anxiety disorders group and children in a non-clinical control group. Children with SM also scored significantly lower on a measure of verbal social skills compared to children in a mixed anxiety disorders group and children in a non-clinical control group. Children with SM also scored significantly lower on a measure of nonverbal social skills compared to children in a non-clinical control group (Carbone et al., 2010). The academic and social consequences for children with SM are significant and further indicate the importance of developing effective assessment and treatment protocols for the disorder.

Assessment

Clinicians can best assess for SM using a comprehensive multimodal strategy (Dow et al., 1995; Krysanski, 2003; Viana et al., 2009; Wong, 2010). A comprehensive multimodal strategy can include clinical interviews of the parents and the child, developmental history, functional analysis, clinician observations, teacher and parent observations, and assessments of speech and language abilities.

Clinical interviews of a child with SM or parents of a child with SM provide important information about symptom presentation and degree of impairment. Clinical interviews involve series of open- and close-ended questions to the child or parent. The Anxiety Disorders Interview

Schedule for DSM-IV-Parent Version selective mutism section (ADIS-P; Silverman & Albano, 1996) is one such tool for diagnosing SM in children. During the ADIS-P, parents indicate whether a child experiences various SM symptoms and to what degree the symptoms interfere with the child's friendships, school functioning, and engagement in activities. Clinicians can also administer the Anxiety Disorders Interview Schedule for DSM-IV-Child Version selective mutism section (ADIS-C; Silverman & Albano, 1996). During the ADIS-C, the child can provide non-verbal answers (i.e., head nodding) to indicate whether they experience various symptoms of SM. A better understanding of the subtypes of SM could inform the interpretation of ADIS-P and ADIS-C results and could lead researchers to add questions to the interviews to identify which subtype of the disorder the child experiences.

Collecting a thorough developmental history of a child with SM helps a clinician rule out other diagnoses. Conditions other than SM are sometimes characterized by a lack of speech (e.g., autism spectrum disorder [ASD], language-variant frontotemporal neurocognitive disorder [NCD], and intellectual disability). Neurological problems resulting from prenatal and perinatal complications are also sometimes characterized by a lack of speech (APA, 2013; Viana et al., 2009). Improved knowledge of the subtypes of SM could enable clinicians to use developmental histories to better discriminate between children who qualify for an SM diagnosis and children who qualify for other related diagnoses, such as speech and language disorders.

Functional analysis can provide information about the relationships between the behaviors of a child with SM and events and stimuli in his or her environment. A functional analysis protocol for SM begins with a baseline control condition, such as engagement in non-directed play with a parent. The child then engages in a series of behavioral tasks that require communication in different ways with familiar and unfamiliar adults—with control conditions in

between. The behavioral tasks may vary in difficulty. An example of an easier task is having a parent ask the child yes/no questions and allowing the child to answer verbally or via head nodding. An example of a harder task is having a stranger ask the child yes/no questions and requiring the child to answer verbally. The clinician records the number of words spoken per minute (Schill et al., 1996).

Functional analysis tasks can serve the dual purpose of assessing a child's current level of behavioral functioning and exposing the child to feared events and stimuli to increase ability to speak. The clinician uses the number of words spoken per minute to assess the child's functioning before, during, and after an intervention. Therefore, the clinician can use functional analysis to integrate assessment and treatment for SM (Haynes & O'Brien, 1990; Neef & Iwata, 1994). Increasing our understanding of SM subtypes could lead to improvements in functional analysis. Clinicians could map behavioral patterns detected through functional analysis to various subtypes of SM to tailor treatment protocols to different children with the disorder.

Direct observation of a child by a clinician is another useful form of assessment for SM. Through direct observation, a clinician can gain insight into a child's level of social interaction, participation in social activities, ability to make friends, communication needs, and overall level of inhibition. The clinician can also use direct observation to compare the child's behaviors and speaking ability in different environments, such as home or school (Wong, 2010; Yeganeh et al., 2003). Improved knowledge of SM subtypes could inform clinicians' observations of children with SM. Clinicians could conduct more informative direct observations with a better a priori framework.

Teachers and parents can also make valuable observations that can be used by clinicians to assess a child for SM. Teachers can record and describe a child's inhibitive behaviors at

school, and parents can record and describe a child's inhibitive behaviors at home and in the community. Teachers and parents can also record and describe how often a child speaks to certain peers and family members. Teachers and parents can also identify and describe situations at school, home, and in the community in which the child is more or less likely to speak, such as during different subject lessons or breaks (Viana et al., 2009). The Teacher's Report Form (TRF), the Child Behavior Checklist (CBCL; Achenbach & Rescorla, 2001), and the Selective Mutism Questionnaire (SMQ; Bergman et al., 2008) are tools that can assist teachers and parents in recording observations of a child with SM. Teachers and parents can use the TRF, CBCL, and SMQ to record the behaviors of a child already diagnosed with SM or to identify and diagnose a child exhibiting symptoms of the disorder. Knowledge of the subtypes of SM could inform the interpretation of TRF, CBCL, and SMQ results and could lead researchers to focus on certain items to identify which subtype of the disorder the child experiences.

When assessing for SM, clinicians can also evaluate a child's speech and language abilities. Children with SM score significantly lower on measures of receptive language abilities, phonemic awareness, and grammar ability than children with no disorder or with other anxiety disorders (Manassis et al., 2007). Clinicians can use assessment tools such as the Peabody Picture Vocabulary Test-III (PPVT-III; Dunn & Dunn, 1997) to measure receptive language ability, the Lindamood Auditory Conceptualization Test (LACT; Lindamood & Lindamood, 1971) to measure phonemic awareness ability, and the Test of Reception of Grammar (TROG; Bishop, 2003) to measure grammar ability. Clinicians can also have the parents of a child with SM audiotape the child speaking at home and then use the recording to evaluate the child's phonological abilities, length of utterances, grammar, tone, rhythm, inflection, pitch, and volume (Dow et al., 1995). Knowledge of the subtypes of SM could inform the interpretation of speech

and language assessment results, enabling clinicians to more clearly delineate between children with speech and language-related subtypes of SM and children with other speech and language-related disorders.

Psychological Treatment

Preferred treatments for SM include various behavioral and cognitive-behavioral interventions. Specific behavioral techniques include contingency management, shaping, stimulus fading, systematic desensitization, and modeling (Cohan et al., 2006). Contingency management involves positive reinforcement of desired behaviors. In children with SM, contingency management could take the form of initially reinforcing increased non-verbal communication (such as pointing or mouthing words) and then gradually reinforcing increased verbal communication. The initial use of non-verbal communication is referred to as shaping and is often incorporated into contingency management (Amari et al., 1999; Porjes, 1992). Stimulus fading refers to asking a child with SM to speak in a gradually increasing number of situations and to a gradually increasing number of individuals (Masten et al., 1996; Watson & Kramer, 1992). Similarly, systematic desensitization involves gradual imaginary and in-vivo exposure to anxiety-provoking stimuli (Compton et al., 2004; Rye & Ullman, 1999). Modeling involves video- or audio-recording a child with SM speaking in a setting in which the child previously had refused to speak, then regularly playing the recording back to the child until the child becomes accustomed to the sound of his or her voice and becomes more confident to speak in different settings (Blum et al., 1998; Kehle et al., 1998; Kehle et al., 1990).

Therapeutic techniques that combine cognitive and behavioral components are also effective in the treatment of SM in children. Cognitive-behavioral approaches include psychoeducation about SM for parents; cognitive techniques such as recognizing bodily signs of

distress, identifying and challenging maladaptive thoughts, and generating coping strategies to effectively handle distress; and behavioral techniques such as relaxation and exposure to feared stimuli (Fung et al., 2002). Integrated behavioral therapy (IBT) is one such approach (Bergman et al., 2013). The central component of IBT is the creation of a hierarchy of feared speaking-related situations for children to gradually gain exposure to. IBT also includes various behavioral techniques, such as reinforcement, shaping, and modeling. Cognitive restructuring activities can also be added to the treatment if developmentally appropriate. In one sample, 67% of children no longer met criteria for SM after 20 sessions of IBT over 24 weeks. In the same sample, all no-treatment control children still met criteria for SM after 12 weeks. Furthermore, children in the IBT condition maintained treatment gains at a three-month follow-up. Researchers randomly assigned children in the sample to either the treatment or control condition, and all children began the study at the same time. The control condition ended after 12 weeks due to ethical concerns (Bergman et al., 2013).

Identification of specific SM subtypes could enable clinicians to tailor psychological treatments to different children with the disorder. For example, a child with an anxious subtype of SM may benefit from systematic desensitization and stimulus fading because the treatment techniques represent forms of exposure to feared situations and a child with an anxious subtype fails to speak out of fear. Conversely, the techniques would be contraindicated for a child with an oppositional subtype of SM because a child with an oppositional subtype is not afraid of situations requiring speech but rather intentionally chooses not to speak in the situations. A child with an oppositional subtype of SM may benefit from a contingency management system, whereby the clinician rewards the child when they speak and withholds rewards when they refuse to speak.

Pharmacological Treatment

Pharmacotherapy is another option for treating SM in children, though it is not as well researched as the use of psychotherapy (Manassis et al., 2016). For example, researchers investigated the use of fluoxetine and placebo in the treatment of SM among 16 patients aged 5-16 years. According to clinician and teacher ratings of SM symptoms, anxiety symptoms, and general functioning, children in the fluoxetine and placebo conditions achieved similar levels of improvement. According to parent ratings, children in the fluoxetine condition made significantly greater improvement than children in the placebo condition (Black & Uhde, 1994). In a similar study, researchers investigated the use of fluoxetine in 21 patients aged 5-14 years. Participants demonstrated significant improvements from pre-treatment to post-treatment on parent ratings of children's symptoms, children's ratings of symptoms, and clinician-administered interviews with parents and children. At post-treatment, researchers considered 76% of study participants to be improved (Dummit et al., 1996).

Researchers have conducted few studies about the use of pharmacotherapy for the treatment of SM. Increased knowledge of the subtypes of SM could lead researchers to conduct future studies concerning the use of pharmacotherapy for children with different subtypes. Children with certain subtypes, such as those more anxiety-based than oppositional-based, may benefit more from the inclusion of medication in treatment.

Subtyping

SM is heterogeneous in its expression, but many children with the disorder display anxious and oppositional behaviors. Children with the disorder display different behavioral profiles in this regard, which may correspond to different subtypes of the disorder (Kearney et al., 2019). Although researchers disagree about the precise subtypes of SM and how many

subtypes exist, researchers commonly find evidence for anxious and oppositional features within these subtypes. Cohan et al. (2008) identified three subtypes of SM, Mulligan et al. (2015) identified five subtypes of SM, Diliberto and Kearney (2016) identified two subtypes of SM, and Diliberto and Kearney (2018) identified three subtypes of SM. These studies are described in more detail next.

Cohan et al. (2008) conducted a latent profile analysis of parent-report measures of 130 children aged 5-12 years with SM. The researchers hypothesized that the analysis would result in three classes of children with SM: an anxious-mildly oppositional class characterized by both anxiety and low-level behavior problems; an anxious-communication delayed class characterized by both anxiety and developmental language delays; and an exclusively anxious class characterized by social anxiety. The hypothesized three-class model fit the data better than two-class and four-class models. Among children in the study, 44.6% met criteria for the anxious-mildly oppositional class, 43.1% met criteria for the anxious-communication delayed class, and 12.3% met criteria for the exclusively anxious class.

Children in the anxious-communication delayed class displayed significantly greater SM symptom severity than children in the exclusively anxious class. The researchers found no significant differences with respect to SM-related functional impairment among children in the three classes. Children in the anxious-communication delayed class endorsed significantly more externalizing problems than children in the exclusively anxious class. Children in the anxious-mildly oppositional class demonstrated better expressive language abilities than children in the anxious-communication delayed class. Children in the exclusively anxious class demonstrated better receptive language abilities than children in the anxious-communication delayed class. Overall, some children with SM displayed symptoms similar to children with other anxiety

disorders (e.g., SAD), providing evidence for an anxious subtype. The results also indicated that some children with SM displayed significantly more oppositional symptoms than other children with the disorder, providing evidence for an oppositional subtype.

Mulligan et al. (2015) conducted a hierarchical cluster analysis of a parent-report measure of 186 children aged 3-18 years with SM. The researchers hypothesized that the analysis would result in five subtypes of children with SM; the hierarchical cluster analysis instead resulted in six subtypes. The researchers excluded from further analysis the participants in one of the subtypes due to small sample size. The researchers labeled the remaining five subtypes global mutism, low functioning mutism, sensory pathology mutism, anxiety/language mutism, and emotional/behavioral mutism. Among the children in the study, 38.2% met criteria for the global mutism subtype, 12.4% met criteria for the low functioning mutism subtype, 11.8% met criteria for the sensory pathology mutism subtype, 8.1% met criteria for the anxiety/language mutism subtype, and 5.9% met criteria for the emotional/behavioral mutism subtype.

Children in the subtypes exhibited different behavior problems, as reported by parents on the Mutism Behavior Rating Scale (MBRS), a subscale of the Selective Mutism Comprehensive Diagnostic Questionnaire (SM-CDQ; Shipon-Blum, 2004). Children in the global mutism subtype were less impaired than children in other subtypes and exhibited social anxiety symptoms and communication deficits. Children in the low functioning mutism subtype had greater academic problems than children in other subtypes. Children in the sensory pathology mutism subtype had greater sensory integration problems than children in other subtypes. Children in the anxiety/language mutism subtype had more speech impediments and met criteria for speech and language disorder diagnoses more often than children in other subtypes. Children

in the emotional/behavioral mutism subtype were more oppositional and exhibited more mood lability than children in other subtypes. Overall, certain children with SM displayed social anxiety symptoms, providing evidence for an anxious subtype. The results also indicated that children with the anxious subtype of SM may be higher functioning overall than children with other subtypes of the disorder. The results also indicated that certain children with SM display more oppositional symptoms than other children with the disorder, providing evidence for an oppositional subtype.

Diliberto and Kearney (2016) conducted an exploratory factor analysis (EFA), a confirmatory factor analysis (CFA), and linear regression analyses of parent reports on the CBCL for 57 children (M_{age} = 6.74 years) with SM. The researchers expected the EFA to result in two factors: an anxious factor characterized by social problems and behaviors consistent with a SAD diagnosis and an oppositional factor characterized by aggressive behaviors and behaviors consistent with an ODD diagnosis. The EFA resulted in five factors. The two factors with the largest eigenvalues were retained. Factor 1 had six items associated with anxiety. Factor 2 had five items associated with oppositionality (Table 1). The researchers then confirmed via CFA that the two-factor structure fit the sample. The results provided evidence to support the existence of anxious and oppositional subtypes of SM.

Diliberto and Kearney then conducted linear regression analyses to determine if the factors identified in the EFA/CFA predicted CBCL social problems and aggressive behaviors scores and ADIS-P social anxiety disorder and oppositional defiant disorder scores. As hypothesized, Factor 1 (anxiety) scores predicted CBCL social problems scores and ADIS-P social anxiety disorder scores and did not predict ADIS-P oppositional defiant disorder scores. Factor 1 scores also predicted CBCL aggressive behaviors scores. As hypothesized, Factor 2

(oppositionality) scores predicted CBCL social problems scores, CBCL aggressive behaviors scores, and ADIS-P oppositional defiant disorder scores. As hypothesized, Factor 2 scores also predicted and were inversely related to ADIS-P social anxiety disorder scores.

Overall, the results of the linear regression analyses provided evidence to support the predictive validity of the CBCL and ADIS-P for the anxious and oppositional subtypes of SM. Three measures (the CBCL social problems scale, the ADIS-P oppositional defiant disorder section, and the ADIS-P social anxiety disorder section) demonstrated adequate predictive validity for both the anxious and oppositional subtypes. One measure (the CBCL aggressive behaviors scale) demonstrated adequate predictive validity for the oppositional subtype only.

Diliberto and Kearney (2018) conducted multiple analyses on a set of parent-report measures of 278 children aged 6-10 years with SM. The researchers first conducted a CFA to determine if the two-factor structure identified in Diliberto and Kearney (2016) fit the sample, finding that it did not. The researchers then removed items from the CFA model in descending order of loading value until adequate goodness-of-fit was obtained. The researchers then conducted an EFA to determine the factor structure of the sample, resulting in three factors. Factor 1 had nine items associated with anxiety. Factor 2 had five items associated with oppositionality. Factor 3 had five items associated with inattention (Table 2). The researchers then conducted a CFA to confirm that the three-factor structure fit the sample, finding that it did. Overall, the results of the factor analyses provide evidence for a three-factor model of anxious, oppositional, and inattentive subtypes of SM.

Diliberto and Kearney then conducted a latent class analysis to determine the class structure of the sample. A three-class model fit the data best. Class 1 included “moderately anxious, oppositional, and inattentive” children with SM. Class 2 included “highly anxious, and

moderately oppositional and inattentive" children with SM. Class 3 included "mildly to moderately anxious, and mildly oppositional and inattentive" children with SM. Among the children in the study, 31.5% met criteria for Class 1, 29.7% met criteria for Class 2, and 38.8% met criteria for Class 3. The results of the latent class analysis indicate that children with SM fit into three distinct classes based upon symptom severity.

Finally, Diliberto and Kearney conducted a MANOVA with Tukey HSD post hoc corrections to determine if children in the three classes significantly differed on CBCL and EAS Temperament Survey (EAS; Buss & Plomin, 1984; 1986) subscale scores. Children in Class 2 had significantly higher EAS shyness scores and CBCL social problems scores than children in both Class 1 and 3. Children in Class 2 also had significantly higher EAS emotionality scores than children in Class 3. Overall, children in Class 2 were the most impaired. Children in Class 3 had significantly higher EAS sociability and activity scores than children in Class 2, and children in Class 3 had significantly higher CBCL social competence scores than children in Class 1. Overall, children in Class 3 were the least impaired and scored higher on measures of positive social functioning. Children in Class 1 had significantly lower EAS shyness scores and CBCL social problems scores than children in Class 2. Overall, children in Class 1 endorsed impairment levels between children in Class 2 and 3.

Diliberto and Kearney (2018) indicated that children with SM may fit into three distinct subtypes: anxious, oppositional, and inattentive. The results also indicated that children with SM fit into three distinct classes based upon symptom severity level: highly anxious, and moderately oppositional and inattentive; moderately anxious, oppositional, and inattentive; and mildly to moderately anxious, and mildly oppositional and inattentive. The results also indicated that

CBCL social problems subscale scores adequately predict the division of children with SM into distinct classes, a finding that is important for the present study.

Common CBCL items were identified across Diliberto and Kearney (2016; 2018). Common items assessing anxious behaviors included "Would rather be alone than with others," "Withdrawn, doesn't get involved with others," "Nervous, high strung or tense," and "Too fearful or anxious." Common items assessing oppositional behaviors included "Argues a lot," "Temper tantrums or hot temper," "Whining," "Stubborn, sullen or irritable," and "Demands a lot of attention." The present study tested these items via CFA in a new sample.

The identification of different subtypes of SM has important implications for assessment and treatment. Clinicians need a clearer understanding of SM and more refined assessment and treatment protocols that target potential subtypes. Several studies indicate that there are distinct subtypes of the disorder and that clinicians can use scores and items on certain measures (e.g., the MBRS, the ADIS-P, and the CBCL) to identify these subtypes. Clinicians could then customize a child's treatment to a specific subtype.

To achieve these aims, researchers and clinicians would benefit from an increased understanding of which items help reliably identify SM subtypes and predict scores on symptom severity measures. Past studies (Diliberto & Kearney, 2016; 2018) identified specific CBCL items commonly endorsed by parents of children with anxious, oppositional, and inattentive subtypes of SM. No past studies on the subtypes of SM, though, addressed the predictive validity of the subtypes for symptom severity measures. The present study is unique in that it tested the predictive validity of identified SM subtypes.

Purpose of the Present Study

Selective mutism is characterized by a high degree of heterogeneity. Clinicians must have a clear understanding of SM subtypes to better match individuals to the most appropriate treatments (DiStefano & Kamphaus, 2006; Meyers et al., 2006; Robins & Guze, 1970). Achieving a better understanding of the subtypes of the disorder will enable researchers to develop more precise assessment procedures, which will lead to better treatment design and implementation. Clarifying whether there are distinct anxious and oppositional behavior factors among children with SM and identifying questionnaire items that predict these factors will bring researchers closer to developing better assessment procedures for the disorder.

The first aim of the present study was to determine, via CFA, whether a two-factor structure (anxious and oppositional behavior factors) derived from common CBCL items identified in past studies (Diliberto & Kearney, 2016; 2018) fits a new sample of children with SM. The second aim of the present study was to identify whether this two-factor structure predicts Selective Mutism Questionnaire (SMQ; Bergman et al., 2008) subscale scores.

Hypotheses

The study examined two hypotheses:

- Hypothesis 1: A two-factor structure (anxious and oppositional behavior factors) identified by common CBCL items in past studies (Diliberto & Kearney, 2016; 2018) would fit a new sample of children with SM. If Hypothesis 1 was supported, then Hypothesis 2 was tested. If Hypothesis 1 was not supported, then model trimming occurred to obtain a satisfactory factor structure, and this structure was used to test Hypothesis 2.

- Hypothesis 2: Anxious and oppositional factor scores derived from Hypothesis 1 would predict SMQ subscale scores (School, Home/Family, and Public/Social) in a new sample of children with SM.

Chapter 3: Method

Participants

Participants were parents who belonged to online organizations and support groups for SM. The sample consisted of 124 parents of children with SM aged 6-10 years (M = 7.86 years, SD = 1.36 years). Children in the sample were 68.5% female and European-American (59.8%), biracial/multiracial (14.8%), other (9.8%), Asian (8.2%), Hispanic (4.1%), African American (1.6%), or Native American (1.6%). Most children (89.5%) in the sample had received treatment prior to survey completion.

Measures

Child Behavior Checklist (CBCL)

The CBCL (Achenbach & Rescorla, 2001) is a 113-item parent report of behavioral, emotional, and social functioning in children. A parent completes a descriptive section regarding a child's current functioning, including types of activities, number of friends, quality of family and peer relationships, academic performance and accommodations, illnesses and disabilities, parent concerns about the child, and best things about the child. Specific behavioral items are then rated on a 3-point Likert-type scale: 0 = "not true," 1 = "somewhat or sometimes true," and 2 = "very true or often true." Ratings are based on observations over the preceding six months. The CBCL 6-18 version was used.

The CBCL has good internal consistency for Total Problems (0.97), Internalizing (0.90), and Externalizing (0.94); narrow-band scales range from 0.78-0.94. Test-retest reliabilities are satisfactory (0.82-0.92) for the narrow-band scales as well as Total Problems (0.94), Internalizing (0.91), and Externalizing (0.92). Content, construct, and criterion-related validity of the measure are also satisfactory (Achenbach & Rescorla, 2001; Sattler & Hoge, 2006).

Selective Mutism Questionnaire (SMQ)

The SMQ (Bergman et al., 2008) is a 17-item parent report of how frequently a child speaks in different situations. The questionnaire has three subscales based on different situations that require speech: School, Home/Family, and Public/Social. Questions from the school section (6 items) assess how frequently a child speaks with peers, teachers and other school staff, and before groups or classes. Questions from the home/family section (6 items) assess how frequently a child speaks to family members (e.g., parents, grandparents, siblings, cousins) across situations (e.g., home, unfamiliar places, phone). Questions from the public/social section (5 items) assess how frequently a child speaks to people outside the family (e.g., family friends, doctors, clerks) and in groups outside of school and home (e.g., clubs and teams). Items are scored on a 4-point Likert-type scale: 0 = "Never," 1 = "Seldom," 2 = "Often," and 3 = "Always."

The SMQ has good internal consistency for Total Problems (0.97), School (0.97), Home/Family (0.88), and Public/Social (0.96). The SMQ has good convergent validity, as indicated by significant correlations with scores on the Social Anxiety Scale for Children-Revised (r = -.52, p < .01), scores on the Social Anxiety subscale of the Multidimensional Anxiety Scale for Children-Parent Report (r = -.62, p < .01), and clinical severity ratings on the Anxiety Disorders Interview Schedule for DSM-IV (r = -.67, p < .001; Bergman et al., 2008).

Procedure

Parents of children with SM aged 6-10 years provided data for the present study. Graduate students from the University of Nevada, Las Vegas (UNLV) collected the data from September 2018 to May 2019. To recruit participants, students posted announcements describing the study to Facebook support groups for SM and posted announcements on the Selective

Mutism Association (SMA) website. The study has been approved by the UNLV Institutional Review Board (IRB).

Parents of children with SM accessed a link to a Qualtrics survey included in the study announcement. The Qualtrics survey included information on the study and an opportunity to provide informed consent. Consenting parents provided demographic information about their children and themselves and answered questions about their children's diagnostic history and past survey participation. Parents then completed the CBCL, SMQ, Children's Communication Checklist-2 (CCC-2; Bishop, 2003), and questions adapted from the ADIS-P selective mutism interview and the DSM-V diagnostic criteria for SM (Appendix).

Data Analyses

For Hypothesis 1, a confirmatory factor analysis (CFA) via EQS was used to determine whether a two-factor structure (anxious and oppositional behavior factors) of common CBCL items identified in past studies (Diliberto & Kearney, 2016; 2018) fit a new sample of children with SM. Acceptable goodness of fit included comparative fit index and incremental fit index values of .90+ and standardized root mean square residual values of <.10 (Kline, 2016). If the two-factor structure did not fit the new sample, model trimming was used to obtain a suitable factor structure. For Hypothesis 2, regression analyses were used to predict SMQ subscale scores from anxious and oppositional factor scores. Exploratory post hoc analyses were also conducted.

Chapter 4: Results

Preliminary Statistics

Descriptive statistics were calculated for CBCL item and factor scores, CBCL T-scores, and SMQ subscale scores (Table 3). Pearson correlations were calculated for CBCL item and factor scores and SMQ subscale scores (Table 4). Regarding multicollinearity, the variance inflation factor was calculated (3.21) and found acceptable for the strongest correlation (.83). The present study sample was older (t = 9.20, p < .001) and had significantly more female (t = 2.14, p < .05) and European-American (t = 3.19, p < .01) participants and significantly less Hispanic (t = -9.43, p < .001) participants than Diliberto and Kearney (2016). The present study sample had significantly less European-American (t = -3.87, p < .001) and significantly more biracial/multiracial (t = 3.12, p < .01) participants than Diliberto and Kearney (2018).

Hypothesis 1

Hypothesis 1 was that a two-factor structure (anxious and oppositional behavior factors) identified by common CBCL items in past studies (Diliberto & Kearney, 2016; 2018) would fit a new sample of children with SM. The initial confirmatory factor analysis (CFA) for the two-factor structure in the current sample did not meet specified goodness-of-fit criteria (CFI = .861, IFI = .865, SRMR = .090). Hypothesis 1 was not supported. One low-loading item was then removed ("Withdrawn, doesn't get involved with others") and the two-factor structure for the current sample then met specified goodness-of-fit criteria (CFI = .912, IFI = .915, SRMR = .068). Factor 1 included 3 items associated with anxious behaviors: “Would rather be alone than with others,” “Nervous, high strung or tense,” and “Too fearful or anxious.” Factor 2 included 5 items associated with oppositional behaviors: “Argues a lot,” “Temper tantrums or hot temper,”

"Whining," "Stubborn, sullen or irritable," and "Demands a lot of attention." Factors were retained and factor scores were utilized for further analyses.

Hypothesis 2

Hypothesis 2 was that anxious and oppositional factor scores derived from Hypothesis 1 would predict SMQ subscale scores (School, Home/Family, and Public/Social) in a new sample of children with SM. As hypothesized, the anxious factor score was a significant predictor of SMQ School (β = -0.21, t = -2.19, p = .03), Home/Family (β = -0.34, t = -3.71, p < .001), and Public/Social (β = -0.25, t = -2.67, p = .01) subscale scores. Contrary to the hypothesis, the oppositional factor score was not a significant predictor of SMQ subscale scores (Table 5). Hypothesis 2 was partially supported.

Exploratory Post Hoc Analyses

Exploratory post hoc regression analyses were conducted regarding gender, age group, and SMQ cutoff scores. For females, the anxious factor score was a significant predictor of SMQ School (β = -0.26, t = -2.28, p = .03) and Home/Family (β = -0.32, t = -2.88, p = .01) subscale scores but not the Public/Social subscale score. For males, the anxious factor score was not a significant predictor of the SMQ School subscale score but was a significant predictor of SMQ Home/Family (β = -0.38, t = -2.34, p = .03) and Public/Social (β = -0.35, t = -2.05, p = .05) subscale scores. For both females and males, the oppositional factor score was not a significant predictor of any SMQ subscale score (Table 6).

For children aged 6-8 years, the anxious factor score was not a significant predictor of SMQ subscale scores. For children aged 9-10 years, the anxious factor score was a significant predictor of SMQ School (β = -0.35, t = -2.20, p = .03), Home/Family (β = -0.65, t = -4.87, p < .001), and Public/Social (β = -0.54, t = -3.66, p = .001) subscale scores. For both younger and

older children, the oppositional factor score was not a significant predictor of SMQ subscale scores (Table 7).

Comparisons were also made based on median cutoff scores (i.e., lower and upper 50% of each subscale score; Mdn_{School} = 4, $Mdn_{Home/Family}$ = 11, $Mdn_{Public/Social}$ = 2). For children below the cutoff scores, the anxious factor score was not a significant predictor of SMQ subscale scores. For children above the cutoff scores, the anxious factor score was a significant predictor of SMQ School (β = -0.34, t = -2.77, p = .01) and Public/Social (β = -0.27, t = -2.33, p = .02) subscale scores but not Home/Family subscale scores. The oppositional factor score did not predict SMQ subscale scores for children below or above the cutoff scores (Table 8). Exploratory post hoc regression analyses were also used regarding CBCL item 65 ("Refuses to talk") scores. Anxious (β = 0.46, t = 5.39, p < .001) and oppositional (β = 0.19, t = 2.04, p = .04) factor scores were significant predictors of item 65 scores (Table 9).

Chapter 5: Discussion

A modified two-factor structure (anxious and oppositional behavior factors) from previously identified CBCL items (Diliberto & Kearney, 2016; 2018) fit the present study sample. Anxiety factor scores predicted all SMQ subscale (School, Home/Family, Public/Social) scores, including elevated and item 65 scores, suggesting that these items could be used to detect the presence of an anxious subtype of SM in children. Anxiety factor scores better predicted SMQ subscale scores for females than males, however. This is an important finding because SM is more prevalent in females than in males (2:1 average ratio; Dummit et al., 1997). Anxiety factor scores also predicted SMQ subscale scores better for older (9-10 years) than younger (6-8 years) children. CBCL anxiety items may thus be more salient for female and older children than male and younger children with SM. Oppositional factor scores predicted no SMQ subscale scores in any circumstance except for item 65 scores. Study findings partially support the presence of both an anxious and oppositional subtype of the disorder. Caution should be noted regarding some demographic differences that were found between the present study sample and Diliberto and Kearney (2016; 2018).

Relationship to Previous Research

These findings build on past studies (Cohan et al., 2008; Mulligan et al., 2015; Diliberto & Kearney, 2016; 2018) by confirming a two-factor structure of SM (anxious and oppositional behavior factors). Cohan et al. (2008) found three subtypes of SM: anxious-mildly oppositional, anxious-communication delayed, and exclusively anxious. Anxious behaviors are a common feature of all three subtypes, and oppositional behaviors are a feature of the anxious-mildly oppositional subtype. Mulligan et al. (2015) found five subtypes of SM: global mutism, low functioning mutism, sensory pathology mutism, anxiety/language mutism, and

emotional/behavioral mutism. Anxious behaviors are the predominant feature of the global mutism subtype, and oppositional behaviors are a feature of the emotional/behavioral mutism subtype. Diliberto and Kearney (2016) found two subtypes: anxious and oppositional. Diliberto and Kearney (2018) found three subtypes: anxious, oppositional, and inattentive. These studies indicate that certain children with SM display more anxiety symptoms and that other children display more oppositional symptoms, providing evidence for subtypes. The present study clarifies these past findings by confirming the presence of one distinct anxious subtype and one distinct oppositional subtype of SM based on CBCL items.

Findings of the present study also build on past studies (Diliberto & Kearney, 2016; 2018) by confirming specific CBCL items for the subtypes and by partially supporting the predictive validity of the items for a symptom severity measure. Diliberto and Kearney (2016) identified 11 CBCL items (six related to anxiety and five related to oppositionality). Diliberto and Kearney (2018) identified 23 items (14 related to anxiety and nine related to oppositionality). Through model trimming, the present study determined that eight CBCL items (three related to anxiety and five related to oppositionality) could identify potential subtypes in the present sample. The present study also determined that the three anxiety-based CBCL items predicted SMQ subscale scores, demonstrating the predictive validity and possible clinical utility of the items. The five CBCL items related to oppositionality did not predict SMQ subscale scores, indicating that the CBCL may be less useful for detecting an oppositional subtype of SM in children. This finding contrasts those in past studies (Diliberto & Kearney, 2016; 2018) that CBCL items for anxiety and oppositionality demonstrated predictive validity and possible clinical utility.

Findings of the present study also build on past studies by supporting oppositionality as a temperamental construct among children with SM. In the present study, oppositional factor scores predicted scores on CBCL item 65 ("Refuses to talk"), a key indicator of SM. This matches previous findings that 20-29% of children with SM exhibit oppositional and aggressive behaviors (Steinhausen & Juzi, 1996; Yeganeh et al., 2006). In addition, 6.8-29.0% of children with SM meet diagnostic criteria for ODD (Arie et al., 2007; Black and Uhde, 1995; Yeganeh et al., 2006). Clinicians have also described some children with SM as controlling and negative, behaviors related to an oppositional temperament (Krohn et al., 1992). Findings in the present study similarly align with elevated levels of externalizing symptoms in children with SM compared to non-clinical controls (Kristensen, 2001). Ford et al. (1998) also reported elevated levels of four CBCL items that were also part of the present study: “Stubborn, sullen or irritable” (71.7%), “Argues a lot” (58.3%), “Whining” (45.7%), and “Temper tantrum or hot temper” (44.1%).

Finally, findings of the present study build on past studies by providing insight into ways that SM can manifest differently in children depending upon age and gender. Older and younger children and females and males may present different symptoms of SM. The different symptom presentations may complicate assessment of the disorder. This relates to previous findings that the prognosis for children with SM varies depending upon age at follow-up and that SM-related problems often continue into adolescence and adulthood but may be diagnosed differently (Kolvin & Fundudis, 1981; Oerbeck et al., 2018; Remschmidt et al., 2001; Steinhausen et al., 2006). This also relates to previous findings that SM may present differently in females and males. For example, females with SM may present with more shyness and anxiety symptoms than males (Dummit et al., 1997; Ford et al., 1998). The findings of the present study support the

need for improvements in assessment and treatment that target differences in SM symptom presentation as a function of age and gender.

Clinical Implications

Assessment

The present study may provide insight into ways to improve the assessment of SM. Clinicians often assess SM using a comprehensive multimodal strategy that can include clinical interviews of the parents and the child, developmental history, functional analysis, clinician observations, teacher and parent observations, and assessments of speech and language abilities (Dow et al., 1995; Krysanski, 2003; Viana et al., 2009; Wong, 2010). The three identified CBCL items related to anxiety help providers by providing clues to better understand a child's motivations for his or her lack of speech in certain situations. If a parent endorses the item "Would rather be alone than with others," the parent may be indicating that their child intentionally avoids situations where they are required to speak. This may lead a clinician to then inquire about the specific situations the child avoids, the duration of the avoidance, and whether the refusal to speak causes interference in educational achievement or social communication. These questions could help the clinician determine whether the child meets criteria for a selective mutism diagnosis. If the parent endorses the items "Nervous, high strung or tense" or "Too fearful or anxious," the parent may be indicating that their child avoids speaking because of anxiety. This could lead the clinician to plan an intervention centered on decreasing the child's anxiety (e.g., systematic desensitization).

The findings of the present study also indicate that while the oppositional subtype of SM can be identified, the subtype may have less connection to SMQ items. In the present study, oppositional factor scores predicted scores on CBCL item 65 ("Refuses to talk"). Oppositional

factor scores predicted no SMQ subscale scores, however. These findings may be explained by the fact that no SMQ items directly assess for oppositional behaviors. Clinicians should still assess children for an oppositional subtype of SM, but the SMQ may not be an appropriate measure to support an assessment of the subtype. In addition to the CBCL, clinicians could use a behavioral measure such as the Eyberg Child Behavior Inventory (ECBI; Eyberg & Pincus, 1999) to determine if children are exhibiting an oppositional subtype of SM.

The findings of the present study also indicate that children may benefit from different behavioral assessment protocols for SM depending on gender. According to the present study, the CBCL alone was not effective for assessing males for SM-related behaviors in the school setting. Clinicians could use a teacher observation measure such as the TRF to assess males for SM-related behaviors exhibited at school (Viana et al., 2009). The TRF could provide accounts of how males with SM interact with peers and adults outside of the home and how they interact with others during different activities, such as subject lessons or breaks. Using the TRF in addition to the CBCL could give clinicians a more complete picture of the behavioral presentation of SM in this population.

Finally, findings of the present study indicate that children may benefit from different behavioral assessment protocols for SM depending on age. In the present study, anxiety factor scores predicted SMQ subscale scores better for older than younger children. Clinicians should consider alternative measures to assess younger children who may have an anxious subtype of SM. Clinicians could use anxiety-specific measures intended for younger children such as the Revised Child Anxiety and Depression Scale (RCADS; Chorpita & Ebesutani, 2014) and the Spence Children's Anxiety Scale (SCAS; Spence, 1998).

Treatment

The present study was not treatment-oriented, but its findings may have implications for the treatment of SM. Clinicians could use different treatments with children exhibiting anxious and oppositional subtypes of the disorder. Treatments for SM include psychological interventions such as behavioral and cognitive-behavioral therapy and pharmacological interventions such as selective serotonin reuptake inhibitors (SSRIs; Cohan et al., 2006; Fung et al., 2002; Manassis et al., 2016). For children with an anxious subtype of SM, systematic desensitization involves gradual imaginary and in-vivo exposure to anxiety-provoking stimuli. Children with SM undergoing systematic desensitization gradually become less afraid and avoidant and more able to speak in anxiety-provoking situations (Compton et al., 2004; Rye & Ullman, 1999). Contingency management may be an effective behavioral intervention for children with an oppositional subtype of SM. A clinician or parent reinforces non-verbal communication (such as pointing or mouthing words) and then gradually reinforces increased verbal communication (Amari et al., 1999; Porjes, 1992). Improved assessment protocols would help clinicians better identify which treatments would be most appropriate for which children.

Clinicians could also modify treatments depending on gender. For example, contingency management could be modified for female and male children with SM in the school setting (Amari et al., 1999; Porjes, 1992). Teachers could provide different rewards for females and males based upon information provided on the TRF. Improved assessment of SM could lead to treatments more tailored to a child's gender and more effective as a result.

Finally, different treatments may be warranted for younger and older children with SM. Younger children with SM may experience more improvement when treated with behavioral interventions such as contingency management, shaping, stimulus fading, systematic

desensitization, and modeling because these interventions may be more developmentally appropriate for these children (Amari et al., 1999; Blum et al., 1998; Compton et al., 2004; Kehle et al., 1990; Kehle et al., 1998; Masten et al., 1996; Porjes, 1992; Rye & Ullman, 1999; Watson & Kramer, 1992). Older children with SM may experience more improvement when treated with interventions that include cognitive techniques such as recognizing bodily signs of distress, identifying and challenging maladaptive thoughts, and generating coping strategies to effectively handle distress. The increased cognitive abilities of older children mean that a cognitive-behavioral approach could be a particularly effective treatment for these children (Fung et al., 2002). Improved assessment of SM could lead to better tailored and more effective treatment protocols for both younger and older children with the disorder.

Study Limitations

Several limitations are evident in the present study. First, the present study relied solely on parent report, making it difficult to confirm the children's SM diagnoses. Measures were not given to children or teachers. Children were also not directly evaluated by clinicians to confirm an SM diagnosis. Most of the children (89.5%) in the study were receiving treatment for SM, however, and likely received an SM diagnosis.

Second, the present study had a relatively small sample size for CFA purposes. Researchers commonly recommend a sample size of 400+ for adequate power, with a minimum of 100 (Kline, 2016). The present study met the acceptable minimum but may have benefited from a larger sample. A larger sample could help clarify the predictive validity and possible clinical utility of screening measures such as the CBCL for an oppositional subtype of SM. A larger sample could also help clarify the predictive validity and possible clinical utility of screening measures when participants are separated by gender, age, and median cutoff scores.

Third, the ethnic diversity of the present study sample does not reflect that found in the United States population as a whole. The percentages of people from some ethnic groups (African American, biracial/multiracial, and Hispanic) were significantly different between the present study sample and the general population, raising concerns regarding generalizability. Conversely, the percentages were similar between the present study sample and the general population for other ethnic groups (European-American, Asian, and Native American; U.S. Census Bureau, 2019), perhaps enhancing generalizability for these groups.

Recommendations for Future Research

Future research regarding SM subtypes should address the aforementioned limitations. Future studies should aim for larger sample sizes (400+ participants) and include samples that better reflect the ethnic diversity of the general population to help clarify the predictive validity and possible clinical utility of screening measures for SM. Future studies should also use a wider variety of measures that gather information from teachers and children. The inclusion of teacher measures such as the TRF (Achenbach & Rescorla, 2001) and clinician-administered interviews such as the ADIS-P and ADIS-C (Silverman & Albano, 1996) would help researchers gather more complete accounts of children's SM symptoms. In particular, data from these additional sources would help confirm children's SM diagnoses and provide increased insight into how SM symptoms manifest in different settings (e.g., home, school, community). The inclusion of clinicians' direct behavioral observations of children with SM (Wong, 2010; Yeganeh et al., 2003) and a clinician-administered functional analysis protocol (Schill et al., 1996) would also help researchers gather additional information about children’s SM symptoms and confirm SM diagnoses.

Future studies should also include additional variables that may be related to SM symptom presentation and severity. Results of the present study indicate that gender, age, and median SMQ cutoff scores may relate to types and severity of SM symptoms in children. These variables may also relate to the ability to use screening measures such as the CBCL to detect SM symptoms. Future studies could build on the present study by examining the predictive validity of other screening measures (e.g., TRF, ADIS-P, ADIS-C) for an SM symptom severity measure (such as the SMQ) for different gender and age groups and for groups scoring above and below a cutoff.

Tables

Table 1: Diliberto (2016) Exploratory Factor Analysis

	Item	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
1.	Would rather be alone than with others	**.74**	-.02	-.05	.34	.22
2.	Withdrawn, doesn't get involved with others	**.73**	.02	.18	.00	.00
3.	Nervous, high strung or tense	**.64**	.17	.11	-.02	.07
4.	Doesn't eat well	**.54**	.06	-.18	.02	-.24
5.	Sudden changes in mood or feelings	**.51**	.33	.06	.10	.38
6.	Too fearful or anxious	**.51**	.14	.37	.06	.09
7.	Argues a lot	.25	**.80**	-.01	.03	-.11
8.	Temper tantrums or hot temper	.04	**.74**	.05	-.13	.34
9.	Whining	-.14	**.74**	.18	.09	-.04
10.	Stubborn, sullen or irritable	.13	**.70**	.33	.02	.17
11.	Demands a lot of attention	.25	**.59**	-.20	.21	.04
12.	Self-conscious or easily embarrassed	-.02	.02	**.72**	.07	.04
13.	Worries	.11	.27	**.71**	.10	.28
14.	Too shy or timid	.41	-.10	**.54**	-.41	-.13
15.	Fails to finish things he/she starts	.01	-.03	-.07	**.76**	.20
16.	Fear certain animals, situations, or places other than school	.27	.17	.38	**.66**	-.13
17.	Clings to adults or too dependent	.29	.40	.35	**.46**	-.37
18.	Feels he/she has to be perfect	.10	.13	.16	.13	**.82**

Table 2: Diliberto (2018) Exploratory Factor Analysis

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

Note. Item loaded onto two factors.

Table 3: Descriptive Statistics for CBCL Item Scores, CBCL Factor Scores, CBCL T-Scores, and SMQ Subscale Scores

Variable	*M*	*SD*	Range
CBCL Item Scores			
Item 3	1.03	0.75	0-2
Item 19	0.79	0.82	0-2
Item 42	0.45	0.66	0-2
Item 45	1.01	0.73	0-2
Item 50	1.27	0.74	0-2
Item 86	0.84	0.71	0-2
Item 95	0.80	0.78	0-2
Item 109	0.71	0.73	0-2
Item 111	0.53	0.74	0-2
CBCL Factor Scores			
Anxious Factor	2.73	1.64	0-6
Oppositional Factor	4.17	2.84	0-10
CBCL T-Scores			
ADHD Problems	54.03	6.40	50-80
Aggressive Behavior	57.23	7.78	50-81
Anxiety Problems	69.56	13.21	50-97
Anxious/Depressed	66.11	10.33	50-94
Attention Problems	56.97	9.08	50-90
Conduct Problems	55.32	7.37	50-83
Depressive Problems	61.59	8.88	50-84
Oppositional Defiant Problems	57.79	7.45	50-77
Rule-Breaking Behavior	55.16	6.68	50-80
Social Problems	57.68	7.92	50-91
Somatic Complaints	59.90	8.89	50-86
Somatic Problems	59.20	10.08	50-93
Thought Problems	60.63	8.73	50-87
Withdrawn/Depressed	65.81	10.53	50-100
SMQ Subscale Scores			
School	5.22	4.55	0-18
Home/Family	10.25	4.63	0-18
Public/Social	3.42	3.24	0-15

Note. CBCL Item 3: Argues a lot; CBCL Item 19: Demands a lot of attention; CBCL Item 42: Would rather be alone than with others; CBCL Item 45: Nervous, high strung or tense; CBCL Item 50: Too fearful or anxious; CBCL Item 86: Stubborn, sullen or irritable; CBCL Item 95: Temper tantrum or hot temper; CBCL Item 109: Whining; CBCL Item 111: Withdrawn, doesn't get involved with others.

Table 4: Correlations for CBCL Item Scores, CBCL Factor Scores, and SMQ Subscale Scores

	Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1.	CBCL Item 3	—													
2.	CBCL Item 19	.44***	—												
3.	CBCL Item 42	.02	.05	—											
4.	CBCL Item 45	.21*	.54***	.24*	—										
5.	CBCL Item 50	.08	.18	.33***	.53***	—									
6.	CBCL Item 86	.44***	.36***	.24*	.36***	.19*	—								
7.	CBCL Item 95	.45***	.49***	.04	.30**	.07	.45***	—							
8.	CBCL Item 109	.38***	.52***	.17	.32**	.23*	.30**	.52***	—						
9.	CBCL Item 111	.03	.11	.50***	.37***	.43***	.27**	-.01	.21*	—					
10.	CBCL Anxious Factor	.14	.34***	.67***	.79***	.83***	.35***	.18	.32**	.57***	—				
11.	CBCL Oppositional Factor	.73***	.77***	.14	.47***	.20*	.68***	.79***	.73***	.16	.36***	—			
12.	SMQ School	.12	.01	-.27**	-.12	-.09	-.05	-.01	-.14	-.23*	-.21*	-.02	—		
13.	SMQ Home/Family	.10	.01	-.36***	-.16	-.30**	-.14	.11	.01	-.35***	-.35***	.03	.34***	—	
14.	SMQ Public/Social	.16	.08	-.23*	-.10	-.26**	-.05	.05	-.02	-.30**	-.26**	.06	.46***	.69***	—

Note. CBCL Item 3: Argues a lot; CBCL Item 19: Demands a lot of attention; CBCL Item 42: Would rather be alone than with others; CBCL Item 45: Nervous, high strung or tense; CBCL Item 50: Too fearful or anxious; CBCL Item 86: Stubborn, sullen or irritable; CBCL Item 95: Temper tantrum or hot temper; CBCL Item 109: Whining; CBCL Item 111: Withdrawn, doesn't get involved with others.

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

Table 5: Regression Analyses with SMQ Subscale Scores

Anxious Factor					
Dependent Variable	B	SE B	*β*	*t*	*p*
SMQ School	-0.57	0.26	-0.21	-2.19	.03*
SMQ Home/Family	-0.97	0.26	-0.34	-3.71	.00***
SMQ Public/Social	-0.50	0.19	-0.25	-2.67	.01**
Oppositional Factor					
Dependent Variable	B	SE B	*β*	*t*	*p*
SMQ School	0.01	0.16	0.01	0.05	.96
SMQ Home/Family	0.07	0.16	0.04	0.45	.66
SMQ Public/Social	0.08	0.11	0.07	0.75	.46

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

Table 6: Regression Analyses with SMQ Subscale Scores by Gender

Anxious Factor					
Dependent Variable	B	SE B	*β*	*t*	*p*
SMQ School					
Female	-0.76	0.33	-0.26	-2.28	.03*
Male	-0.12	0.41	-0.05	-0.30	.76
SMQ Home/Family					
Female	-0.94	0.33	-0.32	-2.88	.01**
Male	-1.06	0.45	-0.38	-2.34	.03*
SMQ Public/Social					
Female	-0.46	0.24	-0.21	-1.87	.07
Male	-0.56	0.28	-0.35	-2.05	.05*
Oppositional Factor					
Dependent Variable	B	SE B	*β*	*t*	*p*
SMQ School					
Female	-0.04	0.20	-0.02	-0.20	.85
Male	0.14	0.24	0.10	0.57	.57
SMQ Home/Family					
Female	-0.07	0.20	-0.04	-0.33	.74
Male	0.33	0.26	0.22	1.24	.22
SMQ Public/Social					
Female	0.12	0.15	0.09	0.79	.43
Male	0.04	0.17	0.04	0.22	.83

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

Table 7: Regression Analyses with SMQ Subscale Scores by Age Group

Anxious Factor					
Dependent Variable	B	SE B	*β*	*t*	*p*
SMQ School					
Younger	-0.32	0.31	-0.12	-1.02	.31
Older	-1.04	0.47	-0.35	-2.20	.03*
SMQ Home/Family					
Younger	-0.51	0.32	-0.18	-1.57	.12
Older	-1.92	0.40	-0.65	-4.87	.00***
SMQ Public/Social					
Younger	-0.15	0.22	-0.08	-0.71	.48
Older	-1.15	0.31	-0.54	-3.66	.00***
Oppositional Factor					
Dependent Variable	B	SE B	*β*	*t*	*p*
SMQ School					
Younger	0.12	0.18	0.07	0.62	.54
Older	-0.16	0.30	-0.10	-0.55	.59
SMQ Home/Family					
Younger	0.12	0.19	0.07	0.62	.54
Older	-0.00	0.29	-0.00	-0.01	.99
SMQ Public/Social					
Younger	0.16	0.12	0.15	1.33	.19
Older	-0.04	0.22	-0.03	-0.19	.86

Note. Younger: 6-8 years. Older: 9-10 years.
* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 8: Regression Analyses with SMQ Subscale Scores by Median Cutoff Scores

Anxious Factor					
Dependent Variable	B	SE B	*β*	*t*	*p*
SMQ School					
Below	-0.01	0.10	-0.01	-0.08	.94
Above	-0.89	0.32	-0.34	-2.77	.01**
SMQ Home/Family					
Below	-0.28	0.21	-0.18	-1.33	.19
Above	-0.34	0.23	-0.20	-1.49	.14
SMQ Public/Social					
Below	0.00	0.05	0.01	0.05	.96
Above	-0.47	0.20	-0.27	-2.33	.02*
Oppositional Factor					
Dependent Variable	B	SE B	*β*	*t*	*p*
SMQ School					
Below	-0.01	0.06	-0.03	-0.22	.83
Above	0.09	0.18	0.06	0.48	.63
SMQ Home/Family					
Below	0.21	0.13	0.22	1.61	.12
Above	-0.03	0.11	-0.03	-0.22	.83
SMQ Public/Social					
Below	0.02	0.03	0.08	0.49	.63
Above	0.07	0.12	0.07	0.55	.59

Note. Below cutoff scores: lower 50% of scores. Above cutoff scores: upper 50% of scores.
* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 9: Regression Analyses with CBCL Item 65

Anxious Factor					
Dependent Variable	B	SE B	*β*	*t*	*p*
CBCL Item 65	0.21	0.04	0.46	5.39	.00***
Oppositional Factor					
Dependent Variable	B	SE B	*β*	*t*	*p*
CBCL Item 65	0.05	0.03	0.19	2.04	.04*

Note. CBCL Item 65: Refuses to talk.
* $p < .05$. ** $p < .01$. *** $p < .001$.

Appendix

Default Question Block

Informed Consent Form

Title of Study: Communication and Behavior Factors in a Community Sample of Youth with Selective Mutism

Investigator(s): Christopher Kearney, Ph.D., Mirae J. Fornander, B.A., Victoria Bacon, M.P.S., Melanie Rede, B.A., Shadie Burke, B.A., & Rachele Diliberto, Ph.D.
For questions or concerns about the study, you may contact Christopher Kearney at chris.kearney@unlv.edu or Mirae Fornander at mfornand@unlv.nevada.edu

Purpose of the Study
You are invited to participate in a research study. The purpose of this study is to examine the behaviors and communication abilities of different children who have selective mutism according to parental report.

Participants
You are being asked to participate in the study because you fit this criterion: Parents of 6- to 10-year-old children with selective mutism.

Procedures
If you volunteer to participate in this study, you will be asked to do the following: We are asking to use your data for research purposes. You will be asked to complete various measures on the behavior and communication abilities of your child. If you say yes, your data from your survey will be entered into a database to help us study youth with selective mutism. If you say no, you will not be prompted to complete the questionnaires and your data will not be utilized. As part of this research, you will be asked to complete a total of 3 questionnaires. Your participation in this research project should last between 20-35 minutes.

Confidentiality
All information gathered in this study will be kept as confidential as possible among the researchers. All data are entered into the study database without any identifiable information about your child. No reference will be made in written or oral materials that could link your child to this study. All records will be downloaded from the survey site and stored in locked facility at UNLV. Your contact information is collected for the purposes of the gift card raffle and will not be tied in any way to your survey responses. Data collected may be used for future research analysis.

Cost/Compensation
There will be no financial cost to you to participate in this study. The study will take approximately 15-25 minutes of your time. Compensation will be provided in the form of random drawings, which will take place at the beginning of every month over the study's year duration. One participant will be awarded a $20.00 Amazon gift card, per month, for providing their email address at completion of the survey.

Benefits of Participation

This study aims to increase knowledge of symptoms and communication abilities of children with selective mutism according to parental report. There are no direct benefits of participation.

Risks of Participation
There are risks involved in all research studies. This study may include only minimal risks. Anticipated risks of participation may include minor discomfort when answering some questions. Parents are encouraged to seek professional services if they believe their child is at risk for harming themselves. Professional services, such as the police, suicide hotline and emergency room are recommended.

Voluntary Participation
Your participation in this study is voluntary. You may refuse to participate in this study or in any part of this study. Participants can answer all, some or none of the questions and elect not to answer questions if they make participants feel uncomfortable. You may withdraw at any time without prejudice to your relations with UNLV.

For questions regarding the rights of research subjects, any complaints or comments regarding the manner in which the study is being conducted, contact **the UNLV Office of Research Integrity – Human Subjects at 702-895-2794, toll free at 877-895-2794 or via email at IRB@unlv.edu.** Thank you for your time and cooperation.

ELECTRONIC CONSENT: Please select your choice below. Clicking on the "agree" button below indicates that: • you have read the above information • you voluntarily agree to participate • you are at least 18 years of age. If you do not wish to participate in the research study, please decline participation by clicking on the "disagree" button.

- ○ Agree
- ○ Disagree

Please complete the questions below about your child with selective mutism.

Child's Gender

- ○ Boy
- ○ Girl

Child's Age in Years

Child's Ethnic Group or Race

- Asian
- African-American
- European-American
- Hispanic
- Native American
- Biracial/Multiracial
- Other

Child's Grade in School

Your gender

- Male
- Female

Your relation to the child

- Biological Parent
- Adoptive Parent
- Step Parent
- Foster Parent

Grandparent

Other (Specify)

Has the child been diagnosed with Selective Mutism?

Yes

No

If yes, who diagnosed the child with Selective Mutism? (e.g. pediatrician, psychologist, school, etc)

If yes, what year was the child diagnosed with Selective Mutism?

Have you, or another parent/guardian, participated in this survey before for this child?

Yes

No

How long has the child been treated for Selective Mutism?

Zero months (my child has not received treatment for selective mutism)

Less than 3 months

3-6 months

6-9 months

9-12 months

More than 12 months

Does the child fail to speak at school or in other social situations? For example, does he/she fail to answer questions in school or fail to respond when persons other than family members speak to him/her?

Yes

No

Does the child fail to answer friends and other people who ask him/her questions?

Yes

No

Does the child talk when he/she is at home with the rest of the family?

Yes

No

Does the child have any friends who speak for him/her when he/she needs something at school? Or, do family members speak for him/her in situations such as ordering food, talking on the phone, and so forth?

Yes

No

Has school become difficult because of his/her not talking?

Yes

No

Do you get upset because the child won't speak to other people?

- Yes
- No

Has the child ever spoken in school?

- Yes
- No

Has this been going on for longer than the first month of school?

- Yes
- No

Have other situations, like extracurricular activities or social situations, become difficult for the child because of them not talking?

- Yes
- No

Does the child speak more than one language?

- Yes
- No

If yes, please list all of the languages spoken.

If yes, are they comfortable with and knowledgeable of the language in which they are refusing to speak?

- Yes
- No

Has the child been diagnosed with a communication disorder, autism spectrum disorder, or psychotic disorder such as schizophrenia?

- Yes
- No

If yes, please list all applicable diagnoses.

If yes, is the child's failure to speak attributable to one of the aforementioned disorders?

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

	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
Click to write Sport 1	○	○	○	○	○	○	○	○
Click to write Sport 2	○	○	○	○	○	○	○	○
Click to write Sport 3	○	○	○	○	○	○	○	○

Please list your child's favorite hobbies, activities and games, other than sports. For example: video games, dolls, reading, piano, crafts, cars, computers, singing, etc. (Do not include listening to radio, tv, or other media.)

	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
Hobby, Activity or Game 1	○	○	○	○	○	○	○	○
Hobby, Activity or Game 2	○	○	○	○	○	○	○	○
Hobby, Activity or Game 3	○	○	○	○	○	○	○	○

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

	Compared to others of the same age, how active is he/she in each?			
	Less active	Average	More active	Don't know
Organization 1	○	○	○	○
Organization 2	○	○	○	○
Organization 3	○	○	○	○

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

	Compared to others of the same age, how well does he/she carry them out?			
	Below Average	Average	Above Average	Don't know
Job or Chore 1	○	○	○	○
Job or Chore 2	○	○	○	○
Job or Chore 3	○	○	○	○

About how many close friends does your child have? (Do not include brothers & sisters)

- ○ None
- ○ 1
- ○ 2 or 3
- ○ 4 or more

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

Compared to others of his/her age, how well does your child get along with his/her brothers & sisters?

- ○ Worse
- ○ Average
- ○ Better
- ○ Has no brothers or sisters

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

	Worse	Average	Better
Get along with other kids?	○	○	○
Behave with his/her parents?	○	○	○
Play and work alone?	○	○	○

Performance in Academic Subjects.
Check a box for each subject that child takes. Other academic subjects-for example: computer courses, foreign, language, business. Do not include gym, shops, driver's ed., or other nonacademic subjects.

	Failing	Below Average	Average	Above Average
a. Reading, English, or Language Arts	○	○	○	○
b. History or Social Studies	○	○	○	○
c. Arithmetic or Math	○	○	○	○
d. Science	○	○	○	○
Click to write Subject e.	○	○	○	○
Click to write Subject f.	○	○	○	○
Click to write Subject g.	○	○	○	○

h. If no answers to the above questions, my child does not attend school because:

Does your child receive special education or remedial services or attend a special class or special school? If yes, what kind of services, class, or school.

○ No
○ Yes

Has your child repeated any grades? If yes, grades and reasons.

- No
- Yes

Has your child had any academic or other problems in school? If yes, please describe.

- No
- Yes

If yes, when did these problems start?

Have these problems ended? If yes, when?

- No
- Yes

Does your child have any illness or disability (either physical or mental)? If yes, please describe.

- No
- Yes

What concerns you most about your child?

Please describe the best things about your child.

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 mark the 2 if the item is very true or often true of your child. Mark the 1 if the item is somewhat or sometimes true of your child. If the item is not true of your child, mark the 0. Please answer all items as well as you can, even if some do not seem to apply to your child.

	0 = Not True (as far as you know)	1 = Somewhat or Sometimes True	2 = Very True or Often True
1. Acts too young for his/her age	○	○	○
2. Drinks alcohol without parents' approval	○	○	○
3. Argues a lot	○	○	○
4. Fails to finish things he/she starts	○	○	○
5. There is very little he/she enjoys	○	○	○
6. Bowel movements outside toilet	○	○	○
7. Bragging, boasting	○	○	○
8. Can't concentrate, can't pay attention for long	○	○	○
9. Can't get his/her mind off certain thoughts; obsessions	○	○	○
10. Can't sit still, restless, or hyperactive	○	○	○
	0 = Not True (as far as you know)	1 = Somewhat or Sometimes True	2 = Very True or Often True
11. Clings to adults or too dependent	○	○	○
12. Complains of loneliness	○	○	○

13. Confused or seems to be in a fog	○	○	○
14. Cries a lot	○	○	○
15. Cruel to animals	○	○	○
16. Cruelty, bullying or meanness to others	○	○	○
17. Daydreams or gets lost in his/her thoughts	○	○	○
18. Deliberately harms self or attempts suicide	○	○	○
19. Demands a lot of attention	○	○	○
20. Destroys his/her own things	○	○	○
	0 = Not True (as far as you know)	1 = Somewhat or Sometimes True	2 = Very True or Often True
21. Destroys things belonging to his/her family or others	○	○	○
22. Disobedient at home	○	○	○
23. Disobedient at school	○	○	○
24. Doesn't eat well	○	○	○
25. Doesn't get along with other kids	○	○	○
26. Doesn't seem to feel guilty after misbehaving	○	○	○
27. Easily jealous	○	○	○
28. Breaks rules at home, school, or elsewhere	○	○	○
29. Fears certain animals, situations, or places other than school	○	○	○
30. Fears going to school	○	○	○
	0 = Not True (as far as you know)	1 = Somewhat or Sometimes True	2 = Very True or Often True
31. Fears he/she might think or do something bad	○	○	○
32. Feels he/she has to be perfect	○	○	○
33. Feels or complains that no one loves him/her	○	○	○
34. Feels others are out to get him/her	○	○	○
35. Feels worthless or inferior	○	○	○
36. Gets hurt a lot, accident-prone	○	○	○
37. Gets in many fights	○	○	○
38. Gets teased a lot	○	○	○
39. Hangs around with others			

who get in trouble	○	○	○
40. Hears sound or voices that aren't there	○	○	○
	0 = Not True (as far as you know)	1 = Somewhat or Sometimes True	2 = Very True or Often True
41. Impulsive or acts without thinking	○	○	○
42. Would rather be alone than with others	○	○	○
43. Lying or cheating	○	○	○
44. Bites fingernails	○	○	○
45. Nervous, high strung or tense	○	○	○
46. Nervous movements or twitching	○	○	○
47. Nightmares	○	○	○
48. Not liked by other kids	○	○	○
49. Constipated, doesn't move bowels	○	○	○
50. Too fearful or anxious	○	○	○
	0 = Not True (as far as you know)	1 = Somewhat or Sometimes True	2 = Very True or Often True
51. Feels dizzy or lightheaded	○	○	○
52. Feels too guilty	○	○	○
53. Overeating	○	○	○
54. Overtired without good reason	○	○	○
55. Overweight	○	○	○
56A. Physical problems without known medical cause: Aches or pains (not stomach or headaches)	○	○	○
56B. Physical problems without known medical cause: Headaches	○	○	○
56C. Physical problems without known medical cause: Nausea, feels sick	○	○	○
56D. Physical problems without known medical cause: Problems with eyes (not if corrected by glasses)	○	○	○
56E. Physical problems without known medical cause: Rashes or other skin problems	○	○	○
	0 = Not True (as far as you know)	1 = Somewhat or Sometimes True	2 = Very True or Often True

56F. Physical problems without known medical cause: Stomachaches	○	○	○
56G. Physical problems without known medical cause: Vomiting, throwing up	○	○	○
57. Physically attacks people	○	○	○
58. Picks nose, skin, or other parts of body	○	○	○
59. Plays with own sex parts in public	○	○	○
60. Plays with own sex parts too much	○	○	○
61. Poor school work	○	○	○
62. Poorly coordinated or clumsy	○	○	○
63. Prefers being with older kids	○	○	○
64. Prefers being with younger kids	○	○	○
	0 = Not True (as far as you know)	1 = Somewhat or Sometimes True	2 = Very True or Often True
65. Refuses to talk	○	○	○
66. Repeats certain acts over and over; compulsions	○	○	○
67. Runs away from home	○	○	○
68. Screams a lot	○	○	○
69. Secretive, keeps things to self	○	○	○
70. Sees things that aren't there	○	○	○
71. Self-conscious or easily embarrassed	○	○	○
72. Sets fires	○	○	○
73. Sexual problems	○	○	○
74. Showing off or clowning	○	○	○
	0 = Not True (as far as you know)	1 = Somewhat or Sometimes True	2 = Very True or Often True
75. Too shy or timid	○	○	○
76. Sleeps less than most kids	○	○	○
77. Sleeps more than most kids during day and/or night	○	○	○
78. Inattentive or easily distracted	○	○	○
79. Speech problem	○	○	○
80. Stares blankly	○	○	○
81. Steals at home	○	○	○

82. Steals outside the home	○	○	○
83. Stores up too many things he/she doesn't need	○	○	○
84. Strange behavior	○	○	○
	0 = Not True (as far as you know)	1 = Somewhat or Sometimes True	2 = Very True or Often True
85. Strange ideas	○	○	○
86. Stubborn, sullen or irritable	○	○	○
87. Sudden changes in mood or feelings	○	○	○
88. Sulks a lot	○	○	○
89. Suspicious	○	○	○
90. Swearing or obscene language	○	○	○
91. Talks about killing self	○	○	○
92. Talks or walks in sleep	○	○	○
93. Talks too much	○	○	○
94. Teases a lot	○	○	○
	0 = Not True (as far as you know)	1 = Somewhat or Sometimes True	2 = Very True or Often True
95. Temper tantrums or hot temper	○	○	○
96. Thinks about sex too much	○	○	○
97. Threatens people	○	○	○
98. Thumb-sucking	○	○	○
99. Smokes, chews, or sniffs tobacco	○	○	○
100. Trouble sleeping	○	○	○
101. Truancy, skips school	○	○	○
102. Underactive, slow moving, or lacks energy	○	○	○
103. Unhappy, sad, or depressed	○	○	○
104. Unusually loud	○	○	○
	0 = Not True (as far as you know)	1 = Somewhat or Sometimes True	2 = Very True or Often True
105. Uses drugs for nonmedical purposes (don't include alcohol or tobacco)	○	○	○
106. Vandalism	○	○	○
107. Wets self during the day	○	○	○
108. Wets the bed	○	○	○

109. Whining	○	○	○
110. Wishes to be of opposite sex	○	○	○
111. Withdrawn, doesn't get involved with others	○	○	○
112. Worries	○	○	○

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

	Always	Often	Seldom	Never
1. When appropriate, my child talks to selected peers (his/her friends) at school.	○	○	○	○
2. When appropriate, my child talks to most peers at school.	○	○	○	○
3. When my child is asked a question by his/her teacher, s/he answers.	○	○	○	○
4. When appropriate, my child asks his or her teacher questions	○	○	○	○
5. When appropriate, my child speaks to most teachers or staff at school.	○	○	○	○
6. When appropriate, my child speaks in groups or in front of the class.	○	○	○	○
	Always	Often	Seldom	Never
7. When appropriate, my child talks to family members living at home	○	○	○	○
8. When appropriate, my child talks to family members living at home when other people are present.	○	○	○	○
9. When appropriate, my child talks to family members while in unfamiliar places.	○	○	○	○
10. When appropriate, my child talks to family members that don't live with him/her (e.g. grandparent, cousin).	○	○	○	○
11. When appropriate, my child talks on the phone to his/her parents and siblings.	○	○	○	○
12. When appropriate, my child speaks with family friends who are well-known to him/her.	○	○	○	○

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

Does the child have permanent hearing loss?

- ○ Yes
- ○ No

If YES, please give further details.

Does the child speak English as his or her primary language (the language the child speaks most frequently and is most comfortable using)?

- ○ Yes
- ○ No

If NO, please give further details.

Is the child able to put words together in sentences?

- Yes
- No

If NO, please give further details.

How long have you known this child?

Statements 1-50 refer to difficulties children may have that affect their ability to communicate. Please use the rating key provided to indicate how often you have observed the behavior. If you are uncertain of a rating, think over the last week and try to remember how often you have observed the child behaving this way. Please read each item carefully. Do not leave any items blank.

How often you have observed the behavior.

	0 = less than once a week (or never)	1 = at least once a week, but not everyday (or occasionally)	2 = once or twice a day (or frequently)	3 = several times (more than twice) a day (or always)
1. Gets mixed up between he and she (e.g., says "he" when talking about a girl or "she" when talking about a boy)				
2. Simplifies words by leaving out some sounds (e.g.,				

pronounces "crocodile" as "cockodile," or "stranger" as "staynger")				
3. Appears anxious in the company of other children				
4. Makes false starts, and seems to search for the right words (e.g., says "can I - can I - can I - can I - can I have an - have ice cream")				
5. Talks repetitively about things that no one is interested in				
6. Forgets words he or she knows (e.g., instead of "rhinoceros" may say "you know, the animal with the horn on its nose...")				
7. With familiar adults, seems inattentive, distant, or preoccupied				
8. Looks blank in a situation where most children would show a clear facial expression (e.g., when angry, fearful, or happy)				
9. When given the opportunity to do what he or she likes, chooses the same favorite activity (e.g., playing a specific computer game)				
10. Uses terms like he or it without making it clear what he or she is talking about (e.g., when talking about a movie, says "he was really great" without explaining who "he" is)				
11. Says things he or she does not seem to fully understand or seems to be repeating something he or she heard an adult say (e.g., a 5-year-old describing a teacher by saying, "she's got a very good reputation")				
12. Mixes up words of similar meaning (e.g., says "dog" for "fox," or "screwdriver" for "hammer")				
13. Is babied, teased, or bullied by other children				
14. Does not look at the person he or she is talking to				
15. Misses the point of jokes and puns (though may be amused by nonverbal humor such as slapstick)				
16. Is left out of joint activities				

by other children	○	○	○	○
17. Gets mixed up between he/him or she/her (e.g., says "him is working" rather than "he is working," or "her has a cake" rather than "she has a cake")	○	○	○	○
18. Uses favorite phrases, sentences, or longer sequences in inappropriate contexts (e.g., says "all of a sudden" instead of "then," as in "We went to the park and all of a sudden we had a picnic;" or routinely starts utterances with "by the way")	○	○	○	○
19. Gets confused when a word is used differently from its usual meaning (e.g., does not understand when an unfriendly person is described as "cold" and assumes the person is shivering)	○	○	○	○
20. Stands too close to other people when talking to them	○	○	○	○
21. Talks to people without any encouragement or starts conversations with strangers	○	○	○	○
22. Talks about lists of things he or she has memorized (e.g., the names of state capitals or the names of dinosaurs)	○	○	○	○
23. Pronounces words in an over-precise manner (e.g., as if child is mimicking a TV personality rather than talking like those around him or her)	○	○	○	○

How often you have observed the behavior.

	0 = less than once a week (or never)	1 = at least once a week, but not everyday (or occasionally)	2 = once or twice a day (or frequently)	3 = several times (more than twice) a day (or always)
24. Pronounces words in a babyish way (e.g., "chimbley" for "chimney" or "bokkle" for "bottle")	○	○	○	○
25. It is difficult to tell if he or she is talking about something real or make-believe	○	○	○	○
26. Moves the conversation to a favorite topic, even if others do not seem interested in it	○	○	○	○
27. Utterances sound babyish				

because they are just two or three words long (e.g., "me got ball" instead of "I've got a ball" or "give doll" instead of "give me the doll")	○	○	○	○
28. Ability to communicate varies from situation to situation (e.g., talks easily one-to-one with a familiar adult, but has difficulty expressing himself or herself in a group of children)	○	○	○	○
29. Leaves off beginnings or endings of words (e.g., says "roe" instead of "road" or "nana" instead of "banana")	○	○	○	○
30. Repeats what others have just said (e.g., if asked "What did you eat?" says, "What did you eat?")	○	○	○	○
31. Ignores conversational overtures from others (e.g., if asked, "What are you making?" does not look up and just continues working)	○	○	○	○
32. Mixes up words that sound similar (e.g., says "telephone" for "television" or "magician" for "musician")	○	○	○	○
33. Hurts or upsets other children without meaning to	○	○	○	○
34. Takes in just one to two words in a sentence, and so misinterprets what has been said (e.g., if someone says, "I want to go skating next week," the child may think that person has been skating or wants to go now)	○	○	○	○
35. It is difficult to stop him or her from talking	○	○	○	○
36. Leaves off past tense -ed endings on words (e.g., says "John kick the ball" instead of "John kicked the ball," or "Sally play over there" instead of "Sally played over there")	○	○	○	○
37. Tells people things they know already	○	○	○	○
38. Makes mistakes in pronouncing long words (e.g., says "vegebable" instead of "vegetable" or "trellistope" instead of "telescope")	○	○	○	○
39. Does not recognize when other people are upset or angry	○	○	○	○
40. Confuses the sequence of events when trying to tell a story or describe a recent event				

(e.g., if describing a movie, might talk about the ending before the beginning)	○	○	○	○
41. Is too literal (e.g., if asked "Is it hard to get up in the morning?" replies, "No, you just put one leg out of the bed and then the other and stand up;" or if told "watch your hands" when using scissors, proceeds to stare at his or her fingers)	○	○	○	○
42. Provides over-precise information in his or her talk (e.g., if asked "When did you go on vacation?" may say "July 13, 2005" instead of "in the summer")	○	○	○	○
43. Leaves out "is" (e.g., says "Daddy going to work" instead of "Daddy is going to work" or "Daddy's going to work," or says "the boy big" instead of "the boy is big")	○	○	○	○
44. Mispronounces th for s or w for r (e.g., "thoap" instead of "soap" or "wabbit" instead of "rabbit")	○	○	○	○
45. Asks a question, even though he or she has been given the answer	○	○	○	○
46. Is vague in choice of words, making it unclear what he or she is talking about (e.g., says "that thing" rather than "pan")	○	○	○	○
47. Shows interest in things or activities that most people would find unusual (e.g., traffic lights, washing machines, weather)	○	○	○	○
48. Does not explain what he or she is talking about to someone who does not share his or her experiences (e.g., talks about "Johnny" without explaining who Johnny is)	○	○	○	○
49. Surprises people by his or her knowledge of unusual words (e.g., uses terms you expect to hear from an adult rather than a child)	○	○	○	○
50. It is hard to make sense of what he or she is saying, even though the words are clearly spoken	○	○	○	○

Statements 1-50 referred to difficulties children may have that affect communication. Statements 51-70 refer to strengths the child may have when communicating with others.

Please note that for statements 51-70, a 0 response means that the child lacks this communicative strength and a 3 indicates that a child has this communicative strength.

Please use the rating key provided to indicate how often you have observed the behavior. If you are uncertain of a rating, think over the last week and try to remember how often you have observed the child behaving this way.

Please read each item carefully. Do not leave any items blank.

	0 = less than once a week (or never)	1 = at least once a week, but not everyday (or occasionally)	2 = once or twice a day (or frequently)	3 = several times (more than twice) a day (or always)
51. Speaks clearly so that the words can easily be understood by someone who does not know him or her well	○	○	○	○
52. Reacts positively when a new and unfamiliar activity is suggested	○	○	○	○
53. Talks clearly about what he or she plans to do in the future (e.g., what he or she will do tomorrow or plans for going on vacation)	○	○	○	○
54. Appreciates the humor expressed by irony (e.g., would be amused rather than confused if someone said "Isn't it a nice day?" when it is pouring rain)	○	○	○	○
55. Produces long and complicated sentences (e.g., "When I went to the park I went on the swing," or "I saw this man standing on the corner.")	○	○	○	○
56. Makes good use of gestures to get his or her meaning across	○	○	○	○
57. Shows concern when other people are upset	○	○	○	○
58. Speaks fluently and clearly, producing all speech sounds accurately and without any hesitation	○	○	○	○
59. Keeps quiet in situations when someone else is trying to talk or concentrate (e.g., when someone else is watching TV or during formal occasions, such as a school assembly or a religious ceremony)	○	○	○	○

60. Realizes the need to be polite (e.g., would act pleased if given a present he or she did not really like; would avoid making personal comments about strangers)	○	○	○	○
61. When answering a question, provides enough information without being over-precise	○	○	○	○
62. You can have an enjoyable, interesting conversation with him or her	○	○	○	○
63. Shows flexibility in adapting to unexpected situations (e.g., does not get upset if he or she planned to play on the computer but has to do something else because it is not working)	○	○	○	○
64. Uses abstract words that refer to general concepts rather than something you can see (e.g., knowledge, politics, courage)	○	○	○	○
65. Smiles appropriately when talking to people	○	○	○	○
66. Uses words that refer to whole classes of objects, rather than a specific item (e.g., refers to a table, chair, and drawers as "furniture" or to apples, bananas, and pears as "fruit")	○	○	○	○
67. Talks about his or her friends; shows interest in what they do and say	○	○	○	○
68. Explains a past event clearly (e.g., what he or she did at school or what happened at a football game)	○	○	○	○
69. Produces sentences containing "because" (e.g., "John got a cake because it was his birthday")	○	○	○	○
70. Talks to others about their interests	○	○	○	○

Thank you for taking the time to complete this survey. Please provide your email address if you would like to be included in a random drawing to receive a $20 amazon gift card.

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Curriculum Vitae

Andrew Gerthoffer

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EDUCATION

2016-2020 **M.A. Psychology**
University of Nevada, Las Vegas
GPA: 3.78

Relevant Coursework

- Assessment of Adults
- Intervention with Adults
- Assessment of Children
- Intervention with Children
- Psychopathology
- History and Foundations of Clinical Psychology
- Diversity Issues in Professional Psychology
- Introduction to Group Counseling
- Career Theories and Practices
- Substance Abuse Prevention and Treatment
- Human Growth and Development

2005-2010 **B.A. with High Distinction**
University of Nevada, Reno
Major: History
Minor: Cultural Anthropology
GPA: 3.87

Relevant Coursework

- Abnormal Psychology
- Principles of Psychotherapy
- Personality Theories
- General Psychology
- Social Work
- Cultural Anthropology
- Sociology

CLINICAL SKILLS

Therapy
Cognitive Behavioral Therapy (CBT), Acceptance and Commitment Therapy (ACT), Dialectical Behavior Therapy (DBT), Motivational Interviewing (MI), Behavioral Activation (BA), exposure therapy, mindfulness, crisis intervention

Assessment
Comprehensive Test of Phonological Processing (CTOPP), Conners' Continuous Performance Test (CPT), Delis-Kaplan Executive Functioning System (D-KEFS), Mullen Scales of Early Learning, Structured Clinical Interview for DSM-5 (SCID-5), Wechsler series (Adult Intelligence Scale, Intelligence Scale for Children, Abbreviated Scale of Intelligence, Memory Scale), Woodcock-Johnson series (Tests of Achievement, Tests of Cognitive Abilities, Tests of Oral Language)

CLINICAL EXPERIENCE

Graduate Assistant
Student Counseling and Psychological Services
University of Nevada, Las Vegas
2019-2020

- Services provided: individual therapy (13 clients), group therapy (1 group per semester), intake interviews (2 per week), case management
- Presenting problems: anxiety (generalized, social, panic, specific phobias, obsessive-compulsive), depression (unipolar, bipolar), trauma (interpersonal violence), gender dysphoria, stress management
- Population: ethnically and culturally diverse client base of UNLV undergraduate and graduate students
- UNLV is ranked as one of the top universities for ethnic diversity by *U.S. News & World Report*

Student Clinician
The Partnership for Research, Assessment, Counseling, Therapy and Innovative Clinical Education (The PRACTICE)
University of Nevada, Las Vegas
2017-2019

- Services provided: individual therapy (4 clients), group therapy (1 group per semester), intake interviews (1 every other week), case management
- Tests administered: CPT, D-KEFS, SCID-5, Wechsler series, Woodcock-Johnson series
- Presenting problems: anxiety (generalized, social, panic, specific phobias, obsessive-compulsive), depression (unipolar, bipolar), personality (borderline, histrionic), chronic illness, stress management
- Population: ethnically and culturally diverse client base of UNLV students and adolescent and adult community members

Crisis Line Staff
Crisis Support Services of Nevada
2015-2016

- Services provided: suicide risk assessment, crisis intervention, community resource referrals, child and elder abuse reporting, case management
- Nonprofit organization associated with National Suicide Prevention Lifeline

CLINICAL TRAINING

2020 TeleMental Health: Practical Applications for Delivering Psychotherapy and Counseling via Telehealth, 6-hour training, Zur Institute

2020 TeleMental Health: The New Standard – Ethical, Legal, Clinical, Technological, and Practice Considerations, 12-hour training, Zur Institute

2020 Digital and Social Media Ethics for Psychotherapists: Clinical and Ethical Considerations, 8-hour training, Zur Institute

2019 Comprehensive Dialectical Behavior Therapy Training Part 2, 3-day workshop, Armida Fruzzetti, Ph.D. & Anna Precht, Psy.D.

2019 Comprehensive Dialectical Behavior Therapy Training Part 1, 3-day workshop, Alan E. Fruzzetti, Ph.D. & Aditi Vijay, Ph.D.

2019 Acceptance and Commitment Therapy II, 2-day workshop, Steven C. Hayes, Ph.D.

2018 Acceptance and Commitment Therapy I, 2-day workshop, Steven C. Hayes, Ph.D.

2017 Interpersonal and Social Rhythm Therapy, 8-hour training, Andrew Freeman, Ph.D.

2017 Screening, Brief Intervention, and Referral to Treatment (SBIRT), 6-hour training, Kristen Culbert, Ph.D.

ADMINISTRATIVE EXPERIENCE

Graduate Assistant
The PRACTICE
University of Nevada, Las Vegas
2018-2019

- Conducted initial phone intake interviews
- Supervised undergraduate student interns
- Interviewed and hired undergraduate student workers
- Mentored junior clinical psychology and clinical mental health counseling students
- Performed administrative duties (checked in clients for appointments, collected payments, answered phone calls and emails)

- Completed weekly billing audit

Program Manager and Editorial Assistant
Nevada Humanities
2010-2012

- Organized and implemented *Nevada Humanities Chautauqua* living-history program
- Supervised program staff, created publicity and outreach materials, wrote and submitted grant applications, created statistical tables and managed data
- Assisted with maintenance and organization of *Online Nevada Encyclopedia* website
- Wrote informational articles, copy edited and fact checked articles, created multimedia features (e.g., videos, slideshows, photo collections)

RESEARCH AND TEACHING EXPERIENCE

Lab Manager and Teaching Assistant
Department of Psychology
University of Nevada, Las Vegas
2017-2018

- Assisted in overseeing operations in the Gambling Addictions and Microaggressions Experience Lab (under Gloria Wong-Padoongpatt, Ph.D.)
- Assisted in organizing experiments
- Prepared IRB documentation
- Facilitated lab meetings
- Assisted with test design and grading for undergraduate research methods and multicultural psychology courses

Lab Manager
Department of Psychology
University of Nevada, Las Vegas
2016-2017

- Assisted in overseeing operations in the Music Lab (under Erin Hannon, Ph.D.)
- Administered psychological tests (CTOPP, Wechsler Abbreviated Scale of Intelligence, Mullen Scales of Early Learning)
- Assisted in administering experimental protocols

Research Assistant
Department of Psychology
University of Nevada, Reno
2015-2016

- Assisted in overseeing operations in the Anxiety and Worry Research Lab (under Holly Hazlett-Stevens, Ph.D.)
- Conducted preliminary background research on study topics (patterns of cortisol response to stress, mindfulness-based interventions)
- Provided input on experimental design
- Prepared Qualtrics questionnaires
- Assisted in administering experimental protocols

PUBLICATIONS

Kearney, C. A., **Gerthoffer, A.**, Howard, A., & Diliberto, R. (2019). Selective mutism. In B. Olatunji (Ed.), *Handbook of anxiety and related disorders* (pp. 576-600). Cambridge University Press.

PRESENTATIONS

Howard, A. N., Fornander, M. J., Bacon, V., Rede, M., Burke, S., Constantine, M., **Gerthoffer, A.**, Diliberto, R., Kearney, C. A. (2019, October). *Somatic symptoms and internalizing problems as moderators of selective mutism severity*. Poster presented at the annual conference of the Selective Mutism Association, Las Vegas, NV.

Fornander, M. J., Bacon, V., Rede, M., Constantine, M., Burke, S., Howard, A., **Gerthoffer, A.**, Diliberto, R., Kearney, C. A. (2019, October). *Selective mutism presentation in US versus non-US children*. Poster presented at the annual conference of the Selective Mutism Association, Las Vegas, NV.

Bacon, V. R., Fornander, M. J., Rede, M., Constantine, M., Burke, S., Howard, A., **Gerthoffer, A.**, Kearney, C. A. (2019, May). *Bullying as a risk factor for school absenteeism*. Poster presented at the annual conference of the Association for Psychological Science, Washington, D.C.

Bacon, V., Fornander, M. J., Howard, A. N., **Gerthoffer, A.**, & Kearney, C. A. (2018, September). *Boys will be boys? Gender differences in informant reports of symptoms in children with selective mutism*. Poster presented at the annual conference of the Selective Mutism Association, Chicago, IL.

Howard, A. N., Velasco, V., Fornander, M. J., **Gerthoffer, A.**, Bacon, V., Kearney, C. A. (2018, August). *Reexperiencing symptoms in childhood PTSD act as a protective factor against dissociative symptoms*. Poster presented at the annual conference of the American Psychological Association, San Francisco, CA.

Fornander, M. J., Lozano, A., Perez, F., Rodriguez, A., Bacon, V., Howard, A., **Gerthoffer, A.**, & Kearney, C. A. (2018, May). *School climate risk and protective factors of school refusal behavior*. Poster presented at the annual conference of the Nevada Psychological Association, Las Vegas, NV.

Velasco, V., Howard, A., Fornander, M., **Gerthoffer, A.**, Bacon, V., Kearney, C. (2018, May). *PTSD symptom clusters predict dissociative symptoms in maltreated youth*. Poster presented at the annual conference of the Nevada Psychological Association, Las Vegas, NV.

Velasco, V., Howard, A., Fornander, M., **Gerthoffer, A.**, Bacon, V., Kearney, C. (2018, April). *PTSD symptom clusters predict dissociative symptoms in maltreated youth*. Poster presented at the annual conference of the Western Psychological Association, Portland, OR.

Fornander, M. J., Howard, A. N., **Gerthoffer, A. J.**, & Skedgell, K. K. (2017, May). *Youth spoken language and ethnic identity are associated with important protective factors against school refusal behavior*. Poster presented at the annual conference of the Nevada Psychological Association, Las Vegas, NV.

CAMPUS INVOLVEMENT

Student Mentor
Outreach Undergraduate Mentoring Program
University of Nevada, Las Vegas
2016-2019

- Mentored 1-2 undergraduate psychology students per semester
- Provided information about psychology graduate programs and career opportunities
- Guided students in generating education and career goals and developing achievable action plans

TECHNOLOGY AND COMPUTER SKILLS

Clinical
Medicat, Titanium

Managerial
Microsoft Office (Word, Excel, PowerPoint), Google (Calendar, Gmail, Drive, Docs, Sheets, Slides), Mendeley, Dropbox

Videoconferencing
Cisco Webex Meetings, Google Meet, Zoom

Data Management
SPSS, R, Qualtrics, Microsoft Excel

PROFESSIONAL AFFILIATIONS

2018-Present Student member of the Association for Contextual Behavioral Science