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by

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**Mindfulness and Acceptance Based Treatments
for Children who Stutter:
A Clinical Guide**

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by

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Report

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Dedication

To the ones that loved me through it.

My family, Mama, Dad, Nana, Paige, Eric, Garrett, Althea, Ella, Wren and Sparkle Toes Sprinkle Hearts, thank you for your kindheartedness, your tough love, your unconditional love.

Ryan. You were there beside me. Thank you for your tremendous heart and strength.

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Abstract

Mindfulness and Acceptance Based Treatments for Children who Stutter: A Clinical Guide

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A growing number of researchers have suggested Mindfulness and Acceptance Based Treatments (MABT) for persons who stutter. Although classical cognitive behavioral therapy is commonly applied in stuttering treatment, proponents argue MABT may be particularly well suited to meet the needs of persons who stutter. The proposed benefits of MABT for persons who stutter include decreased avoidance, emotional reactivity, and disfluency. To date, investigations of MABT with persons who stutter have largely focused on the adult population. The following report examines theory and research to assess the feasibility and effectiveness of MABT with children who stutter (CWS).

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Introduction

Stuttering is a disruption in the forward flow of speech consisting of repetitions and prolongations (Conture, 2001). In addition to the individual moments of speech disruptions that characterize stuttering, persons who stutter face social, psychological, and behavioral adversity. The vast majority of treatment approaches for stuttering aim to reduce the prevalence and severity of stuttering disfluencies. In conjunction, classical cognitive-based therapies are commonly used to target social, psychological and behavioral correlates of stuttering. Some researchers have suggested Mindfulness and Acceptance Based Treatments (MABT) for persons who stutter such as Acceptance and Commitment Therapy (Beilby, Byrnes, & Yaruss, 2012). This adapted program is primarily designed to aid psychological functioning in persons who stutter. However, unlike classical cognitive behavioral therapy, researchers have suggested that MABTs may also assist fluent speech production (Boyle, 2011; Beilby et al., 2012). The effectiveness of MABT has been primarily explored with adults who stutter (Beilby et al., 2012; de Veer, Brouwers, Evers & Tomic, 2009). Investigation of MABT with children who stutter (CWS) is extremely sparse, with de Veer and colleagues' (2009) inclusion of adolescents as the only instance discovered in a search of the literature. However, researchers have demonstrated the efficacy of MABT with many other child populations (Semple, Reid, & Miller, 2005; Semple, Lee, Rosa, & Miller 2010; Black & Fernando, 2014; Hayes, Boyd, & Sewell, 2011; Razza, Bergen-Cico, Raymond, 2015; Gauntlett-Gilbert, Connell, Clinch, & McCracken, 2012). The proposed psychological, behavioral and physical benefits of

MABT warrants consideration for the effectiveness of this approach with children who stutter (CWS).

The following report begins by examining the overlapping psychological principles of MABT with the specific needs of persons who stutter, with an emphasis on CWS. Following this examination, a theoretical analysis and literature review of MABT with adults who stutter and MABT with children who do not stutter will be presented and applied with specific references to CWS. Lastly, examples of MABT clinical exercises adapted for CWS will be presented.

Psychology of Stuttering

According to Sheehan (1970), the moments of stuttering observable to the listener comprise the tip of the “iceberg.” Below the surface there may be feelings of anger, guilt, or shame. These emotions can result in avoidance and anticipation of disfluency. Martin and Haroldson (1967) found that these emotions and behaviors also negatively impact fluency. That is, individuals stutter more consistently on words where they expect to stutter (Martin & Haroldson, 1967). Therefore, comprehensive stuttering treatment not only focuses on the physical manifestation of stuttering but the psychological correlates – the part of the iceberg that is not as easily observable.

How do the psychological correlates of stuttering typically present in people who stutter? Craig and Tran (2014) performed two meta-analyses that examined levels of trait and social anxiety in almost 1300 people who stutter. Adults who stutter were found to have moderately elevated trait anxiety and substantially elevated social anxiety (Craig & Tran, 2014). Social anxiety disorder in persons who stutter may lower quality of life and negatively impact social, academic and occupational functioning (Craig, Blumgart, & Tran, 2009; Iverach et al., 2009; Schneier, Wexler, & Liebowitz, 1997). More so, around 40% of adults who stutter with chronic stuttering meet the diagnostic criteria for social anxiety disorder which may manifest in extreme embarrassment and intense fear (Blumgart, Tran, & Craig, 2010; Iverach et al., 2009). Researchers have identified a correlation between chronic stuttering and poor health related well-being related to emotional and social functioning, mental health, and fatigue (Craig, Blumgart, & Tran,

2009). Additionally, depressive mood has been associated with persons who stutter (Tran, Blumgart & Craig, 2011).

These psychological conditions are not exclusive to AWS. Mulcahy, Hennessey, Beilby, and Byrnes (2008) found that elevated social anxiety may be found in CWS by late adolescence. The onset and prevalence of anxiety in CWS is unknown. A literature review by Alm (2014) revealed no studies indicating that shyness or social anxiety are characteristic of preschool-age CWS. Researchers hypothesize that elevated anxiety levels in CWS likely increase with age and stuttering severity (van der Merwe et al., 2011). Additionally, CWS often face social consequences. A reported 60% of CWS experience bullying (Langevin, 2000). Research has shown that bullied children are more likely to experience low self-esteem and feelings of loneliness, anxiousness, insecurity and depression (Boivin, Hymel, & Bukowski, 1995; Hodges & Perry, 1996; Rigby & Slee, 1999; Slee, 1995). The communication attitude of CWS may also be negatively affected. By about 3 years of age, CWS demonstrate an awareness of their dysfluency (Ambrose & Yairi, 1994; Ezrati, Platzky, & Yairi, 2001). However, by 6 years of age, CWS demonstrate a more negative speech-associated attitude than their peers (Vanryckeghem & Bruten, 1997).

Researchers hypothesize that anxiety is not the cause but rather a consequence and mediator of stuttering (Craig, 2000; Craig and Tran, 2006). The aforementioned findings support this notion as they indicate emotional reactivity likely surfaces after the onset of stuttering. No matter the role of emotional reactivity in stuttering etiology, researchers suggest combining fluency strategies with cognitive and behavioral strategies for social

anxiety in CWS as soon as possible (Craig, Feyer, & Andrews, 1987; Craig et al., 1996; Irani, Gabel, Daniels, & Hughes, 2012; Menzies et al., 2008). This early intervention may assist in the prevention of negative communication attitudes that can impact fluency and quality of life. Researchers also suggest it is worthwhile to investigate the efficacy of combining traditional fluency programs with additional anxiety reducing programs such as Acceptance and Commitment Therapy and other MABTs (Beilby et al., 2012; Boyle, 2011; Craig & Tran, 2014).

Defining Mindfulness

“Mindfulness” is a meta-cognitive concept originating from Buddhist spiritual practice. Researchers purport that mindfulness can be effectively integrated with western psychotherapy practice without the use of philosophical, religious, or cultural conventions and terminology (Kabat-Zinn, 2000). Modern mindfulness-based therapies include Mindfulness-Based Stress Reduction (Kabat-Zinn, 1994), Acceptance and Commitment Therapy (Hayes, Strosahl, & Wilson, 1999), and Mindfulness-Based Cognitive Therapy (Segal, Williams, & Teasdale, 2002).

Kabat-Zinn’s definition of mindfulness is commonly cited. He defines mindfulness as “paying attention in a particular way: on purpose, in the present moment and non-judgmentally” (Kabat-Zinn, 1994). Although this definition is concise, it contains vague and abstract terms that warrant further explanation.

Paying attention to thoughts or physical sensations in the body such as breathing can be mindful (Goldin & Gross, 2010). In fact, mindful attention can be directed to any experience. For instance, one can pay attention to speaking, emotions, or physical tension.

The only requirement of your attention is that the experience must take place in the *present moment*. Anxiety and depression are associated with future and past states. For example, if you are feeling depressed, your attention is in the past. This feeling cannot emerge unless there is reflection of a prior loss or disappointment. Feelings of anxiety indicate attention toward future events. Focusing on the present moment reduces the “attentional workspace” to attend to the past and future (Melborne Academic Mindfulness Interest Group, 2006). Therefore, attention on the *present moment* can benefit the

individual by reducing anxious and depressive symptoms (Ramel, Goldin, Carmona & McQuaid, 2004).

Purposeful attention can best be described through contrast. Take the experience of arriving home without remembering what route you took to get there. This is a classic example of a passive, automatic state. In this example, your thoughts are neither purposeful nor in the present moment. In *purposeful* thought, your mind is guided by intention. For example, you may purposefully decide to focus on the physical sensation of your breath. This *purposeful* intention assists in sustaining mindful attention.

This intention includes paying attention to negative thoughts, feelings, and emotions when they arise. Cultivating a *non-judgmental* perspective towards these experiences is the final component of mindfulness. This *non-judgmental* perspective may also be called *acceptance*. According to Bishop and colleagues, mindfulness brings “a quality of relating to one’s experience within an orientation of curiosity, experiential openness...” (2004). A mindful and accepting perspective diffuses negative thoughts and emotions. With this perspective, the individual can understand these mental events are fleeting, self-created interpretations of experiences. This reduces avoidance and reactivity (Kabat-Zinn et al., 1992; Kabat-Zinn, 1982; Teasdale, Segal & Williams, 1995; Teasdale, Segal & Williams, 2003; Brown & Ryan, 2003; Hayes, 1994; Roemer & Orsillo, 2002; Teasdale, 1999).

The Theory of MABT for Persons who Stutter

Knowledge of the psychological aspects of stuttering initially lead clinicians and researchers to propose classical cognitive-behavioral therapy for persons who stutter (Kahl, Winter, & Schweiger, 2012). However, a growing number of researchers have begun to propose MABTs for persons who stutter (Boyle 2011; Beilby et al., 2012; Plexico & Sandage, 2011; Palasik & Hannan, 2013). The following section will detail the development and theoretical applications of these behavioral therapies.

Behavior therapy has evolved over time. The classification of treatment evolution is disputed (Hofman, Sawyer & Fang 2010). However, many researchers recognize three proposed ‘waves’ of behavior therapy (Kahl, Winter, & Schweiger, 2012; Hayes, Luoma, Bond, Masuda, & Lillis, 2006). The ‘first wave’ was developed in the 1950s. The focus of this therapy was the elimination of problematic behaviors and emotions through classical conditioning and operant learning (Hayes, 2004; Kahl, Winter, and Schweiger, 2012). The “second wave” of behavioral therapy, referred to as classical cognitive behavioral therapy, disregarded the simple associative principles of the ‘first wave’ (Hayes, 2004). Classical cognitive behavioral programs focus on control and regulation of negative thought patterns (Melbourne Academic Mindfulness Group, 2006). Research has demonstrated that classical cognitive behavioral therapy can be efficacious in improving psychosocial functioning of persons who stutter (Menzies et al, 2008). However, improved fluency may not be attributable to these treatments (Menzies et al. 2008).

The ‘third wave’ of behavioral therapy is characterized by components of mindfulness and acceptance. A recent review by Kahl, Winter, and Schweiger (2012) of

‘third-wave’ randomized controlled trials concluded that these psychotherapies are empirically supported, refuting earlier claims by Ost (2008) that they were not. According to Kahl, Winter, and Schweiger (2012), there are no data to indicate either the second or third wave is fundamentally superior to the other. However, there is evidence to suggest that the ‘third wave’ may be particularly suited for persons who stutter. For instance, unlike classical cognitive behavioral therapy, Acceptance and Commitment Therapy, a ‘third wave’ treatment, has been shown to reduce physical disfluencies in persons who stutter (Beilby et al., 2012). Additionally, researchers have asserted that Acceptance and Commitment Therapy is especially well suited for meeting the needs of individuals with chronic disease and disorder (Gauntlett-Gilbert et al., 2012). The proclaimed benefit for treating chronic conditions has promising implications for treatment of stuttering, a condition that is largely incurable past pre-school age.

One theory that supports the need for MABT particularly in children is the Emotion-Language Dual Diathesis Stress Process Model of Stuttering proposed by Walden and colleagues (2012). These theorists consider emotional regulation as well as language ability and demands to be factors contributing to the disorder. Walden and colleagues support this model by noting the documented relationship between stuttering and speech and language (Anderson & Conture 2004; Anderson, Pellowski, & Conture, 2005; Hall, Wagovich & Bernstein, 2007; Ntourou, Conture & Lipsey, 2011) as well as the relationship between stuttering and psychological factors (Alm 2004; Bloodstein & Bernstein-Ratner, 2008; Craig, Handcock, Tran & Craig, 2003; Johnson, Walden, Conture, & Karrass, 2010). In this model, the person who stutters possesses a predisposition to the disorder that

manifests under emotional and/or linguistic stress. An example of linguistic stress may be the need to produce accurate and rapid speech during conversation (Walden et al., 2012). An example of emotional stress may be a novel setting (Walden et al., 2012). According to this model, treating emotional reactivity in the context of communication may reduce stuttering.

Boyle (2011) suggested that many components of mindfulness are consistent with components required for successful, long-term stuttering management. Moreover, he purports that several mindfulness concepts are present in traditional speech therapy for persons who stutter. Therefore, the application of mindfulness with persons who stutter has viable potential. Boyle purports improved emotional regulation, changes in thought perceptions, increased sensory-perceptual processing, attentional control and acceptance as components of mindfulness that would theoretically benefit persons who stutter. For example, Boyle hypothesizes that utilizing mindfulness to regulate emotions allows the person who stutters to focus on fluency treatment strategies and decrease avoidance, escape and escalating physical tension. Moreover, changing the perceptions of thoughts in conjunction with attending to the perceptions of physical sensations may assist the person who stutters in speech therapy treatment. Boyle cites other researchers who have stated the importance of attending to the physical feelings of speech production for long-term stuttering management (Conture, 2001; Guitar, 2006). Specifically, researchers have suggested that paying attention to physical feelings may compensate for deficiencies in auditory processing (Brown, Ingham, Ingham, Laird, & Fox, 2005) or speech motor skills (van Lieshout, Hulstijn, & Peters, 2004). Some have also suggested that attentional control

may assist the person who stutters in identifying the early manifestations of fear and avoidance which in turn will prevent relapse (Starkweather & Givens-Ackerman, 1997; Starkweather, 1993; Boyle, 2011). Additionally, the core component of acceptance may reduce maladaptive behaviors such as avoidance (Roemer & Orsillo, 2007).

The Evidence of MABT for Persons who Stutter

Based on the aforementioned theoretical support, MABT should be of significant benefit to persons who stutter. In fact, two established MABT programs have recently been explored as a potential tool for persons who stutter (de Veer, et al., 2009; Beilby et al., 2012). The following section explores the evidence of MABT for the persons who stutter.

De Veer and colleagues (2009) conducted a pilot study on the psychological impact of Mindfulness-Based Stress Reduction for persons who stutter. Mindfulness practice is the primary mode of treatment in Mindfulness-Based Stress Reduction (Greco & Hayes, 2008). Researchers measured stress, anxiety, confidence in regard to achieving and maintaining fluency, coping behaviors, perception of control, and attitude towards speech. These measures were obtained prior, immediately post, and four weeks post treatment. A total of 37 persons who stutter participated in this research. Participants were at least 16 years of age. The majority of participants were male (n=29). Participants were matched on factors of age, gender and education and randomly separated into two groups; treatment and waitlist. The waitlisted group received treatment after the study was conducted. Two and a half hour group treatment sessions were provided for eight weeks. Treatment consisted of body scan, yoga exercises to increase physical awareness, and meditation on breath, body, thoughts and emotions. The participants received a compact disc of the exercises. The participants were expected to spend at least 45 minutes practicing one or more treatment exercises six days a week.

After treatment, participants demonstrated reduced stress and fatigue and anxiety about speech. Additionally, participants reported a greater sense of control, demonstrated more confidence in speech situations and decisive problem-oriented coping skills. These improvements were present at the four weeks post treatment measure. The effect sizes were average for self-efficacy, coping and speech attitude. However, the effect sizes were large for stress, anxiety and perception of control. Therefore, the researchers concluded Mindfulness-Based Stress Reduction is a valid addition to stuttering treatment.

In 2012, Beilby and colleagues investigated the use of Acceptance and Commitment Therapy for persons who stutter. The core components of Acceptance and Commitment Therapy are self-concept, defusion, acceptance, mindfulness, values, and committed action. In this program, negative *self-concept* such as “I’m a bad speaker” is *defused* through *mindful acceptance* of present thoughts, emotions, and events. Acceptance and Commitment therapy also promotes a higher quality of life through the identification of personal *values*. *Committed action* is taken to achieve those values by establishing priorities and goals. In this investigation, acceptance and commitment therapy was tailored to stuttering treatment and delivered by student clinicians in speech-language pathology. Two hour sessions were held weekly for eight weeks. The research design was limited in that there was no control. Additionally, the number of participants was small; only 20 adults who stutter participated in the experimental treatment. Participants reported that their disfluencies began in early-childhood. Moreover, each participants’ stuttering diagnosis was confirmed by two speech-language pathologists. The participants represented a range of demographics. Half of the participants were male and half were

female. There was a large age range in the participant pool (19-65 years old) with the average age of participants being 29 years old. The majority (80%) of participants had previously received speech therapy. However, none of the participants had received services within the past 12 months. No information was provided on the linguistic, cultural, or socioeconomic status of the participants.

The researchers obtained measures of stuttering frequency, speech perceptions, mindfulness, and acceptance. This study yielded statistically significant improvements on measures of psychosocial functioning, readiness for therapy and change, use of mindfulness skills and psychological flexibility, and frequency of stuttering. The gains were maintained on all measures three months post follow-up.

The aforementioned findings are limited by the small participant group. Moreover, Beilby and colleagues (2012) research design is also limiting in that there is no control group. Nonetheless, the findings are promising for the implementation of MABT for persons who stutter.

The Theory of MABT for Children

Although researchers have presented theoretical motivation as well as completed investigations on MABT for persons who stutter, the theoretical motivation and related clinical application of MABT for CWS remains largely unexamined. Therefore, this section will detail the theoretical principles of MABT for children in general.

According to Greco and Hayes (2008) MABTs are particularly suited for children. In Buddhist mindfulness practice, the origins of western mindful psychology, a “beginner’s mind” is highly regarded. Goodman (2005) explains that beginners display a curiosity seemingly lost in adulthood. They demonstrate receptiveness to new ideas and enthusiasm for learning (Goodman, 2005). Moreover, Greco, Blackledge, Coyne, and Ehrenreich (2005) assert that children may have an advantage over adults because they have had less opportunity to develop negative thought patterns and behaviors.

Furthermore, many researchers agree that MABT teaching components are especially fitting for children (Greco et al., 2005; Murrell, Coyne, & Wilson, 2004). Key components of MABT include metaphors and exercises that facilitate learning through first-hand experience. Experiential exercises provide salient understanding of otherwise abstract concepts (Greco et al., 2005). Whereas metaphors play to children’s ability to think in imaginative and figurative terms (Greco et al., 2005). In fact, there is evidence that young children (3 to 6 years old) prefer metaphorical language during relaxation exercises (Heffner, Greco, & Eifert, 2003). Moreover, young children also demonstrated greater compliance to the exercise when metaphorical language was used (Heffner, Greco, & Eifert, 2003).

The benefit of metaphorical language may also extend to adolescents. Greco and colleagues (2005) argue that metaphorical teaching is less instructive than literal teaching; therefore, the adolescent is not pressured by a demand to comply which could result in defiance. According to Greco and Eifert (2004), adolescence is a stage in development often characterized by the questioning and formation of personal values. Fittingly, a component of some MABTs is values-based living; identifying personal values and setting corresponding priorities and goals.

The greatest challenge of utilizing MABT with children is adapting the treatment components and activities to be developmentally appropriate. The clinician is tasked with identifying the cognitive and linguistic abilities in each candidate for treatment. The clinician must then select and adapt aspects of MABT to include in practice (Greco et al., 2005). For instance, a clinician can adapt MABT metaphors to contain appropriate vocabulary and semantics for a given developmental age (Greco et al., 2005). With these adaptations, clinicians can adjust therapy to children of all ages.

The Evidence of MABT for Children

De Veer and colleagues' (2009) inclusion of adolescents in their research is the only investigation of MABT with participants who stutter who are not yet considered adults. To date, to the present author's knowledge there have been no explorations of MABT in children who stutter younger who are younger than age 16. However, a multitude of investigations have demonstrated MABTs to be effective with a variety of children populations. Established programs such as Mindfulness-Based Cognitive Therapy, Mindfulness-Based Stress Reduction, Acceptance and Commitment Therapy, and Dialectical Behavioral Therapy as well as treatments based on general acceptance and mindfulness principles have been demonstrated effective. The following literature review only provides a select sample of research that have proven MABT can be successfully used with children. Traits studied include social-emotional resiliency, attention, psychological response to chronic pain, anxiety, depressive symptoms, and self-regulation.

In 2010, Semple and colleagues (2010) conducted a randomized trial of group Mindfulness-Based Cognitive Therapy for children measuring social-emotional resiliency. The researchers assessed attention, behavior and reductions in anxiety symptoms compared to wait-listed peers. Twenty-five children aged 9-13 years who were primarily members of an ethnic minority (21/25) participated in the 12-week program. Group members were randomly assigned and matched on traits such as age and gender and assigned to either the treatment (n=13) or control group (n=12). Semple et al.'s (2010) blinded administrators utilized and scored measures of a parent reported behavioral checklist and two self-reported anxiety scales for children. Participants improved on measures of attention and maintained

these improvements up to three months post-intervention. Moreover, the researchers found that participants with clinical levels of anxiety significantly reduced measures of anxiety and behavioral problems.

Gauntlett-Gilbert and colleagues (2012) researched the effects of group Acceptance and Commitment Therapy on 98 adolescents with chronic pain. On average, the participants missed more than half a year of schooling due to their pain condition. The average age of participants was approximately 15 years old. The majority (75%) of participants were female. The participants received 90 hours of treatment over the course of 15 days. Parents attended treatment with their children. Physical conditioning or exposure, activity management and psychology were the three components of the treatment program. Core components of mindfulness, acceptance, and valued-based living were incorporated in each treatment component. Treatment effects were measured by objective physical measures, school attendance, and participant and parent self-reports. The self-reported questionnaire investigated pain, physical functioning, and distress and psychological response. Measurements were taken on the first day of treatment, the last day of treatment and three months after treatment. Three-month follow up measures obtained for 74% of participants, indicated reduced anxiety and catastrophic thoughts, increased school attendance, and decreased visitation to health care facilities. Additionally, the participants improved on objective measures of physical performance.

Black and Fernando (2014) also investigated the effect of a mindfulness-based curriculum on classroom behavior in students belonging to an ethnic minority. Investigators completed a field experiment lasting five-to-seven weeks long. Inherent to

the design, there was no control to compare findings. Over 400 low-income, largely minority students and 17 teachers participated. Teachers rated students on the following behavioral variables, self-discipline, classroom participation, attentiveness, and respect of their peers. Although teacher's evaluation of students could be artificially high considering they were not blinded to any aspect of the study, the researchers found an increase of improved behavioral classroom variables such as attention, self-control, participation, and respect for others. The participants maintained these improvements at the follow-up measure taken seven weeks post-intervention. In regard to dosage, students who received two additional weeks of the program did not improve measurably more with the exception of continuing to improve on measures of paying attention.

In addition to behavioral assessment, Semple and colleagues (2005) conducted a six-week trial examining psychological improvement that resulted from the mindfulness training. The participants in this group were classified as "anxious" children. Students were identified as anxious by their teachers and screened and recommended for inclusion by a school psychologist. Informal idiographic self-report measures were also conducted. Additionally, a teacher reported behavioral rating scale measure was obtained before and after treatment. Teacher report could not be obtained for one participant. Nevertheless, for all remaining students, teachers reported improvements in academic functioning or reductions in clinical symptom scales. According to co-therapists, four out of five of the participants reported that the program was interesting and enjoyable. The participant that shared a dislike for the program was also the only participant found to have attention deficits in the clinical range at pre-test. Despite his reported dislike, this client participated

in most activities and demonstrated improved anxiety, depression, and attention scores at post-tests.

The impact of Acceptance and Commitment Therapy has also been evaluated on adolescents' depressive symptoms (Hayes et al., 2011). This MABT was compared to a cognitive behavioral treatment. Thirty-eight participants who were 12 to 18 years old were randomly assigned to treatment and control groups. Measurements were taken at pretest and posttest. Before treatment, 73.6% of participants were identified as clinically depressed. After treatment, the treatment group demonstrated significant improvement in regard to depressive symptoms. Moreover, 58% of treatment group participants demonstrated clinically significant improvement whereas 36% of control group participants demonstrated clinically significant improvement. No participant demonstrated clinically significant decline. The researchers calculated a response ratio (1.59) supporting ACT.

MABTs have also been demonstrated effective with preschool-age children. Razza and colleagues (2015) explored the effectiveness of a mindfulness-based intervention in improving self-regulation in 34 ethnically diverse children three to five years of age. The majority of parents were highly educated (60% with a Masters of professional degree). The participants were roughly divided in half to form the treatment group (n=18) and control group (n=16). Yoga served as the activity for delivering the mindfulness-based treatment. The authors stated that the early development of self-regulation strategies is correlated with positive developmental outcomes (Moffitt et al. 2011; Shoda, Mischel & Peake, 1990). Treatment was administered by a classroom teacher who completed a daily log of her

personal practice of mindful yoga. Across 25 weeks, the children received 40 hours of mindfulness-based intervention. Treatment effects were evaluated by measures of attention, delay of gratification, and inhibition. Measures included parent-report as well as direct assessment tasks and were completed at the beginning and end of the school year. Ninety-four percent of participants participated in the post-test. Direct assessments indicated improvement on all measures as a result of treatment. Moreover, the researchers contend that the children with the lowest self-regulation skills demonstrated the most benefit from treatment.

Upon consideration of the studies reviewed that used MABT with children, it is important to assess the representativeness of a sample in order to generalize findings. In this literature review, participants varied on characteristics such as age, socioeconomic status, and emotional and physical well-being. Participants represented all ages of childhood from preschool to late adolescence. Participants were members of various socioeconomic backgrounds. Participants had clinical physical conditions, clinical psychological conditions and no clinical conditions at all. Positive findings across heterogeneous populations suggests the treatment is effective with a wide range of individuals.

Across this heterogeneous sample, an overall positive pattern of findings emerged for psychological and behavioral gains. Semple and colleagues (2005) and Gauntlett-Gilbert (2012) found reductions in anxiety. Hayes and colleagues (2011) found reductions of depressive symptomology. Semple and colleagues (2005), Semple and colleagues (2010), Black and Fernando (2014) and Razza and colleagues (2015) found improvements

on measures of attention. Additionally, Razza and colleagues (2015) and Black and Fernando (2014) found improvements in more measures of self-regulation.

What do these findings imply for the efficacy of MABT stuttering treatment in children? Gauntlett-Gilbert and colleagues (2012) identification of physical change has promising implications for the efficacy of MABT in reducing the physical manifestation of stuttering in children. Moreover, the studies suggest MABT is feasible for children as young as three years old. Thirdly, the findings suggest this treatment is effective for improving psychological and behavioral measures in children, specifically anxiety, depressive symptoms, attention, and self-regulation. Although anxiety does not directly cause stuttering, the anticipation of stuttering caused by anxiety can contribute to increased disfluencies. Therefore, addressing anxiety and other psychological factors related to communication are valid pursuits in stuttering treatment. Additionally, behavioral modification is central to stuttering management. Improved attention could feasibly assist the child who stutters in identifying disfluent moments. Through this identification, the child can begin to modify behaviors.

In conclusion, although each study in this collection has limitations, when examined together, a positive pattern of findings emerge on behavioral and psychological measures. These findings suggest mindfulness-based therapies are not only feasible but effective with children presenting with a variety of conditions and traits. Therefore, these practices may be plausible to extend to populations who share the possibility for benefiting from psychological and behavioral change, such as children who stutter.

Treatment Applications

The following section provides clinical examples of MABT for CWS. This collection of clinical activities do not form any particular MABT program. Instead, these strategies illustrate a few possible applications of core MABT tenets to stuttering treatment. As described by Kabat-Zinn (1994), the strategies promote the mindful skill of “paying attention in a particular way: on purpose, in the present moment and non-judgmentally.”

The exercises are divided into two primary modes of attention, physical and mental. Although, theoretically, attention on the body will provide insight into the mind and vice versa. These exercises introduce MABT concepts metaphorically and experientially. The clinician may assist in transference of these skills to everyday communication by promoting awareness and mindful action. The strategies may first be applied to structured communication exercises. Transference is achieved through application to communication scenarios on the CWS’s communication hierarchy in an ascending fashion. In order to ethically provide MABT, clinicians must acquire competency through training and personal experience (Boyle, 2011; American Speech-Language Hearing Association, 2010). Moreover, treatment must concern communication-related thoughts and emotions to remain within the speech-language pathology scope of practice. Accessing the sources used in this session (Saltzman, 2014; Rotne & Rotne, 2013; Snel, 2013; Greenland, 2010) provides the clinician with a multitude of treatment strategies and resources adaptable for the CWS.

Greenland (2010) provides a series of steps (i.e. play, meditate, share, and apply) for implementing MABT with children, these steps may be easily applied to a clinical

session. The speech-language pathologist may apply these steps in the treatment of a CWS. For instance, the clinician can begin by establishing rapport during a play activity. Next, the client and clinician may meditate or mindfully attend to a body and/or mind focused exercise related to communication. Afterward, the client and clinician may share and discuss mindful communication experiences. Lastly, the client can be guided to apply mindfulness and acceptance principles to speech activities and strategies.

PHYSICALLY FOCUSED EXERCISES

The following section provides examples of primarily physically focused MABT exercises. The first activity described, “the jewel” (Saltzman, 2014; Rotne & Rotne, 2013), teaches mindful awareness of breath. Additionally, the second activity, “special star” (Greenland, 2010) facilitates mindful attention on the body in general. Adaptations of the aforementioned exercises are provided to meet the needs of a CWS.

Awareness of Breath:

In breath awareness exercises, the CWS should be taught to focus mindful attention to inhalation and exhalation through the nostrils and the movement of air in the abdomen. This provides a present moment focus. With this focus, thoughts, feelings, and sensations may come and go with reduced reactivity. When the CWS notices attention has shifted thoughts or feelings, he can simply return attention to his breath. Further strategies for thought regulation are detailed in the designated section. Segal et al. (2002) recommend the use of a “three minute breathing space” for clients to attend to the present moment. Focusing on the breath is one way to increase attention and awareness of physical

sensations and that may assist in monitoring the speech production process for persons who stutter.

Exercise A. “The Jewel.”

In this exercise suggested by Saltzman (2014) and Rotne and Rotne (2013), children should be taught to focus on their breath with the aid of a plastic jewel. As an alternative to the jewel, the child may bring in a small object from home that is special to them. This special object may increase interest and attention. The child can lie on his back and place the jewel or favorite object on their belly button. The clinician should ask the child to notice how the object moves up when he breathes in, down when he breathes out, and stays still for just a moment between the in-breath and out-breath. The child can also be asked to notice the cool air breathing in and the warmer air breathing out. In addition, the clinician can instruct the child that *when your mind wanders, simply return attention to the breath*. The exercise may also be adapted for an older child by simply removing the jewel or special object component and asking them to pay attention to the same physical sensations of breath while sitting or lying down. The clinician should guide the child to rest their attention on this exercise for a just a few minutes. The clinician should also use their clinical judgment to shorten the exercise to match the attentional capabilities of the child.

This exercise can be extended to speech by asking the child to speak during the jewel exercise. The clinician should ask the child to notice their breath and the movement of the jewel or other object during speech. The clinician should also encourage a non-judgmental, curious awareness. *What happens to the jewel and your breath when you speak smoothly? What happens when you stutter while you speak?* Once awareness of breath is

established during this structured activity, the clinician should extend the child's awareness to natural speech. The clinician should also prompt the child during fluent and disfluent moments, "*What do you notice about your breath right now? Are you breathing deep? Are you holding your breath?*" Upon purchasing the book *Sitting Still like a Frog: Mindfulness Exercises for Kids* by Snel (2013), a guided "attention to breath" audio can be adapted by the clinician for ease of application of this awareness of breath strategy.

Awareness of Body:

MABT body awareness exercises, such as body scans, place attention on a specific body part for a moment before moving attention to the next. This exercise demonstrates an association between the body and mind. According to Boyle (2011), this exercise may increase awareness of the connections between thoughts and feelings related to communication and physical tension. Boyle (2011) contends that this exercise may result in improved self-monitoring of speech musculature which could assist in fluent speech production.

Exercise B. "Special Star"

In this exercise adapted from Greenland (2010) the child is taught about their "special star." The clinician should explain to the client that his star is always with him. The clinician should ask the child what their star looks like? *What size, shape or color is it? Is it sparkly, soft, or striped like a zebra?* The clinician may also choose to ask the child to draw their special star. The clinician can then ask the child to imagine their star is in the sky shining a bright light down on them. The clinician can also use a flashlight to represent the starlight. The clinician should lead the child in a body scan using the star.

Imagine the star's light on the top of your head, on your nose, your ears, and then your cheeks. Follow the light down your neck, shoulders, chest and arms. Notice how your body feels? It is relaxed? Tense and tight? Follow the light to your belly, legs, knees, lower legs, feet and toes? Notice how your lower body feels. With older children, clinicians should consider that simply leading a body scan without the addition of a star may be more appropriate.

Clinicians should extend this body scan to instances where the child is speaking. Murphy, Yaruss, and Quesal (2007a) suggested “freezing” the body during movements of stuttering. That is, the child is asked to hold the tense posture of his articulators so he can examine them in that moment. This can be an excellent strategy to bridge the mindful body awareness practice to the speech moment. The clinician can ask the child to “freeze” during both stuttered speech and fluent speech. The clinician can then ask them to shine their starlight (or scan their attention) from their head to their toes. The clinician should also ask where the child feels tension or relaxation. Once the child masters attention during “frozen” speech, the clinician should also extend the practice during ongoing speech. The clinician should ask them if their starlight (or attention) has found places of tension or relaxation.

MENTALLY FOCUSED EXERCISES

The following section provides examples of primarily mentally focused MABT exercises. These exercises pertain to emotions and thoughts. Activities include “weather report” (Snel, 2013), “bubbles” (Saltzman, 2014) “thought parade” (Rotne & Rotne, 2013)

and “nine dots” (Saltzman, 2014). Adaptations of the aforementioned exercises are provided to meet the needs of a CWS.

Emotion and Thought:

Mindful acceptance and regulation allows for emotions and thoughts to be acknowledged and diminished. This can be especially beneficial for the CWS who is at risk of developing anxious and depressive thoughts relative to communication.

Exercise C. “Weather Report”

Snel’s (2013) weather report exercise provides emotional insight for children. The clinician can ask the child to observe the weather outside. *Is it sunny or cloudy?* The clinician should explain that the weather outside is a lot like the weather inside. *Sometimes you feel sunny, other times you feel cloudy or even like a thunderstorm. Take a minute to think about how you feel about talking. The clinician may preface this with a scenario from the child’s communication hierarchy. What is the weather like inside you when you talk in class? All you have to do is notice it. Just look at your weather with curiosity. Any weather you feel is fine. Remember, it won’t last forever. The weather outside changes with time and your inner weather changes too. Sometimes you will feel sunny but the sun doesn’t shine all the time. Sometimes you feel angry like lightening. You aren’t a rainstorm. That’s just the kind of weather you are experiencing. Other times you feel frightened and your heart beats fast. It’s the weather. It will pass. Just notice it when it rolls in.* The clinician should extend this awareness practice to in-the moment communication by asking the child for their weather report before, during and after speaking tasks. This is also an excellent journaling assignment.

Exercise D. “Bubbles.”

This is a watching exercise suggested by Saltzman (2014). The clinician and child begin by blowing bubbles and watching what happens. The clinician should ask *do they float, pop immediately, or get stuck together? Are some bubbles bigger, smaller, slower, or faster?* After a few moments, the clinician should point out that the bubbles are a lot like are thoughts or thought bubbles. *We can watch thoughts and bubbles. Some thoughts or bubbles are big, small, fast, or slow. Some thoughts or bubbles float alone and some group together. Sooner or later, every thought and every bubble pops. Can you share thought bubbles you’ve had about talking?* The clinician can use this exercise as an introduction to thought watching and proceed with exercise E. once the child demonstrates awareness of the metaphorical relationship of thoughts and bubbles.

Exercise E. “Thought Parade.”

In this exercise adapted from Rotne and Rotne (2013) children learn to observe thoughts in a non-judgmental way (Willard, 2010). The clinician should lead the child in a guided “thought parade” about talking. The clinician should ask the child to think about talking, for example, what it feels like to talk to friends, meet someone new, or speak your ideas. The clinician should also ask them to share some of their thoughts. The clinician should ask the child to imagine their thoughts about talking as participants in a parade. The clinician should instruct the child to imagine they are sitting on a chair on the sidewalk watching the talking thought parade go by. *Just sit back and watch them. Notice how some thoughts are noisy and colorful while others are quiet and like to hang back. Some thoughts are fast. Some thoughts are slow. Other thoughts go around and around in the parade. You*

may notice you are following some thoughts. When you realize this, imagine you are walking back to your chair to simply watch the thoughts go by. This exercise may be extended to structured speaking exercises. The clinician should prompt the child to notice any thoughts that go by during speaking. A journaling assignment of communication thoughts can assist in extending this practice to everyday communication.

Exercise F. “Nine Dots Exercise”

This exercise adapted from Saltzman’s book of Mindfulness-Based Stress Reduction exercises, teaches mindful attention surrounding self-talk (2014). The clinician should choose a puzzle that is difficult for the child and requires problem solving. An example of such puzzle is the nine dots exercise available through purchase of Saltzman’s book, “A Still Quiet Place: A Mindfulness Program for Teaching Children and Adolescents to Ease Stress and Difficult Emotions” (2014). While the child is completing the puzzle, clinicians should ask the following questions; *What is your self-talk like when you are doing something difficult? Is it helpful or not helpful? Do you want to avoid this exercise or keep trying? Do you deal with difficult communication situations in a different or similar way?* Upon completion of this exercise, clinicians should let the child know that the purpose of this exercise is not to find the right answer. Instead, it is a lesson in awareness of thoughts. Clinicians should emphasize a mindful acceptance of thoughts. *When you notice a thought like “I’m bad at talking,” simply notice it and let it pass. It was just a thought.* The clinician can refer to the child’s speech hierarchy to identify a difficult communication scenario. *Can you give me some examples of kind self-talk you could use during this communication scenario?* The clinician should scaffold the child in

brainstorming some kind-speech they can use in communication. This kind-speech should be in the CWS's own words.

Conclusion

Effective stuttering treatment addresses psychological correlates in addition to the physical stutter. Research has demonstrated anxiety is a consequence and mediator of stuttering (Craig, 2000; Craig and Tran, 2006). Anxiety and depressive mood have been associated with to adults who stutter (Craig & Tran, 2014; Tran, Blumgart & Craig, 2011). As Walden and colleagues explain, emotional regulation and language ability contribute to the development of stuttering (2012). Moreover, in CWS, awareness of disfluencies may appear near onset, negative speech-associated attitudes can arise by age 6, and elevated anxiety levels may present in late adolescence (Ambrose & Yairi, 1994; Ezrati, Platzky, & Yairi, 2001; Vanryckeghem & Brutten, 1997; Mulcahy, Hennessey, Beilby, and Byrnes). CWS also often face social consequences such as bullying (Langevin, 2000).

Classical cognitive behavioral therapy is a commonly applied psychological treatment for persons who stutter. However, MABT may be particularly well suited for persons who stutter. For instance, MABT has resulted in a reduction of disfluencies in persons who stutter (Beilby et al., 2012). Additionally, Boyle (2011) purports that mindfulness allows for focus on fluency treatment strategies and decreases avoidance, escape and escalating physical tension. A small number of studies investigating the effects of MABT on persons who stutter age 16 and older yielded promising results (de Veer et al., 2009; Beilby et al., 2012). Identified effects include improvements in sense of control, speech-related confidence, anxiety, stress, psychological flexibility and frequency of stuttering (de Veer et al., 2009; Beilby et al., 2012). Additionally, in theory and research, MABT has been demonstrated feasible and effective with a variety of child populations.

Positive treatment effects with children include improved anxiety, depressive symptoms, attention, and self-regulation (Semple et al., 2005; Semple et al., 2010; Black & Fernando, 2014; Hayes et al., 2011; Razza et al., 2015; Gauntlett-Gilbert, 2012).

Upon consideration of the positive treatment effects of MABT observed with persons who stutter and the positive treatment effects noted with a variety of children populations, MABT may be applied to CWS. This report provides examples of MABT activities adapted for children who stutter. Countless others may be adapted from the referenced sources. Armed with adequate knowledge and personal experience, the speech-language pathologist may foster mindfulness and acceptance in CWS.

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