COMMUNICATING THROUGH DANCE: EXAMINING DANCE & BEHAVIORAL THERAPY TO TREAT SELECTIVE MUTISM

Clara Spitz

Follow this and additional works at: https://scholarship.claremont.edu/scripps_theses

Part of the Clinical Psychology Commons, and the Counseling Psychology Commons

Recommended Citation
Spitz, Clara, "COMMUNICATING THROUGH DANCE: EXAMINING DANCE & BEHAVIORAL THERAPY TO TREAT SELECTIVE MUTISM" (2024). Scripps Senior Theses. 2362.
https://scholarship.claremont.edu/scripps_theses/2362

This Open Access Senior Thesis is brought to you for free and open access by the Scripps Student Scholarship at Scholarship @ Claremont. It has been accepted for inclusion in Scripps Senior Theses by an authorized administrator of Scholarship @ Claremont. For more information, please contact scholarship@claremont.edu.
COMMUNICATING THROUGH DANCE: EXAMINING DANCE & BEHAVIORAL THERAPY TO TREAT SELECTIVE MUTISM

by

CLARA C. SPITZ

SUBMITTED TO SCRIPPS COLLEGE IN PARTIAL FULFILLMENT OF THE DEGREE OF BACHELOR OF ARTS

PROFESSOR WOOD
PROFESSOR BARTHOLOMEW

DECEMBER 8, 2023
Abstract

Very little research has been done to examine the efficacy of treatments for adolescents with selective mutism (SM). Although cognitive behavioral therapy (CBT) has been distinguished as one of the optimal treatment styles for SM, a significant portion of research in this area has focused on children. Additionally, it often incorporates play therapy, which may not necessarily apply as effectively to older populations. Dance therapy has emerged as a promising and innovative treatment for various anxiety and communication issues. Although specific studies on its application to SM are limited, existing research suggests its potential effectiveness in addressing this condition as well. This study aims to explore how a CBT intervention will compare to a multi-modal CBT and dance movement therapy (DMT) intervention in treating symptoms of SM in adolescents. Participants will be randomly sorted into two intervention groups and the severity of their SM symptoms will be assessed prior to, midway through, and following the treatment intervention. Treatment will consist of individual and group CBT sessions along with group DMT sessions. It is anticipated that the multi-modal CBT and DMT treatment will be significantly more effective in improving symptoms of SM than the solely CBT treatment.
Introduction

What Is Selective Mutism

Selective mutism (SM) affects almost one percent of children in the United States, however, for decades the disorder was grossly misunderstood (Bergman et al., 2002). SM is an anxiety disorder characterized by a consistent failure to speak in certain social situations where there is an expectation to speak despite being able to communicate in other situations (Kehle et al., 2017). Previously, the disorder was called “elective mutism,” however, in 1994 the Diagnostic and Statistical Manual, 4th Edition (DSM-IV; American Psychiatric Association, 1994) included an update of the name to selective mutism to acknowledge the non-voluntary aspects of the disorder (Rozeneck et al., 2020). The fifth edition of the DSM (DSM-5; American Psychiatric Association, 2013) specifies the diagnostic criteria for SM manifests through consistent failure to speak in specific social situations where speaking is expected, such as in a school setting, despite being communicative in other contexts. This disruption significantly hinders educational, and occupational achievement, as well as social communication, establishing a notable interference. To meet the diagnostic criteria, the duration of this disturbance should persist for at least 1 month, and it is noteworthy that this timeframe is not confined to the initial month of school. Importantly, the failure to speak is distinguished from a lack of knowledge or comfort with the spoken language required in the social situation. It's crucial to note that SM is not attributable to a communication disorder, such as childhood-onset fluency disorder, and it does not occur exclusively during the course of autism spectrum disorder, schizophrenia, or another psychotic disorder (DSM-5; American Psychiatric Association, 2013).

In contrast to other mutism disorders that may affect people in all aspects of their lives, people with SM are often able to speak with family and siblings, but not with peers, teachers, or
strangers (Kehle et al., 2017). SM frequently accompanies various emotional reactions, including a fear of embarrassment, social isolation, negativism, temper tantrums, and mild oppositional behavior. Psychologists have identified significant connections between SM and social anxiety disorder, with frequent comorbidities such as social phobia, separation anxiety, OCD, ADHD, and depression (Rozeneck et al., 2020). Furthermore, research indicates substantial variability between SM and autism spectrum disorder. It is common for SM to go unnoticed or undiagnosed until a child begins attending school. Psychologists believe there are both heterogeneous and environmental factors that play into the development of SM (Kehle et al., 2017). The symptoms of refusal to speak are viewed as a specific type of avoidance behavior in order to regulate negative emotions, especially anxiety and embarrassment. Parents with avoidance behaviors may inadvertently contribute to the child's lack of speech by attempting to shield them from distress by speaking on their child’s behalf. Although these parents usually have the best intentions, by protecting their child from the unease that comes with speaking, their child is unable to learn to tolerate this distress (Kehle et al., 2017). The act of enabling increases anxiety, intensifying its presence and frequency among these children.

Although certain symptoms of SM may share similarities with other anxiety disorders, there are several distinguishing factors that set it apart and should retain focus when creating a treatment for the disorder. Melfsen et al. (2021) examined the various factors that distinguish SM from anxiety. These symptoms include sensory-processing sensitivity, reduced autonomic reactivity, and an abnormal experience of their own voice. The "unsafe world" model suggests that SM is an automatic stress reaction to situations perceived as unsafe, possibly due to high sensory sensitivity. As a result, people with SM can often use dissociation as a coping mechanism. These researchers believe that people with SM may be betrayed by their own
nervous system. They propose that SM is an automatic stress reaction in situations mistakenly perceived as 'unsafe.' A high sensitivity to external and internal sensory stimuli may contribute to the misclassification of situations. For people with SM, the nervous system's readiness to react to subtle signs of unfamiliarity or lack of physical distance can lead to a stress reaction in situations not typically demanding one. SM may involve shutting down social engagement as an adaptation to situations erroneously deemed unsafe, possibly linked to heightened sensory-processing sensitivity. Therefore this proposed study aims to focus on helping adolescents with SM better regulate and tolerate their distress, ultimately enhancing their capability to communicate.

The idea that SM is a stress reaction triggered by overwhelming anxiety in situations requiring speech is further demonstrated in a study run by Melfsen et al. (2021). This study compared a sample of 28 participants with SM, and 33 control participants aged 7-18 living in Germany and Switzerland. Participants and their mothers filled out several questionnaires to assess various constructs, including SM, dissociation, sensory-processing sensitivity, and social anxiety. The 'Selective Mutism Questionnaire' (SMQ) assessed the severity of SM symptoms. The Sensory-processing sensitivity was measured using the 'Highly Sensitive Person Scale' (HSPS). Dissociation was assessed using the 'Child Dissociative Checklist' (CDC) for parents and the 'Adolescent Dissociative Experience Scale' (A-DES) for participants. Social anxiety was measured using the 'Social Phobia and Anxiety Inventory for Children' (SPAIK). The results of this study suggest that SM is a stress reaction to inappropriately perceiving a situation as unsafe, even when it is not consciously perceived as such. Mothers rated children with SM as significantly more sensitive than the control group. Along with that, the group with SM exhibited significantly more symptoms of dissociation according to collected data. Children with SM also had significantly higher scores on the Social Phobia and Anxiety Inventory. This study presents
how uncomfortable and anxiety-producing it is to exist as a person with SM. The disorder makes
the world feel scary and unapproachable and psychotherapists must work to find a way to make
the world more accessible for people with SM.

Despite much research being done to explore SM in children, adolescents and adults with
SM have been largely neglected in research. Walker & Tobbell (2015) hoped to gain insights
from adults with SM to provide a more comprehensive understanding of the condition. The
researchers analyzed four accounts of SM through online interviews conducted with adults. Data
was collected through semi-structured interviews conducted via instant messaging. The first
interview focused on participant histories, while the second explored specific topics in greater
depth. Two main themes were found in interviews: SM and the Self, and Existential Concerns.
Within SM and the self, several sub-themes came up. The first subtheme focused on participants'
embodied experiences of SM, revealing a disconnection between their true identity and the silent
identity SM imposed. The emotional effects of SM, such as frustration and anxiety, were
contributors to comorbid difficulties like social phobia. Participants referred to SM as if it had its
own separate characteristics, further emphasizing the dissociation. Existential concerns include
isolation encompassed loneliness, interpersonal isolation, and an existential sense of being
isolated from the "real world." Participants expressed feeling like their SM led them to have an
unfulfilled and meaningless life. The profound sense of regret was associated with feelings of
dissatisfaction with the outcomes of their lives and the impossibility of changing the past. These
interviews show how isolating SM can make people feel. When untreated the disorder leads to
regret and immense frustration, showing how important it is to find and provide the best
treatments.
Treatment of Selective Mutism

To ascertain the optimal treatment for SM, a comprehensive analysis of previous empirical studies is imperative. The early reviews of SM treatment conducted by a psychotherapist named Hultquist found that behavioral therapies including psychotherapy, self-modeling, and play therapy are the most effective ways to treat the disorder (Kehle et al., 2017). Since then, behavioral treatments have been continuously backed up by further research. Play therapy involves engaging a child in speech through playing with toys or games. This allows therapy to be a less stressful environment which in turn results in more speech production.

A pilot study was conducted by Oerbeck et al. (2012) to examine a multimodal treatment for SM including play-therapy-focused cognitive behavioral therapy (CBT) and family therapy. Seven children with SM aged three to five participated in this study. Speech goals were set for each child and rewards in the form of small prizes were given to participants at the end of each session once the child met their goal for the day. Researchers used the School Speech Questionnaire (SSQ) as well as a predefined treatment goal scale to measure the participants’ growth through six months of treatment. Participants were measured before treatment began and then at the three and six-month marks. A follow-up was done one year later, using the SQ and Clinical Global Impression Scale (CGI), to see if the results would persist past active treatment. All participants in this study showed improvement in their speaking skills after the treatment intervention showing the efficacy of play therapy-based CBT in the treatment of SM in young children. However, the efficacy of play therapy as a treatment for SM has not been examined in older populations such as adolescents.

The behavioral therapies view SM as a learned behavior developed as a way for children to avoid anxiety or seek attention (Mendlowitz & Monga, 2007). Behavioral therapy for SM
seeks to boost clients' self-confidence and reduce anxiety. On top of this, it discourages mutism and reinforces speaking behaviors. Techniques like stimulus fading, shaping, and self-modeling are used to reinforce speaking behaviors. Stimulus fading allows clients with SM to desensitize their social anxiety. This is often accomplished through graded exposure therapy where children are pushed to stretch their speaking limits by one or two steps without overwhelming them. O’Reilly et al. (2008) conducted a study to investigate behavioral therapy treatment of SM specifically using a behavioral social problem-solving intervention. This case study examined two elementary-aged sisters with SM. The participants practiced graded exposure by answering questions in class. The participants went through 30-minute training periods with the therapist where they practiced answering predetermined questions intended to target their exposure goals. Each training session began with a discussion with participants as to why it is important for them to learn to speak audibly in class. This conversation gave the children more incentive to work hard and accomplish their speaking goals. Along with preparing participants for their exposure, the therapist modeled social rules and appropriate responses. When the participant followed rules and responded correctly they would receive verbal praise from their therapist. Errors and omissions were instructed and modeled correctly by the therapist. Once the intervention was implemented O'Reilly and colleagues found that the participants showed immediate and drastic improvement in audible vocalizations. Along with that, they found these results stayed stagnant even after three months post-intervention, showing the immense improvement exposures can create.

Graded exposures have been further supported in the treatment of SM during a controlled study run by Bergman and colleagues in 2013. This study tested the feasibility, tolerability, and preliminary efficacy of Integrated Behavior Therapy for Selective Mutism (IBTSM). Twenty-one
children participated in this study and were randomly assigned to IBTSM or a waitlist. The behavioral therapy focused on graded exposure to feared stimuli, and verbal communication, for symptom reduction. The intervention also involved active participation from parents and teachers. Upon completion of the trial, both parents and teachers expressed high satisfaction with the intervention. Furthermore, assessments gauging the severity of SM symptoms indicated substantial improvements among participants in the intervention group. In contrast, participants in the waitlist group did not exhibit significant enhancements in speaking behaviors, further proving the efficacy of exposure-based behavioral therapies for the treatment of SM.

Group behavioral therapy has emerged as another highly promising intervention method for addressing SM. A controlled clinical trial for SM utilized intensive group behavioral treatment (IGBT) in a 1-week condensed and efficient summer program (Cornacchio et al., 2019). This treatment was exposure-based and implemented typical classroom activities into the intervention. Treatment techniques included reinforcement, prompting, shaping, stimulus fading, social skills training, cognitive strategies, relaxation training, and modeling. Similarly to the previous controlled study, this trial used a waitlist as their control group. The results of this study found significant improvements in social anxiety severity, family satisfaction, and perceived barriers to treatment participation showing the efficacy of group-based SM treatment. Expanding on the examination of individual and group-based SM treatment, a study completed by Phaik Ooi and colleagues in 2016 investigated an at-home CBT treatment for SM in a controlled study. Twenty-one children were sorted randomly into two groups. The intervention group received 14 weeks of web-based CBT, while the control group just played regular computer games. However, this program did not yield significant results. Both the control and the intervention group showed some improvement in speech meaning that at-home remote online CBT interventions may not be
enough on their own to help treat SM. While the authors of this study suggest that pharmacological interventions may be needed to treat SM, it seems that in-person or group forms of therapy may be required for a more effective treatment modal.

Though medication can be an important aspect of treatment for many anxiety disorders, it may not always be necessary in the treatment of SM. Østergaard (2018) completed a paper to determine whether CBT, medication in the form of antidepressants (SSRIs), or a combination of both treatments is most effective in the treatment of SM. While most of the data included only single-case reports or sibling/twin studies, they found that CBT treatment created the greatest symptomatic improvement followed by combination therapy, and lastly, treatment just involving medication. For some children, medication, such as SSRIs, may be necessary if other treatment is not creating improvements, but it's not required for all cases. The clear effectiveness of CBT in this study shows the importance of therapy and exposure in the treatment of SM.

While previous research seems to point to empirically studied CBT treatments as the most effective treatments for SM, their populations are limited. Studies have been primarily focused on young children and it is unclear if the same treatment would be effective in adolescents. In 2014, Oerbeck and colleagues focused a controlled SM study on home and school treatments and training with participants aged 3-9. This treatment implemented practicing defocused communication, psychoeducation focused on SM strategies, and behavioral techniques to reinforce verbal expression. This study found significant results supporting that their treatment improved their speaking skills and frequency of speech. However, even with the young age range of the sample, they found the treatment was more effective for the younger participants suggesting that a different treatment modal may be needed to treat older people with
SM. To address the specific needs of adolescents, it is crucial to explore promising new treatment approaches to account for participants' maturity.

**Dance Movement Therapy as Treatment of SM**

Although much research has been done on the effectiveness of CBT as a treatment for SM, this study aims to investigate whether dance movement therapy (DMT) would be an effective addition to the treatment model. In past studies, play therapy has been an important aspect of the SM treatment model. However, since the subjects of this study are adolescents with SM, using play therapy is likely to be ineffective due to the age of the participants. DMT, rather than play therapy, is proposed as a means to facilitate participant engagement in exposure. There have been no controlled empirical studies on the effectiveness of DMT in treating SM. The only study found was conducted by Schmerling & Kerins in 1987 where they conducted a case study with a seven-year-old selectively mute boy in which a DMT intervention was utilized in addition to speech therapy. They found promising results from the integrative approach that improved both verbal and non-verbal communication in the participants. Although limited evidence directly links DMT to SM, numerous studies have established its efficacy in treating various other anxiety disorders.

There is evidence that dance therapy is generally a helpful approach for treating anxiety disorders. In 2016, Duberg et al. conducted a study aiming to explore the efficacy of DMT as a treatment for anxiety, with a particular focus on internalizing problems, in adolescent girls. The study sampled 112 girls aged 13-18 with 59 of these girls comprising the dance intervention group. They hoped to find if DMT provided five different experiences for participants: an oasis from stress, supportive togetherness, enjoyment, and empowerment, finding acceptance and trust in your own ability, and using dance as emotional expression. Participants attended twice-a-week
DMT sessions for eight months. This study revealed that the DMT intervention was associated with notable improvements in self-trust, self-acceptance, belief in one's abilities, and enhanced emotional expression. Each of these outcomes is closely aligned with the challenges encountered by individuals with SM, making DMT a promising therapeutic approach for this population.

A study was completed by Erwin-Grabner and colleagues in 1999 to investigate if DMT would be an effective treatment for test anxiety. Although test anxiety itself is not a direct symptom of SM, it is important to note that the anxiety experienced by individuals with SM can manifest similarly in school environments. Erwin-Grabner et al. utilized a four-session DMT intervention spanning two weeks to investigate whether the intervention group would exhibit lower anxiety levels compared to the control group, which did not receive the DMT intervention. This study sampled 21 graduate and undergraduate students from an urban health sciences university who have self-identified as experiencing test anxiety. Their DMT sessions focused on relaxation, self-control, self-awareness, trust, group cohesion, and mastery. They found that DMT was effective in reducing self-reported test anxiety symptoms showing the promising effects DMT may have on school participation in individuals with SM.

DMT has also been linked with improving social functioning which is promising when applying DMT to treating people with SM as they often lack the social functioning that is associated with speaking audibly. In 2022, Veid and colleagues conducted a study to investigate if DMT could improve social functioning in adults with depression. One hundred and nine participants were recruited for this study and randomly sorted into an intervention group and a control group. The intervention focused on certain themes: a sense of safety in the body, exploration of one’s body boundaries, somatic resources, pleasant and unpleasant feelings, mindfulness, and body awareness. This study found that there was a significant improvement in
social functioning among participants. Participants in the treatment group demonstrated fewer incidents of avoidant reactions, less insecurity, and greater positive embodied experiences. Each of these responses would likely encourage speech among people with SM.

In addition to treating anxiety and social functioning, DMT has been shown to improve communication among people with autism spectrum disorder who, similarly to people with SM, can struggle to speak and express themselves. Sengupta & Banerjee conducted a study in 2020 examining how a DMT intervention could improve non-verbal communication among three children with ASD. Although the primary focus of treating SM may not center on non-verbal communication, the significance of any form of communication, particularly within a group setting, should not be underestimated. The aforementioned study found that the DMT treatment intervention resulted in improved body attitude and communication among each of the three participants. Another study was done by Koch and colleagues in 2015 that found mirroring in movement during DMT improved body awareness, self-other awareness, and social skills in young adults with ASD. While autism spectrum disorder and SM are separate conditions, there is a significant overlap in symptoms, particularly those related to communication. This overlap suggests that the positive outcomes observed in studies involving DMT for ASD could potentially apply to the treatment of SM.

**Current Study**

Little research has been done correlating DMT as an effective treatment for SM, therefore, this study hopes to bridge that gap. This will be a clinical study looking at adolescents with SM. It will test the effectiveness of both DMT and CBT as treatments for SM. The participants will be randomly split into two treatment groups: one group will follow the regular CBT treatments used for SM while the other will do a multimodal treatment involving both CBT
and DMT. The group receiving solely CBT treatment will attend individual, hourly CBT treatment once a week along with group, hourly CBT therapy. The multi-modal CBT and DMT treatment group will attend once-weekly, individual, hour-long CBT sessions along with once-weekly, group, hour-long DMT sessions. The intervention will last 12 weeks in total. Quantitative, self-report questionnaires will be used to assess participants' SM symptoms before and after the intervention. The study will determine whether the usual CBT treatment designed for children will be effective for adolescents with SM. In addition, it will test whether DMT in addition to CBT may be a more effective treatment. It is hypothesized that both groups will show significant improvements in their symptoms of SM. However, it is further hypothesized that the integration of DMT alongside CBT will establish a more potent treatment model, which will lead to more statistically significant outcomes in the treatment of SM.

**Proposed Method**

**Participants**

The participants in the study will be made up of adolescents aged 10-18 who have been diagnosed with SM. For study eligibility, adolescents in the study age range will need to meet DSM–5 criteria for SM. Participants will be excluded if they are identified as having any mental health condition more impairing than SM, if they are nonverbal with both of their parents, or if English is not their primary spoken language. A convenience sample will be used to recruit participants near Claremont, California by advertising the study in local schools and therapy offices. Virtual flyers will also be posted to blogs centered around SM. Participants' main compensation will be free therapy focused on treating their SM. There will also be a prize box where at the end of each session participants will be able to pick a fidget toy to increase their motivation to continue coming to treatment. Finally, travel costs will be compensated for
participants or their parents. Using g*power to determine sample size with a small effect and power set to .95, the minimum required sample size for this proposed study is 28 participants. I will collect data from 40 people, meaning 20 in each group, to account for treatment dropout.

**Materials**

**Severity of Selective Mutism Symptoms**

The Selective Mutism Questionnaire (SMQ) (Bergman et al., 2008) will be the basis for the measure of SM symptoms used in this study. The SMQ was developed by Bergman and colleagues in 2008. They saw a gap in the way SM was measured and felt that a standardized measure was needed to improve future research. The questionnaire is a 17-item parent report measure of failure to speak related to SM. This questionnaire was originally designed for young children therefore it is set up to be filled out by participants' parents. However, since this study is investigating adolescents, it is more appropriate for the participants themselves to complete this questionnaire. Therefore, the SMQ will be adapted to be a self-report continuous scale.

Reformatting this questionnaire into a self-reported format will offer a more accurate assessment of SM and will also empower participants to report on how invasive their symptoms are, providing a more nuanced understanding and allowing for greater autonomy in treatment. The questionnaire addresses symptoms of SM through four main sections: School, Home/Family, Social Situations, and Interference/Distress. The school, home/family, and social situations sections of the questionnaire include questions such as, ‘When appropriate, I talk to family members that don’t live with me (e.g. grandparent, cousin).’ These sections are rated on a scale from 0 (never) to 3 (always). The interference/distress section of the questionnaire asks questions such as, ‘How much does not talking interfere in social situations for you?’ These are also rated on a scale from 0 (extremely) to 3 (not at all). The validity of this measure was tested by
Bergman and colleagues in 2008 using a clinical trial. Participants were 3-10 years old and included 48 children with SM and 18 with other anxiety disorders. The results of this study showed excellent internal validity for the total scale and individual subscales. Discriminant validity was demonstrated in this study by the SMQ's ability to distinguish between children with SM and those with other (non-SM) anxiety diagnoses. All subscales of the SMQ were reported to make discriminations within an anxiety-disordered sample, highlighting this measure’s utility for studying SM. The total scale showed good reliability with Cronbach’s $\alpha$ equaling .84. Please see Appendix A for a full copy of the SMQ measure.

**Procedure**

To begin, both participants and their parents will receive informed consent forms that will outline their role in the study and will emphasize that participation is completely optional. Participants will only be allowed to participate if both the participants and their parents sign. Participants will then be randomly assigned to two different intervention groups. The first group will be receiving once-weekly, individual, hour-long CBT sessions as well as once-weekly, hour-long, group CBT sessions. The second will receive once-weekly, individual, hour-long CBT sessions, along with once-weekly, group, hour-long DMT sessions. Group-based treatments will be split into two groups based on age, an older group, and a younger group. This will allow for a smaller age gap that will promote a more intimate and comfortable experience. Four CBT therapists, with specialization in SM or similar anxiety disorders, will be recruited to conduct both the individual and group CBT sessions. The CBT treatment will be outlined with guidance from these therapists with specific focus on self-modeling, graded exposures, speech reinforcement, relaxation training, and social skills training. Two DMT therapists will be selected to run the group DMT sessions and help create a DMT curriculum for the study. The
core concepts of the DMT treatment will include mirroring, mindfulness, bodily awareness, supportive togetherness, and exploration of pleasant and unpleasant feelings. The intervention will last 12 weeks for all participants with their symptoms of SM being measured before the intervention, at the halfway mark (6 weeks), and at the end of the intervention. The SMQ will be filled out by participants during their first, sixth, and twelfth CBT therapy sessions. The data will then be analyzed to discover which treatment model yields more significant results.

**Ethical Considerations**

Very little research has been done to investigate how to treat SM in adolescents. In addition, almost no research has been done to understand if DMT could be an effective treatment for SM. This study will begin to bridge this gap in the literature and bring light to new and promising treatments for SM. Participants themselves will benefit from this study by receiving free treatment for their SM. This is particularly noteworthy because all participants will be benefiting from CBT, a well-established, evidence-based treatment. Furthermore, some participants will also have the opportunity to engage in DMT, which is supported by evidence for its efficacy in addressing anxiety.

Since this study will be recruiting participants diagnosed with SM under the age of 18, it exceeds minimal risk. This is a vulnerable group that needs to be treated with care. However, both factors are necessary as there is no way to study the treatment of SM in adolescents without using them as participants. Risk will be minimized by getting informed consent from participants' parents/caregivers as well as from the participants themselves. The researchers will make sure participants understand that this treatment is part of a study and is intended to help them manage their SM symptoms. All participants and their parents/caregivers will be debriefed at the end of the study to remind them of the purpose. Participants will be informed that this
treatment is to help them so any issues that arise should be brought to their therapist and the research team will do everything they can to make the process beneficial and comfortable for them while still upholding the structure of the study.

Since participants will likely be sharing vulnerable information about themselves in therapy, they will also be informed that the content discussed in their CBT will be kept confidential just as it would with any therapy session. While a group DMT class can't be guaranteed to be confidential, both the therapist and the participants will be asked to not share personal details about what they hear while in their sessions. The only information being shared with researchers will be that which is collected in the questionnaires. The questionnaires will be kept anonymous with each participant being assigned a code to differentiate them. These codes will only be accessible to the researchers. All data will be kept on password-protected computers that can only be accessed by the researchers. While there is a great benefit for participants in this study, it is voluntary as this treatment is not lifesaving nor is it inaccessible outside of this study. Overall, the potential benefit of finding a new and more effective treatment for SM in adolescence outweighs the cost of studying a vulnerable population.

**Anticipated Results**

To test the hypothesis, I will use a mixed model ANOVA to test the decrease in SM symptoms over time for all participants and between-group changes in symptom severity as well. The scores collected pre-intervention, mid-intervention, and post-intervention from the SMQ will each be summed to create one score each time the questionnaire is completed. The pre-intervention score will be compared to the two following scores collected during and after the intervention. This will analyze time as a main effect to determine whether participants' scores on the SMQ change between the beginning and end of the intervention. In addition, the mixed
model ANOVA will determine which treatment group presents with more significant improvement in their SM symptoms post-intervention.

It is anticipated that both treatment interventions will result in significant SM symptom reduction as measured through the SMQ. This expectation arises from the anticipation that the positive impacts observed in children with SM following cognitive-behavioral therapy are likely to extend to adolescents, despite the lack of specific studies focused on this age group. It is also anticipated that the intervention that uses both CBT and DMT will show significantly greater improvements in SM symptoms than the treatment group that received solely CBT. This is conjectured because previous research has signaled that DMT could be a promising treatment for anxiety disorders like SM and could be a good replacement for the play therapy used with younger subjects.

SM in people past the age of young childhood has been largely ignored in the field of psychological treatment. Communication in any form is crucial for sustaining interpersonal relationships and allowing for rich learning experiences. Finding effective treatments to help adolescents with SM is incredibly important in order to allow these individuals to live easier and more fulfilling lives using the skills provided. The results of this study may also provide a heading for using DMT to help treat SM in older individuals like adults or even young children who are resistant to other forms of SM treatment. Overall, the proposed study will provide a nuanced and novel comprehension of the treatment of SM through unconventional therapeutic approaches such as DMT.
References


https://doi.org/10.4172/2472-5005.1000112


https://doi.org/10.12740/PP/OnlineFirst/108503


https://doi.org/10.1080/17432979.2022.2122563


https://doi.org/10.1080/14780887.2015.1054533
Appendix A

Selective Mutism Questionnaire (SMQ)

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

**AT SCHOOL**

1. When appropriate, I talk to selected peers (friends) at school.  
   Always  Often  Seldom  Never

2. When appropriate, I talk to most peers at school.  
   Always  Often  Seldom  Never

3. When I am asked a question by my teacher, I answer.  
   Always  Often  Seldom  Never

4. When appropriate, I ask my teacher questions.  
   Always  Often  Seldom  Never

5. When appropriate, I speak to most teachers or staff at school.  
   Always  Often  Seldom  Never

6. When appropriate, I speak in groups or in front of the class.  
   Always  Often  Seldom  Never

**HOME / FAMILY**

7. When appropriate, I talk to family members living at home when other people are present.  
   Always  Often  Seldom  Never

8. When appropriate, I talk to family members while in unfamiliar places.  
   Always  Often  Seldom  Never

9. When appropriate, I talk to family members who don’t live with me (e.g. grandparent, cousin).  
   Always  Often  Seldom  Never
10. When appropriate, I talk on the phone to my parents and siblings.  
Always  Often  Seldom  Never

11. When appropriate, I speak with family friends who are well-known to me.  
Always  Often  Seldom  Never

IN SOCIAL SITUATIONS (OUTSIDE OF SCHOOL)

12. When appropriate, I speak with other children who I don’t know.  
Always  Often  Seldom  Never

13. When appropriate, I speak with family friends who I don’t know.  
Always  Often  Seldom  Never

14. When appropriate, I speak with my doctor and/or dentist.  
Always  Often  Seldom  Never

15. When appropriate, I speak to store clerks and/or waiters.  
Always  Often  Seldom  Never

16. When appropriate, I talk when in clubs, teams, or organized activities outside of school.  
Always  Often  Seldom  Never  N/A

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

INTERFERENCE / DISTURBANCE

17. How much does not talking interfere with school for you?  
Not at all  Slightly  Moderately  Extremely

18. How much does not talking interfere with your family relationships?  
Not at all  Slightly  Moderately  Extremely

19. How much does not talking interfere in social situations for you?  
Not at all  Slightly  Moderately  Extremely
20. Overall, how much does not talking interfere with life for you?

21. Overall, how much does not talking bother you?

Scoring: Not at all = 3; Slightly = 2; Moderately = 1; Extremely = 0