

May A. Prizack, Ph.D., ABPP, Editor  
Associate Editor:  
Jill D. Granger, Ph.D.,  
Chicago Editor  
Barbara A. Smith, M.S., CDP



# Evidence-Based Practice in Child and Adolescent Mental Health



ISSN: (Print) (Online) Journal homepage: <https://www.tandfonline.com/loi/uebh20>


## Effectiveness of an Eight-Week Multidisciplinary Selective Mutism Treatment Group

Jaclyn T. Aldrich, Jennifer B. Blossom, Ashley Moss, Brenda Ray, Marcy Couckuyt, Tracey Ward, Andrew R. Fox & Kendra L. Read


To cite this article: Jaclyn T. Aldrich, Jennifer B. Blossom, Ashley Moss, Brenda Ray, Marcy Couckuyt, Tracey Ward, Andrew R. Fox & Kendra L. Read (2023) Effectiveness of an Eight-Week Multidisciplinary Selective Mutism Treatment Group, Evidence-Based Practice in Child and Adolescent Mental Health, 8:1, 105-119, DOI: [10.1080/23794925.2021.2007818](https://doi.org/10.1080/23794925.2021.2007818)

To link to this article: <https://doi.org/10.1080/23794925.2021.2007818>

 View supplementary material 

 Published online: 14 Dec 2021.

 Submit your article to this journal 

 Article views: 445

 View related articles 

 View Crossmark data 



## Effectiveness of an Eight-Week Multidisciplinary Selective Mutism Treatment Group

Jaclyn T. Aldrich<sup>a</sup>, Jennifer B. Blossom<sup>a</sup>, Ashley Moss<sup>b</sup>, Brenda Ray<sup>c</sup>, Marcy Couckuyt<sup>a</sup>, Tracey Ward<sup>d</sup>, Andrew R. Fox<sup>e</sup>, and Kendra L. Read<sup>b</sup>

<sup>a</sup>Psychiatry and Behavioral Medicine, Seattle Children's Hospital, Washington, USA; <sup>b</sup>Psychiatry and Behavioral Sciences, University of Washington, Washington, USA; <sup>c</sup>Speech and Language Services, Seattle Children's Hospital, Washington, USA; <sup>d</sup>The Seattle Clinic, Washington, USA; <sup>e</sup>Department of Clinical Psychology, Seattle Pacific University, Washington, USA

### ABSTRACT

Recent selective mutism (SM) treatment approaches focusing on the delivery of interventions using intensive doses of cognitive behavioral therapy (CBT) and Parent-Child Interaction Therapy (PCIT-SM). In the current study, we sought to examine the effectiveness of an eight-session weekly outpatient group program for youth ages 3 to 14 diagnosed with SM. Group interventions included caregiver coaching and support for CBT skills, particularly graded speaking exposures for youth using the PCIT-SM framework. A total of 112 youth ( $M_{\text{age}} = 7.26$ ; 57.1% white; 63.4% girls) were referred for treatment; 100 youth completed the weekly program with at least one caregiver. Initial evaluations assessed SM symptomology, communication behavior, anxiety, and impairment due to symptoms at pre-treatment and post-treatment. Parents and clinicians tracked communication behaviors during all treatment sessions. Results suggested a significant reduction in SM symptoms in various settings (e.g., school, social) and impairment associated with anxiety from pre- to post-treatment. Youth demonstrated a significant increase in speaking behaviors across treatment session, with a corresponding decrease in use of nonverbal communication behaviors. Caregivers did not report a significant change in family impairment, though this was not unexpected due to the demands placed on caregivers as part of treatment. Overall, the results of this study support the efficacy of a brief, weekly intervention for SM, even when symptoms are significantly impairing. Weekly outpatient treatment should be considered a viable option when intensive options are not feasible.

Selective mutism (SM) is an anxiety disorder typically diagnosed during childhood, characterized as a consistent failure to speak in social situations where speaking is expected (e.g., school) despite speaking in other situations (e.g., home; American Psychological Association [APA], 2013). Children with SM have impairments in educational, occupational, and other social situations that often do not remit in the absence of intervention. Anxiety disorders, as a whole, pose a significant mental health burden if left untreated. SM itself represents a less prevalent disorder requiring further investigation of treatment approaches (Muris & Ollendick, 2015). In recent years however, behavior-focused interventions have emerged as an effective option for treating SM, allowing clinicians to begin exploring optimal methods for care delivery. We

sought to evaluate the effectiveness of a brief weekly group treatment approach as an option for SM treatment.

### *Selective mutism: clinical features and treatment approaches*

SM has been classified as an anxiety disorder based on its clinical presentation and common comorbidities. Clinically, youth with SM present with significant avoidance behaviors, social withdrawal (Bergman et al., 2002; Cunningham et al., 2006), and differences in speech volume and spontaneity (Kumpulainen, 2002), analogous to the characteristics of youth diagnosed with various anxiety disorders and social phobia. SM is also highly comorbid with other anxiety disorders; researchers

have estimated that 33–50% of youth with SM had at least one comorbid anxiety disorder (Edison et al., 2011; Nowakowski et al., 2011).

Like other anxiety disorders, symptoms of SM are thought to be maintained through a negative reinforcement cycle (Catchpole et al., 2019; Young et al., 2012): when a youth with SM experiences a demand to speak, anxiety increases and the youth may freeze or otherwise avoid the demand by not speaking. In turn, other individuals may inadvertently reinforce this avoidance by speaking for the youth or removing the demand to speak, ultimately increasing fear and avoidance. Nonverbal methods of communication (e.g., pointing, nodding) that perpetuate avoidance of speech may be unintentionally positively reinforced as well. This pattern may become a practiced response for youth as well as key individuals, such as parents, teachers, and siblings. Both youth and caregivers may need to address behaviors that perpetuate or accommodate the avoidance of speaking.

Given the conceptualization of SM as an anxiety disorder, evidence-based treatment typically utilizes cognitive behavioral therapy (CBT) approaches. Treatment focuses on exposure to avoided situations – in this case, speaking in a range of settings (Christon et al., 2012; Fisak et al., 2006). This involves the use of graded exposure, in conjunction with other behavioral techniques such as contingency management, stimulus fading, and shaping, to develop new patterns based on positive reinforcement (Keeton & Budinger, 2012; Muris & Ollendick, 2015). Behavioral approaches not only address the presenting concerns of SM, but also circumvent problems that may arise through use of cognitive approaches, which require engagement in reciprocal conversation (Furr et al., 2020). Indeed, one unique consideration of treatment is that attempting to engage the youth in speaking activities too early in treatment or without appropriate preparation may lead to reinforcement of nonverbal communication (e.g., nodding, pointing, writing).

Furthermore, traditional individual therapy models for anxiety, which do not always include regular involvement of primary caregivers, may be counterproductive for treatment goals due to the early age at which SM often emerges and environmental contingencies of symptom maintenance.

Regarding age, several treatment models for early childhood anxiety include caregivers (see Comer et al., 2021, 2012; Cooper-Vince et al., 2016), as parents and direct caregivers have considerable influence over their child's behavior. This allows caregivers to learn intervention techniques to manage, rather than accommodate, the youth's anxiety. Additionally, incorporating caregivers into treatment may address the second concern by reducing environmental accommodation in various situations and conditions (e.g., at school, surrounded by peers, in community settings with parents) and curtailing the cycle of negative reinforcement. Newer approaches of care for SM address these considerations by incorporating the support of caregivers within treatment to facilitate change in more naturalistic settings.

#### ***Parent child interaction therapy for selective mutism***

Parent Child Interaction Therapy (PCIT) has been adapted to treat SM (PCIT-SM) and has been found to effectively reduce symptoms of SM (Carpenter et al., 2014; Catchpole et al., 2019; Cornacchio et al., 2019). PCIT-SM focuses on providing caregivers with psychoeducation and skills training to reduce avoidance behaviors while providing a structured framework to increase verbalizations of the youth. The adapted PCIT-SM retains the child-directed interaction (CDI) component of treatment while shifting the second stage of treatment from parent-directed interaction to verbal-directed interaction (VDI; Furr et al., 2020). During CDI, intervention focuses on allowing the child to warm up to new situations and people, without placing demands on verbal output (Carpenter et al., 2014). During VDI, caregivers initiate a standardized graduated exposure plan to prompt for and reinforce increasingly complex verbal interactions over time, while reducing accommodation or reinforcement of avoidance. Ultimately, CBT and PCIT-SM are complementary treatment approaches, one providing the substance of the graduated exposure model and the other a standardized method for caregivers to approach these often fraught and frustrating interactions. Put another way, CBT is the medicine and PCIT is the spoon.

### **Access to care & models of care**

Despite similarities to its cousin anxiety disorders, resources for SM intervention are incredibly limited. In the United States, the list of SM providers maintained by the Selective Mutism Association (SMA) currently includes providers or group practices in only 26 states, with the majority of those states having less than 10 providers or practices (Selective Mutism Association [SMA], 2021). Though this list is not exhaustive by any means, it demonstrates the relative difficulty for families to equitably access providers trained in evidence-based treatment practices within their immediate geographic area.

One approach to care delivery for the treatment of SM includes intensive programs (Lorenzo et al., 2020), during which families receive treatment over the course of multiple consecutive days for several hours per day. This option offers the advantage of delivering far more exposure opportunities and practice time with the guidance of expert clinicians, within a shorter amount of time for family and providers. This is important when families may need to travel a significant distance to reach skilled providers. Reductions in SM symptoms are maintained during the school year following intensive treatment (Cornacchio et al., 2019), suggesting that skills learned in this format are generalizable to other settings. However, there are feasibility and equity concerns associated with intensive treatment options. Such programs may require substantial out-of-pocket cost for treatment (e.g., cost for travel, time commitment, temporary relocation, leave from work), which are not typically covered by insurance, and uncertain support for continuing care locally following the intensive.

Though intensives offer a high dose of intervention in a short period of time, weekly group and individual interventions of brief duration may still represent a viable approach to care. Group approaches (Sharkey et al., 2008) have successfully utilized child and parent groups, with parent groups focused on behavior modification and child groups centered on in vivo exposures for nonverbal and verbal communication. Individual therapy protocols (Catchpole et al., 2019) used the PCIT-SM framework to conduct graded exposures in session, with parents practicing exposures in

community settings and at school. Youth in such programs demonstrated reductions in impairment and anxiety as well as decreases in symptoms severity, with gains being maintained at six months (Sharkey et al., 2008) and one year (Catchpole et al., 2019) post-treatment. However, typical involvement for weekly individual treatment could be up to six months or more, meaning there is greater possibility for time or engagement barriers to arise. To our knowledge, no studies have investigated the effectiveness of a brief (e.g., 8 session) weekly group therapy utilizing a PCIT-SM framework for the treatment of SM.

### **Aim of current study**

Given some of the limitations of intensive group programs in regard to mental health system resources and caregiver burden and access, the current study sought to understand whether youth with SM could be effectively served by a brief, weekly, group treatment outpatient model utilizing CBT (e.g., psychoeducation, stimulus fading, and contingency management) and PCIT-SM (e.g., CDI and VDI) components. As such, the current study examined the effectiveness of an 8-week multidisciplinary SM treatment group, including multiple informants and assessment strategies. We hypothesized that youth would increase verbal communication at home, school, and in social settings as well as within treatment sessions, while decreasing non-verbal communication. We also hypothesized that caregivers would report improvements in functioning for the patient and the family between pre- and post-treatment.

### **Method**

#### **Inclusion and exclusion criteria**

All participating youth and families were referred to the department by primary care providers or community clinicians. Families completed a mental health evaluation by a licensed mental health counselor or psychologist and most received a speech evaluation by a licensed speech-language pathologist. All evaluators had expertise in assessing and treating SM. Participants were considered for inclusion in the intervention if: the youth had

a confirmed diagnosis of SM, the youth and at least one caregiver used English as their language of care, and the youth was behaviorally capable of participating in group activities (e.g., not aggressive), with expressive and receptive language skills commensurate with the overall group range. Exclusion criteria for the intervention included: grave disability with comorbid SM requiring more intensive care (e.g., immediate psychiatric inpatient hospitalization), aggressive behaviors, and the presence of significant intellectual disability or language delays. Comorbid youth mental health (e.g., social anxiety, attention-deficit hyperactivity disorder), medical (e.g., movement or motor dysfunction, seizures), or neurodevelopmental diagnoses (e.g., autism spectrum disorder, articulation or language delay) were not considered exclusionary criteria for the group intervention unless the comorbid condition would inhibit the youth's ability to participate in group activities or ability to benefit from treatment.

### Participant characteristics

Participants included 112 youth ( $M_{\text{age}} = 7.26$ ;  $SD_{\text{age}} = 2.55$ ; 35.7% boys, 63.4% girls, 0.9% transgender youth<sup>1</sup>), who met criteria for a diagnosis of SM and were referred for a SM treatment group. General participant characteristics, including gender, race, ethnicity, and languages spoken at home of the sample are presented in Table 1. Of note, 44.6% of participants had SM-specific treatment (e.g., individual CBT or speech therapy focused on SM) prior to the current treatment group. Youth and their caregiver(s) were assigned to a treatment group based on youth age and developmental level (Early Years group ages 3 to 7; Tween group ages 8 to 14). Eighty-two youth were enrolled in an Early Years treatment group ( $M_{\text{age}} = 6.03$ ;  $SD_{\text{age}} = 1.32$ ; 35.4% boys, 64.6% girls), and 27 youth were enrolled in a Tween treatment group ( $M_{\text{age}} = 10.99$ ;  $SD_{\text{age}} = 1.55$ ; 37.0% boys, 59.3% girls, 3.7% transgender boys).

**Table 1.** Demographic characteristics of participant sample by group.

	Total Sample		Early Years		Tween	
	N = 112	%	N = 82	%	N = 27	%
Gender						
Female	71	63.4	53	64.6	16	59.3
Male	40	35.7	29	35.4	10	37.0
Transgender male	1	0.9			1	3.7
Race						
White	65	58.0	52	63.4	10	37.0
Asian American	30	26.8	21	25.6	9	33.3
Biracial	11	9.8	5	6.1	6	22.2
Other	3	2.7	2	2.4	1	3.7
Black/African American	1	0.9	1	1.2	-	
American Indian/Alaska Native	1	0.9	1	1.2	-	
Native Hawaiian or Pacific Islander	1	0.9	-		1	3.7
Ethnicity						
Hispanic/Latinx	6	5.4	2	2.4	3	11.1
Bilingual	30	25.9	20	24.4	9	33.3
Mandarin	9	8.0	2	2.4	7	25.9
Spanish	6	5.4	3	3.7	3	11.1
Korean	4	3.6	1	1.2	3	11.1
Marathi	2	1.8	-		2	7.4
Turkish	2	1.8	1	1.2	1	3.7
Cantonese	2	1.8	-		2	7.4
Serbian	1	0.9	-		1	3.7
Japanese	1	0.9	-		1	3.7
Thai	1	0.9	1	1.2	-	
Finnish	1	0.9	1	1.2	-	
Icelandic	1	0.9	-		1	3.7
Multilingual <sup>a</sup>	5	4.5	3	3.7	2	7.4
Prior Treatment	50	44.6	28	34.4	21	77.8

<sup>a</sup>In addition to English, multilingual youth spoke 2–9 languages.

### Treatment group

An overview of the treatment protocol activities and session structure can be found in Tables 2 and Table 3, respectively. Group content and procedures were developed by the clinical staff who facilitated the groups. Other group clinicians included graduate and post-graduate speech-language and psychology trainees who received training and ongoing supervision in treatment protocols. Caregiver-only portions of the treatment group were led by either a licensed clinical psychologist or mental health counselor whereas all youth groups were led by a speech-language pathologist.

The treatment group consisted of a single 90-minute caregiver-only didactic training session followed by seven, 90-minute joint caregiver and child treatment sessions. Each joint treatment session began with 10 to 15 minutes of CDI warm-up activities, which included joint-play with Legos,

<sup>1</sup>Gender identity was collected via review of electronic medical record; the degree of disclosure and youth comfort with noting gender identity in the record may have affected accuracy.

**Table 2.** Outline of session themes, content, and activities.

Session	Parent Group	Early Years	Tween
1	Selective mutism; training in CDI/VDI	Parent-only	
2	Interfacing with school, exposures	Introduction to Group: psychoeducation, reading aloud, arts & crafts.	Top Tip: What is anxiety? Activity: Reading aloud.
	<b>Joint VDI activity:</b>	Small group games	
3	Anxiety, parenting skills, creating fear hierarchy	Being Brave: Get to know you games, reading aloud, arts & crafts.	Top Tip: Riding the Wave/Exposures Activity: Cooking snack in kitchen, reading aloud.
	<b>Joint VDI activity:</b>	Brave Bingo with group members.	Sharing snack and cooking process to group.
4	Troubleshooting exposures, parent anxiety management	School: Morning meeting, asking/ answering questions, reading aloud.	Top Tip: Identifying anxious thoughts. Activity: Art gallery.
	<b>Joint VDI activity:</b>	Small group board games.	Viewing artwork, asking/answering questions.
5	Medications options, finding a medication provider	I-Spy: Circle time, read aloud, mystery bag activity.	Top Tip: Thinking Traps. Activity: Getting to know peers.
	<b>Joint VDI activity:</b>	Scavenger hunt in larger department offices.	Group Games.
6	Exposure review and trouble shooting	Getting to Know Others: Games, asking peers questions.	Top Tip: Detective Thinking. Activity: creating favorites survey.
	<b>Joint VDI activity:</b>	Favorites survey in larger department offices.	
7	Exposure review and trouble shooting	All About Me: arts & crafts, board games with peers.	Activity: science, developing device for egg drop activity.
	<b>Joint VDI activity:</b>	Sharing <i>About Me</i> facts with entire group.	Egg drop, sharing with entire group.
8	Exposure review, relapse prevention	Wrap up: small group games.	Top Tip: Relapse prevention. Activity: small group games.
	<b>Joint VDI activity:</b>	Building-wide scavenger hunt, goodbye party.	

Top Tip refers to brief psychoeducation portion of group.

**Table 3.** Outline of session structure for sessions two through eight.

	Parent Group	Child Group
10– 15 mins	Parent CDI: warm-up activity, group leaders provide coaching and fade in	Warm-up activity
30– 45 mins	Homework Review	Didactics, exposure activity
	Didactics	
30– 35 mins		Joint VDI activity: group exposure
10– 15 mins		Snack time, prize store, show and tell

blocks, dolls, and coloring for the Early Years group and nonverbal games (e.g., Connect 4, Jenga) and coloring for the Tween group. During warm-up, caregivers were coached individually on their use of CDI skills (i.e., praise, reflections, imitation, and descriptions). This was followed by 30 to 45 minutes of separate, concurrent caregiver- and youth-only groups, during which time caregivers were given additional time to learn about SM, related treatment approaches, and problem-solve homework. Youth practiced clinician-led speaking exposures during structured activities. The remaining 30 to 45 minutes consisted of a combined caregiver-child group that provided opportunities for caregivers to practice VDI and exposure skills and youth to further engage in speaking exposure opportunities.

During joint exposures, clinicians paired with 1–3 families and provided coaching and support while caregivers used VDI to enact the exposure tasks (i.e., asking desk staff for a pencil). Clinicians gave

feedback individually to caregivers as they utilized skills during the interactions, monitored verbal communication by youth, and when necessary, modeled skills. The difficulty level of exposure tasks increased in complexity throughout the group series, with caregivers and youth completing exposures in various locations throughout the hospital (e.g., group room, waiting room, department offices, and cafeteria) and with novel communication partners (e.g., different coaches, peers, other group members' caregivers, and hospital staff). Additionally, verbal output demands were adjusted weekly such that youth group activities and exposures were more complex, contributing to overall exposure difficulty, with the first scaffolding consideration being vocal volume. The second consideration focused on linguistic complexity (e.g., answering yes/no, forced choice, or open-ended questions, asking questions, giving a presentation). When youth had difficulty advancing from

whispering to voicing, they received brief individual support from speech-language staff; interventions included practicing oral movements, voiceless phonemes, and voiced phonemes until voicing was achieved.

In the current sample, a total of 20 treatment cohorts are included: six Tween groups and fourteen Early Years groups. An average of 5.45 youth and their caregivers were enrolled in each treatment group (range = 2 to 8 participants). Speaking behaviors were tracked across treatment sessions for each youth while in group, which was reinforced with a tiered reward system: 0 to 10 points in a single session earned youth a piece of candy; 10 to 20 points in a single session earned youth a small prize provided by group leaders; and 20 or more points in a single session earned youth a prize from a personalized prize box that they and their caregivers created between treatment sessions one and two.

## Measures<sup>2</sup>

### Selective mutism questionnaire

SM symptomology was assessed using the Selective Mutism Questionnaire (SMQ; Bergman, 2008). The SMQ is a 17-item caregiver-report measure assessing youth's speaking behavior in school (six items) home (six items), and social situations (five items) domains. Caregivers were asked to rate the frequency of each item on a 4-point Likert scale from 0 (*never*) to 3 (*always*), with lower scores on each subscale and overall total indicating greater levels of selective mutism SM severity. Prior research has demonstrated evidence for the scale's three-factor structure, evidence for convergent validity, incremental validity, and evidence of internal reliability (Bergman et al., 2008; Letamendi et al., 2010). In the current study, the Cronbach's alpha estimates from pre-, mid-, and post-treatment for the SMQ total score ranged from .87 to .90. The Cronbach's alphas for home, school, and social subscales ranged from .76 to .86 across pre-, mid-, and post-treatment.

### School speech questionnaire

SM symptomology at school was further assessed using the School Speech Questionnaire (SSQ; Bergman et al., 2002). The SSQ is a seven-item modified version of the SMQ (Bergman, 2008) that assesses teachers' ratings of students' speaking behaviors at school. Teachers were asked to rate the frequency of each item on a 4-point Likert scale from 0 (*never*) to 3 (*always*), with lower total scores indicating greater levels of SM severity at school. In the current study, the Cronbach's alpha estimates for the SSQ ranged from .83 to .88 across the three assessment timepoints. Teachers were provided with the questionnaires at the beginning of treatment along with envelopes with return postage and instructed to complete on dates corresponding to pre- mid- and post-treatment for the youth. Of note, groups ran during the summer, so the SSQ was not available for approximately 23 participants.

### Child anxiety life interference scale

Impairment in functioning due to anxiety was assessed using the caregiver- and child-report versions of the Child Anxiety Life Interference Scale (CALIS; Lyneham et al., 2013). The caregiver-report version of the CALIS consists of two subscales, representing interference in daily activities for the child (child interference; nine items) and interference in everyday life for the caregiver (family interference; seven items). The child-report version of the CALIS focuses on the interference in daily activities from the perception of the child and consists of nine items.

Across versions of the CALIS, respondents were asked to rate how different activities are affected by the child's symptoms of anxiety in everyday life on a 5-point Likert scale from 0 (*not at all*) to 4 (*a great deal*), with higher scores indicating greater overall levels of impairment in daily functioning due to the youth's anxiety. The Cronbach's alpha estimates in the current study for the caregiver-report version of the CALIS were .79 and .85 for the child interference and family interference subscales at pre-treatment, and .85 and .85 for the CALIS child interference and family interference subscales at post-treatment. The Cronbach's alpha estimates

<sup>2</sup>Generalized anxiety was assessed using the Spence Child Anxiety Scale. Information related to this measure, including data analysis, results, discussion, can be found within supplemental materials.

for the child-report version of the CALIS were .73 and .87 at pre- and post-treatment, respectively.

### **Observational record of speech**

Speaking behaviors in treatment groups were evaluated using an informal, experimental observational record of speech. Communications were categorized as falling into one of four levels: nonverbal (e.g., pointing, nodding, gesturing, soundless mouthing of words), whispering, low volume verbalizations, and typical volume verbalizations (i.e., could be heard within the group setting, commensurate to the volume used by the clinician/caregivers in that setting). These levels were developed to follow the process of shaping responses along a fear hierarchy that mirrors the relative difficulty of language production at each level (Kotrba, 2015). Group leaders or caregivers tracked each occurrence of speech behaviors in their respective categories throughout the entirety of each session by providing a tally mark on a point sheet that was visible to youth for immediate reinforcement and feedback. Due to the method of tracking, it was not possible to assess inter-rater reliability. Graduate assistants and caregivers received instructional training on the coding scheme prior to use in youth treatment sessions. An observational record of speech was collected at each youth treatment session, with a maximum of seven records per participant.

### **Data analyses**

Due to variation in the number of assessments across measures, data were analyzed in two ways. Although the variables assessed at two time points could not be evaluated within a hierarchical linear model (HLM) framework, we calculated intraclass correlations (ICC) to determine the amount of variance accounted for by the multilevel structure of the data, with individual change scores nested within treatment cohort. The ICCs for the CALIS caregiver-report and self-report subscales indicated no significant effect of treatment cohort on change in scores. Thus, we first conducted independent-samples *t*-tests to compare the means of the CALIS

subscales between Early Years and Tween groups and youth who did or did not have a prior treatment history. If there was a significant difference, we compared change from pre- to post-treatment, via paired-samples *t*-tests, separately by group. If there was no significant difference, the complete sample was used in the paired-sample *t*-tests. These analyses were conducted in SPSS 27.0.

The SMQ subscales, the SSQ total score, and the observational communication data were analyzed using multilevel modeling in Hierarchical Linear and Nonlinear Modeling (HLM 8.0; Raudenbush et al., 2019) to address the multi-level structure of the data. Multilevel modeling allows for the nesting of repeated observations within an individual to assess change over time without violating statistical assumptions of independence of observations. For all models run in HLM, full information maximum likelihood (FIML) was utilized as the estimation method, as FIML is robust to normality deviations and accommodates (i.e., reduces bias) missing data.

To examine change in the SMQ subscales, SSQ, and speaking behavior across treatment, we entered the repeated scale scores at pre-, mid-, and post-treatment or total tally scores by session for each communication category (nonverbal, whispering, low volume speech, and typical volume speech) as the Level 1 outcome variable with time as a predictor in nine separate models. Across all models, gender, age, and treatment group (Early Years or Tween) were entered as between-subjects predictors on the intercept to account for individual differences pre-treatment. We also added treatment group as a predictor of the slope to assess for variations in change over time between treatment groups. Additionally, we tested previous treatment as a predictor of both baseline differences and change over time across all nine HLM models. Models in which previous treatment contributed to model improvement, evidenced by a significant chi-square difference test, were retained. This was only the case for the model examining change in low volume speech ( $\chi^2[2] = 9.02, p < .05$ ).

Regarding missing data, 4–6 (3.7– 5.1%) participants were missing pre-, mid-, and post-treatment observations across the four SMQ scales, 12–13 (11.0– 11.9%) participants were missing two of



three observations, and 44–48 (40.4– 44.0%) participants were missing only one observation. Of those who received the SSQ ( $N = 86$ ), 15 (17.4%) youth were missing three observations, 23 (26.7%) were missing two of the three observations, and 30 (34.8%) were missing one observation. For communication variables, no youth were missing more than two sessions across the four types of observational data, while three youth were missing two sessions and nine youth were missing one session.

## Results

### Participant flow

Of the 112 participants initially referred to the treatment group, 109 participants (97.3%) ultimately initiated treatment. Of those 109 treatment initiators, 100 (91.7%) completed the full treatment group, and 9 (8.3%) participants dropped out/left the group early. Of the 9 families who dropped out, 2 participants (22.2%) were asked to withdraw from the treatment group behavioral concerns that inhibited participation. Seven participants (77.8%) had to discontinue due to scheduling concerns. Across participants, the mean number of treatment sessions attended was 7.11 ( $SD = 1.56$ ) out of a possible 8 sessions.

### Symptomology and functioning questionnaires

Descriptive statistics for the symptomology and functioning questionnaires can be found in Table 4. There were significant differences between the Early Years and Tween groups for pre-treatment SMQ Total ( $t[91] = -2.44$ ,  $p = .017$ ,  $d = 0.44$ ), School ( $t[91] = -2.34$ ,  $p = .021$ ,  $d = 0.51$ ) and Social ( $t[94] = -3.44$ ,  $p = .001$ ,  $d = 0.51$ ) subscales, mid-treatment SMQ Social subscale ( $t[33.18] = -2.73$ ,  $p = .010$ ,  $d = 0.51$ ), and post-treatment SMQ Social subscale ( $t[59] = -2.33$ ,  $p = .023$ ,  $d = 0.59$ ).

Independent  $t$ -tests were also used to assess differences between youth who had previously received treatment compared to youth who had not. No significant differences were found between groups in regard to caregiver or self-report CALIS subscales at either timepoint. Across the SMQ and SSQ, there were significant differences between the two groups on the SMQ Social subscale at pre- ( $t[72.79] = -2.65$ ,  $p = .010$ ,  $d = 0.56$ ) and mid-treatment ( $t[61.27] = -2.12$ ,  $p = .038$ ,  $d = 0.48$ ).

### CALIS

The caregiver-report Child Interference and Family Interference subscales of the CALIS showed an overall decrease from pre- to post-treatment (see

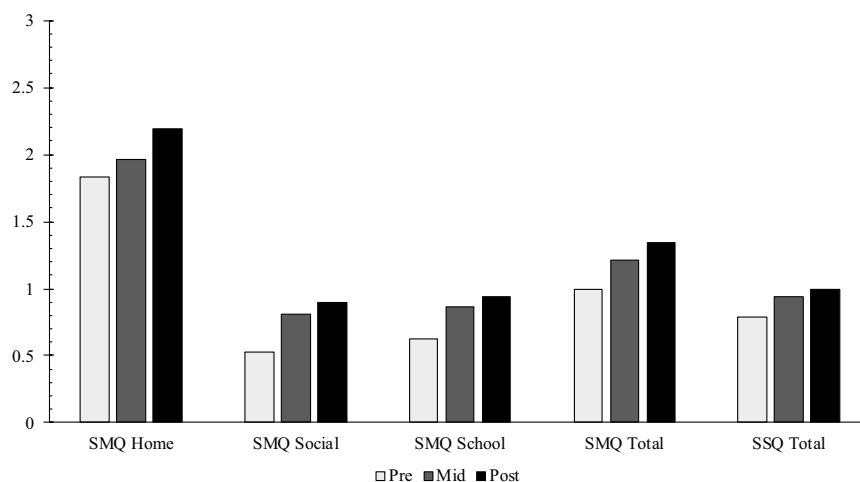
**Table 4.** Descriptive statistics for CALIS, SMQ and SSQ subscale and total scores.

	Total Sample		Early Years		Tween	
	<i>M</i> ( <i>SD</i> )	<i>N</i>	<i>M</i> ( <i>SD</i> )	<i>N</i>	<i>M</i> ( <i>SD</i> )	<i>N</i>
Age	7.26 (2.55)	109	6.03 (1.32)	82	10.99 (1.55)	27
PR CALIS Child Pre	16.78 (7.42)	77	16.32 (7.51)	53	17.79 (7.28)	24
PR CALIS Child Post	13.15 (7.62)	41	12.32 (8.47)	25	14.44 (6.09)	16
PR CALIS Family Pre	8.82 (6.34)	74	9.10 (6.69)	50	8.25 (5.56)	24
PR CALIS Family Post	7.24 (5.61)	41	7.04 (5.95)	25	7.56 (5.21)	16
SR CALIS Pre					14.28 (6.59)	25
SR CALIS Post					9.95 (7.52)	21
SMQ Home Pre	1.83 (.66)	96	1.82 (.70)	70	1.87 (.53)	26
SMQ Home Mid	1.96 (.63)	90	1.88 (.61)	66	2.17 (.63)	24
SMQ Home Post	2.19 (.62)	61	2.18 (.51)	43	2.22 (.85)	18
SMQ Social Pre**	.53 (.53)	96	.42 (.47)	70	.82 (.60)	26
SMQ Social Mid**	.81 (.54)	90	.70 (.47)	66	1.08 (.62)	24
SMQ Social Post*	.90 (.61)	61	.78 (.55)	43	1.17 (.68)	18
SMQ School Pre*	.63 (.52)	93	.55 (.51)	68	.83 (.51)	25
SMQ School Mid	.86 (.58)	87	.85 (.55)	66	.90 (.68)	21
SMQ School Post	.94 (.66)	57	.94 (.62)	41	.94 (.78)	16
SMQ Total Pre*	1.00 (.45)	93	.94 (.45)	68	1.18 (.40)	25
SMQ Total Mid	1.21 (.46)	86	1.16 (.45)	65	1.37 (.47)	21
SMQ Total Post	1.34 (.51)	57	1.30 (.45)	41	1.46 (.65)	16
SSQ Pre	.79 (.61)	54	.83 (.62)	47	.50 (.42)	7
SSQ Mid	.94 (.67)	48	1.00 (.68)	37	.73 (.59)	11
SSQ Post	.99 (.71)	35	.96 (.73)	29	1.12 (.64)	6

PR = Parent-report; SR = Self-report. Significance denotes significant independent  $t$ -test comparing Early Years and Tween treatment groups.

\* $p < .05$ . \*\* $p < .01$ .

## Change in SMQ and SSQ Scores Across Treatment



**Figure 1.** Change in SMQ and SSQ scores across treatment. SMQ = Selective Mutism Questionnaire; SSQ = School Speech Questionnaire.

**Table 5.** Results of multilevel models predicting SMQ and SSQ scores.

	Model Results			Variance	
	$\beta$	SE	$t$	$\tau$	$\chi^2$
<b>Outcome: SMQ School</b>					
Intercept	.39	.23	1.73	.19	385.30***
Group	.05	.22	.25		
Gender	.00	.09	.04		
Age	.03	.04	.92		
Slope	.20	.03	.54***	.01	113.80*
Group	-.08	.06	-1.41		
<b>Outcome: SMQ Home</b>					
Intercept	1.80	.26	6.82***	.33	463.26***
Group	.16	.26	.61		
Gender	.04	.11	.35		
Age	-.01	.04	-.16		
Slope	.15	.03	4.51***	.01	109.33
Group	.04	.06	.70		
<b>Outcome: SMQ Social</b>					
Intercept	.41	.21	1.92	.17	312.15***
Group	.36	.21	1.73		
Gender	.04	.09	.45		
Age	.01	.03	.13		
Slope	.18	.03	6.30***	.00	101.91
Group	-.01	.05	-.19		
<b>Outcome: SMQ Total</b>					
Intercept	.91	.19	4.80***	.15	504.73***
Group	.22	.18	.09		
Gender	.04	.08	.55		
Age	.00	.03	.09		
Slope	.18	.02	7.53***	.01	130.35**
Group	-.02	.05	-.53		
<b>Outcome: SSQ</b>					
Intercept	.69	.34	2.05*	.28	324.15***
Group	-.26	.33	-.81		
Gender	.01	.15	.09		
Age	.02	.06	.33		
Slope	.13	.04	3.04**	.03	95.80***
Group	-.01	.11	-.06		

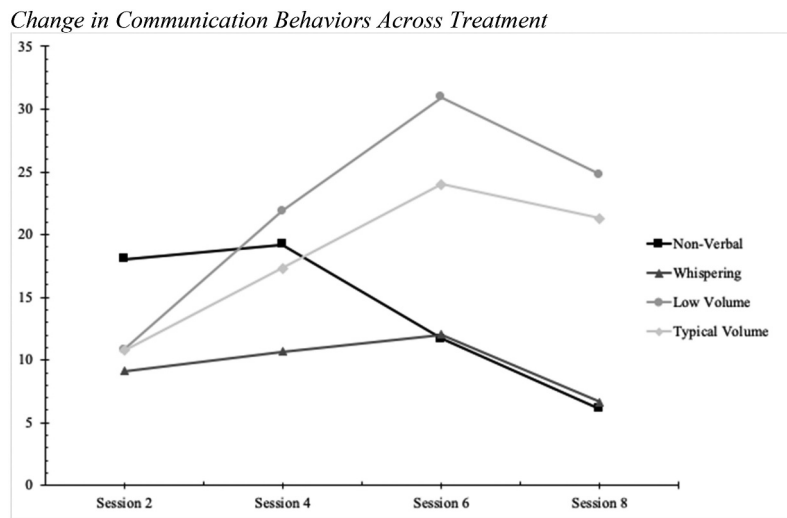
SMQ = Selective Mutism Questionnaire; SSQ = School Speech Questionnaire.  
\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

Supplemental Figure S1). Results of the paired-samples  $t$ -tests showed a statistically significant decrease from pre- to post-treatment on the CALIS Child Interference scale ( $t[39] = 2.70$ ,  $p = .010$ ,  $d = 0.43$ ), but not for the CALIS Family Interference scale ( $t[36] = 1.06$ ,  $p = .295$ ,  $d = 0.18$ ). The decrease in the self-report CALIS was also statistically significant ( $t[20] = 2.49$ ,  $p = .022$ ,  $d = 0.54$ ).

### SMQ/SSQ

Scores on the SMQ and SSQ scales demonstrated a general increase from pre- to post-treatment (see Figure 1). Comparison of SMQ and SSQ scores at pre-treatment to SMQ/SSQ scores of other SM treatment studies (see Oerbeck et al., 2020) demonstrated analogous means and variances for the Early Years group. The Tween group, however, demonstrated slightly higher means on the SMQ Social and School subscales, as well as the SMQ Total score, though variances were similar. Given the age difference between the current sample and typical SM treatment samples (Oerbeck et al., 2020), higher means were not unexpected.

Results of the five multilevel models assessing change in SMQ and SSQ scores across treatment can be found in Table 5. Treatment group did not significantly predict SMQ or SSQ scores pre-treatment, nor did treatment group predict change across treatment. Time significantly predicted an increase in the corresponding score for all five models. The SMQ School



**Figure 2.** Change in communication behaviors across treatment. Youth were not present at Session 1.

**Table 6.** Results of multilevel models predicting communication behaviors.

	Model Results			Variance	
	$\beta$	SE	t	$\tau$	$\chi^2$
<b>Outcome: Nonverbal</b>					
Intercept	16.14	5.17	3.12**	107.62	294.17***
Group	-7.65	4.95	-1.55		
Gender	3.57	2.03	1.76		
Age	.55	.83	.67		
Slope	-2.57	.27	9.47***	.95	104.50*
Group	.45	.49	.92		
<b>Outcome: Whispering</b>					
Intercept	16.57	4.87	3.40**	67.70	198.44***
Group	1.22	4.61	.27		
Gender	2.75	1.93	1.42		
Age	-1.00	.79	-1.27		
Slope	-.50	.29	-1.71	1.04	99.85
Group	.17	.41	.41		
<b>Outcome: Low Volume</b>					
Intercept	14.21	7.69	1.847	138.11	170.19***
Group	-.52	7.44	-.07		
Gender	1.52	3.11	.49		
Age	.16	1.26	.13		
Previous Treatment	-3.03	4.23	-.72		
Slope	1.88	.51	3.66***	1.16	96.18
Group	-1.06	.95	-1.11		
Previous Treatment	3.02	.89	3.41**		
<b>Outcome: Typical Volume</b>					
Intercept	25.79	8.99	2.87**	184.65	187.35***
Group	-5.84	8.38	-.70		
Gender	-6.79	3.60	-1.88		
Age	-.87	1.48	-.59		
Slope	1.43	.53	2.67**	4.41	109.22*
Group	1.36	.98	1.39		

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

subscale exhibited the greatest magnitude of change, with participants increasing an average of .20 points per four weeks,  $B(SE) = .20(.03)$ ,  $p < .001$ . The teacher-reported SSQ suggested that participants increased by .13 points on average per four weeks,  $B(SE) = .13(.04)$ ,

$p = .005$ . Of the caregiver-reported scales, the SMQ Home subscale exhibited the lowest magnitude of average change per four weeks,  $B(SE) = .15(.03)$ ,  $p < .001$ .

### Communication behaviors

Change in average use of communication behaviors across treatment is displayed in Figure 2. Descriptive statistics can be found in Supplemental Table S2. The use of whispering and nonverbal communication decreased across treatment sessions, while use of both low volume and typical volume speech generally increased for participants in both Early Years and Tween groups.

Results of the four multilevel linear models assessing change in communication behaviors across treatment are presented in Table 6. Treatment group did not significantly predict the use of nonverbal communication ( $B[SE] = -7.65[4.95]$ ,  $p = .126$ ), whispering ( $B[SE] = 1.22[4.61]$ ,  $p = .791$ ), low volume speech ( $B[SE] = -2.24[7.25]$ ,  $p = .758$ ), or typical volume speech ( $B[SE] = -5.84[7.07]$ ,  $p = .488$ ) at the beginning of treatment. The use of nonverbal communication significantly decreased across treatment sessions,  $B(SE) = -2.57(.27)$ ,  $p < .001$ , however the use of whispering did not ( $B[SE] = -.50[.29]$ ,  $p = .091$ ). There were no significant differences between Tween and Early Years groups with regards to rate of change for either nonverbal communication

or whispering across treatment. The use of low volume speech significantly increased over the course of treatment,  $B(SE) = 1.88(.51)$ ,  $p < .001$ . Prior treatment predicted change across treatment in regard to low volume speech; youth with some type of prior treatment increased use of low volume speech faster compared to youth with no prior treatment,  $B(SE) = 3.02(.89)$ ,  $p = .001$ . The use of typical volume speech also increased significantly across treatment.  $B(SE) = 1.43(.53)$ ,  $p = .009$ . Treatment group did not significantly predict change across treatment in regard to typical volume ( $B[SE] = .136[.97]$ ,  $p = .170$ ) or low volume speech ( $B[SE] = -1.06[.95]$ ,  $p = .268$ ).

### Discussion

The current study sought to examine the effectiveness of brief, 8-week multidisciplinary treatment program for youth with SM. Results of this study demonstrate additional support for the use of exposure-based interventions for the treatment of SM (e.g., Catchpole et al., 2019; Cornacchio et al., 2019) using a PCIT-SM framework, as well as support for the inclusion of caregivers into the treatment model. Over the course of treatment, youth demonstrated significant changes in nonverbal and verbal communication, which began to generalize to other settings like school. Overall, this study suggests that brief outpatient group programming can be an effective model of care for youth with SM, though additional study is necessary.

Examination of outcome measures demonstrated significant improvements in functioning and reduced impairment related to speaking difficulty. In eight weeks, youth demonstrated increases in verbal behavior as exemplified by caregiver and teacher report, as well as observational data collected across treatment sessions. In addition to serving as a method of contingency management and immediate positive reinforcement, monitoring nonverbal and verbal communication during sessions allowed us to examine the change in speaking behaviors week to week in session. Over the course of treatment, youth appeared to engage in more verbal communication, at volume levels appropriate to the situation, while also utilizing less avoidance behaviors such as nonverbal gestures. The lack

of significant change in whispering across treatment was not unexpected, given that whispering is often utilized as a transitional stage between non-verbal and more typical volume communication. Observational changes were supported by caregiver and teacher report of SM symptomology, which focused on verbal engagement with teachers, peers, and non-familial adults in social settings outside of treatment, suggesting that gains made in treatment generalized to other environments.

There were no significant differences between the Early Years and Tween groups in regard to caregiver and teacher report of verbal communication, indicating that change in speaking behaviors across treatment was similar for the two age groups. Treatment group also did not predict change across treatment, suggesting uniformity of the delivery of the treatment protocol across groups. This is an important finding: younger youth tend to display a better response to treatment compared to older youth (Oerbeck et al., 2015), though programs utilizing a PCIT-SM framework have not found differences by age (Catchpole et al., 2019). Thus, the PCIT-SM framework may be as effective for older youth in both individual and group settings. The current study did find, however, that youth who had received some form of prior treatment for SM (e.g., speech therapy, individual CBT) increased use of low volume speech at a rate faster than youth who had no history of treatment. Prior treatment experiences may have sensitized these youth to the general process of therapy or working with clinicians, allowing faster progress in that domain. Prior treatment did not have an effect on the other communication domains.

Regarding change in impairment associated with SM symptomology, caregivers reported a significant reduction in interference for their child associated with anxiety. This was supported by a significant decrease in impairment reported by youth in the Tween group, suggesting that youth and their caregivers noticed less interference of fears and worries on various activities (e.g., sports, interacting with peers). However, caregivers did not report a significant reduction in interference on part of the family or themselves. As part of

treatment, caregivers were asked to engage in weekly, ideally daily, speaking exposures. This may have shifted the caregivers' perception of their own stress and effort regarding how their child's SM impacts their daily life. As data were collected immediately after the end of care, longer term follow-up may clarify at what point following treatment caregivers notice a change in family interference due to a reduction in their youth's SM symptoms.

Overall, this study suggests that weekly, outpatient group treatment may be a viable method of treatment for SM. Over the course of eight weeks, participants demonstrated an increase in verbal communication and decrease in nonverbal communication, with changes generalizing to the school environment. Not only do the results of this study add support to the use of PCIT-SM and behavioral interventions for the treatment of SM, they suggest that weekly, group therapy may be an appropriate starting point for treatment and improve equitable access to treatment services, before more costly or intensive options are utilized. Rapee et al. (2017) discussed the need to improve the flexibility of mental health systems to treat pediatric anxiety, with one suggested approach to be the use of stepped care models. Stepped care models begin with a low intensity treatment and then involve stepping up to higher intensity treatment if the patient requires additional support (Pettit et al., 2018; Rapee et al., 2017). Starting youth with an outpatient group approach may increase availability within more intensive services, including individual treatment, for youth who require that level of care. It should be noted, however, that youth who required acute stabilization due to grave disability were not typically referred for this level of care as outpatient care was not deemed to be a safe option for these youth at the time of assessment. Therefore, it is unknown whether these youth would benefit from this treatment model.

### **Limitations**

The current study is not without limitations. Causal inferences are limited by the study design as this study was not a randomized control trial

and there was no comparison group. Without some type of control or wait-list condition, changes observed could be due to natural variation over time, dissipation of symptoms, or regression to the mean, though with such a short time span of assessment the latter is unlikely (Remschmidt et al., 2001). As previously indicated, exclusion of youth who required initial acute stabilization limits the generalizability of our findings to youth with similar presentations. Next, this program was supported by personnel from speech pathology and trainees from both psychology and speech pathology departments, support which may not be available in other settings. Lastly, we recognize that the program in its current form is inequitable for families who require a language of care other than English, as there was no method to include interpretive services within the group process.

Additionally, there are other methodical limitations. As mentioned, several groups were run during the summer months and measures from teachers were not available for those youth. Due to this, it is also unclear if school enrollment during the treatment group has an effect on treatment outcomes. Details regarding youths' prior treatment beyond the general type was unavailable, limiting our ability to understand the impact of possible previous exposure to PCIT-SM on the current results. Observational data collected during session was limited by the lack of inter-rater reliability and lack of ability to blind those tracking observations to youth treatment status.

### **Future directions**

Further research is necessary to address several important areas. First, improvements in research design, such as comparison to a treatment-as-usual or waitlist control group, are required in order to definitively determine the effectiveness of this treatment program and replicate the current results. Second, examination of the long-term treatment outcomes would clarify whether gains made in treatment are maintained or whether the youth required further intervention after the conclusion of group care (e.g., individual PCIT-SM treatment). Research

should also continue to explore various types of treatment programs and associated features to improve the range of available options. As the COVID-19 pandemic has greatly shifted the delivery of psychotherapy treatment to online platforms, it will also be important to compare telehealth to in-person treatment with regards to feasibility and outcomes. This may further improve the accessibility of SM treatment.

Future research should further evaluate therapeutic mechanisms of change in SM treatment. Within our program, caregivers were asked to engage in daily exposures with their child between treatment sessions, with the expectation that the frequency of exposure practice would predict greater improvement in youth symptoms (i.e., faster rates of change, greater symptom improvement). Prior research has suggested that spending more treatment time mastering difficult exposure tasks resulted in significant improvements in anxiety severity (Peris et al., 2017). However, we have yet to explore whether amount of exposure practice may act as a mechanism of change within our treatment program. Moreover, in our sample, almost one-third of families reported bilingual or multilingual communication. Youth from immigrant families are generally at higher risk of developing SM (Elizur & Perednik, 2003), indicating the need explore outcomes and factors unique to this group of families. This may include whether outcomes differ in any predictable ways and in extension, whether the use of interpreters and translated psychoeducational materials affects the course and outcome of treatment. To address differences in language of care, we have begun to develop pathways for the inclusion of simultaneous language interpretation into group and are translating group materials based on the language of care for youth referred to SM services. As youth and caregivers who require a language of care other than English are able to participate in services, we will also collect information on the family experience to further improve treatment programming.

Lastly, methodology of assessing treatment progress could be improved through the use of electronic systems such as the Language ENvironmental Assessment (LENA), which would more accurately capture and code youth verbalizations during the

treatment sessions as well as during exposures with caregivers. Further research is also necessary to address the use of the SMQ and SSQ with older populations and whether the measures function similarly for different age groups and the clinical significance of reported score differences. One recent study by Oerbeck et al. (2020) demonstrated that the SSQ/SMQ are appropriate questionnaires to assess baseline SM symptoms and change across treatment. Compared to samples presented in that study, we found that Tweens in our study had lower SSQ scores and higher SMQ scores on some, but not all, subscales.

## Acknowledgments

We thank the youth and families involved in the selective mutism clinic, as well as the psychology and speech pathology trainees who assisted with care.

## Disclosure statement

We have no known conflicts of interest to disclose.

## ORCID

Jaclyn T. Aldrich  <http://orcid.org/0000-0002-9468-6386>

## References

- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th (American Psychiatric Publishing, Inc American Psychiatric Publishing, Inc) ed.). <https://doi.org/10.1176/appi.books.9780890425596>
- Bergman, R. L. (2008). *Treatment for children with selective mutism: An integrative behavioral approach*. Oxford University Press. <https://doi.org/10.1080/07317107.2013.846733>
- Bergman, R. L., Keller, M. L., Piacentini, J., & Bergman, A. J. (2008). The development and psychometric properties of the selective mutism questionnaire. *Journal of Clinical Child and Adolescent Psychology*, 37(2), 456–464. <https://doi.org/10.1080/15374410801955805>
- Bergman, R. L., Piacentini, J., & McCracken, J. T. (2002). Prevalence and description of selective mutism in a school-based sample. *Journal of the American Academy of Child and Adolescent Psychiatry*, 41(8), 938–946. <https://doi.org/10.1097/00004583-200208000-00012>
- Carpenter, A. L., Puliafico, A. C., Kurtz, S. M. S., Pincus, D. B., & Comer, J. S. (2014). Extending parent–child interaction therapy for early childhood internalizing problems: New

- advances for an overlooked population. *Clinical Child and Family Psychology Review*, 17(4), 340–356. <https://doi.org/10.1007/s10567-014-0172-4>
- Catchpole, R., Young, A., Baer, S., & Salih, T. (2019). Examining a novel, parent child interaction therapy-informed, behavioral treatment of selective mutism. *Journal of Anxiety Disorders*, 66, Article 102112. <https://doi.org/10.1016/j.janxdis.2019.102112>
- Christon, L. M., Robinson, E. M., Arnold, C. C., Lund, H. G., Vrana, S. R., & Southam-Gerow, M. A. (2012). Modular cognitive-behavioral treatment of an adolescent female with selective mutism and social phobia: A case study. *Clinical Case Studies*, 11(6), 474–491. <https://doi.org/10.1177/1534650112463956>
- Comer, J. S., Furr, J. M., Del Busto, C., Silva, K., Hong, N., Poznanski, B., Sanchez, A. L., Cornacchio, D., Herrera, A., Coxe, S., Miguel, E., Georgiadis, C., Conroy, K., & Puliafico, A. C. (2021). Therapist-led, internet-delivered treatment for early child social anxiety: A waitlist-controlled evaluation of the iCALM telehealth program. *Behavior Therapy*, 52(5), 1171–1187. <https://doi.org/10.1016/j.beth.2021.01.004>
- Comer, J. S., Puliafico, A. C., Aschenbrand, S. G., McKnight, K., Robin, J. A., Goldfine, M. E., & Albano, A. M. (2012). A pilot feasibility evaluation of the CALM program for anxiety disorders in early childhood. *Journal of Anxiety Disorders*, 26(1), 40–49. <https://doi.org/10.1016/j.janxdis.2011.08.011>
- Cooper-Vince, C., Chou, T., Furr, J. M., & Comer, J. S. (2016). Videoteleconferencing early child anxiety treatment: A case study of the Internet-delivered CALM (I-CALM) program. *Evidence-based Practice in Child and Adolescent Mental Health*, 1(1), 24–39. <https://doi.org/10.1080/23794925.2016.1191976>
- Cornacchio, D., Furr, J. M., Sanchez, A. L., Hong, N., Feinberg, L., Tenenbaum, R., Del Busto, C., Bry, L. J., Poznanski, B., Miguel, E., Ollendick, T., Kurtz, S. M. S., & Comer, J. S. (2019). Intensive group behavioral treatment (IGBT) for children with selective mutism: A preliminary randomized controlled trial. *Journal of Consulting and Clinical Psychology*, 87(8), 720–733. <https://doi.org/10.1037/ccp0000422>
- Cunningham, C. E., McHolm, A. E., & Boyle, M. H. (2006). Social phobia, anxiety, oppositional behavior, social skills, and self-concept in children with specific selective mutism, generalized selective mutism, and community controls. *European Child & Adolescent Psychiatry*, 15(5), 245–255. <http://dx.doi.org/10.1007/s00787-006-0529-4>
- Edison, S. C., Evans, M. A., McHolm, A. E., Cunningham, C. E., Nowakowski, M. E., Boyle, M., & Schmidt, L. A. (2011). An investigation of control among parents of selectively mute, anxious, and non-anxious children. *Child Psychiatry and Human Development*, 42(3), 270–290. <https://doi.org/10.1007/s10578-010-0214-1>
- Elizur, Y., & Perednik, R. (2003). Prevalence and description of selective mutism in immigrant and native families: A controlled study. *Journal of the American Academy of Child and Adolescent Psychiatry*, 42(12), 1451–1459. <https://doi.org/10.1097/00004583-200312000-00012>
- Fisak, B. J., Jr, Oliveros, A., & Ehrenreich, J. T. (2006). Assessment and behavioral treatment of selective mutism. *Clinical Case Studies*, 5(5), 382–402. <https://doi.org/10.1177/1534650104269029>
- Furr, J. M., Sanchez, A. L., Hong, N., & Comer, J. S. (2020). Exposure therapy for childhood selective mutism: Principles, practices, and procedures. In T. S. Peris, E. A. Storck, & J. F. McGuire (Eds.), *Exposure therapy for children with anxiety and OCD: Clinician's guide to integrated treatment* (pp. 113). Academic Press. <https://doi.org/10.1016/B978-0-12-815915-6.00006-8>
- Keeton, C. P., & Budinger, M. C. (2012). Social phobia and selective mutism. *Child and Adolescent Psychiatric Clinics of North America*, 21(3), 621–641. <https://doi.org/10.1016/j.chc.2012.05.009>
- Kotrba, A. (2015). *Selective mutism: An assessment and intervention guide for therapists, educators & parents*. PESI Publishing & Media.
- Kumpulainen, K. (2002). Phenomenology and treatment of selective mutism. *CNS Drugs*, 16(3), 175–180. <https://doi.org/10.2165/00023210-200216030-00004>
- Letamendi, A. M., Chavira, D. A., Hitchcock, C. A., Roesch, S. C., Shipon-Blum, E., Stein, M. B., & Roesch, S. C. (2010). The selective mutism questionnaire: Measurement structure and validity. *Journal of the American Academy of Child and Adolescent Psychiatry*, 47(10), 1197–1204. <https://doi.org/10.1097/CHI.0b013e3181825a7b>
- Lorenzo, N. E., Cornacchio, D., Chou, T., Kurtz, S. M. S., Furr, J. M., & Comer, J. S. (2020). Expanding treatment options for children with selective mutism: Rationale, principles, and procedures for an intensive group behavioral treatment. *Cognitive and Behavioral Practice*. <https://doi.org/10.1016/j.cbpra.2020.06.002>
- Lyneham, H. J., Sbrurlati, E. S., Abbott, M. J., Rapee, R. M., Hudson, J. L., Tolin, D. F., & Carlson, S. E. (2013). Psychometric properties of the child anxiety life interference scale (CALIS). *Journal of Anxiety Disorders*, 27(7), 711–719. <https://doi.org/10.1016/j.janxdis.2013.09.008>
- Muris, P., & Ollendick, T. H. (2015). Children who are anxious in silence: A review on selective mutism, the new anxiety disorder in DSM-5. *Clinical Child and Family Psychology Review*, 18(2), 151–169. <https://doi.org/10.1007/s10567-015-0181-y>
- Nowakowski, M. E., Tasker, S. L., Cunningham, C. E., McHolm, A. E., Edison, S., Pierre, J. S., Boyle, M. H., & Schmidt, L. A. (2011). Joint attention in parent-child dyads involving children with selective mutism: A comparison between anxious and typically developing children. *Child Psychiatry and Human Development*, 42(1), 78–92. <https://doi.org/10.1007/s10578-010-0208-z>

- Oerbeck, B., Overgaard, K. R., Bergman, R. L., Pripp, A. H., & Kristensen, H. (2020). The Selective mutism questionnaire: Data from typically developing children and children with selective mutism. *Clinical Child Psychology and Psychiatry*, 25(4), 754–765. <https://doi.org/10.1177/1359104520914695>
- Oerbeck, B., Stein, M. B., Pripp, A. H., & Kristensen, H. (2015). Selective mutism: Follow-up study 1 year after end of treatment. *European Child & Adolescent Psychiatry*, 24(7), 757–766. <https://doi.org/10.1007/s00787-014-0620-1>
- Peris, T. S., Caporino, N. E., O'Rourke, S., Kendall, P. C., Walkup, J. T., Albano, A. M., Bergman, R. L., McCracken, J. T., Birmaher, B., Ginsburg, G. S., Sakolsky, D., Piacentini, J., & Compton, S. N. (2017). Therapist-reported features of exposure tasks that predict differential treatment outcomes for youth with anxiety. *Journal of the American Academy of Child & Adolescent Psychiatry*, 56(12), 1043–1052. <https://doi.org/10.1016/j.jaac.2017.10.001>
- Pettit, J. W., Rey, Y., Bechor, M., Melendez, R., Vaclavik, D., Buitron, V., Bar-Haim, Y., Pine, D. S., & Silverman, W. K. (2018). Can less be more? Open trial of a stepped care approach for child and adolescent anxiety disorders. *Journal of Anxiety Disorders*, 51, 7–13. <https://doi.org/10.1016/j.janxdis.2017.08.004>
- Rapee, R. M., Lyneham, H. J., Wuthrich, V., Chatterton, M. L., Hudson, J. L., Kangas, M., & Mihalopoulos, C. (2017). Comparison of stepped care delivery against a single, empirically validated cognitive-behavioral therapy program for youth with anxiety: A randomized clinical trial. *Journal of the American Academy of Child & Adolescent Psychiatry*, 56(10), 841–848. <https://doi.org/10.1016/j.jaac.2017.08.001>
- Raudenbush, S., Bryk, A., Cheong, Y. F., Congdon, R., & Du Toit, M. (2019). *HLM 8: Hierarchical linear and nonlinear modeling [Computer software]*. Scientific Software International.
- Selective Mutism Association. (2021). *Find a treating professional*. SMA. Retrieved February 13, 2021, from <https://www.selectivemutism.org/find-help/find-a-treating-professional/>
- Sharkey, L., McNicholas, F., Barry, E., Begley, M., & Ahern, S. (2008). Group therapy for selective mutism: A parents' and children's treatment group. *Journal of Behavior Therapy and Experimental Psychiatry*, 39(4), 538–545. <https://doi.org/10.1016/j.jbtep.2007.12.002>
- Young, B. J., Bunnell, B. E., & Beidel, D. C. (2012). Evaluation of children with selective mutism and social phobia: A comparison of psychological and psychophysiological arousal. *Behavior Modification*, 36(4), 525–544. <https://doi.org/10.1177/0145445512443980>