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Exploring the Feasibility and Outcomes of Concurrent Parent and Child Mindfulness-Based Interventions

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A thesis submitted in partial fulfillment of the requirements for the Doctor of Philosophy degree
in Psychology

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Abstract

Mindfulness-Based Interventions (MBIs) have shown to be effective in improving child and parent outcomes, including parental stress (Burgdorf et al., 2019; Friedmutter, 2016), child behaviour problems, and child executive functioning (Cheang et al., 2019; Donald et al., 2019; Dunning et al., 2019). The field of mindfulness has evolved to include parents and children together in programs, called parallel or concurrent parent and child MBIs. Children who have experienced adversity may be at a greater need for MBIs, as MBIs target stress and emotion regulation, areas where these children may need greater support (Bethell et al., 2016; Brenner, 2003). As a newly emerging field, little is known about the feasibility of combining parent and child MBIs programs together.

The first study in this dissertation was a systematic review of the feasibility of concurrent parent and child MBIs using Bowen et al.'s (2009) model of feasibility as a guiding framework. The review found that most studies were conducted with children with neurodevelopmental disorders, with fewer studies exploring programs with youth with internalizing challenges, physical challenges, adversity, and general populations. Results further showed that concurrent MBIs appear to be acceptable and practical for most participants. Challenges with regular practice were noted across several studies. Limited information regarding implementation fidelity and facilitator responses were found.

The second study explored the preliminary outcomes associated with a concurrent parent and child MBI, the M3[©] program, on a sample of 97 parent-child dyads. Parent pre-to-post program reports on of child executive functioning, child behaviour problems, and parental stress were explored for statistical and clinical significance. Results showed statistically significant positive differences from pre-to-post program across all variables, except for one parent stress scale. These findings were not moderated by parent-reported levels of child adversity, although low rates of adverse experiences were reported. Clinically significant results were also found, where some participants moved in clinically meaningful, positive directions from pre-to-post program. Implications for current and future MBI researchers and clinicians, as well as limitations and next steps for this field of research are discussed.

Keywords: Mindfulness, Mindfulness-based Intervention, Parent, Child, Intervention, Adversity, Feasibility, Program Evaluation, Outcome Evaluation

Summary for Lay Audience

All individuals (including children, parents, partners, etc.) can struggle with managing their emotions, attention, and stress. Research has shown that mindfulness practice (i.e., non-judgmentally paying attention in the present moment) can help individuals regulate themselves (Guendelman et al., 2017) and better manage stress (Pascoe et al., 2017). Research has more recently studied these programs being delivered to parents and children at the same time, called concurrent or parallel mindfulness-based interventions (MBIs), in order to help families integrate mindfulness concepts into the family environment. Ideally, the program helps both parents and children improve their stress and emotion regulation, leading to better quality interactions and eventually, relationships.

Although there is some research on these programs leading to positive changes for parents and youth, no research has investigated whether these programs are feasible for parents and youth. Feasibility examines areas such as whether the program is being implemented as it was planned to, whether participants attend the program, how participants are reacting to the program, and whether participants can practice the skills learned at home. The first study explored the feasibility of MBIs by summarizing the current research in the field and found that parents and youth attend programs and generally regard the programs positively. Yet, despite these positive views, many parents and youth report having difficulty implementing mindfulness into their daily lives.

The second study examined the outcomes of a concurrent MBI called the M3[©] program. The M3[©] program is an eight-week program for parents and children. The program targets children who have experienced adversity, as these children have increased risks of behaviour and emotion regulation challenges. Results found that parents rated their stress and their child's behaviour problems and cognitive abilities as better after completing the program in comparison to their reports from before the program, and that these scores were not impacted by amount of child adversity experienced. Implications for future program development and evaluation are discussed.

Co-Authorship Statement

Melissa Read completed the two integrated manuscripts within this dissertation in collaboration with coauthors. In both manuscripts, Melissa, the first author, conducted the literature reviews, analyses of all data, and the construction of the writing of both manuscripts. In the first manuscript, consistent with best-practices for systematic reviews, a second reviewer (i.e., research assistant) assisted with abstract and full-text screening as well as the quality assessment. The data collection for the second manuscript had a large contribution by Dr. Karen Bax, who primarily designed the study methodology and supported the intellectual process. The first author contributed to the methodology design and ethical approvals over the five years of the project. Dr. Karen Bax, Dr. Claire Crooks, and Dr. Deanna Friesen provided support related to the editorial process of creating the work.

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Conflict of Interest Statement

It is important to note in any study the positionality of the writer, as it is important context for the interpretation of the research and comes with both benefits and burdens (Massoud, 2022). Throughout the second study, I engaged in various roles, including research assistant, facilitator, and program developer. Over the five years of the project, facilitator and parent feedback was taken and used to inform the M3[©] curriculum. While being in these roles provided several benefits related to understanding the program and research project, they can also be accompanied by potential bias related to developers wanting a positive evaluation of the program (Shadish, 2006). Due to the quantitative nature of this study alongside multiple data collectors, however, this bias remains low.

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Chapter 1. Introduction

Since the time that mindfulness was brought from Buddhist spiritual traditions into Western culture in the 1970s by Jon Kabat-Zinn, it has gained considerable attention in both research and clinical fields. Mindfulness is described as “the awareness that emerges through paying attention, on purpose, in the present moment, and nonjudgmentally to the unfolding of experience moment by moment” (Kabat-Zinn, 2003, p. 145). Mindfulness has also been regarded as a psychological process that can be developed through practice (Kabat-Zinn, 2003). Mindfulness can generally be practiced formally or informally. Formal practice is when individuals deliberately set time aside to practice mindfulness meditations (such as body scans or sitting meditations), whereas informal mindfulness involves incorporating mindfulness into regular, pre-existing routines throughout daily life (such as while eating, washing the dishes, etc.) (Birtwell et al., 2019). As such, mindfulness practices have the potential to be both ubiquitous and impactful in people’s lives.

Overview of Present Work

The purpose of this dissertation is to further the mindfulness literature by exploring mindfulness programs with new populations. Chapter one of this dissertation outlines the mechanisms of change, history of, and research related to mindfulness programs. Specifically, research surrounding mindfulness programs’ associations with outcomes for various populations, including adults with and without clinical challenges, parents, and children is reviewed. These findings provide the groundwork and rationale for one of the more recent branches of mindfulness research: combining parent and child mindfulness programs together, typically referred to as parallel or concurrent parent and child MBIs. Chapter one outlines the current research surrounding these programs. Additionally, chapter one discusses the background literature surrounding youth who have experienced adversity, and why these youth and families may be at an increased need for mindfulness programs. Chapter one also introduces the concept of feasibility in program evaluation, and why this area is an important component of program evaluation research.

Chapter two (study one) investigates the current state of the literature surrounding the feasibility of concurrent parent and child MBIs. Being an emerging area of research in

the mindfulness field, study one provides one of the foundational first steps in program evaluation research: establishing feasibility of these programs. Specifically, study one uses a mixed-methods systematic review approach to synthesis the feasibility literature. Areas of strength and areas in need of further research are identified. Furthermore, suggestions for future feasibility studies that apply to MBIs as well as feasibility studies more broadly are provided.

Chapter three (study two) examines the outcomes associated with a new concurrent parent and child MBI: the Making Mindfulness Matter (M3[©]) program. The M3[©] program was designed for and held at a family crisis and support centre, with the aim of targeting families who have experienced adversity. Study two investigates the preliminary outcomes associated with participation in the M3[©] program from both a statistical and clinical significance perspective. Outcomes measured were parent-reported child executive functioning and behaviour problems and parental stress. Study two provides the initial evidence on the outcomes associated with the M3[©] program. Study two also adds to the literature surrounding outcomes associated with concurrent parent and child MBIs, as well as MBIs suitability for families who are at an increased risk of having experienced adversity.

Finally, Chapter four summarizes the work completed in this dissertation. Overall findings, implications, and limitations are discussed. Specifically, both studies contribution to both the mindfulness and program evaluation literature are discussed. Suggestions for both program evaluation research and clinical practice that emerged from the results of both studies are also provided.

Mindfulness

Since the concept of mindfulness was introduced, numerous mindfulness-based interventions (MBIs) have been created and evaluated for program outcomes. One of the most researched programs, the Mindfulness Based Stress Reduction (MBSR; Kabat-Zinn, 1982) program, is an eight week program where participants meet weekly for two or two-and-a-half hours (with the exception of one session being a six-hour full-day class), and are asked to engage in 45 minutes of formal mindfulness practice per day, in addition to informal mindfulness practices (i.e., mindful eating or walking). Indeed, the initial program length was designed to be long enough for participants to both grasp the concept

of mindfulness and develop the ability (i.e., skills and autonomy) to practice mindfulness regularly after program completion (Carmody & Baer, 2009). The program was initially designed for individuals with chronic pain but has since been implemented across several countries and institutions based on research demonstrating MBSR's association with reduced stress across various populations (see Brand et al., 2012; Bränström et al., 2011; Kabat-Zinn, 2003; Marcus et al., 2003; Snippe et al., 2017).

MBIs have also demonstrated efficacy in relation to treating trauma, neuroticism, and various forms of psychological distress including rumination, anxiety, worry, fear, and anger (Brown & Ryan, 2003; Follette et al., 2006; Hoge et al., 2013; Keng et al., 2011). Due to the transdiagnostic applicability of mindfulness, mindfulness approaches have been incorporated into the clinical psychology realm in the form of Mindfulness-based Cognitive Therapy (MBCT; Segal et al., 2002), Acceptance and Commitment Therapy (ACT; Hayes & Strosahl, 1999), and as one of the five components of Dialectical Behaviour Therapy (DBT; Linehan, 1993). MBCT and MBSR are currently the two standard manualized training programs for MBIs, with both including an emphasis on formal mindfulness practice, although informal mindfulness is included. Of note, MBCT has unique components that differentiate it from MBSR. Specifically, MBCT also incorporates components of cognitive therapy in addition to mindfulness and was originally created to target depressive symptoms in adults (Segal et al., 2002). Frameworks such as ACT and DBT are considered mindfulness-informed programs that most often emphasize informal mindfulness practices (Hindman, 2013; Shapiro & Carlson, 2017).

The benefits of mindfulness are not exclusive to clinical populations; benefits have been shown to extend into general populations as well. Specifically, MBIs are associated with lowered intensity and frequency of negative affect as well as more adaptive responding to stress in nonclinical populations (Chambers, 2009). The most recent systematic review and meta-analysis of 49 studies examining non-clinical adult populations concluded that, when comparing MBIs to passive control groups, MBIs were effective in reducing depression, anxiety, rumination, worry, and stress/psychological distress, as well as increasing quality of life and well-being (Querstret et al., 2020). Another meta-analysis and systematic review examining 45 randomized controlled trials

(RCTs) found that mindfulness meditation was associated with decreased physiological markers of stress, such as reduced cortisol levels and systolic blood pressure, across a range of adult and youth populations (Pascoe et al., 2017). Based on the broad applicability of MBIs, they have been implemented in workplaces, hospitals, schools, and mental health facilities in several countries (Haydicky et al., 2017). Furthermore, within the school context, mindfulness has been included in universal prevention programs based on the versatility of benefits across elementary, secondary, and post-secondary populations (Broderick & Jennings, 2013; Conley et al., 2013; Maloney et al., 2016).

Given the research surrounding MBI's positive impact on various populations, it is important to understand what mechanisms of change may lead to these outcomes. As noted, mindfulness is typically understood as the psychological process of focusing on the present moment with non-judgmental awareness. Accordingly, mindfulness-based approaches and programs emphasize intentionally paying attention to the present moment, including ongoing sensory, cognitive, and emotional experiences, without judging or elaborating upon any part of the experience; this also requires an attitude of curiosity, openness, and acceptance during mindful practice (Kabat-Zinn, 1994; Keng et al., 2011).

Through practicing mindfulness, research has emphasized emotion regulation, or the ability to modulate aspects of emotional experiences and responses, as one of the major areas that mindfulness practice is thought to influence (Chambers, 2009; Coffey et al., 2010). Improving emotion regulation is thought to be the core underlying concept behind the universal applicability of MBIs, as disordered emotion regulation has been recognized as a core component of many psychological disorders, while adaptive emotion regulation is seen as integral to both mental health and adaptive functioning (Gross & Munoz, 1995; Repetti et al., 2002 as cited in Chambers, 2009). Furthermore, a resilient functioning style has been found to be characterized by both increased mindfulness and adaptive emotion regulation, whereas decreased mindfulness is related to a disorganized emotional functioning style and maladaptive emotion regulation (Bögels & Emerson, 2019).

According to Chambers' (2009) integrative review of mindfulness and emotion regulation, mindfulness aims to alter the relationship that individuals have with their

mental processes – particularly their thoughts. This change is done through mindfulness facilitating the development of meta-cognitive insight through a process called decentering. Decentering involves perceiving thoughts as transient mental events as opposed to accurate representations of reality. Decentering then leads to cognitive defusion, or the perception of thoughts as simply thoughts. In other words, mindfulness teaches individuals to see thoughts, emotions, and experiences as separate from themselves. The primary goal of this process is to learn to take a step back from emotional situations and identify an emerging or present emotional state as transient (Wright et al., 2009).

Cognitive defusion then increases one's ability to adapt their responses to challenging or stressful events and allows challenges to be addressed consciously as opposed to reactively. Specifically, this reduction in reactionary responses allows one to explore present experiences non-reactively. Consciously examining their thoughts, emotions, and action tendencies, and allows them to better respond in a way that both aligns with their values and is more likely to produce adaptive behaviours. Overall, this increase in ER allows an individual to operate from a healthy level of arousal where social functioning and goal engagement are optimal, rather than being either hypo-or-hyper aroused (Chambers, 2009).

Another fundamental element involved in mindfulness practice is meditation, wherein one consciously keeps awareness focused and maintained in a particular way: remaining open to whatever is in the present moment without fixation on any part of the experience or any secondary processing. In this way, meditation can be understood as attentional training, or the self-regulation of attention, involving executive functions and attentional control (Bishop et al., 2004; Chambers, 2009). Executive functions are generally considered a collection of higher order mental processes that support the planning and execution of goal-directed activity and are generally associated with the prefrontal cortex (Friedman & Miyake, 2017).

Some of the main executive functions involved in mindfulness meditation are sustained attention, working memory, attention switching, and inhibition of elaborative processing (Chambers, 2009). The use of these executive functions influences the two abilities required to self-regulate attention: 1) the ability to anchor attention on what is

happening in the present moment and 2) the ability to intentionally shift attention within that experience, from one element of the experience to another (Keng et al., 2011). Furthermore, neuroscience research has argued that executive functions are the core processes underlying the ability to not only regulate attention but regulate emotions and behaviour as well (Heatherton & Wagner, 2011; Teper et al., 2013). Specifically, self-regulation is dependent on the development of executive functions in that they influence the ability to set goals, problem solve, and regulate emotions, all of which determine one's ability to self-regulate behaviour (Smith et al., 2017). Overall, it can be argued that through processes such as cognitive defusion and attentional training, that mindfulness can facilitate a healthy, less reactionary relationship and engagement with internal experiences (i.e., thoughts and emotions), allowing individuals to experience and express their emotions without becoming under or over engaged with them. In this way, MBIs aim to alter one's relationship to challenging or stressful events and allow individuals to engage with these events in a more consciously responsive manner.

Research regarding brain structure and function has recently supported the connection between mindfulness and stress responses, with studies finding that mindfulness practice has been linked to synaptic strengthening and changes in brain structure and function related to sustaining attention (Tomasino & Fabbro, 2016), improving self-awareness (Young et al., 2018), and reduced disposition for negative reactions to stress in adults (Desbordes et al., 2012; Taren et al., 2013). Additionally, a systematic review of 11 studies found that eight-week MBSR and MBCT programs were associated with increased volume and connectivity in the prefrontal cortex (the area typically associated with executive functions), cingulate cortex, and insula, as well as decreased functional activity in the amygdala, an area of the brain associated with emotion and the fear response (i.e., activation of the fight-flight-freeze response; Davis et al., 1995), and improved connectivity of the amygdala and prefrontal cortex in mainly adult populations (Gotink et al., 2016). These changes are consistent with improved emotion regulation suggesting that MBIs can lead to structural and functional changes in the brain associated with increases in emotion regulation. Overall, mindfulness has been related to increased emotion regulation across neurobiological, psychological, and clinical studies (see Guendelman et al., 2017 for a review). The majority of work, however, has

focused on MBIs with adult populations, many of whom are experiencing stress and/or depressive symptoms.

Mindful Parenting

In addition to mindfulness' broad reaching effects on various adult populations (see Chiesa et al., 2011), recent research has highlighted the benefits of mindfulness for children, parents, and families. The concept of relational mindfulness may be particularly important in the family context, wherein by practicing conscious, present-moment, non-judgmental awareness of the self, individuals may not only be more aware of and better able to regulate their own internal processes, leading them to be less reactionary to others, but they may also be more attuned to the internal processes of others (Bögels & Emerson, 2019). Increases in empathy in relationships and during conflict, for example, are suggested to improve in those who practice mindfulness, as cultivating awareness and acceptance of one's own emotions may make it easier to recognize and understand the emotions of others (Block-Lerner et al., 2007). These practices can then apply to the parenting and family environment, wherein the core features of mindfulness would be applied by parents in situations with their children, leading parents to be less reactionary and more aware of their child's emotions and needs (Kabat-Zinn et al., 2003). Although the concept of mindfulness in parenting and family contexts was originally conceptualized by Kabat-Zinn et al. (2003), in 2010, Sawyer et al. recommended future research examining mindful parenting, as theory and research with other populations pointed to MBIs as a potential avenue for reducing parental stress, improving parent-child relationships, reducing child symptoms, and promoting healthy child development.

Mindful parenting programs also align with Bandura's Social Cognitive Theory (SCT), which posits that individual behaviour is shaped by the ability to regulate behaviour and shape one's environment, and that an individual's personal factors, environment, and behaviour have the potential to influence each other through a process called reciprocal determinism (Glanz et al., 2002). Included in this theory are personal factors such as individual self-control and behavioural capacity, and environmental factors such as observational learning. Through SCT, it has been suggested that mindful parenting programs can influence parent and child outcomes through various avenues, including parental stress management, ER, and modelling of skills (Knol et al., 2016),

which will be discussed in greater detail below. Although theory and research suggested these outcomes are possible, Sawyer et al. (2010) found limited research on the effectiveness of mindful parenting programs.

Currently, the exploration and evaluation of mindful parenting is expanding, and research in the field of mindful parenting programs has become plentiful. In addition to the core features of mindfulness programs, mindful parenting programs typically involve teaching strategies that help parents become more aware of the attributions or evaluations they have towards their child (and their child's negative behaviour), with the goal of increasing nonjudgmental attitudes toward the child and the behaviour (Burgdorf et al., 2019; Freidmutter, 2016). Another core component is the reduction of negative automatic response patterns in parenting situations, such as getting angry when a child throws a tantrum, leading to more effective parenting skills and more positive interactions with their child, such as responding more consciously and helping the child work through their emotions (Bögels & Emerson, 2019).

Mindful parenting programs also typically teach concepts such as kindness, compassion, and empathy as well as how to recognize emotions and emotional triggers in the self and others (Hali & Antonacci, 2020). These concepts are taught with the goal of increasing emotional awareness and regulation of the parents themselves as well as their children's. A model of mindful parenting was developed that consisted of five core dimensions: 1) listening to the child with full attention, 2) non-judgmental acceptance of the self and child, 3) emotional awareness of self and child, 4) self-regulation in parenting situations, and 5) compassion for the self and child (Duncan et al., 2009). In comparison to other parenting programs, mindful parenting shifts away from behaviour management training and instead emphasizes parental ER and healthy parent-child relationships (Burns, 2018).

A central outcome of mindful parenting practice is the reduction and better management of stress, as parental stress is associated with poorer psychological well-being (Hellman et al., 2018) and the presence of more negative affect as opposed to positive affect (Deater-Deckard et al., 2016). Parental stress also extends into the family, wherein families with greater parental stress tend to have children with more behaviour problems (Crnic et al., 2005), more social and interpersonal difficulties (Anthony et al.,

2005), poorer executive functioning (de Cock et al., 2017; Joyner et al., 2009; Molfese et al., 2010), and lower levels of emotional well-being (Deater-Deckard & Panneton, 2017). These child outcomes may be due to several factors; higher stress in parents/guardians, for example, has been linked to withdrawal from parent-child interactions, fewer expressions of warmth, and decreased involvement with children (Raikkonen et al., 2006). Parental stress has also been associated with harsher punishment and parental hostility, which both have been shown to contribute to poorer child psychological outcomes, including poorer attentional regulation and behaviour problems (Burgdorf et al., 2019).

It is suggested that by regulating stress internally and in relationships, mindful parenting can also improve child outcomes through multiple avenues (Bögels & Emerson, 2019). Firstly, the relationship between parental stress and child behaviour problems is thought to be bi-directional, wherein child behaviour problems cause increases in parental distress, and parental distress can have a significant, direct effect on child behaviour problems, eventually leading to a cycle of increased stress and behaviour problems; therefore, through reducing parental stress, child behavioural improvements should be observed (Sanner & Neece, 2018; Van der Oord et al., 2012). Another avenue where mindful parenting may improve child outcomes is through the concept of mirror neurons, a concept that aligns with SCTs observational learning. Specifically, when parents model tuning in to the present moment in a non-judgmental and non-reactive way, it encourages their child to also tune in and ‘mirror’ this behaviour, a process often referred to as co-meditation, leading their child to benefit from increased mindfulness (Bögels & Emerson, 2019). In this way, parents are modeling ER skills for their child to mirror, which also may lead to increased child ER skills and reductions in child behaviour problems (Cortell, 2009).

Lastly, the quality of parent-child interactions plays a key role in the child behaviour-parent stress relationship (Sanner & Neece, 2018), and it is argued that mindfulness plays a key role in managing conflict within relationships by reducing unhelpful, impulsive, and negative emotional expressions and behaviour in individuals (Bögels & Emerson, 2019), leading to increased quality of interactions. In other words, as parents learn to recognize when they are experiencing an emotional reaction to their child

and are given the tools to reduce their emotional reactions, they may respond in a more conscious manner to their child, creating more positive interactions with their child (Coatsworth et al., 2010). These increases in positive parent-child interactions can then lead to increased levels of prosocial behaviour (Rait, 2012) and executive functioning (Bernier et al., 2010) in children, which can further reduce parental stress.

Mindful Parenting Programs

The most recent literature on mindful parenting programs identifies several benefits to both parents and their children. Meta-analyses have found that mindful parenting interventions are associated with increases in parental mindfulness, reductions in parental stress, decreases in the use of maladaptive discipline used with their child, and increases in effective parenting skills (Burgdorf et al., 2019; Friedmutter, 2016). Burgdorf et al. (2019) further found that these results were not moderated by age or clinical status of children and included parents with both clinical and non-clinical status in their analysis. Further, research has shown that community samples of parents benefit from mindful parenting programs in relation to reduced stress (Corthorn & Milicic, 2016), increased emotion regulation, and increased present-focused attention (Burke et al., 2017). A qualitative exploration of a community-based mindful parenting program found that parents reported enhanced emotion regulation, kindness and compassion towards themselves and others, and positive changes in the parent-child relationship (Ma & Siu, 2016). Lo et al. (2017) also found that participating in a six-week mindful parenting program was associated with reductions in parental stress, depression, and stress from dysfunctional parent-child interactions, and that parents reported an increased ability to cope with emotions and stress. In line with the success of mindful parenting programs in community and clinical populations, Lo et al. (2017) found that parents with more severe stress at pre-test reported more significant positive changes in areas such as stress and depression following completion of the mindful parenting program.

Mindful parenting programs have also been associated with improved child outcomes, with research most frequently examining the effects of mindful parenting programs on child externalizing and internalizing behaviour, executive functioning and attentional capacity, and social and emotional skills. In a meta-analysis of 25 studies aimed at examining the effects of mindful parenting program on youth outcomes,

Burgdorf et al. (2019) found that not only did mindful parenting programs reduce parental stress in comparison to control groups, but they were also associated with improvements across youth externalizing, internalizing, cognitive, and social domains. Cognitive areas assessed in this meta-analysis included metacognitive problems, sustained attention, attentional control/switching, and attention problems. Notably, changes in parental stress also predicted changes in child externalizing behaviours, suggesting that child externalizing behaviour changes may be explained in part by reductions in parental stress, possibly as a result of parental modeling of mindful behaviour, leading children to practice more mindful responses to emotional situations (Singh et al., 2007). In comparison to externalizing problems, more evidence is needed regarding mindful parenting programs' association with child internalizing problems, as well as what avenues of mindful parenting may contribute to any changes in internalizing problems (Burgdorf et al., 2019; Friedmutter, 2016).

There is also evidence that mindful parenting programs can have a positive impact on both clinical and non-clinical youth populations. When looking at specific clinical child populations that mindful parenting programs may positively impact, there is evidence that these programs are associated with reduced child attention deficit hyperactivity disorder (ADHD) symptomology (Behbahani et al., 2018), as well as decreased aggression, non-compliance, and self-injury in children with autism spectrum disorder (ASD) (Singh et al., 2006). A systematic review examining seven RCTs of mindful parenting programs for parents of children with clinical and non-clinical levels of difficulties suggested that these programs were associated with increases in parents' emotional awareness of their children (for parents of children ages 10-14 years) and reductions in preschool children's symptoms of externalizing disorders (Townshend et al., 2016). The authors concluded, however, that more evidence is still needed in these areas, as the number and methodological quality of articles included were not yet sufficient to make conclusions in relation to these outcomes. Similarly, a qualitative review of mindful parenting programs in non-clinical, community populations found evidence to suggest that these programs may increase child psychosocial functioning, as all studies reviewed indicated child behaviour improvements based on parent reports (Hali & Antonacci, 2020).

Although mindful parenting programs have begun to show efficacy with clinical and non-clinical populations alike, the age of the child may play a role in the success of mindful parenting programs. Specifically, there is some research to suggest that younger children may benefit more from their parents participating in mindful parenting programs (Lundahl et al., 2006), as younger children are more reliant on and influenced by their parents compared to older children and adolescents, who may require more individual interventions. Burgdorf et al.'s (2019) meta-analysis, however, found that child outcomes were not moderated by the age of the child. Together these results suggest that although mindful parenting programs may benefit youth of various ages, whether increased benefits are present within a certain age category is an area in need of further investigation.

Mindfulness Programs for Children

In addition to the benefits children obtained through mindful parenting, directly teaching children mindfulness is correlated with positive child outcomes. Similar to mindful parenting programs, mindfulness programs for children typically include focusing on the present moment through various mindfulness techniques, as well as concepts such as kindness and compassion (Bishop et al., 2004). The concept of teaching mindfulness to children originates in the field of contemplative education, which theorizes that teaching children contemplative practices such as mindfulness may aid in the development of both empathy and compassion for others as well as executive functioning (Roesner & Zelazo, 2012). It has been further theorized that practicing mindfulness may lead to increases in focused attention for children (Roesner & Zelazo, 2012), given the emphasis on attention to breathing, and cultivating the ability to direct attention back to focused breathing when the mind wanders.

Research has demonstrated several benefits of mindfulness programs within various populations of children. Specifically, a recent meta-analysis of 33 RCTs of MBIs found that, compared to control groups, MBIs for children and adolescents were associated with positive effects in relation to executive functioning, attention, depression, anxiety, stress, and negative behaviours (Dunning et al., 2019), although with small effect sizes (ranging from .16 to .30). Furthermore, the most recent systematic reviews and meta-analyses have found that MBIs are also associated with positive outcomes for

children and adolescents. Specifically, a systematic review of 16 comparative studies (i.e., using RCTs, pre/post intervention studies, or mixed-method designs) found that MBIs were associated with increased empathy and compassion in children and adolescents ages 5 -18 (Cheang et al., 2019). A meta-analysis and systematic review of 31 studies further found that mindfulness practice was positively related to prosocial behaviour across ages and genders (Donald et al., 2019).

In relation to the previously discussed structural and functional brain changes influenced by MBIs, a noteworthy study released by Bauer et al. (2019) aimed to assess the effects of mindfulness training on the brains of middle-school children. A RCT was conducted wherein 40 children were randomly assigned to either mindfulness training or coding training. Using functional magnetic resonance imaging (fMRI), the researchers found that mindfulness training was associated with reduced right amygdala activation when children were exposed to negative stimuli (fearful facial expressions), as well as stronger functional connectivity between the right amygdala and the ventromedial prefrontal cortex. According to Bauer et al. (2019), these results suggest that mindfulness training can reduce stress and promote functional brain changes in middle-school aged children. The authors also emphasized that children were in a non-meditative state when undergoing the post-test, meaning that these benefits were found beyond the active meditative state. Another study examining the neurophysiological effects of mindfulness on anxiety and depression symptoms in non-clinical youth ages 7-10 years old found preliminary evidence that MBIs may reduce the neurological risk for developing anxiety (Shanok et al., 2020). Although these studies provide preliminary evidence of brain changes associated with MBIs for children, replication of these findings is needed.

MBIs have been undertaken to support different at-risk populations. MBIs have been effective in improving outcomes for children with clinical backgrounds including ADHD (Haydicky et al., 2017), ASD (Klingbeil et al., 2017), and anxiety disorders (Borquist-Conlon et al., 2019). They have also been effective with children from economically disadvantaged backgrounds (Poehlmann-Tynan et al., 2016). A study involving three- and four-year-old children, for example, found that when delivering a social and emotional learning and MBI to children from economically disadvantaged backgrounds, the treatment group displayed more self-regulatory-related behaviours on

the days that the intervention occurred compared to the control group (Lemberger-Truelove et al., 2018); they further found that the children adopted kindness language taught in the intervention.

Although targeting specific populations is beneficial to understanding the effects of MBIs on children, there is evidence to support the universal applicability of MBIs for youth. For example, a systematic review of 13 studies including children or adolescents who were typically developing, were diagnosed with ADHD, had reading difficulties, were orphans, or were in correctional schools found evidence of increases in attention or EF with medium-to-large effect sizes (ranging from .3 to 32.03) for children and adolescents (Mak et al., 2018), suggesting that mindfulness-based interventions may be a promising intervention to target these diverse areas. Furthermore, another meta-analysis of 76 studies examining the effects of MBIs delivered to clinical and non-clinical youth (mean ages ranging from 3.9 to 17.7 years old) found positive treatment effects on externalizing and internalizing problems, negative emotions and subjective distress, positive emotions and self-appraisal, social competence and prosocial behaviour, physical health, academic achievement, and school functioning (Klingbeil et al., 2017). MBIs have also been implemented in schools as universal prevention programs, with studies finding that MBIs are correlated with improvements in emotional problems, cognitive performance, and resilience to stress across school populations (Zenner et al., 2014).

A study of children ages four-to-six in kindergarten classrooms who received a mindfulness-based program for six weeks showed greater improvements in self-regulation, were more prosocial, and were less hyperactive compared to the control group (Viglas & Perlman, 2018). Additionally, this study found that children with lower scores at time one had a more notable increase in these three areas following the program. Furthermore, a meta-analysis of 24 studies exploring school-based mindfulness programs found that mindfulness programs were linked to increases in mental health and well-being in school samples but reported smaller effect sizes in comparison to meta-analyses involving clinical samples, who tend to begin with lower scores across various domains (Carsley et al., 2018).

Combining Parent and Child MBIs

As previously noted, MBIs can benefit parents and children separately; however, it has been suggested that combining parent and child MBIs may produce greater results. More recent theory and research has proposed that MBIs targeting the family system (such as children and parents), as opposed to one individual, can address an unmet need (Bögels & Emerson, 2019; Coatsworth et al., 2014), and that although parent-only and child-only MBIs provide benefits, combining them to form concurrent programs has greater promise in improving child and family functioning (Harnett & Dawe, 2012). As children are naturally embedded within the family environment, including caregivers in order to inform them of the mindfulness content and provide material to parents to support their child in home practice may be beneficial to youth; moreover, the inclusion of parents concurrently may strengthen treatment efficacy due to interaction effects (Burke, 2010). The combined nature of parent-child MBIs could support the creation of a shared understanding of material and a sense of support between parents and children (Racey et al., 2018), alongside the possibility of family members mutually reinforcing practicing at home (i.e., parents modelling for or coaching children, children reminding parents of practice) (Haydicky et al., 2015; Heifetz & Dyson, 2016).

Initial evidence that combining parent and child interventions into concurrent programs, or programs have both a parent and child component taught simultaneously, produce larger improvements than parent-only interventions was provided by Webster-Stratton and Hammond (1997). In this article, the authors argued that parent factors and child factors such as social skills and self-control are both targets for behavioural intervention. The authors found that combining parent behaviour training and child behaviour training resulted in the most significant improvements in child behaviour at one-year follow-up. In line with this finding, a more recent meta-analysis of 77 studies revealed that including a child component, specifically where the parent and child can practice skills together, was among the components of parent training programs that produced larger effect sizes in relation to improving child (ages zero-to-seven years) behaviour and adjustment (Kaminski et al., 2008). Note that these reported effects are not for MBIs but serve as a promising sign that concurrent MBIs may be beneficial.

Outcomes of Parent and Child MBIs

Studies exploring the benefits of parent and child MBIs are relatively newer, and variable results have been found. Research from Racey et al. (2017), for example, found that participant responses indicated a benefit of parent involvement in MBIs alongside their child. Specifically, the authors note that parallel improvements in various outcomes seen within both the parents and youth involved in the program suggest that parental attendance and improved outcomes may have increased the impact of the program on youth's mental health. The authors further note that reductions in emotional reactivity may play a role in this finding. Another meta-analysis (Friedmutter, 2016), however, did not find recipient of intervention (i.e., parent and child versus parent-only programs) moderated the relationship between mindful parenting interventions and child externalizing behaviour outcomes; however, only five studies with parents and children participating in mindfulness-based programs were found for this analysis, suggesting the need for more research surrounding concurrent parent and child MBIs.

More recently, a systematic review and meta-analysis exploring the outcomes associated with parallel parent and child MBIs was conducted by Xie et al. (2021). In their review, the authors note that 20 studies met inclusion criteria. Across these studies, minor-to-small positive effects were found in relation to parental and child mental health as well as family functioning. Although the results were deemed promising, Xie et al. (2021) stated that the overall effect sizes found were smaller than those found in meta-analyses of effects of parent-based MBIs on parental stress, and youth school-based MBIs. As possible explanations for this result, the authors point to the small sample sizes within studies (i.e., most studies had under 50 families), the study designs, and the clinical nature (i.e., 90% of studies had exclusively clinical populations) of the populations parallel programs were typically used with (in comparison to mindful parenting or school-based programs). Furthermore, a large degree of diversity in relation to program and participant characteristics as well as study design were present; the diversity of participant characteristics, interventions, and study designs was stated as a limitation, with the authors stating that more studies are needed, particularly studies that

include more holistic population samples and larger sample sizes to assess the effectiveness of parallel parent-child MBIs.

One of the most frequently studied parallel MBI programs is the MYmind program (Bogels et al., 2008), which has been developed for and studied with youth with ASD and ADHD and their parents. The MYmind program is an eight-week, concurrent parent and child mindfulness program that has been created for and assessed with older children and adolescents (ages eight-to-18 years) with ASD and ADHD. Each MYmind session is 90 minutes long and incorporates components such as formal and informal mindfulness practices, elements of cognitive behavioural therapy, and psychoeducation (Haydicky et al., 2017). A reward system containing mindfulness points is also used for the ADHD group.

For adolescents with ADHD, the MYmind program has shown promising results in relation to reducing parent-rated ADHD symptomology such as hyperactivity and inattention, improvements in youth self-reported internalizing and externalizing problems (Haydicky et al., 2015; van der Oord et al., 2012), and objective measures of sustained attention (Bögels et al., 2008). Parents participating in this program have also reported increases in mindfulness, reductions in parenting stress, and changes in parental over-reactivity (Haydicky et al., 2015; van der Oord et al., 2012; van de Weijer-Bergsma et al., 2012). Furthermore, a qualitative study based on parent, child, and teacher interviews found that the MYmind program produced positive effects related to awareness, acceptance, emotion regulation and reactivity, cognitive functioning, relational changes, and feeling calm/relaxed (Siebelink et al., 2020).

Regarding adolescents with ASD, a study assessed the effects of the MYmind program on multiple outcomes at pre-intervention, post-intervention, at two-month follow-up, and at one-year follow-up (Ridderinkhof et al., 2018). In this study, the authors found decreases in social communication problems as well as increases in emotional and behavioural functioning. The results reported by the youth themselves were most substantial at the two-month follow-up but were only partly present at one-year follow-up; the parent reported results, however, were present at the two-month follow-up and the one-year follow-up. In relation to parental outcomes, parents also reported increases in emotional and behavioural functioning, improved parenting, and mindful awareness at all

follow-ups. Salem-Guirgis et al. (2019) also evaluated the MYmind program with youth with ASD and their parents and found the program to be associated with improvement in youth autism symptoms, emotion regulation, and adaptive skills.

Although these studies suggest that the MYmind program can benefit adolescents with the diagnosis of ADHD or ASD and their parents, there currently is no known research on the program's applicability and effectiveness with other populations, such as other clinical, non-clinical, or at-risk populations. However, understanding the underlying mechanisms that lead to these changes in attention and behaviour may provide a better understanding regarding the potential of a concurrent parent and child mindfulness-based program to positively impact various populations. Results from Haydicky et al. (2017) may provide some clarity regarding these mechanisms. Specifically, when assessing MYmind with five families (consisting of adolescents with ADHD and their parents), Haydicky et al. (2017) found that participating in the program was associated with improved peer and family relationship quality, leading them to investigate what underlying mechanisms may have contributed to this outcome.

The authors found that enhanced present-focused awareness and detached self-observation contributed to improved self-monitoring as well as improved attentional, emotional, and behavioural self-regulation. Consistent with previously discussed theory and research, the participants further reported being better able to implement adaptive emotion regulation strategies (including problem solving and acceptance) and relied less on maladaptive emotion regulation strategies (such as rumination). These adaptive emotion regulation strategies developed by both the parents and adolescent were also linked to mutually reinforced emotion regulation skills, which the authors describe as a co-regulatory process of change between the parent and adolescent. Lastly, the concurrent nature of the program was also associated with both parents and adolescents describing parallel processes of increased self-awareness and emotion regulation that contributed to reduced emotional reactivity, increased empathy, increases in communication, and ultimately reductions in the intensity and duration of conflicts.

Another family-based mindfulness intervention consisting of a concurrent parent and child program for economically disadvantaged families also found promising preliminary results (Lo et al., 2019). Specifically, the program was associated with

improvements in child (ages five-to-seven years) attention and self-regulation, decreases in parenting stress, and improvements in parent-rated parent-child dysfunctional interactions in comparison to a control group. The authors further found that these effects were more prominent at the three-month follow-up and that stronger effect sizes were found for at-risk families, characterized by families with high parental stress levels. Although there are still several populations to assess when it comes to concurrent parent and child MBIs, these underlying constructs have led researchers to propose creating and using these interventions for additional populations, especially those with increased stress, emotion regulation concerns, and/or behaviour problems (Crnic et al., 2017).

A Population in Need

Adverse childhood experiences (ACEs) are defined as traumatic events that occurred before the age of 18, and include events such as abuse, neglect, witnessing domestic violence, and substance abuse or mental illness within the household (Felitti et al., 1998). In 1998, Felitti et al. published a seminal article that linked ACEs with a broad range of physical and mental health problems in adulthood (e.g., cancer, heart and lung disease, substance abuse, depression), with many studies confirming these results throughout the last two decades (see Chartier et al., 2010; Danese et al., 2009; Kalmakis & Chandler, 2015). For example, a systematic review and meta-analysis found that individuals who have experienced one or more ACEs were 63% less likely to display high resilience in comparison to those who had not experienced any ACEs (Morgan et al., 2022). In 2011, a measure of Adverse Family Experiences (AFE) during childhood was developed by the American Center for Disease Control and Prevention and used in their National Survey of Children's Health (NSCH). The AFE survey included four new adverse experiences: 1) the death of a parent, 2) witnessing/being the victim of neighbourhood violence, 3) socioeconomic hardship, and 4) perceived discrimination (Kwong & Hayes, 2017).

In addition to Felitti et al.'s (1998) findings, research has shown that exposure to more ACEs has been related to greater increases in negative outcomes (Kwong & Hayes, 2017). Furthermore, Felitti's (1998) seminal study further found that the more types of ACEs reported by individuals, the greater their risks of health harming behaviours, and infectious and non-infectious communicable diseases. More recently, a systematic review

and meta-analysis of 27 studies found that individuals who were exposed to four or more ACEs had significantly worse health outcomes measured in comparison to individuals with three or fewer exposures (Hughes et al., 2017).

Although the consequences of ACEs are broad and beyond the scope of this review (see reviews of Hughes et al., 2017; Morgan et al., 2022), an area of particular interest is aiding this population in the development of emotion regulation and resilience. Resilience is generally understood as positive adaptation, or the ability to maintain/regain mental health, despite experiencing adversity (Herrman et al., 2011). It has been suggested that a child's stress-regulation system, including the ability to regulate stress, fear, and discomfort, are intertwined with the roots of resilience, and are critical in allowing for the transition from negative experiences to well-being (Burns, 2018).

A study of 95,677 children ages 0-17 years found that children exposed to ACEs were more likely to lack resilience (Bethell et al., 2016). Furthermore, not only can exposure to ACEs affect the physiological stress response in children (Brenner, 2003), but it can have lasting effects on the stress response throughout childhood into adulthood, leading to chronic stress (Anda et al., 2006). Bethell et al. (2016) also found that the presence of resilience was associated with lower rates of emotional and behavioural problems (EBP) in children who have experienced adversity and outlined protective factors that reduce the likelihood of EBPs in these children. The protective factors include parental mental health, ability to cope with parenting, and management of stress and aggravation associated with parenting. Similarly, three main child factors have been theorized to predict resilience among children who have experienced abuse or maltreatment: 1) a strong parent-child relationship, 2) the ability to self-regulate emotions, attention, and behaviour, and 3) adequate cognitive skills needed for academic success and law-abiding behaviour (Cole et al., 2005).

The decreased emotion regulation and increased stress associated with ACEs provide a need for programs to target these areas. MBIs for parents and children have targeted and impacted many of the risk and protective factors that relate to children developing resilience, including the stress-regulation system for children and parents, ER, and improving parent-child interactions and relationships. Based on these relations, research suggests that MBIs for children and parents are likely a promising avenue to

address individuals exposed to adversity, alongside growing evidence that MBIs promote trauma healing, regulation of stress, emotions, and behaviours, thereby promoting resilience (Bethell et al., 2016).

Although MBIs may benefit individuals who have experienced trauma/adversity, most of these individuals do not report their adverse experience to the police or an agency (Burczycka & Conroy, 2017), making it difficult to separate those in need of intervention from the general population. Community-based programs typically allow for individuals who feel stressed or have experienced adversity and believe they could benefit from the program to enroll. Community programs may also be held at community or crisis centers where populations tend to be more at-risk, therefore helping those from various backgrounds, including those who have experienced different types of adversity and/or who are in need of stress reduction and emotion regulation skills.

Furthermore, the universal benefits seen through mindfulness programs suggest that various populations can benefit from enrolling in these programs, with research showing that MBIs with community samples of parents can lead to increased emotion regulation, reductions in stress, and increases in present-focused attention further supporting this claim (Hali & Antonacci, 2020). Additionally, in Potharst et al.'s (2018) study of clinical and non-clinical parents and children, although non-clinical children initially presented with higher levels of well-being and lower levels of behaviour problems, other variables were similar among clinical and non-clinical populations at pre-test. These variables included parental stress levels, over-reactivity, mindful parenting practices, and well-being. Furthermore, no differences were found between the two groups in relation to the mindfulness program improving parental and child functioning, further suggesting that MBIs may be linked to improvements in parental stress and child outcomes regardless of the presence of clinical disorders in the child and therefore may be suited to community-based settings.

Overall, there is theory and emerging evidence to suggest that MBIs can have a positive impact on child and parent populations. An emerging field of research aims to combine parent and child programs together in order to maximize the benefits associated with MBIs, with one systematic review and meta-analysis showing promising but limited results (Xie et al., 2021). Indeed, Xie et al.'s (2021) review highlighted the need for more

research in relation to programs that are designed for and target broader community samples as opposed to exclusively clinical samples such as children with ADHD or ASD. Additionally, these community-based programs would therefore be available to children and parents who may have experienced adversity, as this population has an increased need for MBIs. Community crisis centers provide an ideal setting for families who have experienced adversity to access needed support.

Stages of Program Evaluation

The above literature discusses the outcomes associated with MBIs that have made them a promising intervention option for several populations and challenges, and that have brought the field of mindfulness to the point of exploring concurrent parent and child programs. Outcomes, however, although desirable, are not the only important component of program evaluation. Feasibility studies examine the intervention processes necessary for success before a pilot study or RCT is conducted. Feasibility studies typically measure areas such as the ability to recruit participants, program fidelity/implementation, and responses of individuals involved in the program (e.g., participants and facilitators) (Bowen et al., 2008; Orsmond & Cohn, 2015).

Feasibility studies are used to determine whether programs should be evaluated for outcomes, help prepare program developers and researchers for outcome studies, and provide important information that may impact outcomes (Bowen et al., 2009). They are particularly important when a new target population, intervention, setting, or community partnership is being developed, and when research involving a new intervention format is sparse (Bowen et al., 2009). As combining parent and child MBIs into concurrent or parallel programs is an emerging area of MBI research involving new participants and interventions it is important to establish that these programs are feasible for all stakeholders, including participants and facilitators.

In this dissertation, two complementary studies examine the field of MBI research further. The first study is a systematic review of the feasibility of concurrent parent and child MBIs. This study aims to capture the current literature as to what community programs are available, whether these programs are feasible, and whether any unique feasibility characteristics are noted within the parallel or concurrent nature of these programs, as this program structure is novel in the field of MBIs. The second paper

investigated the outcomes associated with a new community-based concurrent parent and child MBI (the Making Mindfulness Matter program; M3[©]) for families with children who have experienced adversity.

Chapter 2. A Systematic Review of the Feasibility of Concurrent Parent and Child Mindfulness-Based Interventions

Mindfulness is defined as present moment, nonjudgmental awareness (Kabat-Zinn, 1994). The concept of mindfulness practice has formed the foundation of several mindfulness-based interventions (MBIs). Specifically, the Mindfulness Based Stress Reduction program (MBSR) was the first manualized and standardized MBI that has shown in numerous studies to be associated with decreases in stress and anxiety in adult populations (Brand et al., 2012; Bränström et al., 2011; Brown & Ryan, 2003; Kabat-Zinn, 2003; Marcus et al., 2003; Snippe et al., 2017). Following the positive outcomes associated with MBSR, a second manualized MBI, mindfulness-based cognitive therapy (MBCT; Segal et al., 2002), was created initially for adults struggling with depression. To date, these two programs have been the most widely used, studied, and adapted MBIs.

Mindfulness literature has since moved from examining outcomes associated with adult populations to parent (i.e., mindful parenting programs) and child populations, with a trend of positive associations emerging. Specifically, meta-analyses have found associations between participation in mindful parenting programs and increases in emotion regulation (Corthorn & Milicic, 2016), and reduced parental stress and maladaptive parenting strategies/increases in use of effective parenting skills (Burgdorf et al., 2019; Friedmutter, 2016). Meta-analyses exploring MBIs for youth have found MBIs to be associated with increases in executive functioning and attention (Dunning et al., 2019), empathy and compassion (Cheang et al., 2019), and prosocial behaviour (Donald et al., 2019), alongside decreases in depression, anxiety, stress, and negative behaviours (Dunning et al., 2019).

Given the literature surrounding MBIs for children and parents separately, studies aimed at combining these programs together into parent and child MBIs has recently emerged (see Xie et al., 2021). As combining programs together is a newly emerging area of research, feasibility of such programs should be established before outcomes are evaluated. In the following sections, the importance of feasibility studies in program evaluation, followed by the current literature related to the feasibility of MBIs is discussed.

Feasibility Studies in Program Evaluation

Although outcome evaluations are frequently desired and conducted, feasibility has been argued as an essential component of program evaluation and should occur before a RCT is conducted, as these studies can influence the overall effectiveness of the program (Orsmond & Cohn, 2015). Specifically, feasibility studies are to be conducted first in order to assess both the research and intervention process (Bowen et al., 2009), as lack of feasibility information could lead to wasted funding resources and both participant and researcher time (Orsmond & Cohn, 2015). Although there is some debate on distinguishing feasibility studies from pilot studies, Orsmond and Cohn (2015) proposed that feasibility and pilot studies be viewed on a continuum, with each having somewhat distinct features. Specifically, feasibility studies encompass the first stage of evaluation, where the focus is on program development and implementation, safety, and participant acceptability. Pilot studies then focus on program outcomes (typically with small sample sizes) and include a more controlled evaluation of participant responses to intervention. Orsmond and Cohn (2015) expanded this conceptualization by creating a framework of five broad domains/objectives for feasibility studies. Orsmond and Cohn (2015)'s five domains of feasibility were as follows: 1) recruitment capability, 2) evaluating and refining data collection procedures and outcome measures, 3) evaluating acceptability and suitability of intervention/study procedures, 4) evaluating resources and ability to manage/implement the study and intervention, and 5) a preliminary evaluation of participant responses to intervention.

Bowen et al. (2009) also proposed a framework for measuring feasibility. Bowen et al.'s model proposes eight areas of feasibility: acceptability, demand, implementation, practicality, adaptation, integration, expansion, and limited efficacy testing. Within Bowen et al.'s model, implementation refers to whether the intervention or program can be fully implemented as intended (i.e., what degree of program execution occurred, how efficient and what quality of implementation occurred, how successful the execution was, what resources were needed, and whether factors that impacted implantation were present). Practicality refers to the extent that a program can be delivered as intended, especially when constraints such as time, commitment, and resources may be involved (i.e., the effects on target participants and ability of participants to carry out intervention activities). Acceptability refers to reactions to the intervention, including participants and

individuals involved in program implementation (i.e., facilitators), and typically involve examining participant satisfaction with the program, intent to continue use of program material/strategies, perceived appropriateness/fit in organizational culture, and perceived benefits or negative effects of the program. Demand refers to estimated use or actual use of program activities (i.e., expressed interest, intention to, or actual use of program material, or the perceived demand of the program material). Adaptation refers to altering a program or contents of a program in order to be appropriate in a new context, and expansion refers to examining how a program that had success with a certain population can be expanded to be used with a different population or in a different setting. Integration focuses on incorporating a program or intervention into a new setting or program and includes documenting the change within the setting or environment that occurs as a result of integrating the new program into the existing structure. Lastly, limited efficacy testing may be conducted to test an intervention with limited outcomes or statistical power, or shorter follow-up periods to examine whether outcomes are moving in the hypothesized direction.

Stewart et al. (2020) further argued that recruitment was not included in Bowen et al.'s (2009) model, and although recruitment is featured in Orsmond and Cohn's (2015) model, it did not fully capture the importance and complicated nature of studying recruitment. Indeed, Stewart et al. (2020) argued that, as many studies fall short of achieving their intended recruitment numbers or goals leading to under-representations of targeted populations or even study terminations, it is important for studies to test different recruitment methods in pilot studies before undergoing larger studies. The authors describe an eight-step framework for measuring recruitment: 1) specify recruitment goals, 2) specify recruitment processes by stage, 3) establish a tracking system for each individual with contact tracking forms, 4) establish a tracking database to monitor, 5) implement recruitment processes and monitor individual progress, 6) summarize results (including by targeted subgroups: real time and final results), 7) calculate and interpret feasibility (i.e., were goals met), and 8) if goals were not met, use tracking data to modify recruitment methods for a larger study.

Although it is understood that feasibility is an important part of program evaluation, operationalizing feasibility continues to be refined and expanded upon, with

each proposed area of feasibility being important to the overall success of the program. All models of feasibility, however, acknowledge the importance of participants' responses to the program. In relation to parenting programs, a particular area of interest is how parents are reacting to the program, also known as parental responsiveness. Specifically, responsiveness has been conceptualized as the involvement and interest of the participant in the program (Berkel et al., 2011), and has been shown to predict program outcomes (Schoenfelder et al., 2012). According to Berkel et al. (2011), overall responsiveness can be measured by examining attendance (practicality), active engagement during sessions and satisfaction with the program (acceptability), and whether participants are practicing the skills learned in the program outside of the program (demand).

Although attendance and acceptability are the most studied indicators of responsiveness and are seen as precursors for positive program outcomes, practicing skills during the program has been argued as an equally important determinant of program effects (Berkel et al., 2018). Indeed, the action theory proposed by West et al., (1993) that underlies many skills-based parent programs emphasizes that parents practice the skills learned in the program with their children to strengthen their parenting skills. This is also congruent with the New Beginnings Program's process theory stating that skill practice in the home environment is the primary mechanism that is associated with positive changes in parenting and therefore child outcomes (Berkel et al., 2018). Research also supports these theories; in a meta-analysis examining the components of effective parent training programs, Kaminski et al. (2008) found that programs that include parents practicing skills learned with their child, particularly in the group setting, reported significantly larger effect sizes in relation to parenting behaviour outcomes and child externalizing behaviour outcomes.

Theories underlying MBIs have also suggested that on-going practice is necessary in order for the intervention to be effective (Kabat-Zinn, 1994). Specifically, neurological changes resulting from mindfulness programs such as synaptic strengthening and observable changes in brain structure and function has been shown to relate to the amount of practice (Lazar, 2005). In relation to strategies that promote ER, it has been proposed that repetitive activation of conscious ER strategies can lead to automatic and

nonconscious use of the strategy, but that this requires sufficient, effortful use to accomplish (Mauss et al., 2007). When looking specifically at mindfulness practice, although there is research to suggest that small amounts of mindfulness meditation practice can lead to observable changes in neurocognitive functioning, these changes, in congruence with other programs, increase in line with the amount of practice, whether the practice is intensive over a short period or over a long period of time (Chambers, 2009). Furthermore, in a systematic review and meta-analysis of 24 school based MBI studies, larger effect sizes for outcomes of cognitive performance, stress, resilience, and emotional problems were found in studies with programs that had greater minutes of mindfulness practice both in the program and as assigned compulsory home practice (Zenner et al., 2014).

Feasibility of MBIs

In relation to the current literature surrounding the feasibility of MBIs, a preliminary review by Burke (2010) found that overall, MBIs appear to be feasible with children and adolescents based on the overall positive results from various limited efficacy trials. Burke (2010) argued however, that practical issues such as time demands of interventions and home practice expectations, specifically as they clash with real-world expectations, need to be taken into consideration. Furthermore, a systematic review of 17 studies conducted by Kostova et al. (2019) found MBIs for youth to be feasible and acceptable among adolescents with mental health conditions; four broad categories of mental health conditions were noted across studies included: neurodevelopmental and behavioural disorders (such as ADHD, ASD, oppositional defiant disorder, conduct disorder, and learning disorders), depression/mood and anxiety disorders, substance abuse disorders, and heterogenous disorders (i.e., adolescents who were experiencing a broad range of internalizing and externalizing difficulties or disorders). Within these reviewed studies, feasibility was measured by tracking attendance and retention rates and qualitative findings of satisfaction with the programs. The authors noted an additional theme of teenagers using mindfulness skills on an “as needed” basis (i.e., in response to stressful events) as opposed to part of a regular or routine mindfulness practice. Kostova et al. (2019) noted limitations in their review including variations in study design, with three studies being RCTs, and limited numbers of feasibility studies across each

population group; indeed, across groups there were one-to-three studies examining feasibility. The authors ultimately concluded that although themes of acceptability and feasibility were noted across studies, these results remained preliminary, as few studies within the review measured feasibility. Furthermore, although these studies indicate feasibility for youth programs, it remains to be seen whether having parents and their children concurrently learning in an MBI is feasible.

There is also literature in relation to the acceptability of mindful parenting programs, with many studies suggesting programs are feasible for parents. Bogels et al. (2014), for example, used a very low program drop-out rate alongside improvements at follow-up to as evidence of the feasibility and acceptability of a mindful parenting program. Another study measured reactions of post-partum mothers to mindful parenting programs and found that roughly 95% of mothers reported the program would be useful for them, and that most mothers would prefer the ideal program to be ten weekly 45–60-minute sessions (Fernandes et al., 2021). Bogels et al. (2014) found a mindful parenting program conducted in a mental health care facility (i.e., with parents who were referred to mental health care due to their child's or their own mental health disorder, or due to challenges with parent-child relations) to have a low dropout rate and to be acceptable to participants, suggesting that these programs may be feasible in mental health care settings.

Another study assessed a mindful parenting program for parents of children with internalizing challenges (Burgdorf et al., 2022). The program was found to be overall feasible, with a high degree of attendance, perceived usefulness of the program, and perceived benefits of increased acceptance and empathy that helped them cope with their child's internalizing challenges. Conversely, Leitch et al. (2023) piloted a mindful parenting program for parents of children with ADHD that consisted of two retreats followed by home practice and found high acceptability through parent reports of the intervention as helpful and that they would recommend it to other parents, and practical for parents attending the first retreat (i.e., 100% attendance rate). A challenge related to practicality, however, was observed in the second retreat, where only 55% of parents attended, and barriers to attendance were noted as lacking time to attend, work commitments, illnesses, and exhaustion.

Regarding practicing mindfulness outside of the program, the literature is more varied. As noted in their systematic review of MBIs for adolescents, Kostova et al. (2019) reported that many studies emphasized the importance of how adolescents view and apply mindfulness techniques in their lives and noted that adolescents tended to use mindfulness on an 'as-needed' basis (i.e., when stressed) as opposed to regularly practicing. Similarly, Quach et al. (2017) asked adolescents to track their mindfulness home practice using daily logs and found that home practice compliance rates were extremely low despite participants' high attendance rates in the program. Regarding parents, one study found that four out of six parents reported practicing skills for 30-50 minutes per week, with the other two parents reported ten-to-15 minutes of practice per week (Sherwood et al., 2023).

Feasibility of Concurrent Parent and Child MBIs

Research exploring the feasibility of concurrent parent and child MBIs has been conducted across various MBIs, settings, and populations, however no study to date synthesizes the feasibility literature of these novel programs. Although theory and research point to the importance of feasibility, research in this area remains infrequently studied in comparison to outcome studies (Mauricio et al., 2018a). Furthermore, limited research has tracked participant feedback related to the parallel or dual nature of these programs, as well as home practice rates among parents and children, despite this being an important area of feasibility and theorized to be an important contributor to MBI outcomes.

Current Study

This systematic review explored the current state of the literature as it relates to the feasibility of parallel or concurrent parent-child MBIs. Bowen et al.'s (2009) model of feasibility was used as a guiding framework to conceptualize what areas of feasibility have been measured within studies. More specifically, data related to altering program material for use within a new population was categorized as adaptability; data related to program fidelity (i.e., the program being delivered as intended) was categorized as implementation; data related to participant number of sessions attended, barriers and facilitators to attending sessions were categorized as practicality; data related to reactions to program content and perceived benefits was categorized as acceptability; and data

related to practising skills outside of the program (i.e., actual use or interest in using) was categorized as demand. Recruitment was added as an additional area of feasibility in accordance with Stewart et al.'s (2020) call for greater complexity of recruitment data being included in feasibility studies.

Research Questions

The research question that guided this paper was: 1) How feasible are community-based parallel parent and child MBIs? The review aims to capture the overall state of feasibility research regarding concurrent parent and child, community-based MBIs.

Eligibility Criteria

The inclusion criteria for this review were studies that evaluated the feasibility of concurrent parent and child MBIs. For the purposes of this study, MBIs were considered programs that contained content that was over 50% mindfulness based. This study excluded mindfulness-informed or enhanced program such as Acceptance and Commitment Therapy (ACT) or Dialectical Behaviour Therapy (DBT), as these programs typically have additional program elements and may not explicitly teach meditative practices (Shapiro & Carlson, 2017), and therefore would not accurately capture the nature of feasibility related to MBIs. Studies that utilized MBIs combined with other programs were also excluded, except for MBIs combined with social-emotional learning programs that still met the 50% threshold, as mindfulness-based programs tend to include elements of SEL programs such as self-awareness and regulation, kindness, compassion, and gratitude (Duncan et al., 2009; Hali & Antonacci, 2020). Studies with youth between the ages of three-to-17 years were included, regardless of clinical or non-clinical status. Exceptions were made, however, if the upper age limit exceeded 18 if the youth had intellectual impairments, as developmentally these child-caregiver relationships may be similar to younger individuals, and/or a small number of youths exceeding age 18. Program dosages did not have to be equal in order to be included in this study; as long as parents attended a proportion of the program alongside their child, the study was included.

All qualitative, quantitative, and mixed-method studies were included, including studies utilizing pre-post designs, randomized controlled trials, interviews, focus groups, or observational methods. Feasibility studies must have measured and reported on one of

the areas of feasibility as outlined by Bowen et al. (2009) (i.e., acceptability, demand, implementation, practicality, adaptation, integration, and/or expansion), although study authors did not have to report this according to Bowen's (2009) model. No geographical or date of publication restrictions were used.

Search Strategy

Several psychological, sociological, and medical electronic databases were used to conduct the searches for this study, as well as reference lists of included studies. Specifically, PsychINFO, Education Database, ERIC, Scopus, MEDLINE, and CINAHL were searched from May 2022- June 2022 and an updated search was conducted in October 2023. Grey literature in the form of published dissertations were also included, with the Proquest Dissertations and Theses database also being searched and updated. Systematic review experts were consulted at each stage of the process, including to aid in refining search terms and databases. Four sets of keywords were used across databases: 1) mindfulness (Mindful*); 2) Parents (parent* OR carer* OR caregiver*); 3) children or adolescents (child* OR adolescen* OR youth); and 4) feasibility (feasib* OR pilot stud* OR implement*). The bibliographies of included studies were examined both forward and backward and mindfulness experts were consulted for any additional relevant references. The documentation process was tracked using a PRISMA systematic review checklist and flow diagram and is provided in Figure 1.

Data Extraction, Assessment, and Synthesis

The Covidence software (<https://www.covidence.org>) was used to organize and screen all studies. In line with best practice for conducting systematic reviews (Littell et al., 2008), two reviewers screened, assessed, and reviewed the abstracts of each study, followed by the reviewers reading the full text of all studies. This was done to reduce risk of bias, increase the validity and reliability of the review, and ensure suitability of eligible studies. The two reviewers trial screened 35 studies together to ensure consistency between the reviewers. Disputes arose due to vague abstract wording and were resolved through discourse between the two reviewers; the additional protocol of involving research supervisors was not required. All other best practice systematic review procedures were followed throughout the process of this study; this study was registered with PROSPERO (#CRD42022317743) and the Mixed Methods Appraisal Tool (MMAT;

Pluye et al., 2009) was used to appraise eligible studies. All data were summarized using a narrative synthesis approach (see Popay et al., 2006) in order to draw conclusions about similarities and differences across studies.

Results

Study Selection

Figure 2.1 displays the study flow diagram. Electronic database searches yielded a total of 2213 citations. Three additional records were added from the bibliography of included studies. A total of 1210 were duplicates; however, it is important to note that many of these duplicates may have arisen from the updated retrieval conducted in October 2023. A final total of 1003 articles were present for title and abstract screening. The title and abstract screening yielded 37 articles for full-text review, of which 25 met the criteria.

Quality Assessment

All full-text studies were examined for reporting quality by two reviewers using the Mixed Methods Appraisal Tool (MMAT v2018; Pluye et al., 2009). The MMAT was chosen due to its content validity (Quan et al., 2019) and diversity of study types included. Specifically, the MMAT comprises questions related to 19 criteria across five different study types (qualitative, quantitative randomized, quantitative non-randomized, quantitative descriptive, and mixed methods) to determine article quality. Given the nature of feasibility data, specifically that it tends to incorporate both qualitative and quantitative methods, this tool was deemed most appropriate for this study. Quality assessment results can be found in Table 2.1. As this study examined feasibility, which frequently occurred within the context of an outcome evaluation, only feasibility data was considered and included for review. All studies had a stated research question or aim of the study listed; however, some study aims were to evaluate the program for outcomes as opposed to feasibility.

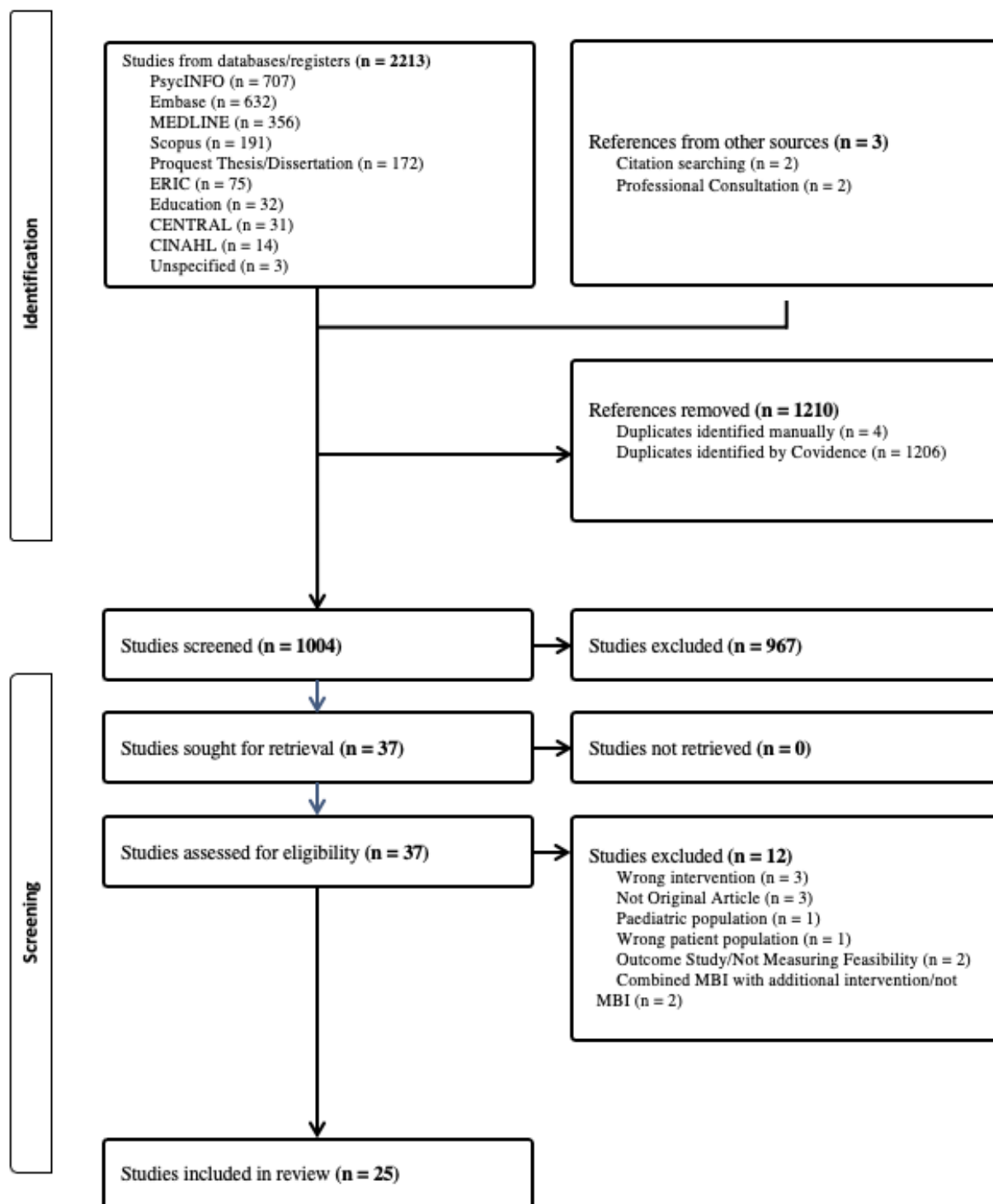


Figure 2. 1

Flow of Information from Identification to Study Inclusion

Study Characteristics

General Overview of Studies. A total of 25 studies met criteria for this review. Studies were conducted in a variety of countries, with seven studies in United States, five in China, four in Canada, four in the Netherlands, two in Australia, one in England, and one in France. Although no year restrictions were employed, the earliest study publication year was 2015 (range: 2015-2022). The studies were summarized into five main populations of youth: 1) youth with neurodevelopmental disorders ($n=12$), 2) with internalizing challenges ($n=3$), 3) who have experienced adversity ($n=5$), 4) with physical challenges ($n=2$), and 5) within the general population/heterogeneous challenges ($n=3$). The category of adversity was designated to studies that included participants who did not fit into any additional category, and where the study authors described increased risks for adversity as a justification for choosing their population. Studies within these groups are outlined in detail below and can be found in Table 2.2. Relevant study characteristics are included within this table, including limitations stated by study authors; trends in the nature of the limitations across studies are described in the feasibility results section below. Age ranges for programs were from three to 19 (with three studies having an upper limit of 23 years for individuals with ASD and their parents). Most studies ($n= 17$) included youth aged eight and up, with eight studies including youth seven or younger.

Program Logistics. Most studies were conducted in community/clinic-based facilities ($n = 16$), two were university-based research clinics, two studies were run in schools, one study ran in both a community setting and at home, one at both a community setting and school, one in-home, and two did not list their location.

Most studies ($n=19$) were conducted in person in group formats, with four studies being a combination of in-person and virtual, one study being conducted individually in person (one-on-one format), and one study having a unique format of synchronous parent sessions virtually or in person (parent's choice), and an asynchronous child virtual format. Most studies ($n=19$) also had equal parent and youth program dosages, with the most common parent program being nine weeks long for both parents and children. Of the programs who did not have equal dosage, two had longer child components, one had a larger parent component, and others had unique formats such as parents training then

delivering program content to children. Youth and parent sessions were most commonly 90 minutes long ($n= 12$ for youth, $n =14$ for parents), followed by 60 minutes ($n=8$ for youth, $n = 6$ for parents). Many studies' program facilitators had graduate degrees or were in graduate programs ($n= 10$), some noted facilitator backgrounds (e.g., social work) but not level of education ($n=5$), some noted the facilitator's experience but not level of education ($n=4$), and five studies did not list program facilitator information.

A range of programs were found within this review, with most programs following the MCBT ($n=3$), MBSR ($n=2$), mindful parenting ($n=6$), or a combination of MSRFB, MBCT, and mindful parenting ($n=9$) models. Some studies ($n=6$) did not state a program framework, but stated they incorporated core mindfulness principles of meditation and mindful breathing, sensing, and movement. One study added art therapy, and one added Hatha yoga principles as core bases of their program.

Table 2. 1

Quality assessment using the MMAT framework.

Lead Author (date)	MMAT item number																					
	S1	S2	1.1	1.2	1.3	1.4	1.5	2.1	2.2	2.3	2.4	2.5	4.1	4.2	4.3	4.4	4.5	5.1	5.2	5.3	5.4	5.5
Andreotti (2017)	+	+	+	+	+	+	+															
Beck (2022)	+	+																+	+	+	+	+
Bokoch (2018)	+	+																+	+	+	+	+
Chan (2015)	+	+											+	+	+	+	+					
Cheung (2021)	+	+											/	+	+	+	+					
Cunniffe (2020)	+	+						/	+	+	+	/										
De Bruin (2015)	+	+											+	+	+	+	+					
Guenther (2021)	+	+											+	+	+	+	+					
Haydicky (2017)	+	+																+	+	+	+	+
Heifetz (2017)	+	+																+	+	+	+	+
Ho (2021)	+	+											/	+	+	+	+					
Hwang (2015)	+	+																-	+	+	/	+
Lo (2019)	+	+																+	+	+	+	+
Lo (2020)	+	+											+	+	/	+	+					
Lu (2022)	+	+																+	+	+	+	+
Mak (2019)	+	+																+	+	+	+	+
Mueller (2021)	+	+																+	+	+	/	+
Pacholec (2020)	+	+																+	+	+	+	+
Racey (2018)	+	+																+	+	+	+	+
Ridderinkhof (2018)	+	+																+	+	+	/	/
Ridderinkhof (2019)	+	+	+	+	+	+	+															
Salem-Guirgis (2019)	+	+																-	+	+	/	+
Siebelink (2021)	+	+	+	+	+	+	+															
Tobin (2021)	+	+	+	+	+	+	+															
Zhang (2017)	+	+																+	+	+	+	+

+ = yes

- = no

/ = can't tell

S1 and S2 pertain to stating and addressing research questions

Study design: 1 = qualitative; 2 = quantitative randomized controlled trials; 3 = quantitative non-randomized; 4 = quantitative descriptive; 5 = mixed methods

Table 2. 2

Selected Characteristics of Included Studies by Participant Group

Author (year), Country	Target Child Group	Sample Size (gender)	Youth Age (<i>M,SD</i> ; Range)	Program Framework and Duration	Area of Feasibility/ Methods	Main Findings	Stated Limitations
Neurodevelopmental Disorders							
Beck et al (2022), United States	ASD (with and without ID)	10 children (group 1 = 100% male; group 2 = 50% male) 10 caregivers	Group one: <i>M</i> = 18.67; 15-23 Group two: <i>M</i> = 8; 7-10	EASE (MBI); 16 weeks, approx. one 1-hour session per week online and in person	Adaptation Implementation: Facilitator Fidelity forms (descriptives) Practicality: Attendance tracking (descriptives) Acceptability and Demand: facilitator report, caregiver reported home practice,	Adaptation: adapted from the original EASE program for youth with ASD and their caretakers. Implementation: all session objectives met in 90% of sessions Practicality: all participants completed sessions. Acceptability: high degree of caregiver involvement in sessions by facilitator report. High degree of acceptability reported on survey (<i>M</i> = 4.8, <i>SD</i> = 0.63 on a scale of 1-5), caregivers reported being very likely to recommend program to others. Perceived benefits noted.	Small sample size

Author (year), Country	Target Child Group	Sample Size (gender)	Youth Age (<i>M,SD</i> ; Range)	Program Framework and Duration	Area of Feasibility/ Methods	Main Findings	Stated Limitations
					caregiver post-program survey (descriptives)	Demand: almost daily caregiver and child practice reported by caregivers	
De Bruin et al (2015), Netherlands	ASD	23 children (17 boys; 6 girls)	<i>M</i> = 15.8, <i>SD</i> = 2.7; 11-23	MYmind (bases in MCBT, MBSR, and mindful parenting); Nine 1.5-hour sessions in-person + booster	Practicality: attendance tracking (descriptives)	Practicality: Attendance rates of 86-88% among parents and youth. Low dropout rates; one family due to crisis, two mothers, and one adolescent due to homework being too much for them.	Small sample size Only average IQ
		29 parents (18 mothers; 11 fathers)			Acceptability: youth Likert scale questionnaires (descriptives)	Acceptability: On average, adolescents rated most sessions and meditations positively (means ranged from “somewhat” to “very useful”).	
Haydicky (2017)*, Canada	ADHD	18 youth (13 males)	<i>M</i> =15.5, <i>SD</i> =1.58; 13-18	MYmind (bases in MCBT, MBSR, and mindful parenting); Nine 1.5-hour sessions in-person	Practicality: attendance and attrition rates (descriptives)	Practicality: On average, adolescents attended 6.78 (<i>SD</i> =1.11) and parents attended 6.94 (<i>SD</i> =0.9) sessions. Three parent and 2 youth dropouts occurred (scheduling conflicts and mental health concerns).	Small sample size Reliance on self-report and parent-report
		17 parents (1 male)			Acceptability and Demand: parent and youth daily questionnaires + parent interviews post-program (thematic analysis)	Acceptability: perceived benefits were reported. Demand: Participants recognized the importance of/need to practice regularly; however, internal and external factors made it difficult. Several reported practicing daily 6-weeks post program.	
Heifetz & Dyson (2017), Canada	IDD	8 youth (6 male, 2 female)	<i>M</i> = 13.7; 12-17 years	Calming Thoughts and Caring Minds	Practicality: attendance rates (descriptives)	Practicality: 6/8 youth and 8/10 parents completed the program (attended at least 6/8 sessions).	Small sample size

Author (year), Country	Target Child Group	Sample Size (gender)	Youth Age (<i>M,SD</i> ; Range)	Program Framework and Duration	Area of Feasibility/ Methods	Main Findings	Stated Limitations
		10 parents (50% male)		Program (MB practices); 8 1.5- hour sessions (6 core and 2 booster) for youth; 3 sessions for parents in person	Acceptability: youth weekly surveys. Demand: youth survey at end of program using Likert Scales (descriptives) and post-program parent survey (qualitative themes)	Acceptability: youth reported feeling happier ($M = 4.30$, $SD = .83$) and more relaxed ($M = 3.84$, $SD = 1.30$) at each post- session on a 1-to-5-point scale. Perceived benefits were noted. Parents reported a theme of gaining insight, with varying responses on what was helpful. Suggestions of having more groups/sessions were given by parents and more interactive/active activities by youth. Demand: On average, youth reported practicing the skills “a bit” or “sometimes” ($M = 3.25$ to 2.25 , $SD =$ 1.26 to 0.96) on a 1-to-5-point scale. Parent and youth reported a theme of having difficulty practicing outside of group.	No data on SES or ethnicity Participant potential discomfort with sharing
Ho et al. (2021), China	ASD	16 youth (68% male) 15 parents	$M =$ 13.7; 10- 18 years	MYmind (bases in MCBT, MBSR, and mindful parenting); nine 1.5-hour sessions in person + booster	Recruitment: rates (descriptives) Practicality: attendance and dropout rates (descriptives)	Recruitment: used community-based seminars and social media. One-third of families who registered met selection criteria and 90% of them participated in the study/program. Practicality: roughly 80% attended at least 6 sessions ($M = 7.21$, $SD = 1.87$ for youth, $M = 7.16$, $SD = 2.03$ for parents). No dropouts were reported.	Small sample size Did not track practice Reliance on parent observation and report.

Author (year), Country	Target Child Group	Sample Size (gender)	Youth Age (<i>M,SD</i> ; Range)	Program Framework and Duration	Area of Feasibility/ Methods	Main Findings	Stated Limitations
					Acceptability: parent questionnaires (descriptives)	Acceptability: On a 1-10-point scale, parents rated the program as somewhat easy ($M=5.91, SD=1.64$), helpful to parents ($M = 5.91, SD=2.21$) and adolescents ($M=4.73, SD = 2.24$), and that they were satisfied with the program ($M=6.55, SD=2.25$).	
Hwang et al (2015), Australia	ASD	6 youth (5 males) 6 mothers	8-15	No name provided; 2-stage program: 1) 8 2.5- hour weekly sessions for parents, 2) parents delivering to child for 12 months; additional support for mothers provided.	Implementation: fidelity checklist (descriptives) Practicality: attendance/ completion rate Acceptability: parent interview (case study reports) Demand: interview (case study reports)	Implementation: 100% fidelity. Practicality: All mothers completed stage 1. Almost all mothers delivered program to their child. Demands of busy life got in the way of one mother delivering mindfulness training to child. Acceptability: Mothers found teaching mindfulness to youth empowering and not as a new role. Demand: Mothers reported difficulty regularly engaging child with mindfulness practice across 12-month period.	Small sample size
Lo et al. (2020), China	ADHD	100 youth (83 males) 100 parents (88 female)	$M=$ 6.24, SD $= 0.87$; 5-7	Family-based mindfulness intervention (FMBI); 6 1-hour sessions for children and 8 90- minute sessions for parents + half- hour joint	Recruitment (descriptives) Implementation: fidelity assessment (descriptives) Practicality attendance and	Recruitment: 123 families applied, 23 were excluded and 100 met criteria. Implementation: Parent and child program sessions had a high degree of adherence and competence of facilitators. Practicality: Attendance among program completers was 80.21%. Survey response	Small proportion of female child participants

Author (year), Country	Target Child Group	Sample Size (gender)	Youth Age (<i>M,SD</i> ; Range)	Program Framework and Duration	Area of Feasibility/ Methods	Main Findings	Stated Limitations
				programs for 2 sessions in person	dropout rates (descriptives)	rate was 77.6%. Low dropout from waitlist control group.	
					Acceptability: Parent questionnaire (descriptives)	Acceptability: 93% of parents satisfied with the program; 96% perceived management of stress and emotions.	
Ridderinkhof et al. (2018), Netherlands	ASD	45 youth (80% male)	<i>M</i> = 13.03, <i>SD</i> = 2.72; 8- 19	MYmind (bases in MCBT, MBSR, and mindful parenting); 9 weekly 1.5-hour sessions in person + booster	Implementation: Mymind-TACS (descriptives)	Implementation: high adherence to program and competence of trainers were noted.	Not all participants completed post- measures.
		45 parents			Practicality: attendance (descriptives)	Practicality: average attendance was 19.22 (<i>SD</i> =5.16) out of 27 sessions (two parents attending).	
					Acceptability: Post-program/ follow-up questionnaire (thematic analysis)	Acceptability: Parent and child themes of learning mindfulness skills, improved well-being, and a smaller theme of little to no change.	
Ridderinkhof et al. (2019), Netherlands	ASD	14 youth (57% male)	<i>M</i> = 12.43, <i>SD</i> = 2.42; 9- 17	MYmind (bases in MCBT, MBSR, and mindful parenting); 9 weekly 1.5-hour sessions in person	Acceptability: Follow-up parent and youth interviews (thematic analysis)	Acceptability: eight themes emerged; connecting with peers, pausing, being aware, being in the here and now, letting be, determining a strategy, being and responding calm, and attuning to others. Some experienced little change.	Limited possibility of follow-up. Translated /Researcher interpretation
		31 parents (35% male)					Gender of sample

Author (year), Country	Target Child Group	Sample Size (gender)	Youth Age (<i>M,SD</i> ; Range)	Program Framework and Duration	Area of Feasibility/ Methods	Main Findings	Stated Limitations
Salem-Guirgis et al. (2019), Canada	ASD	23 youth (82.6% male) 23 parents (13% male)	<i>M</i> = 15.65, <i>SD</i> = 2.57; 12- 23	MYmind (bases in MCBT, MBSR, and mindful parenting); 9 weekly 1.5-hour sessions in person + booster	Recruitment: descriptives Implementation: fidelity survey (descriptives) Practicality: attendance, attrition rates (descriptives) and questionnaires (descriptives) Acceptability: parent and youth questionnaires (descriptives and thematic analysis)	Recruitment: of the 60 who completed the phone screening, 26 met criteria and continued to the intervention Implementation: Average procedural integrity of 80.5%. Seven sessions below 75%. Some challenges with facilitators replacing or completing activities were noted. Practicality: 90-91.3% of sessions attended on average; low attrition (2 non- completers). No barriers to participating were noted by parents. Acceptability: Parent and youth noted perceived benefits from and positive beliefs about the program. Themes: Parent benefits (social support, management of stress and emotions) and challenges (discontinuing group made maintaining gains difficult) noted. Youth themes included benefits of socialization and connectedness to community.	Small sample size
Siebelink et al. (2021), Netherlands	ADHD	17 youth (59% male) 20 parents (30% male)	<i>M</i> = 12.43; 9- 16	MYmind (bases in MCBT, MBSR, and mindful parenting); 8 weekly 1.5-hour sessions in person	Practicality: Attendance and dropout rates (descriptives) Acceptability and Demand: Parent, child, and teacher individual interviews	Practicality: High average attendance rates (7.4 out of 8; range of 5-8). Low dropout rate. Acceptability: themes of facilitators and barriers to attendance and compliance emerged. Parent reported several perceived benefits.	No objective observer of program. Did not interview discontinuers

Author (year), Country	Target Child Group	Sample Size (gender)	Youth Age (<i>M,SD</i> ; Range)	Program Framework and Duration	Area of Feasibility/ Methods	Main Findings	Stated Limitations
					(thematic analysis)	Demand: Parents found it difficult to complete homework due to busyness. They found breathing and informal mindfulness easier than meditations.	
Zhang et al. (2017), China	ADHD	11 youth (8 male) 11 parents (4 male)	<i>M</i> = 9.5, <i>SD</i> = 1.4; 8-12	MYmind (bases in MCBT, MBSR, and mindful parenting); 8 weekly 1.5-hour sessions in person	Implementation: Facilitator Feedback Practicality: attendance rates (descriptives) Acceptability: child and parent questionnaires and interviews (descriptives and thematic analyses). Facilitator feedback. Demand: interviews (thematic analysis)	Implementation: Child behaviour challenges and length of program were noted as a barrier to implementation. Practicality: 91% of participants attended at least 6/8 sessions. Attrition was low (1 family withdrew). Acceptability: Satisfaction scores high (<i>M</i> =7.3, <i>SD</i> =2.1 for parents; <i>M</i> =8.0, <i>SD</i> =1.2 for youth) on a scale of 1-10. Helpfulness for parent (<i>M</i> =6.5, <i>SD</i> =1.8) and child (<i>M</i> =5.4, <i>SD</i> =1.6) were lower than overall satisfaction. Parents enjoyed most parts of program; some barriers and facilitators reported. Perceived benefits reported by many parents. Demand: Several parents reported daily practice, some reported practicing sometimes and few seldom practiced. Most would continue after program.	Small sample size Mechanism of change not measured
Internalizing Challenges Chan (2015)*, United States	Anxiety (GAD)	15 children 15 parents	<i>M</i> = 10.44; 9- 12	AWARE program (uses mindfulness principles); 6 one- hour sessions over six weeks in person	Recruitment: rates (descriptives) Practicality: completion and	Recruitment was reported as relatively easy and only one drop out reported. Practicality: All families completed program except one dropout due to health issues.	Small sample size Brief nature of intervention

Author (year), Country	Target Child Group	Sample Size (gender)	Youth Age (<i>M,SD</i> ; Range)	Program Framework and Duration	Area of Feasibility/ Methods	Main Findings	Stated Limitations
					dropout rates (descriptives) Acceptability: parent and child questionnaires (Likert scale and qualitative)	Acceptability: High satisfaction was reported by parents on Likert Scale questions ($M = 4.08$, $SD = 1.06$ on scale of 1 to 5) and qualitative comments.	
Cheung et al. (2021), United States	Anxiety (GAD)	4 youth (50% male) 4 parents	9-12	Pilot mindfulness intervention; 6 1- hour weekly sessions in person	Practicality: completion rate Acceptability: parent and child questionnaires with Likert Scales (descriptives) and open-ended questions Demand: practice tracking logs (qualitative interpretation)	Practicality: All families completed the program. Acceptability: On a 1–5-point scale, parents ($M = 4.13$, $SD=.74$) and children ($M=3.40$, $SD=1.42$) reported high levels of program satisfaction. Positive comments related to program were noted. Demand: Fidelity to using practice log was variable and data was not deemed valid to report.	Small sample size Didn't track practice.
Racey et al. (2018), England	84% had history of depression.	21 youth (92% female) 21 parents (96% female)	$M =$ 16.4; 14- 18	MBCT; 8 in person sessions	Practicality: attendance and dropout rates (descriptives) Acceptability: semi-structured interviews with parents, youth, and facilitators	Practicality: 21 of original 25 participants attended at least 6 or more sessions (4 dropped out). Acceptability: themes of program being experienced as beneficial and positive; participants would use skills. All informants had initial response to intervention as strange, confusion about MBCT vs. mindfulness, and concerns	Lacking demographic information No standardized assessment of practice

Author (year), Country	Target Child Group	Sample Size (gender)	Youth Age (<i>M,SD</i> ; Range)	Program Framework and Duration	Area of Feasibility/ Methods	Main Findings	Stated Limitations
					(thematic analysis)	about time commitment and consistent formal practice.	Small sample size
Physical Challenges							
Andreotti et al. (2017), France	Esophageal astresia	21 youth (50% female); parents not listed	<i>M</i> = 10; 8-12	MBI (bases in MCBT); 42 days of formal and informal mindfulness practice through website audio (4- 12 minutes per day)	Recruitment Practicality: completion rates (descriptives) Acceptability: parent follow-up interviews (qualitative reports) Demand: daily tracking log (descriptives) and follow-up interviews (qualitative reports)	Recruitment: recruitment strategy described; eighty-one were assessed for eligibility, only one did not meet criteria. 38 agreed to participate from 81 families contacted. Practicality: Completion average of 82.9% of exercises. Acceptability: mixed responses related to program delivery to child were found by parents. Some reported challenges, others reported benefits. Demand: exercises reported by children (used daily); parents reported mixed reactions regarding effort to practice.	Subjective measures Self-selection bias
Mak et al. (2019), Australia	Cerebral Palsy	19 youth (63% male) 22 parents (13% male)	<i>M</i> = 9.1, <i>SD</i> = 3.1; 6-16	MiYoga; 8 1.5- hour weekly sessions in person	Practicality: attendance rates (descriptives) Acceptability and Demand: post- program parent and child interviews + weekly surveys	Practicality: Average attendance was 7.6 hours (<i>SD</i> =2.5). Acceptability: Youth and parents reported perceived benefits of program. Children and parents had positive view of program (high enjoyment and likelihood to participate in the future).	Results limited to participating youth and parents

Author (year), Country	Target Child Group	Sample Size (gender)	Youth Age (<i>M,SD</i> ; Range)	Program Framework and Duration	Area of Feasibility/ Methods	Main Findings	Stated Limitations
					(thematic analyses and descriptives)	Demand: A theme difficulty practicing at home was identified due to other work and interests.	
Adversity Lo et al. (2019), China	Economically disadvantaged	51 children (27 males) 51 parents	<i>M</i> = 6.42, <i>SD</i> = 0.83; 5-7	Family-based mindfulness intervention (FBMI); 6 1-hour sessions for children and 8 90- minute sessions for parents + half- hour joint programs for 2 sessions in person	Recruitment: (descriptives) Implementation: fidelity assessment (descriptives) Practicality: attendance and dropout rates (descriptives) Acceptability: Parent questionnaire (descriptives)	Recruitment: recruitment difficulties were noted (below 50% of intended sample). Implementation: program adherence and competence were largely found (scores ranged from 5-5.7 out of 6 for program adherence; 3.50 on a scale of 1-5 for competence). Practicality: high degree of participant program completion, survey response rates (83.72%), high attendance rates among completers (91.5%) and low attrition rate (3.92%). Acceptability: Most parents (93%) felt satisfied with the content of the program.	Recruitment challenges
Lu et al (2022), China	Chinese migrant families	11 youth (64% boys) 11 parents (17 mothers)	<i>M</i> = 9, <i>SD</i> = 1.96; 6- 12	Mindfulness- Based Family Well-Being Promotion Program; 8 2-hour weekly session for parents, 8 15- 20 min	Practicality: attendance (descriptives) Acceptability and Demand: Parent feedback interview after	Practicality: most parents attended most sessions. Acceptability: Average weekly satisfaction ratings were positive (ranged from 9.2-11 out of 12). Parents reported the program to be helpful, changed their lifestyles, increased emotion regulation,	Conducted during COVID-19 pandemic Small sample size

Author (year), Country	Target Child Group	Sample Size (gender)	Youth Age (<i>M,SD</i> ; Range)	Program Framework and Duration	Area of Feasibility/ Methods	Main Findings	Stated Limitations
				asynchronous videos for children	each session (thematic analysis), parent satisfaction surveys (descriptives)	and changed interactions with spouse. Qualitative themes were generally positive towards the program. Demand: challenges with consistent parent and child practice were found.	
Mueller (2021)*, Canada	Families who have experienced adversity		<i>M</i> = 6.23, <i>SD</i> =1.57 ;3-10	Making Mindfulness Matter (M3); eight weekly 1.5- hour sessions in person	Practicality: attendance rates (descriptives) Acceptability and Demand: Youth weekly questionnaires (thematic analysis and descriptives)	Practicality: Most children attended all sessions or missed only one session. Mean sessions attended were 6.6; median was 7 sessions. Acceptability: increased knowledge of program concepts from pre-to-post program was found. Perceived benefits and usefulness of program concepts were reported. Demand: Qualitative themes of children using program skills and tools were reported. Children reported benefitting from using skills. An additional theme of not practicing due to not having time and/or not having access to program tools was found.	Children asked questions in front of facilitators
Pacholec (2020)*, Canada	Families who have experienced adversity	69 children (68.1% male) 84 parents (68.9% female)	<i>M</i> = 6.3, <i>SD</i> = 1.6; 4-9	Making Mindfulness Matter (M3); eight weekly 1.5- hour sessions in person	Practicality: attendance rates (descriptives) Acceptability and Demand: parent weekly questionnaire	Practicality: High degree of attendance reported. Acceptability: Themes outlined positive regard, helpfulness, and perceived benefits of the program. Demand: Most parents reported practicing 1-3 times in the previous	Use of only parent report Specificity of skill practice lacking

Author (year), Country	Target Child Group	Sample Size (gender)	Youth Age (<i>M,SD</i> ; Range)	Program Framework and Duration	Area of Feasibility/ Methods	Main Findings	Stated Limitations
					(thematic analysis and descriptives)	week; barriers to consistent practice were found.	
Tobin et al. (2021), United States	Latino adolescents	31 youth 11 parents (10 female)	11-14	MBMI; 10 1-hour sessions in pilot and 7 in second pilot.	Recruitment Acceptability Demand Implementation Structured exit interviews with parent and youth for all areas except recruitment (thematic analysis).	Recruitment: strategy of recruitment was outlined. Implementation: some barriers were found. Practicality: Attendance rates were variable across pilots, with a sizable parent dropout rate. Several facilitators and barriers were found. Acceptability: Perceived benefits were noted by both groups. Demand: Parents endorsed continued practice after program and youth identified opportunities to practice.	Small sample size Significant dropout of parents
General Population/Heterogenous Bokoch (2018)*, United States	Heterogenous	48 children (55% male) Parents not listed	5-12	Mindfulness- based art therapy; one 45-minute session for 8 weeks for youth; one 45-minute session for 2 weeks for parents in person	Recruitment Acceptability: parent, child, and teacher interviews (thematic analysis)	Recruitment: procedure outlined in detail. Not mentioned if target size was met. Acceptability: themes of acceptability (including perceived benefits, the program being helpful) were found in all interviews.	Multiple roles of researcher Broad age range
Cunniffe (2020)*, United States	General Population	30 youth (53% male)	9-16	Family Mindfulness Program; 4	Recruitment	Recruitment: A second recruitment period occurred due to too small sample size at first attempt.	Recruitment challenges lead to

Author (year), Country	Target Child Group	Sample Size (gender)	Youth Age (<i>M,SD</i> ; Range)	Program Framework and Duration	Area of Feasibility/ Methods	Main Findings	Stated Limitations
		34 parents (29% male)		weekly 60-minute sessions in person	Practicality: Attendance and attrition rates (descriptives)	Practicality: High dropout rates	convenience sample
Guenther et al. (2021), United States	General Population	14 youth (8 female, 6 male) Parents not listed	<i>M</i> = 9.63, <i>SD</i> = 0.98; 8-10	Parent-Child Mindfulness- Based Training (PC-MBT); 6 one-hour in-home sessions per week and 15 minutes of online training per week done virtually.	Recruitment (descriptives) Practicality: completion rates (descriptives) Acceptability: parent and child report weekly Likert Scale questionnaires (descriptives) Demand: parent and child weekly questionnaires (descriptives)	Recruitment: used flyers and online postings; 22 out of 45 families eligible. Practicality: all participants completed the program. Acceptability: Acceptability was endorsed by parents and children: children strongly agreed with enjoying the books (<i>M</i> = 4.55 on a scale of 1-5); parents and children agreed that practicing was useful (<i>M</i> = 3.93 and <i>M</i> = 3.89 respectively on a 1–5-point Likert Scale). Demand: Majority (78%) of participants reported completing home practice materials each week and practicing skills. Barriers reported were time and schedules.	Small sample size. Some participants did not complete questionnaire Lack of diversity in sample (93% White)

* Included studies that are theses/dissertations.

Note: Only limitations related to feasibility data are reported.

Feasibility. Ten studies identified themselves as feasibility studies, seven as pilot studies, five as outcome/examining effects, and three as feasibility and outcome studies. Across studies, acceptability was the most often cited area of feasibility measured ($n=24$). Other areas of feasibility measured were adaptation ($n=1$), recruitment ($n=10$), practicality ($n=22$), implementation ($n=8$), and demand ($n=15$). Of the studies assessing demand, nine were assessed by participant feedback post-program, four used weekly data collection, and two used a daily diary; however, one of these studies collected the daily diary post-program, whereas the other study used a daily online survey for parents to fill out regarding practice.

Only one study (Tobin et al., 2021) stated the use of Bowen's (2008) model of feasibility and divided feasibility data according to this model. No study reported using Osmond and Cohn's (2015) model of feasibility. Feasibility was most often measured by interview or questionnaires/surveys with parents, however many studies incorporated youth perspectives. Only three studies incorporated facilitator perspectives. A more detailed description of studies and results can be found below based on area of feasibility. Note that all percentages used below are a percentage of the total sample of studies (i.e., out of 25 studies) as opposed to percentages of studies within each category.

Overview by Area of Feasibility

Adaptation. Only one study (Beck et al., 2022) reported on the process of adapting a program to suit a new population. In this study, the authors outlined the adaptation process from the original Emotion Awareness and Skills Enhancement (EASE) program. The authors used stakeholder (i.e., caregivers of autistic individuals and a panel of clinicians, researchers, and allies) feedback to address the needs of youth with ASD both with accompanying ID (ASD-ID; group one) and with accompanying significant emotional dysregulation (ASD-E; group two) and their caregivers. Adaptations included a larger parent component, using communication tools (ASD-ID), shortening and simplifying mindfulness meditations, and strategies to encourage motivation.

Implementation. Roughly one third of studies ($n=8$; 32%) reported on program implementation. Five of these studies were conducted with neurodevelopmental populations (Beck et al., 2022; Hwang et al., 2015; Lo et al., 2020; Ridderinkhof et al.,

2018; Salem-Guirgis et al., 2019; Zhang et al., 2017), two with participants who have experienced adversity (Lo et al., 2019; Tobin et al., 2021), and one within the general population (Guenther et al., 2021). Two studies utilized interviews to collect data (Tobin et al., 2021; Zhang et al., 2017); all other studies used checklists or forms. Of those who used checklists, two used the Mindfulness-Based Interventions – Teaching Assessment Criteria (MBI-TAC), a scale for measuring treatment fidelity in mindful parenting programs (Lo et al., 2019), and one developed a new checklist adapted from this model. The most common method of assessing implementation was the use of audio recording sessions and having raters or independent reviewers randomly sample sessions to assess program fidelity by filling out checklists; five studies utilized this method. Other methods included facilitator feedback forms, facilitator interviews ($n=1$), facilitator and caregiver exit interviews ($n=1$), and facilitator fidelity forms alongside caregiver feedback ($n=1$).

All but two studies used program completion (i.e., defined as either adherence to program curricula or percentage of program material completed) rates to measure implementation, making program completion rates the most utilized measure of implementation. Across studies, a high degree of program completion was reported, with scores ranging from 71.6% to 100% of programs being delivered as intended. Three studies also investigated facilitator competency in delivering the programs, with facilitator competency scores ranging from 70% to 97% across studies.

Only four studies reported barriers to implementation; two studies examined barriers with children with ASD and their parents (Beck et al., 2022; Salem-Guirgis et al., 2019), one study with children with ADHD and their parents (Zhang et al., 2017), and one study with Latino adolescents (Tobin et al., 2021). Challenges to program implementation were child aggressive/disruptive behaviour (Beck et al., 2022; Zhang et al., 2017), length of sessions (i.e., 90-minute sessions) being too long for children with ADHD (Zhang et al., 2017), facilitators not being able to complete all activities or switching activities (at times for similar activities) (Salem-Guirgis et al., 2019), and interpersonal conflicts among participants in the parent group (Tobin et al., 2021).

Recruitment. Less than half of studies reported on recruitment ($n=10$; 40%). Of these studies, most studies ($n=7$, 28%) described their recruitment strategy. Recruitment locations varied widely based on target populations, with some studies reporting using

clinical settings and others reporting school, social media, and/or seminars to recruit participants. Six studies reported recruitment difficulties. Three of these studies were conducted within the general population; two recruited through schools (Bokoch 2018; Cunniffe 2020), and one used flyers and online postings (Guenther et al., 2021). One study aiming to recruit economically disadvantaged youth through school recruitment also described recruitment difficulties resulting in below 50% of intended recruitment reached (Lo et al., 2019). Two of these studies were conducted with children with ASD and their parents (Salem-Guirgis et al., 2019; Ho et al., 2021), with the former study utilizing local ASD service e-newsletters/website postings, and the latter study utilizing community-based seminars and social media. Recruitment targets were stated in only three studies (Cunniffe, 2020; Ho et al., 2021; Lo et al., 2019), where two of the three studies did not meet their target.

Practicality. Almost all studies ($n=22$; 88%) examined practicality. Across studies, practicality was measured using attendance, participant program completion, and attrition rates. Four studies measured practicality qualitatively by reporting on barriers and facilitators to participants attending the program. Across studies, general themes of high completion rates, low dropouts, and high attendance were found. Of the studies who quantitatively reported attendance rates ($n=14$), participant attendance rates ranging from 71-100% ($M=85.6$, $SD=9.5$ for parents; $M=86.7$, $SD=9.0$ for youth) were reported. Participant program completion rates ranged from 75%-100% of participants completing the program (typically defined as attending most program sessions).

Only one study (Cunniffe, 2020) reported high dropout rates. Cunniffe (2020) evaluated the Family Mindfulness Program, a four-week program for students, parents, and teachers with one 60-minute session per week in person. The Family Mindfulness Program is based on MBSR. The program was held at school intervention sites for children in grades four-to-10 (ages nine to 16). The author noted high attrition rates as seen through 32% of the initial participant pool not engaging in the study, and that offering the program at different times to avoid scheduling conflicts may minimize barriers to participating.

Qualitatively, five studies examined barriers and facilitators to participant program completion/attendance. Siebelink et al. (2021) conducted interviews with

parents in order to examine barriers and facilitators to parent attendance and program compliance. Parents reported busy schedules and children reported the timing of the intervention (i.e., just before or after dinner time, or it ending too late) as barriers to attending the program. Additional barriers were variation in child age, disruptive behaviour of other participants, extra guidance needed for children, and ADHD symptomology. Facilitators to program attendance that were noted included the parallel program design (particularly the joint parent-child mindful practice), the physicality of some practices, positive attitude of teachers, parent symptomology, behaviour of others, mindfulness content, and views of mindfulness as beneficial. Zhang et al. (2017) further found that holding the program at an inconvenient location was a barrier to program attendance and completion for some parents; similarly, Tobin et al. (2021) found holding their program at a convenient location for parents was a facilitator to program attendance, whereas other responsibilities was a barrier. Illness and time clashes with other activities were also noted in one study (Ho et al., 2021). Lastly, Salem-Guirgis et al. (2019) found no barriers to program attendance.

Acceptability. Almost all studies ($n=24$; 96%) measured acceptability. To assess acceptability, studies most often used youth and parent interviews ($n=7$; 28%), youth and parent questionnaires ($n=5$; 20%), and parent questionnaires ($n=4$; 16%). Other methods used by one or two studies included youth questionnaires, parent interviews, parent focus groups, facilitator reported caregiver involvement, and semi-structured interviews with youth and facilitators. Most studies ($n=14$; 56%) gathered data at post-program only; other timepoints included post-program and follow up ($n=3$; 12%), follow-up only ($n=2$; 8%), weekly ($n=4$; 16%), and weekly and post-program ($n=1$; 4%). Most studies included open-ended questions in their data collection ($n=20$; 79.2%).

Studies assessed acceptability by measuring the perceived usefulness ($n=4$; 16%), helpfulness ($n=8$; 32%), satisfaction with ($n=12$; 48%), and benefits of ($n=16$; 62.5%) participating in the program. One study examined whether participants found the program easy to understand. Across areas measured, most studies found only positive comments/results from participants ($n=16$; 64%), whereas other studies reported both positive and negative feedback from participants ($n=8$; 32%).

Usefulness was reported both qualitatively and quantitatively. Quantitatively, De Bruin et al., (2015) reported that adolescents rated sessions and meditations positively. Specifically, average responses as to whether each session was useful ranged from somewhat useful to very useful (i.e., on one-to-three-point scale, seven out of eight sessions had mean scores of two or higher). A similar result was found when examining mindfulness exercises, with six out of eight exercises being rated as, on average, a two or higher on the one-to-three-point scale. Guenther et al.'s (2021) study further reported overall high average responses to program usefulness by parent ($M=3.93$) and youth ($M=3.89$) report on a one-to-five-point scale. Lastly, Haydicky's (2017) and Mueller's (2021) qualitative studies found themes of usefulness of practicing program content.

Program helpfulness was also explored quantitatively and qualitatively. Quantitatively, two studies used a one-to-five-point scale and found overall high average ratings of helpfulness ($M=4.1$, Lu et al., 2020; $M=4.5$, $SD=0.71$, Beck et al., 2022). In another study, parents reported the program content as helpful for themselves 96.1% of the time and for their child 79.3% of the time (Pacholec, 2020). Two studies, however, found somewhat lower results for perceived helpfulness. On a scale of one-to-10 (with 10 being very helpful), one study reported an average score of 5.91 ($SD=2.21$) for parents, and 4.73 ($SD=2.24$) for youth with internalizing challenges (Racey et al., 2018), indicating somewhat lower reports of program helpfulness. Similarly, Zhang et al. (2017) reported average parent and youth helpfulness scores of 6.5 ($SD=1.8$) and 5.4 ($SD=1.6$) on a one-to-10-point scale, respectively, for youth with ADHD and their parents. Within studies that examined helpfulness qualitatively, themes of overall program helpfulness were found.

Studies consistently reported high participant program satisfaction levels quantitatively alongside qualitative themes of satisfaction. Of the studies that used quantitative data through Likert-style questionnaires, average scores indicated satisfaction with programs. Specifically, of the studies using a one-to-five-point scale (Chan et al., 2015; Cheung et al., 2021; Guenther et al., 2021), average participant ratings ranged from 3.40 to 4.55. Similarly, studies using a one-to-ten-point scale (Ho et al., 2021; Zhang et al., 2017) found average participant satisfaction ratings between 6.55 to 8. Lu et al. (2022) further found average weekly satisfaction ratings ranging from 9.2-11 on

a one-to-12-point scale. Furthermore, qualitative themes of program satisfaction, enjoying the programs, programs being rated as a positive experience, and high likelihood of participating in similar programs in the future were reported.

The most frequently studied area of acceptability was whether participants reported perceived benefits associated with participating in the program. Eleven studies examined youth-reported perceived benefits, eleven studies reported on parent perceived benefits for themselves, six studies reported parent-report of youth benefits, and five studies reported on parent-reported benefits for both themselves and youth. All studies found perceived benefits from participants. Perceived benefits reported by youth included having increased concentration/focus, insight/perception, feeling happier or more relaxed, being less worried, improved awareness of emotions, and being better able to manage stressors.

Perceived benefits reported by parents for themselves included being able to communicate more effectively, increased self-awareness and acceptance, reduced stress and anxiety, increased self-care, and increased awareness of their child and use of co-regulation with their child (i.e., being able to respond to their child in new ways, more calmly and responsively). Perceived benefits reported by parents for youth included increases in ability to manage stress and emotions, increased social behaviours, and increased instances of youth planning and being less forgetful. Lastly, participant reported benefits to both parents and youth included increased empathy in the family, improved parent-child relationships/increased connection, having a shared vocabulary, and being better able to manage conflict and promote family bonding.

As noted, negative responses were also reported in some studies ($n=8$). These negative responses were mostly related to participants not perceiving a benefit, or only perceiving small changes in some areas measured ($n=5$). Other negative responses were participants being confused by mindfulness concepts ($n=1$) and participants experiencing discomfort or boredom with practicing program material ($n=2$).

Demand. Just over half of studies examined demand ($n=15$; 60%). Studies most frequently measured demand by exploring reports of participants practicing the skills learned in group at home/outside of the program. This was most frequently measured at post-program through the use of retrospective reporting of practice throughout the

program ($n=9$, 36%), followed by using weekly tracking sheets that were to be given to researchers weekly or post-program ($n=4$, 16%), and sending daily questionnaires to participants to fill out ($n=1$, 4%). Most studies found participant-reported challenges with practicing mindfulness skills at home ($n=13$, 52%). More specifically, five studies reported only challenges with home practice, eight studies reported some challenges and some successes, and only two studies reported no challenges with home practice. Quantitative and qualitative data were collected across studies.

Of the studies that reported both challenges and successes, qualitative reports of difficulty practicing regularly were found across studies for some, but not all, participants (Mueller, 2021; Pacholec et al., 2020; Racey et al., 2018; Siebelink et al., 2021; Tobin et al., 2021; Zhang et al., 2017). For example, Tobin et al. (2021) reported parents endorsing practicing whereas youth reported knowing of opportunities where they could practice, and Zhang et al. (2017) found that several parents reported daily practice, some reported sometimes practicing, and few reported seldom practicing, with children reporting more frequently practicing in comparison to parents. Differences based on type of skill practiced were noted in one study (Racey et al., 2021), where parents and youth reported being too busy for formal practice but used informal practice daily.

Barriers to regular practice were noted in six studies. Four studies reported being busy/other life obligations as a primary barrier (Mak et al., 2019; Pacholec, 2020; Racey et al., 2021; Siebelink et al., 2021). Specifically, parents in Siebelink et al.'s (2021) study reported difficulty making time to practice the mindfulness skills at home and saw the home practice as too time consuming to properly incorporate into their busy lives. Due to this, the authors reported that most families did not continue using longer meditations once the program was complete, however most did incorporate a breathing activity and informal mindfulness practices into their lives. Similarly, Pacholec (2020) reported that 86.3% of parent respondents reported having practiced the program skills over the past week with their child throughout the program. Parents most often responded that they, their child, and them and their child together had practiced the skills one-to-three times per week, however parent qualitative responses yielded a theme related to demand: barriers to skills use. Within this theme, parents reported regular practice as difficult to

maintain due to a busy schedule, uncertainty as to when to use strategies, and suggested the use of reminders as being potentially helpful.

Internal barriers were also noted. Haydicky's (2017) study found that although a theme of participants acknowledging the importance of practice in cultivating a skillset was present, and that in-group practices were not enough for them to do so, participants still experienced difficulties practicing regularly at home. Barriers to practice were internal (e.g., mind wandering, composing mental 'to-do' lists, performance expectations, critical self-talk, and heightened emotions experienced during practice) and external (i.e., environmental) distractions. Despite these challenges, however, several participants reported daily practice 6 weeks post program, and stated they intended to continue in the future. Some participants suggested continued support or accountability to a group in order to keep regular practice/not fall out of the habit.

Additionally, Andreotti et al. (2017) evaluated a 42-day MCBT MBI that emphasized daily formal mindfulness practice using audio guidance on a website for parents and children to use at home (four-to-12 minutes per day). Exercises included formal and informal mindfulness concepts such as body scans, meditation, and mindful breathing and walking. They measured demand by having participants fill out a mindfulness practice sheet throughout the program duration, and hand it in after the program was complete. A high degree of practice was reported by participants. Participants reported completing an average of 83.9% of the exercises, and on average 57% were completed with one or two parents; 84% of participants practiced regularly, with 84.5% of children performing the exercises, and only two completed less than 70% of the exercises. Qualitatively, some parents spoke about challenges related to the amount of effort needed to assist their child during the program, with one child not completing the program due to this difficulty, whereas others did not report this challenge. Children, however, reported practicing daily during key periods such as sleeping, interpersonal conflicts, and medical and school exams. Mixed reactions to practicing were noted by children, with some becoming bored or impatient, and others enjoying practice.

Of the studies that only reported on challenges with home practice, qualitative themes of parents reporting difficulty practicing with their child due to conflicting responsibilities and interests, not having enough time, having too many distractions were

reported (see Heifetz et al., 2017; Hwang et al., 2015; Lu et al., 2022; Mak et al., 2019). Furthermore, in addition to qualitative reports of consistent difficulty practicing, Heifetz et al. (2017) explored practice quantitatively, finding that youth on average reported practicing the skills ‘a bit’ or ‘sometimes’. Of the core skills taught (deep breathing, soles of the feet, and body scans), youth reported practicing deep breathing most frequently, however still averaging out to ‘sometimes’, or 3.25 on a one-to-five-point scale. The authors also note a reduction in youth reported skill use from post-group to one-month follow up. Lastly, Cheung et al. (2021) could not report their practice data due to fidelity challenges with filling out practice resulting in invalid data.

The two studies that reported only positive results related to demand were conducted by Guenther et al. (2021) and Beck et al. (2022). Both studies found that parents reported regular home practice. Within these studies, parents reported on average that they practiced mindfulness strategies mostly every day (Beck et al., 2022) or the majority (78%) of participants completing the home practice materials each week (on average completing daily practice four times per week) (Guenther et al., 2021).

Discussion

Combining parent and child MBIs into concurrent or parallel programs has been an emerging area of research due to the positive outcomes associated with both mindful parenting programs (see Burgdorf et al., 2019; Friedmutter, 2016) and mindfulness programs for children (see Cheang et al., 2019; Donald et al., 2019; Dunning et al., 2019). Due to the novelty of this program design, it is important to examine the feasibility of these programs to determine if programs are ready for RCTs (Bowen et al., 2009). This study therefore conducted a systematic review of the feasibility of concurrent parent and child MBIs in order to examine the current state of the literature. Bowen et al.’s (2009) framework of feasibility was used to determine whether areas of feasibility were well measured or in need of further research.

A total of 25 studies met inclusion criteria. Five groups of youth populations were found across studies: 1) youth with neurodevelopmental disorders, 2) youth with internalizing challenges (i.e., depression or anxiety), 3) youth with have experienced adversity, 4) youth with physical challenges, and 5) youth in the general population or with heterogenous challenges. Half of studies in this review targeted youth with

neurodevelopmental disorders. Most studies utilized programs that were based off the MBSR, MBCT, or mindful parenting models. Several manualized programs were assessed across studies, the programs were: the AWARE program, Calming Thoughts and Caring Minds program, the Emotion Awareness and Skills Enhancement (EASE) program, the Family-Based Mindfulness Intervention (FBMI), Making Mindfulness Matter (M3[©]) program, MiYoga, and MYmind. Eight studies in this review used the MYmind program. Other studies addressed their program by using labels, where authors did not clearly state whether a manualized program was used.

Heterogeneity amongst program designs, dosages, and deliveries are not a new finding in the field of MBI research (see Felver et al., 2016; McKeering & Hawng, 2019; Xie et al., 2021), making it difficult to generalize findings within systematic reviews and meta-analyses. All programs in this study, however, incorporated mindfulness practice throughout sessions and as at-home practice. Most studies were delivered to participants in person (80%), or through a combination of in person and virtual content (16%), with most studies having the same program dosage for parents and youth (76%) and the majority of studies (88%) ranging from six to nine weeks in length. Most studies included both parent and youth report related to feasibility (56%).

The 25 studies included in this review are considered pioneering studies in the newly emerging field of concurrent parent and child MBIs, with no previous reviews in this area being present, and all studies included having been published between 2015-2022. Due to the studies being in a novel and growing field, it is important that feasibility is established before further empirical research is conducted with families (Bowen et al., 2009). Overall, results from this review suggest that parent-child MBIs are likely to be acceptable and practical for parents and youth. Parents and youth are likely to attend large portions of (i.e., complete) in-person parent-child MBIs. Parents and youth are likely to be satisfied with the program, find the content helpful/useful, and note perceived benefits from participating in the program. Some benefits of the inclusion of both parents and youth may be observed by parents and youth, with seven studies finding unique perceived benefits associated with the parallel or concurrent nature of the program, including increased bonding time, connection, a shared language, and improved

relationships. Participant benefits unique to the parallel program design, however, remains as an additional area in need of exploration

Across studies, programs were largely being regarded as practical and acceptable to participants. Practicality was most often measured by attendance and dropout rates, with most studies finding a high degree of program completers, high attendance rates among completers, and little dropout. Acceptability was mainly measured through participant responses via interview or questionnaires. Likert-scale questionnaires were typically used, with most studies finding overall positive findings related to participant satisfaction, usefulness, and perceived helpfulness of the program. In many studies, participants reported several perceived benefits from participating in the program. Benefits were most frequently related to increases in mood (i.e., feeling happier or more relaxed), being better able to manage stress, improved self-awareness, and being able to communicate more effectively,

Unique benefits associated with both the parent and youth attending the program were also reported in seven studies; it is important to note, however, that the majority of studies did not report actively inquiring about the unique benefits or challenges associated with the parallel nature of the program. In Haydicky's (2017) study, for example, parents and youth reported an increased sense of empathy within the family (i.e., a reciprocity of empathy) that fostered improved parent-adolescent relationships, provided topics for parents to initiate conversations with their child, and provided a shared vocabulary that promoted meaningful conversations between parents and youth and helped to diffuse conflict. Other unique benefits of both parents and children being involved were connection through practicing together (i.e., spending time together, growing closer) (Bokoch, 2018); strengthened relationships and having opportunities for connection (Pacholec, 2020; Salem-Guirgis et al., 2019); increased youth emotion regulation due at times to the youth practicing and at times to the parent modelling the skills (Lu et al., 2022); parents and youth attending to each other, thereby promoting the development a shared, mutually supportive bond that helped aid damaged relationships (Racey et al., 2018); and the potential of promoting family bonding (Andreotti et al., 2017). Furthermore, the parallel program design was noted as a facilitator to attending the program in one study (Siebelink et al., 2021).

Challenges related to feasibility and suggestions for future programs were also noted in some studies. Challenges included some parents or youth not identifying program benefits, and some reports of discomfort or confusion when practicing mindfulness; the latter will be discussed in more detail below when discussing demand. Program suggestions typically included additional in-person sessions to aid with accountability and practice, and more games/activities in sessions for youth.

Other areas of feasibility appeared less promising and/or not adequately studied; these areas were facilitator acceptability, program fidelity, and demand (i.e., participant practicing skills outside of the program). Although, of the studies who reported facilitator qualifications, qualifications were largely relevant graduate degrees, specific mindfulness training, and experience working with target participants, only eight studies (32%) reported on implementation fidelity (i.e., whether facilitators were adhering to the program). This is an often overlooked but important area of feasibility, with previous reviews also finding that intervention integrity was not sufficiently assessed in studies. In Gould, Greenberg, and Mendelson's (2016) systematic review of school-based mindfulness and yoga interventions, 37% of studies did not report on any aspect of fidelity of program implementation. Likewise, Emerson et al.'s (2020) found that intervention integrity was only indicated in 45% of studies included in their systematic review of school based MBIs. Both authors pointed to the need for feasibility studies to properly assess program fidelity in order to find any organizational factors that may influence program implementation.

Most studies stated that home practice was a part of the program and expected of participants, however few studies reported the specifics of the program's home practice expectations. Furthermore, slightly over half (60%) of studies monitored or reported on home practice. Of the studies who measured home practice, however, nine assessed this at post-program, asking participants to reflect on their practice over the program duration. Four studies used weekly tracking sheets, one study asked participants to track daily practice and return the practice sheet post-program (Andreotti et al., 2017), and only one study (Haydicky, 2017) sent daily questionnaires via email to parents to formally track practice daily. This can provide an additional methodological limitation to these studies, as using retrospective reports are more likely to be subject to recall or response bias,

where participants fail to accurately recall events or experiences or do not answer truthfully (King-King, 2022). Indeed, Cheung et al.'s (2021) participant post-program to follow-up practice logs were deemed invalid due to fidelity challenges with participant reporting of practice, leading to the authors recommending the use of more formal practice measures in future studies.

Additionally, of the studies that measured demand through practicing skills at home, almost all of them had participant reports or themes of difficulty consistently practicing. Some studies inquired with participants as to what got in the way, to which internal and external barriers were reported. External barriers, which were more often cited, included distractions and other obligations (i.e., being too busy) such as homework and other interests or activities. In two studies, participants specified that formal practice was too difficult to incorporate into their lives, however informal practice was easier (Siebelink et al., 2020), used daily, and was deemed useful (Racey et al., 2018). This finding led to Racey et al., (2018) suggesting that perhaps formal practice needs to be made more palatable or practical for participants to implement in their daily lives, or programs may need to explore the utility of informal practice being emphasized in home practice.

Haydicky (2017) explored internal distractions in depth with participants and found that some participants experienced internal distractions such as critical self-talk, judgement about their performance, and heightened emotional responses to practice; however, participants noted the importance of regular practice and stated it got easier to practice the more they did it. Some participants stated that the discontinuing of group made it difficult to maintain practice (Salem-Guirgis et al., 2019) and that it was too difficult for parents to engage their child with the practice (Hwang et al., 2015). Furthermore, some parents requested less assigned home practice (Lu et al., 2022). It is important to note, however, that although barriers to practicing were a theme within several studies, within others, large proportions of participants reported practicing daily (Zhang et al., 2017), mostly daily (Beck et al., 2022), multiple times per week (Pacholec, 2020) or completing the majority of assigned home practice (Andreotti et al., 2017; Guenther et al., 2021).

Although home practice is typically a core component of MBIs, and early theories and research generally supports the importance of practice in MBIs (Chambers, 2009; Hwang et al., 2015; Kabat-Zinn, 1994; Zenner et al., 2014), participants having difficulty practicing at home is a frequently documented phenomenon (see Vettese et al, 2009). For example, Birtwell et al. (2019) explored barriers and facilitators to regular practice amongst adults and found common difficulties participants experienced while trying to practice regularly such as having difficulty finding the time to practice and falling asleep during practice. Factors that would influence their practice frequency in a positive way included having practical resources to use (e.g., apps or emails, reminders of evidence of benefits of mindfulness), finding time to practice (e.g., incorporating it into a daily routine or forming a routine), receiving support from others (i.e., being part of a mindfulness community), and attitudes and beliefs about mindfulness (i.e., positive feelings during and after practice/experiencing perceived benefits and accepting and being kind towards themselves especially if practice lapses occurred).

There also remains some debate as to the mechanisms of change in MBIs, specifically the weight of the effect regular practicing (both formal and informal) carries. Indeed, there remains limited research as to how much mindfulness practice rates impact program outcomes (Quach et al., 2017). Carmody and Baer (2008), for example, found that self-reported formal mindfulness home practice was significantly related to positive outcomes (i.e., increases in mindfulness, improved psychological functioning and well-being, and reductions in psychological symptoms) in a sample of 174 adults. Furthermore, Ireland (2013) found that the differences in both the subjective proficiency and depth of formal practice (due to factors such as aptitude or effort) was related to several psychological health and mindfulness factors and may moderate treatment effects and are therefore an important area to monitor within pre-post program evaluations. Other studies have found unique benefits of regular informal practice. A study of 218 adults, for example, found informal practice to be related to increased well-being and psychological flexibility, and frequency (but not duration) of formal mindfulness to be related to positive well-being but not psychological flexibility (Birtwell et al., 2019). Furthermore, another study found that although formal and informal mindfulness was

related to improved psychological well-being and study engagement in medical students (Kakoschke et al., 2021).

To investigate this further, Vettese et al.'s (2009) reviewed 98 studies to determine rates of skill practice among participants and their relation to program outcomes. Only 24 studies, however, examined the associations between mindfulness home practice and outcomes related to clinical functioning; of these studies, just over half found partial support for the benefits of practice, whereas this finding was not present within the remaining studies. Importantly, though, most studies in Vettese et al.'s review tracked practice using retrospective participant reporting as opposed to daily tracking (i.e., logs or diaries), similar to the results of this review; of the two studies who examined home practice through utilizing daily logs, both demonstrated significant associations between practice rates and psychological functioning/outcomes. Similarly, Quach et al. (2017) found that adolescent practice rates did not significantly relate to improved working memory and less anxiety and stress; however, the authors describe the practice compliance rates as extremely low. Indeed, adolescents failed to engage in much if any practice outside of group, with typically only a quarter of the recommended home practice being completed, leading to difficulty accurately assessing how practice related to outcomes.

It has also been argued that the study of skill practicing is not as straightforward as previously thought. Specifically, studies are beginning to show that patterns (or rates) of skill practice can change throughout the duration of an intervention (Mauricio et al. 2014; Mauricio et al. 2018a as cited in Mauricio et al., 2018b). Particularly, engagement can increase as participants learn and apply new skills as well as increase connection with the facilitators and other parents, or decrease if parental interest diminishes through time, they do not believe the program is useful, or have negative interactions with facilitators or other group members (Clarke et al. 2015 as cited in Mauricio et al., 2018). Furthermore, there are important participant characteristics to consider when investigating these changes over time. Coatsworth et al. (2017), for example, found that parental in-session engagement increased across the duration of the intervention, suggesting that engagement can be malleable and can increase throughout the course of the intervention.

Overall, the results of the current review align with Vettese et al.'s (2009) review, where practice does not appear to be tracked in a valid and reliable manner, leaving the need for studies to more systematically track mindfulness practice using valid and reliable measures, and evaluate the importance of regular mindfulness practice to program outcomes. Problem-solving to help participants practice more regularly if systematic practice measures do not indicate program compliance (i.e., are not in line with what should be clearly defined dosage expectations within programs) are also in need. Indeed, with the inconsistency and variable practice rates currently reported across most studies, it likely remains difficult to statistically examine practice impacts on clinical outcomes, including the potential influence of formal and/or informal practices.

The research examining the rate and frequency of skill practice in parent and child MBIs remains an area in need of further development. Researchers are encouraged to state the required duration and type of home practice as part of the program dosage, and the degree of compliance reported by participants. Daily tracking of practice may be less susceptible to recall bias in comparison to post-program retrospective recall and can help program developers discover any barriers and facilitators to practice and problem solve as needed for adequate program adherence. Not enough data was collected on implementation fidelity and facilitator responsiveness to program delivery to state whether these programs are acceptable to and adhered to by facilitators. Although three studies included facilitator data, two of these studies were facilitator perceptions of participant acceptability; facilitator experience of delivering the program was absent in the literature.

Limitations and Future Research

This review had several strengths and limitations. One limitation may be that although best efforts to systematically find studies were used, it is possible that additional feasibility data is present within studies that did not include this in their abstract, as the primary focus was outcome-based. Furthermore, as is inherent in systematic reviews, results from this review are related only to studies that met the pre-determined inclusion criteria; results related to parent and child mindfulness practice may be present within studies that do not primarily measure MBIs, such as DBT, ACT, or MBIs in combination with other programs, where mindfulness content is not the core of the program content.

All conclusions made in this review are drawn from studies that evaluated varying programs (with differing content and structures), populations, and methods of data collection; indeed, in line with many reviews of MBIs, heterogeneity of studies remains a limitation, and despite commonalities across program content, differing activities and program structures with various populations in various settings can produce different feasibility results.

Future research in this field remains necessary, and both diversity and continuity are needed. Specifically, more research is needed regarding all populations included in the articles reviewed as it relates to implementation and demand. Although there were articles focusing on youth of different ages and with differing clinical statuses and levels of challenges, consistent with Kostova et al.'s (2019) review of feasibility of MBIs for adolescents, many categories had a low number of studies to support feasibility. Specifically, four out of the five population groups had two-to-four studies exploring certain areas of feasibility with small sample sizes. These studies also used different programs and evaluation tools. Additionally, different programs were assessed across populations, with programs differing in number of sessions, nature of the content, and mode of delivery. Lastly, across most studies, feasibility was largely assessed through participant responses to the program (parent and youth acceptability), leaving a gap in relation to other important areas of feasibility as well as other voices involved in program implementation (i.e., facilitators, community agencies). More research is therefore needed regarding these areas of feasibility in relation to concurrent parent and child MBIs, in addition to using standardized measures when applicable, such as when measuring formal and informal mindfulness home practice.

This study was the first to systematically explore the feasibility of concurrent parent and child MBIs. Overall, results from this review found areas of feasibility that were consistently measured and demonstrated positive results (i.e., participant acceptability and practicality), as well as areas that were less consistently measured or in need of more research (i.e., recruitment, demand, and facilitator perspectives). Results from this review outline practical suggestions for future program developers and researchers exploring concurrent parent and child MBIs.

Chapter 3. Preliminary Outcome Evaluation of a Concurrent Parent and Child Mindfulness-Based Intervention

Mindfulness is defined as paying attention non-judgmentally in the present moment (Kabat-Zinn, 1994). Mindfulness-based interventions (MBIs) have been conducted and evaluated with varying populations throughout the past several decades, with findings showing associations between MBIs and decreased stress (Brand et al., 2012; Bränström et al., 2011; Kabat-Zinn, 2003; Marcus et al., 2003; Snippe et al., 2017), rumination, anxiety, and anger (Brown & Ryan, 2003; Follette et al., 2006; Hoge et al., 2013; Keng et al., 2011) in adult populations. Research has also found that MBIs are associated with positive changes in various outcomes for both individual parent and child populations. For parents, systematic reviews and meta-analyses have found relationships between mindful parenting programs and reductions in parental stress, decreases in maladaptive discipline, increased use of effective parenting strategies (Burgdorf et al., 2019; Friedmutter, 2016), alongside improvements in child internalizing and externalizing behaviour problems, and improved cognitive and social outcomes (Burgdorf et al., 2019). For child based MBI programming, systematic reviews and meta-analyses have found that mindfulness programs are associated with reductions in internalizing and externalizing behaviour problems and decreased stress, as well as improvements in executive functioning, empathy, compassion, and prosocial behaviours (Cheang et al., 2019; Donald et al., 2019; Dunning et al., 2019).

More recently, theory and emerging evidence suggests that providing MBIs concurrently to both parents and youth may have a greater impact on youth and parent outcomes. Specifically, programs that target the family system, as children are naturally embedded within this system, may increase the likelihood of interaction effects between positive parent and child outcomes (Burke, 2010; Harnett & Dawe, 2012). This could occur through parents modelling appropriate skills, and parents and child mutually reinforce practicing of program material (Haydicky et al., 2015; Heifetz & Dyson, 2016), creating a shared sense of support and understanding in the home (Racey et al., 2018).

This paper explores the literature on concurrent parent and child MBIs, the need for community-based programs, and the need to evaluate clinical significance in program evaluation research. The present study then investigates outcomes associated with a new

community-based concurrent parent and child MBI (the M3[©] program) from both clinical and statistical significance perspectives.

Research on Concurrent Parent and Child MBIs

To date, there has been one systematic review and meta-analysis of the outcomes associated with concurrent or parallel parent and child MBIs (Xie et al., 2021). This review of 20 studies found minor-to-small (ranging from .182 to .325) positive effects on the variables of family functioning (i.e., parenting behaviours and family functioning or relations), parent mental health (i.e., emotion regulation, flexibility and ability to cope with adversity, harmonious relationship between body and mind, and overall mental health), and child mental health (i.e., cognitive and social skills, emotion regulation, flexibility and ability to cope with adversity, harmonious relationship between body and mind, and overall mental health). All studies included explored statistically significant differences between pre-and-post program outcomes, with six studies being controlled and 12 being non-controlled studies. In their review, seven studies included participants recruited from clinical settings (i.e., mental health centers), six were in either school or community settings, and four were in ‘other’ settings.

Although the results of this review were deemed as promising for concurrent parent and child MBIs, the authors concluded that more research is needed. Specifically, the minor-to-small effect sizes were lower than are typically seen in MBI research; the authors concluded that one reason for this may be the clinical nature of the child populations included in the review, as the majority (90%) of studies included in their review involved clinical child populations (i.e., programs designed for and ran with children with clinical challenges such as ADHD or ASD), whereas other meta-analyses of MBIs tend to be more broad in their population characteristics. This suggestion was due to a recent meta-analysis of mindful parenting programs that found programs tend to produce higher effect sizes related to mindful parenting for parents of children with non-clinical challenges as opposed to clinical challenges (Shorey & Ng, 2021). An additional limitation stated in the review was that sample sizes across studies were typically small (i.e., fewer than 50 families) and uncontrolled.

The Need for Community-Based MBIs

Diversifying populations in order to obtain a more comprehensive understanding of program outcomes as described by Xie et al. (2021) is important; however, it is not the only reason for exploring concurrent MBIs within diverse populations, as certain populations may be more in need of MBIs. Specifically, individuals who have experienced adverse childhood experiences (ACEs) or adverse family experiences (AFEs) may be at an increased need for MBIs. ACEs/AFEs are defined as traumatic individual or family-based events (e.g., abuse, neglect, and/or witnessing domestic violence, substance abuse, or mental illness in the household, death of a parent, witnessing neighbourhood violence, socioeconomic hardship, and discrimination) that occurred before the age of 18 (Felitti et al., 1998; Kwong & Hayes, 2017). Research has found that, compared to individuals who have not experienced multiple ACEs, individuals who have experienced numerous ACEs are more likely to encounter a range of negative physical and mental health problems including increased stress (Felitti et al., 1998), and are less likely to demonstrate resilience (Morgan et al., 2022). Research has also found that children exposed to adversity are at an increased risk of developing chronic stress due to the stress response system being impacted (Brenner, 2003), and are less able to regulate their emotions and behaviour, leading them to have an increased likelihood of developing emotional and behavioural problems (Bethell et al., 2016). These consequences of exposure to adversity leave these children with an increased need for programs and services that target stress and self-regulation, such as MBIs. Additionally, community-based programs may provide an ideal avenue to target children and families that have experienced adversity. Specifically, community-based programs held at community or crisis centres allow individuals who may be experiencing the impacts of adversity to seek needed support.

Clinical Significance in Program Evaluation

Xie et al.'s (2021) study presents important research in the field of concurrent parent and child MBIs using overall effect sizes based on statistically significant pre-post scores, as they are important to understanding program outcomes. There is no mention, however, of clinical significance reported within these studies. Clinical significance refers to the practical or every-day, real-world (i.e., palpable or noticeable) applied value of the results or effects of an intervention (Kazdin, 1999). When exploring studies from a

clinical significance lens, statistical significance is not a primary outcome, as it does not speak to clinical utility, and factors such as small sample sizes and measurement variability can impact this result. Statistical significance does not equal clinical significance, and for clinicians, clinical significance is often the more valuable and informative measure (Sharma, 2021). Furthermore, if studies are conducted with clinical measures, many of them have clinically significant meaning embedded within the measure that can be utilized and aid clinicians in interpreting outcomes of interventions. More specifically, these measures can categorize participants into typical levels of challenge, at-risk, or clinical levels of challenges on variables, and programs can assess whether participants have changed categories from pre-to-post-intervention. This practice is not perfect, as change can still exist on a continuum, however it can still provide valuable information (Kazdin, 1999). An additional variable for measuring clinical significance is the participants' reaction to the program, specifically whether they perceive the program to have produced clinically significant outcomes (Harris et al., 2023).

One study has reported on the clinical significance of a concurrent parent and child MBI. The MYmind program, for youth with ASD and their parents (Ridderinkhof et al., 2018). The authors explored differences in scores on the Child Behavior Checklist (CBCL) from pre-test to post-test, two-month follow-up, and one-year follow up. Specifically, the percentage of youth with sub-clinical levels of internalizing and externalizing symptoms, and attention problems at each time point were presented. Results noted an overall pattern of lower percentages of participants being in the subclinical range from pre-test to post-test. At the two-month follow-up mark, fewer participants were in the subclinical categories in comparison to post-test and pre-test, indicating further clinically meaningful improvement for some participants two months post-program. No notable differences between the two month and one year follow-up period were found. Although these results are promising, overall, additional research replicating these findings is required regarding the clinical significance associated with concurrent parent and child MBIs for varying populations.

Overview of the Making Mindfulness Matter (M3[©]) Program

Given the literature surrounding the success of MBIs with various groups, particularly with children and parents, alongside the need for more programs and research with community samples, a combined parent and child MBI entitled M3[©] was created by psychologist Dr. Karen Bax, at Western University. The M3[©] program was loosely modelled after the MindUP school-based program, which has been well researched and has shown to be an effective social-emotional and mindfulness-based program for youth. Specifically, the MindUP program is a 15 lesson, school-based program with manualized curricula spanning from kindergarten to eighth grade. Although mindfulness is the core component of the program, MindUP incorporates theory and research related to cognitive developmental neuroscience, contemplative science and mindfulness, social-emotional learning (i.e., self-awareness and management, social awareness, relationship skills, and responsible decision making), and positive psychology (i.e., gratitude and kindness; Maloney et al., 2016). MindUP has been associated with significant improvements in stress, cognitive control, emotional control, adaptive skills, behaviour challenges, and areas of positive psychology such as optimism and perspective taking (Crooks et al., 2020; Shonert-Reichl et al., 2015). Although M3[©] was originally modelled off of the MindUP core tenets, the programs have distinct differences in relation to participants, format/structure and delivery, and setting.

Given the literature surrounding the need for community based MBIs in targeting various populations, including those who may have experienced adversity, M3[©] was designed as a community-based program and is typically delivered within community agencies by community agency staff and/or graduate psychology students. M3[©], therefore, is a community-based, concurrent parent and child (ages four-to-10 years) MBI. This age range was chosen for M3[©] due to early childhood being a time of rapidly developing self-regulation skills/abilities, therefore providing an optimal window to teach children skills that may aid in their development of self-regulation (see Bockmann & Yu, 2023).

The M3[©] program is eight weeks long, with one 90-minute session per week for both parents and child groups. The M3[©] program is a standardized protocol equipped with curriculum, PowerPoint slides, and scripts to be used for each session by facilitators. Facilitators also participate in a standardized (typically two-day) facilitator training to be

able to facilitate the program. M3[©] teaches knowledge and skills related to how the brain works under stress, mindful breathing, mindful sensing, mindful movement, perspective taking, optimism and appreciating happy experiences, kindness, and gratitude.

Approximately 80-85% of the M3[©] program is related to mindfulness (i.e., learning about, practicing, and applying mindfulness) (Puka et al., 2020). In M3[©], parents and children learn these concepts separately, as each concept is tailored towards the appropriate developmental level (using either the parent, younger child, or older child curriculum).

Specifically, in M3[©], children engage in a variety of concrete activities related to mindfulness. The child group has a younger (ages 4-6) and older (ages 7-10) curriculum. Activities in both curricula are tailored to the developmental stage of each age range; for example, the younger group uses simpler language alongside more hands-on, game/play-based activities. In the parent group, the emphasis is placed on applying the principles and skills to parenting. At the end of each M3[©] session, parents and children join to participate in a group mindfulness practice, and parents learn about the knowledge and activities the children engaged with for the duration of the session. A detailed breakdown of M3[©] program sessions is provided in Table 3.1.

Table 3. 1

An Overview of the M3[©] Program (Puka et al., 2020)

Session	Session Description
1. An Introduction to Breathing, the Brain and Mindfulness	The focus of session one is building a comfortable environment and introducing main concepts such as how the brain and our thoughts and feelings work together, mindful awareness and deep breathing. Parents also learn about neuroplasticity and the STOP model of mindful parenting.
2. How Our Brain Works Under Stress	Session two teaches how the brain works under stress. Children and parents learn to further identify which part of their brain is busy when they feel big emotions and how mindfulness and a brain break can calm their amygdala, so they can choose to respond, rather than react to stressful situations.

3. Mindful Awareness	The concept of mindfulness is further explored in session three, with children learning what is mindful or unmindful thinking and practicing how to be in the present moment. Parents learn about the effects of breathing on the brain and body and learn mindful techniques to use with their child.
4. Mindful Sensing	Further practice at being in the moment, through mindful sensing, is the focus of session four. Both parents and children participate in a variety of activities using the five senses mindfully.
5. Mindful Movement	Mindful movement is the topic of session five. Parents learn about the brain-body connection; and mindful awareness of their body and their children's body during parent-child interactions. Children also learn mindful awareness of their body including how good posture relates to good thinking.
6. Perspective Taking	Both parents and children learn how perspective taking is a skill they can practice and strengthen through mindful awareness. Parents explore their child's perspective through imagining their child is video recording all interactions and using that to understand how they should act in similar situations. Children learn perspective taking through games, books and video.
7. Choosing Optimism and Appreciating Happy Experiences	Choosing optimism and appreciating happy experiences are the focal points of session seven, with parents discovering that optimism can be learned and three techniques to be a more optimistic parent. Children learn about positive and negative thinking, how it affects how we feel and mindful ways to think more positive and have a growth mindset.
8. Expressing Gratitude and Acts of Kindness	Using mindful awareness to practice gratitude and kindness are explored, with children participating in activities that encourage being thankful, and doing acts of kindness for those around them. Parents similarly learn how gratitude and kindness are

linked to better mental health and stronger family relationships and that kindness starts with being kind to ourselves.

M3[©] is grounded in the applied theory of change model for child well-being, as described by Newland (2015). This theory outlines the pathways associated with family and child well-being, emphasizing the mutual influence they have on each other. Specifically, this model outlines how family well-being, both directly and indirectly, predicts child well-being. Family well-being is defined through family self-efficacy, parent physical and mental health, and family resiliency. In particular, parental mental health in the form of stress reduction, as well as family resiliency are main focuses of the M3[©] program, as M3[©] teaches parents and children how to better manage stress and respond to stressful situations. According to the model, family resiliency is defined as “a family’s ability to strengthen their family relationships and enhance personal growth through positive management of conflictual or stressful situations” (Newland, 2014 as cited in Newland, 2015, p. 6), and is an essential component of family well-being. In line with this model, M3[©] emphasizes family resiliency, and aims to reduce parental stress and increase child well-being. One element that appears to be missing from this model, however, is the additional influence increased child well-being can have on family well-being. Therefore, the M3[©] program aims to adapt this model to include this additional influence. Indeed, as previously discussed, there is research to suggest that increased child well-being, particularly in the form of reductions in behaviour problems, can then form a feedback loop, as child behaviour problems influence parental stress levels, which in turn impacts child well-being (Neece & Baker, 2008).

To date, two studies have been conducted on the M3[©] program (Mueller, 2021; Pacholec, 2020). Both studies used the same sample included in the present study at an earlier point in the data collection period. Pacholec (2020) explored the feasibility of the M3[©] program through quantitative descriptives of parent reports of practice and qualitative reports of parent feedback on each program session. Specifically, parents responded weekly to questions of whether they practiced the skills in the previous week (quantitative: yes/no to practicing, how often, and yes/no as to whether it was helpful),

and what they found helpful about the session and why (qualitative: open ended questions).

Within Pacholec's (2020) study, participants attended an average of 6.2 sessions out of eight, and over half of participants attended 75% of the program. Furthermore, across weekly sessions, 86.3% of parents reported that they had practiced (by themselves or with their child) the skills learned in the group over the last week. When asked how often they practiced, they most commonly reported one-to-three times per week (37.6% of the time), however this was closely followed by four-to-six times per week (33.5%). A similar pattern was followed for how often they practiced with their child (i.e., 45.3% reported one-to-three times) and how often their child practiced on their own (i.e., 39.7% reported one-to-three times). The study did not report, however, which mindfulness skills were being practiced by parents and children, or the quality of the mindfulness practice that occurred.

Parents also reported the practice to be helpful to themselves (96.1% of the time) and their child (79.3% of the time). Qualitative responses from parents as to what they found helpful from each session resulted in eight themes of what was helpful: 1) strengthening their relationship with their child, 2) content and format of the program, 3) finding new ways of responding to their child, 4) gaining insight (adopting new perspectives and understanding emotions, behaviour of themselves and their child, and goals when parenting), 5) being hopeful, 6) being in the present moment, 7) taking care of themselves (through concepts such as gratitude, optimism, self-awareness, and relaxation), and 8) understanding the brain. An additional ninth theme of barriers to skills practice was also found; within this theme, parents commented on factors that interfered with their skill practice, which were the difficulty of regularly practicing due to scheduling (i.e., busy schedules), falling into negative habits (e.g., being negative), or not knowing when to use the skills.

Mueller's (2021) study explored feasibility using child reported practice assessed by researchers asking children questions from weekly questionnaires. Qualitative themes of child practice reports were reported. Five themes emerged: 1) increased knowledge of concepts taught in M3[©], 2) children using skills outside of group, 3) children using M3[©] tools outside of group, 4) children recognizing the benefits of practicing, and 5) children

reporting reasons they did not engage in practice. Although not practicing was not reported frequently, two primary themes emerged for reasons why children didn't practice the M3[©] skills at home: 1) not having time to practice, and 2) not having access to the M3[©] tools such as the chime or amygdala jar (e.g., when at school). Mueller (2021) also examined pre-to-post scores on a youth mindfulness knowledge questionnaire. Youth post-program scores indicated an increase in mindfulness knowledge in comparison to pre-program scores. Overall, the results of Pacholec's (2020) and Mueller's (2021) feasibility studies suggest that parents and children find the M3[©] program largely feasible; however, whether the M3[©] program is associated with positive changes related to parenting stress, and child executive functioning and behaviour remains in need of exploration.

Current Study

Research Questions

The following research questions guided this paper: 1) Is participation in the M3[©] program associated with parent reports of decreases in problems related to child executive functioning, child behaviour, or parent stress?; 2) From a clinical significance perspective, is participation in the M3[©] program associated with changes in child executive functioning and behaviour problems, and parenting stress?

Methods

Data Collection

Recruitment. All data to be used in this study were collected throughout roughly five years of administering the M3[©] program in a community setting. Parent-child dyads were recruited through a family crisis and support centre; specifically, parents who contacted the centre looking for parenting support were offered M3[©] as a program option if the centre staff deemed it as appropriate for their parenting concerns/needs. If parents expressed interest in the program, parents were informed that a research project was present and were asked about interest in participating in the research portion of the program. This location was utilized due to the high incidences of contact with families with children who have experienced adversity. No were no prior relationships between members of the research team and participants. Parents were included in the study if they

did not have prior mindfulness experience/did not already practice mindfulness regularly, were interested in participating, spoke English well enough to follow simple directions, had a child between the ages of four-to-ten, and both themselves and their child would be able to attend the group.

Ethical Considerations. All research protocols used for this study were previously approved by the Non-Medical Research Ethics Board at The University of Western as part of a larger project involving both the Mary J. Wright Research and Education Centre and the Centre for School Mental Health (see Appendix I). Participants were treated in accordance with the ethical guidelines outlined by the Research Ethics Board at The University of Western and the Tri-Council Policy Statement for ethical conduct for research involving humans.

Study Design. The study consisted of parents and children attending the eight-week M3[©] program, and conducting pre-and-post group data collection, for a total of 10 weeks of participation in the research project. Data collection pre-and-post program was conducted in-person, either individually or as a group, with a research assistant who explained the process in detail to parents and was available for assistance. Informed consent and assent were obtained for all participants in the study. All data were collected using a unique ID code linked to the parent and child information; parents were made aware that no identifying information would be present on the in-person data collection. Precautions were taken to increase the privacy of parental responses, including space given for each parent to fill out the surveys/questionnaires, and a research form box for parents to put all completed research forms. Parents filled out the all BASC-3, BRIEF-2/P, and PSI-4-SF questionnaires in-person, pre-and-post M3[©] group participation.

Participants

A total of 97 parent-child dyads who participated in the M3[©] program with their child across a total of 13 groups were included in this study. Group size ranged from 5 to 11 participants, with an average group size of 7.46 ($SD = 2.03$). Mean child age was $M = 6.3$, $SD = 1.6$. Regarding the sex of the children enrolled, 37% were female. Regarding parental sex, 75% had a female parent attend group, 6% had a male parent, and 19% had one male and one female parent attend group. Regarding ethnicity, 60.8% of participants identified as White; of the individuals who identified as non-White (23.7%), the majority

identified as mixed. The mixed ethnicities reported by parents in this study were Aboriginal/First Nations and White, Arab and White, Black and White, Chinese and White, Japanese and White, Latin American and White, South Asian and White, and Vietnamese and White. See Table 3.2 for participant demographics.

The median number of sessions attended was seven out of eight; however, the pilot group included nine sessions, and the remaining 12 groups consisted of eight sessions. The average attendance rates were high among children ($M = 6.60$, $SD = 1.94$) and parents ($M = 6.39$, $SD = 2.08$). Only six parents and four children attending two or fewer sessions. Baseline means for target variables can be found in Table 3.3.

Table 3. 2

Participant characteristics

Participant Characteristics	<i>N</i> (%)	Missing (<i>n</i>)
Sample size	97	
Child's age, mean years (<i>SD</i>)	6.3 (1.6)	7
Child's sex, female	33 (37%)	8
Parent's sex		3
Female	67 (75%)	
Male	5 (6%)	
One male, one female	17 (19%)	
Child Ethnicity		
White	59 (60.8%)	
Non-White	23 (23.7%)	
Missing	15 (15.5%)	
Primary Parent Education		
No completion of degree/certificate/diploma	7 (7.2%)	
High School/GED/Apprenticeship	23 (23.7%)	
College Diploma	34 (35.1%)	
University Degree	22 (22.6%)	

Missing 11 (11.3%)

Note: The data presented above reflects all parents and children attending the M3 program, including families that had more than one parent attending

Measures and Variables

Fixed factors were gathered from the Demographic Questionnaire (e.g., age, child sex, parent sex), and the Attendance Sheet (see Appendix C). Attendance rates (i.e., how many sessions parents and children attended) were gathered using the Attendance Tracking Sheet (Appendix C). Child and parent attendance was tracked by research assistants each week. Additional measures and variables to be used in this study are discussed below. Pre-and-post-group t-scores for each of the scales described below were used in this study. Further information regarding the measures discussed below can be found in Appendices E – G.

Behaviour. The study used the Behavioral Symptoms Index, Internalizing Behaviour Problems Index, Externalizing Behaviour Problems Index, and Adaptive Skills Index composite scales on Behaviour Assessment System for Children – Third Edition Parent Rating Scale (BASC-3 PRS; Reynolds & Kamphaus, 2015). Both the BASC-3 preschool version (for ages two through five) and the child version (for ages six through eleven) were used with participants, depending on the age of the child. The BASC-3-PRS is composed of 175 items in which parents respond using a four-point scale (from 0 – never to 3 – almost always). According to Reynolds and Kamphaus (2015), the internal consistency levels for the composite scales of the BASC-3 PRS are excellent, with reliability coefficients ranging from .89 to .98 across all ages. In relation to test-retest reliability, the composite scales possess test-retest stability coefficients ranging from .88 to .94 for the preschool age and from .77 to .91 for the child age. Lastly, interrater reliability scores among the scales and composite scores are in the .60s or higher across all age groups, which is generally higher than other rating scale instruments (Reynolds & Kamphaus, 2015). In this dataset, Cronbach’s Alpha scores ranged from .87 to .95 across scales.

Executive Functioning. The Behaviour Rating Inventory of Executive Functioning- Second and Preschool Edition Parent Rating Scale (BRIEF-P/2 PRS) were

used as a measure of child executive functioning. The BRIEF-P is used for ages two to five years, eleven months (Gioia et al., 2003) and the BRIEF2 PRS is used for children ages five to 18 (Gioia et al., 2000). The Inhibit, Shift, Emotional Control, Working Memory, and Global Executive Composite (GEC) scores were utilized. According to Gioia et al. (2003), the Global Executive Composite score incorporates all scales within the BRIEF-P/2 and represents an overall summary score of executive functioning in the child. See Appendix E for more detailed information on the BRIEF2 and BRIEF-P measures. According to Gioia et al. (2000; 2003), the BRIEF2 PRS and BRIEF-P GEC scores have high levels of internal consistency, with Cronbach's Alpha scores of .96 and .95, respectively. Both measures also show good test-retest reliability (.90 for BRIEF-P and .88 for BRIEF2) and interrater reliability (.17 for BRIEF-P and .71 for BRIEF2). The BRIEF-2/P subscales are also considered valid and reliable scores, as indicated by Gioia et al. (2000) and Gioia et al. (2003). Specifically, internal consistency coefficients range from .80 to .92 for the BRIEF-P scales, and from .81 to .92 for the BRIEF2. Interrater reliability ranged from .14 to .28 for the BRIEF-P and from .55 to .72 for the BRIEF2. Lastly, test-retest stability coefficients ranged from .78 to .90 for the BRIEF-P, and from .67 to .92 for the BRIEF2. In this dataset, BRIEF-P and BRIEF2 Cronbach's Alpha scores ranged from .79 to .95 across subscales/scales.

Parent Stress. The Parental Stress Index – 4th Edition Short Form (PSI-4-SF; Abidin, 2012) was used to assess parental stress levels. The Parental Distress, Parent-Child Dysfunctional Interaction, Difficult Child, and Total Stress scores were utilized. According to Abidin (2012) the PSI-4-SF has high levels of internal consistency, with reliability coefficients for all scales as .96 or greater. Coefficient alpha reliability coefficients ranged from .75 to .87. Test-retest reliability coefficients ranged from .65 to .96, with the Total Stress score having the highest test-retest reliability of all scales. Overall, the PSI-4-SF has been found to be a valid and reliable measure (Abidin, 2012). Cronbach's Alpha scores ranged from .85 to .92 across scales.

Adversity. The Adverse Family Experiences Questionnaire (AFE; Appendix D) was used to assess the number of adversities a child has experienced. This questionnaire asks parents to report whether their child has experienced any of 10 possible adverse family experiences by circling yes, no, or 'I don't know'. Initially, parents filled out the

AFE questionnaire at the pre-test stage of data collection; however, given low degree of AFEs reported, data collection moved to the end of the program, after more trust may have been established.

Data Analyses

All BRIEF-P/2, BASC-3, and PSI-4-SF raw scores were converted to t-scores and entered into SPSS Version 28 (IBM Corp, 2021). T-scores are standardized scores embedded within each clinical measure; t-scores have a mean of 50 and a standard deviation of 10. All data were cleaned for analysis. To address the first research question, linear mixed models using random intercepts (participants) and fixed factors (time; coded a 0 (pre) and 1 (post)) was employed to estimate the mean change in each outcome after participation in the M3[©] program. Linear mixed models were used due to the M3[©] program was delivered in a group format, and therefore the independence of observations assumption underlying linear regressions would be violated due to the expectation that participants in each group may have scores similar to each other. Similarly, linear mixed models can account for repeated measurements among participants. Linear mixed models can account for these violations and are therefore appropriate for datasets that have multiple levels nested within clusters (Hoffman & Walters, 2022). Group-level variance was included in the final model. Models used the restricted maximum likelihood estimator and an unstructured covariance matrix. Additional fixed factors were added to estimate the mean change in each outcome over time while controlling for child's age and sex, parents' sex, attendance, and adverse family experiences reported by parents. All continuous variables used in this study were mean centered.

To address the second research question, clinically meaningful change at the individual level was explored through outlining the proportion of participants that moved clinical categories on all measures. Specifically, the BASC-3 (Reynolds & Kamphaus, 2015), BRIEF-2/P (Gioia et al., 2000; Gioia et al., 2003), and PSI-4-SF (Abidin, 2012) utilize t-scores for clinical interpretation. T-scores below 60 are considered typical; t-scores between 60 to 69 are considered mildly or potentially clinically elevated, or 'at-risk' in relation to degree of challenges in each area; t-scores at or above 70 are considered clinically significant. The exception to this rule is found within the Adaptive

Skills Composite score, where T-scores of 30-39 are considered at risk, 29 or lower are clinically significant, and above 39 are considered typical.

This study investigated whether individuals moved clinical categories from pre-test to post-test in two ways. Firstly, only participants who had a pre and post score were included. Among these participants, their pre and post program scores were recoded to represent the three categories (i.e., a score of 0 for typical, 1 for at risk, and 2 for clinically significant). Descriptive data outlining the proportion of participants who were in each category for each scale pre-and-post program were then calculated. Next, to examine whether individual participants moved categories in any direction, a new variable was created for each scale for each participant; this variable represented their pre-group category score minus their post group category score, to determine whether their score moved in a positive, negative, or neutral direction. Descriptive statistics were then used to outline numbers and percentages of participants who shifted clinically meaningful categories from pre-to-post program.

Results

Research Question One: Pre-Post Outcomes

To address the first research question, three levels were originally conceptualized for this dataset. Level one data consisted of observations at time one and time two; level two consisted of the individual; level three consisted of group/intervention membership. Participants' intervention group was not included in the model as a random factor given that the group-level variance was estimated to be zero for most outcomes, and the likelihood ratio test showed that all outcomes were best modelled without the inclusion of group. Specifically, chi-square tests of independence were performed comparing the log likelihood of models that included group-level variance to models not including group-level variance; the degrees of freedom equaled the difference in the number of parameters for the two models. This was done to determine whether a statistically significant difference between the models exist and therefore whether group-level variance should be accounted for in the final models. For unadjusted models, chi-square results ranged from $X^2(1, N = 85) = 1.7, p = .18$ to $X^2(1, N = 81) = 0, p = 1.0$; scores for adjusted models results ranged from $X^2(1, N = 85) = .27, p = .60$ to $X^2(1, N = 81) = 0, p = 1.0$.

Overall, these results indicated that outcomes were best modelled without the inclusion of group-level, and therefore group-level was not included in the final models.

All model assumptions were tested for each model, and no violations were identified. Specifically, standardized residual scores were normally distributed, however potential outlier residual scores (a residual score larger than three) were present within some of the models. In these instances, outlier cases were removed from the dataset and the analysis was re-run to determine if the outliers were influential. In no case did outlier removal alter the interpretation of results, therefore these cases remained in the final models. The assumption of homogeneity of variance was met for each model. Variables in the adjusted model were not highly correlated.

The results of all linear mixed models are presented in Table 3.3. As noted in this table, results demonstrated statistically significant improvements across all outcomes measured post-intervention except for the Parental Distress subscale of the PSI-SF, which did not significantly change after the intervention. Regarding parent-rated child executive functioning, a statistically significant mean change from pre-to-post program was identified on the Global Executive Composite scale for both adjusted and unadjusted models ($\beta = -3.3, p = <.001, 95\% \text{ CI} = -5.2, -1.5$). In other words, the model indicated that GEC scores on average decreased by 3.3. points from pre-to-post program. Results for subsequent executive functioning scales ranged from mean changes of -2.9 to -5.4. Similar results were found for behaviour as reported on the BASC-3, where a statistically significant mean change was found from pre-to-post program on the Behavioral Symptoms Index on both the adjusted ($\beta = -3.9, p = <.001, 95\% \text{ CI} = -5.5, -2.1$) and unadjusted models ($\beta = -3.8, p = <.001, 95\% \text{ CI} = -5.5, -2.1$). Similar findings were identified across the behaviour variables measured. Regarding parent stress measures, statistically significant mean changes were found pre-to-post program on the Total Stress scale for both the adjusted ($\beta = -1.8, p = .03, 95\% \text{ CI} = -3.5, -0.2$) and unadjusted models ($\beta = -1.8, p = .03, 95\% \text{ CI} = -3.4, -0.2$). Similar results were found for additional parental stress scales apart from both the adjusted ($\beta = -0.6, p = .58, 95\% \text{ CI} = -2.8, 1.6$) and unadjusted ($\beta = -0.7, p = .54, 95\% \text{ CI} = -2.8, 1.6$) Parental Distress scale.

Table 3.3

Summary of linear mixed models showing the mean score at baseline and the mean change after the intervention for each outcome. Lower scores indicate better outcomes, unless otherwise noted.

	Baseline Mean (95% CI)	Unadjusted Mean Change (95% CI)	<i>N</i>	Adjusted* Mean Change (95% CI)	<i>n</i>
BRIEF-2/P T-scores					
Inhibit	66.1 (63.6, 68.5)	-3.4 (-5.2, -1.6) ^c	85	-3.6 (-5.4, -1.7) ^c	77
Shift	64.0 (61.5, 66.5)	-3.2 (-5.3, -1.1) ^b	85	-2.9 (-5.0, -0.7) ^b	77
Emotional control	70.3 (67.8, 72.7)	-5.4 (-7.7, -3.2) ^c	85	-5.2 (-7.5, -2.9) ^c	77
Working Memory	62.7 (60.1, 65.3)	-3.0 (-4.8, -1.1) ^b	85	-3.1 (-5.0, -1.2) ^b	77
Global Executive Composite	67.6 (65.1, 70.0)	-3.3 (-5.1, -1.5) ^c	85	-3.3 (-5.2, -1.5) ^c	77
BASC-3 T-scores					
Adaptive Skills Composite †	42.5 (40.8, 44.3)	2.7 (1.2, 4.1) ^c	81	2.6 (1.1, 4.1) ^b	75
Behavioral Symptoms Composite	65.0 (62.5, 67.3)	-3.8 (-5.5, -2.1) ^c	83	-3.9 (-5.6, -2.1) ^c	75
Externalizing Problems Composite	65.0 (62.3, 67.6)	-4.5 (-6.5, -2.5) ^c	83	-4.4 (-6.5, -2.4) ^c	75
Internalizing Problems Composite	60.9 (58.0, 63.6)	-2.2 (-4.2, -0.2) ^a	83	-2.4 (-4.5, -0.4) ^a	75
PSI4-SF T-scores					

Parental Distress	54.8 (52.6, 56.9)	-0.7 (-2.8, 1.5)	85	-0.6 (-2.8, 1.6)	78
Parent-child Dysfunctional Interaction	54.2 (52.2, 56.0)	-1.7 (-3.3, -0.2) ^a	87	-1.8 (-3.4, -0.2) ^a	78
Difficult Child	58.8 (56.8, 60.6)	-3.2 (-4.9, -1.4) ^c	87	-3.3 (-5.1, -1.5) ^c	78
Total Stress	56.3 (54.4, 58.0)	-1.8 (-3.4, -0.2) ^a	87	-1.8 (-3.5, -0.2) ^a	78

*Adjusting for child's age and sex, parent's sex, attendance, and adverse family experiences.

^a $p < .05$, ^b $p < .01$, ^c $p < .001$

† Higher scores indicate better outcome.

Research Question Two: Exploring Change at the Individual Level

Change at the individual level was evaluated and results are presented in Table's 3.4 and 3.5. Across the different domains of executive function (BRIEF2/P), behaviour (BASC-3), and parenting stress (PSI-4SF) more participants were in the at-risk and clinical groups at pre-program in comparison to post-program. Shifts in clinically meaningful categories can be observed within each scale; for example, for the BRIEF GEC scale, the increase in participants in the typical range from pre-to-post program (i.e., from 16 pre-program to 30 post program) are largely a result of participants who were initially rated as at-risk, whereas for the Emotional Control scale, participants largely moved from clinically significant in pre-group to typical range post-group.

Other scales demonstrated a more even distribution in the improved movement from categories; for example, for BASC-3 Externalizing Problems Composite scores, 10 fewer participants were in the clinically significant range from pre-to-post program, with those scores moving to the at-risk and typical range somewhat evenly (6 more in the at-risk group and 4 more in the typical range group), in comparison to the BASC-3 Internalizing group which saw participants more mainly from the clinically significant group to the at-risk group, with the typical range group remaining relatively similar from pre-to-post program. These positive trends were present but less prevalent in the parenting stress scales (PSI-4SF), with some positive movement in clinical categories observed within all scales with the exception of the Parental Distress pre-to-post scores, which remained relatively similar pre-to-post program.

When looking specifically at whether participants scores improved, declined, or remained in the same category, 23.2-30.4% of participants improved on the BRIEF-2/P scales, 20.2-27.5% improved on the BASC-3 scales, and 9.7-23.6% improved on the PSI-4SF scales. Declines in score categories were also observed, with 1.4-14.5% declining on the BRIEF-2/P scales, 5.8-11.6% on the BASC-3 scales, and 8.3-15.3% on the PSI-4SF scales. Across all scales, it was most common for participants to remain in the same clinical category from pre-to-post program (59.4-73.9%).

Table 3. 4

Proportions of program completing participants who changed clinical classification from pre-to-post program across domains.

	Pre-Program			Post-Program		
	Typical Range	At-Risk	Clinically Significant	Typical Range	At-Risk	Clinically Significant
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
BRIEF (n = 69)						
Inhibit	22 (31.9%)	21 (30.4%)	26 (37.7%)	31 (44.9%)	17 (24.6%)	21 (30.4%)
Shift	30 (43.5%)	19 (27.5%)	20 (29%)	35 (50.7%)	18 (26.1%)	16 (23.2%)
Emotional control	15 (21.7%)	22 (31.9%)	32 (46.4%)	28 (40.6%)	19 (27.5%)	22 (31.9%)
Working Memory	23 (33.3%)	26 (37.7%)	20 (29%)	35 (50.7%)	22 (31.9%)	12 (17.4%)
Global Executive Composite	16 (23.2%)	24 (34.8%)	29 (42%)	30 (43.5%)	15 (21.7%)	24 (34.8%)
BASC-3 (n = 69)						
Adaptive Skills Composite	47 (68.1%)	16 (23.2%)	6 (8.7%)	53 (76.8%)	15 (21.7%)	1 (1.4%)
Externalizing Problems Composite	32 (46.4%)	14 (20.3%)	23 (33.3%)	36 (52.2%)	20 (29%)	13 (18.8%)
Internalizing Problems Composite	34 (49.3%)	17 (24.6%)	18 (26.1%)	35 (50.7%)	25 (36.2%)	9 (13%)
Behavioral Symptoms Index	20 (29%)	30 (43.5%)	19 (27.5%)	33 (47.8%)	20 (29%)	16 (23.2%)
PSI-4SF (n = 72)						

Parental Distress	50 (69.4%)	5 (6.9%)	17 (23.6%)	50 (69.4%)	6 (8.3%)	16 (22.2%)
Parent-Child Dysfunctional Interaction	49 (68.1%)	6 (8.3%)	17 (23.6%)	54 (75%)	8 (11.1%)	10 (13.9%)
Difficult Child	36 (50%)	12 (16.7%)	24 (33.3%)	46 (63.9%)	8 (11.1%)	18 (25%)
Total Stress	48 (66.7%)	6 (8.3%)	18 (25%)	51 (70.8%)	9 (12.5%)	12 (16.7%)

Table 3. 5

Proportions of participants who changed classification from pre-to-post intervention using clinical cut-offs of measures

	Improved	Declined	No change
	n (%)	n (%)	n (%)
BRIEF (n = 69)			
Inhibit	16 (23.2%)	6 (8.7%)	47 (68.1%)
Shift	16 (23.1%)	10 (14.5%)	43 (62.3%)
Emotional control	22 (31.8%)	6 (8.7%)	41 (59.4%)
Working Memory	17 (24.6%)	1 (1.4%)	51 (73.9%)
Global Executive Composite	21 (30.4%)	5 (7.2%)	43 (62.3%)
BASC-3 (n = 69)			
Adaptive Skills Composite	14 (20.2%)	4 (5.8%)	51 (73.9%)
Externalizing Problems Composite	18 (26.1%)	8 (11.6%)	43 (62.3%)
Internalizing Problems Composite	14 (20.2%)	7 (10.1%)	48 (69.6%)

Behavioral Symptoms Index	19 (27.5%)	6 (8.7%)	44 (63.8%)
PSI-4SF (<i>n</i> = 72)			
Parental Distress	12 (16.7%)	11 (15.3%)	49 (68.1%)
Parent-Child Dysfunctional Interaction	11 (15.3%)	8 (11.1%)	53 (73.6%)
Difficult Child	17 (23.6%)	6 (8.3%)	49 (68.1%)
Total Stress	14 (9.7%)	8 (11.2%)	50 (69.4%)

Discussion

This pre-post evaluation provides preliminary evidence that the M3[©] program may have a role in improving targeted outcomes for children and parents. Specifically, participation in the M3[©] program was associated with decreases in parent-reported child executive dysfunction and behaviour problems alongside increases in adaptive skills. This finding is in line with previous research outlining the association between MBIs and increases in child EF and decreases in behaviour problems and self-regulation difficulties (Dunning et al., 2019). Specifically, this study found that, in relation to child outcomes, participation in M3[©] was associated with decreases in parent ratings of problematic child behaviour and functioning across all variables measured. These findings also align with the general direction of outcomes found in Xie et al.'s (2021) meta-analysis of parent and child MBIs (i.e., child cognitive and emotion regulation skills). Participation in the M3[©] program was also associated with decreases in some domains of parental stress, consistent with previous research on mindful parenting programs (see Burgdorf et al., 2019; Friedmutter, 2016) and concurrent parent and child MBIs (Xie et al., 2021).

Not all areas of parental stress were significantly related to program participation, however; there was not a statistically significant difference between pre-and-post scores for the Parental Distress scale on the PSI-4-SF. This finding could be due to several reasons, including the M3[©] program not sufficiently targeting parental distress or other variables contributing to parental distress that the program cannot account for. More specifically, the Parental Distress scale measures general stress associated with the demands of parenting (e.g., having time for enjoyable activities), which the M3 program does not target. Furthermore, clinical status of parents and children were not tracked in this study, and it is therefore unknown as to whether parents of children with clinical challenges differed in their post-program stress scores in comparison to parents of children with non-clinical levels of challenges, as has been found in previous research (Shorey & Ng, 2021). This scale is also notably the only scale included in this study that does not involve the child, meaning that this result could be due to parents viewing the program as more beneficial for the child than for themselves.

Although the results of this study demonstrated statistically significant differences in pre-to-post scores, statistical significance does not necessarily indicate clinical

significance. Clinical significance, or how meaningful these changes are in real life or in relation to clinical practice, was also investigated based on the number of individuals who switched clinical categories that are embedded within the measures used. Firstly, this study identified the number of participants who were initially categorized as having either 'typical', 'at-risk' or 'clinical' levels of challenges, and whether these individuals' scores changed categories from pre-to-post treatment. The results demonstrated that participation in the M3[©] program was associated with clinically relevant improvements for many individuals in relation to parent stress and child EF and child behaviour.

Positive shifts in clinically meaningful categories can be observed across executive functioning, behaviour, adaptive, and parenting stress scales; each variable saw more individuals in the typical or at-risk range post program, and movement from the clinical range to the at-risk or at-risk to typical range were seen across variables. To explore this relationship further, participants were recategorized based on whether their category changed for the positive (i.e., improved outcomes), negative (i.e., declined in outcomes), or whether they stayed in the same clinical category. Results were generally positive, with 22.1% to 31.8% of individuals improving across executive functioning scales, 20.2% to 27.5% across the behaviour and adaptive scales, and 13.9% to 23.6% across parenting stress scores. Across variables, the largest proportion of individuals did not have a decline or change in category (62.3% to 73.9%). Furthermore, a small but relevant number of individuals also moved in the opposite direction or saw a decline in relation to their post-score category (1.4-15.3%). This may be due to several reasons; as previously noted, exploring clinical significance categorically is useful but not a perfect practice, as improvement still occurs on a continuum (Kazdin, 1999). For example, a participant who was 12 points away from the clinical cut-off could improve by 10 points yet remain in the same category, whereas an individual who was two points above the cut-off and improved by three would change categories. Additionally, it is likely that the short duration from pre-to-post program (eight weeks) could create some change, but not clinically meaningful change for some individuals. It is also possible that the program was not well received by some participants.

In relation to the individuals who declined in category, this could be due to several reasons as well. External factors, for example, could contribute to parent and

child outcomes that cannot be controlled by the study. Alternatively, as previously noted, parents in this sample reported gaining greater insight into their themselves (i.e., self-awareness) and their child (Pacholec, 2020), including their child's behaviour, through participation in the program; it is possible that this insight led some parents to be more aware of challenges that may be present for themselves and their child. Future research could examine the demographics and perceived experiences of these parents and children in order to determine whether there are certain characteristics or groups that may be more or less receptive to this intervention.

Limitations and Future Directions

Several methodological limitations are present in this study. Firstly, the study does not include randomization or a control group, both of which are essential components when exploring outcomes. This study, however, does not serve as a conclusive outcome evaluation; it serves as a preliminary evaluation to determine the direction of the variables measured and determine preliminary utility. Future research should explore the use of a RCT to produce a best-practice outcome evaluation. Future research should also explore interactions based on areas such as the level of clinical difficulties experienced by the participants in order to further explore universal applicability and whether certain groups may be more responsive to the M3[©] program. Clinical significance could be explored at follow-up periods as well to assess the longer-term impacts of participation in the program. Practice data should also be collected within a larger scale study to explore how rates of practice may impact program outcomes.

Additionally, this study utilized parent reports. Although parental reports of child behaviour can be beneficial, straightforward, and inexpensive, they are also subject to potential biases, as outlined by Bennetts et al. (2016). One such bias is response bias, wherein parents' own opinions, attitudes, background, education level, or unique set of experiences can influence their responses/response patterns. Parental understandings of key terms within measures can also influence responses. Furthermore, measures can be influenced if there is an observer, assessor, or distractions present, with the possibility of answering questions in a socially desirable manner, or acquiescence biasing parent responses. As the pre-and-post data were filled out with a research assistant present, and

typically in the same room as other parents, there is potential for this bias to be present within the data.

As previously mentioned, precautions were used to lessen, however not eliminate, the likelihood of these biases occurring. These precautions include having a research assistant present to clarify any key term meanings, informing parents that their responses are anonymous and confidential, and lessening the likelihood of others seeing parental responses through strategies such as giving parents their own workspace to complete the forms, and putting research forms in a box upside down as opposed to handing them the research assistant. Future research should aim to use objective measures in addition to subjective, parental measures and/or add in another rater (e.g., teacher report) in order to explore further validation and reliability of findings. Furthermore, the results of this study are limited to the demographics of the populations within the study. Specifically, 60.8% of participants identified as White, 57.7% had a college or university degree, and 75% of respondents were female.

Lastly, although data related to adverse experiences was collected, reporting challenges related to possible reporting biases were present within the dataset. Consequently, an analysis of whether adversity impacted program outcomes was not possible. Reporting of adversity is a complicated matter, however, with studies finding that parents may under-report the adversity their child has experienced for many reasons. Possible reasons for this include parent degree of insight into possible adversity and the desire to appear socially desirable to researchers/program staff (Fisher et al., 2011). An additional factor could be parental fear of child protection involvement due to reporting obligations of program staff.

Overall, the present study adds to the literature and highlights future directions surrounding concurrent parent and child MBIs in several ways. Firstly, this study provides the first evidence of positive outcomes associated with the M3[©] program, which includes reductions in parent-reported child executive dysfunction and behaviour challenges, as well as reductions in certain areas of parental stress. Secondly, the nature of the M3[©] program being designed for and used with community samples adds diversity to the present, largely clinical-based literature found in Xie et al.'s (2021) review. Thirdly, the present study included a larger sample size (i.e., above 50 families) to

explore program outcomes, an additional area in need of research in this field (Xie et al., 2021). Future studies evaluating the M3[©] program that include control groups, track participant clinical status, obtain additional rater or objective data, and examine whether certain participant factors that are associated with increases or decreases in desired outcomes are present is recommended.

Chapter 4. Conclusion

Research Findings and Contributions

Overall, this dissertation's purpose was to extend the present literature on concurrent parent and child MBIs through exploring the state of feasibility literature and exploring the preliminary outcomes related to a new program, the M3[©] program. Results of this dissertation indicated that concurrent parent and child MBIs are generally practical and acceptable to parents and youth. Although some parents and youth reported practicing mindfulness skills regularly, a common theme of difficulty with regular practice was found across studies, with most studies reporting external, and some studies reporting internal factors limiting the amount of home practice. Another common theme was lack of formal tracking of home practice, with many studies asking participants retrospectively to report on their level of practice throughout the program, a methodology that has increased risk of response/recall bias.

The second study provided preliminary outcomes associated with the M3[©] program and found overall positive results. Statistically significant positive improvements in parent-reported child executive functioning and behaviour problems alongside all but one scale measuring parental stress (i.e., the Total Stress scale, Parent-Child Dysfunctional Interaction scale, and Difficult Child scale) were found within a sample size of 97 parent-child dyads. Clinically significant results were also found across variables, with several participants moving in a clinically significant positive direction from pre-to-post program across variables. Most participants, however, stayed in the same clinical category from pre-to-post program, as many participants were in the typical range at pre-test and therefore improvements would not result in a change of clinical category. Some participants, however, declined (or moved in a clinically significant negative way) from pre-to-post program.

Limitations

Across studies, the results are presented as average trends found across varying populations. Furthermore, for the second study, the nature of the data collected did not allow for identification of participant characteristics that may differentiate program responders versus non-responders. This study set out to recruit children who have experienced adversity and was conducted largely in a family crisis and support centre; however, the study did not track other relevant demographics such as any mental or physical health challenges or previous diagnoses in both the parents and children. In a similar regard, additional demographic characteristics were either not collected, or were collected but did not have the statistical power to be explored in this study, and therefore users should also exercise caution when using M3[©] with specific vulnerable populations, as research does not yet show whether there are specific populations or characteristics that the M3[©] program is or is not effective with, and whether program adaptations are required for specific populations.

Implications and Future Directions for Research and Clinical Practice

The results of the two manuscripts of this dissertation have implications for both research and clinical practice related to concurrent parent and child MBIs. The results of the first study suggest that this relatively new program structure is acceptable and practical for parents and youth within the categories that have been studied. Parents and youth largely found these programs to be helpful, satisfactory, and associated with perceived benefits. Parents and youth also typically attended the majority of program sessions. Furthermore, although implementation was not as commonly measured, of the studies that did investigate this area, a high degree of program fidelity and facilitator competence was found.

As previously noted, the retrospective challenges reported by parents and youth with regular home mindfulness practice, alongside the lack of formal practice measures being used in studies (including in studies that explore pre-post outcomes), poses a potential area of concern for these programs, and creates a potential feasibility limitation. Given the importance of regular mindfulness practice generally emphasized in the early theory of and literature surrounding mindfulness, and current mixed findings regarding the overall impact of practice rates and quality on program outcomes, future studies should explore practice more formally within their program evaluations, particularly if

practice is considered as a part of their program. Indeed, if practice is part of the program, and participants are not able to complete this, then the program dosage is likely impacted.

Furthermore, if practice is a program expectation that participants cannot meet, the participant's potential emotional response to failure to meet program expectations could impact their view of the program. Lastly, if practice isn't tracked appropriately, researchers are unable to determine whether a proportion of program outcomes are related to practice rates, and whether program modifications are necessary to provide support to participants in practicing regularly. Program developers and researchers should explore this with participants within their evaluations and inquire with participants about how the program could support them in creating a regular practice when the program is complete.

One study (Birtwell et al., 2019) explored practice challenges with participants and found several helpful suggestions for increasing likelihood of practice; these suggestions included providing practical resources to use such as apps or reminders to practice, helping them find time to practice within their routine, and being a part of a mindfulness community or support group. Furthermore, a common theme across studies that explored how programs could improve was adding in more sessions for accountability. Together these factors point to whether increased support is needed in the months following program delivery such as checking in with participants and supporting them if they are having difficulty with regularly practicing the skills learned in group. Clinicians and program facilitators alike can further educate individuals on the common challenges with mindfulness practice and the frequent need to troubleshoot and support individuals in this area in order to reduce any shame or negative appraisals of themselves that may arise from not being able to implement regular practice into their daily lives.

Although these challenges with regular mindfulness practice are relevant to program developers and researchers, they are also relevant with clinical practitioners. Specifically, home mindfulness practice is recommended when conducting therapy that includes mindfulness, such as MBCT, ACT, and DBT. Clinicians should be aware of whether their clients are practicing the mindfulness skills at home and be aware of how this could impact clinical outcomes for the client. They further should track practice formally if clinically applicable, and support clients in how to continue practicing the

skills both during regular weekly therapy sessions and when therapy sessions are further apart or closer to termination.

The results of the second study suggest that the M3[©] program is associated with decreases in parent-reported child executive functioning challenges and behaviour problems, as well as decreases in overall levels of parental stress. These results suggest that administering the M3[©] program in community setting may help parents and children who are struggling in these areas. Although these results are specific to the M3[©] program, the results also added to the literature supporting the overall benefits associated with concurrent parent and child MBIs (see Xie et al., 2021), supporting them as an option for community agencies when considering what programming may be beneficial for their populations. More research may be required, however, related to the participants who declined from pre-to-post program; specifically, whether that decline is related to program or external factors, whether that decline is due to being within the confidence intervals of the measure, and/or whether the scores were on the boundary of the clinical cut-off. It would also be helpful to use larger scale studies to explore whether participants who change categories for the negative would describe perceived decreases in outcomes. Overall, the evaluation of the M3[©] program appears promising. The evaluation, however, has similar limitations as the studies included in the systematic review, where more formal tracking of practice, whether practice rates predict program outcomes, and exploring other areas of feasibility (e.g., implementation fidelity, facilitator acceptability) are suggested.

Both studies in this dissertation add to the literature surrounding concurrent parent and child MBIs and provide useful guidelines for future research. One additional contribution relates to the sparsity of relational-based feasibility and outcome data surrounding these programs. Specifically, the unique nature of concurrent MBIs lie in the combination of parent and child programs for the purpose of both parents and children mutually benefitting from learning and practicing the same content; this combined format should then facilitate increased relationship building within the family. The relational benefits of both groups participating, however, has not been explicitly examined, despite it being a core concept of these programs. Although study one revealed a small number of studies who reported the benefits of concurrent programming, and study two found

promising results on important clinical outcomes, more research is needed that explicitly explores the unique format of these programs: their combined nature. Asking feasibility-based questions that explicitly address the concurrent nature of the program and exploring relational-based outcomes will be useful in future studies in order to determine the potential unique contributions of the concurrent nature of these programs as opposed to parent only or child only programming.

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Appendices**Appendix A: Parent Demographic Form**

Study Title: M3[®] Live Online

My child is:

a Boy

a Girl

self-identifies as _____.

Her/his birth month is (print) : _____

Her/his birth year is (print): _____

Her/his first language learned: _____

My child lives in a home with her/his (check all that apply):

Mom

Dad

Step-mother

Step-father

Grandma

Grandpa

Other relative: _____

Siblings

Brother(s)

Sister(s)

Other (Please Specify): _____

Education level:

Parent/Guardian 1:

- Completed High School or GED
- Completion of an apprenticeship or trades certificate or diploma
- Completed a College Diploma (program/specialization)
- University Bachelor's Degree
- University Master's Degree
- University Ph.D.
- No completion of a certificate, diploma, degree
- Completed Other (Please Specify): _____

Parent/Guardian 2 (if applicable):

- Completed High School or GED
- Completion of an apprenticeship or trades certificate or diploma
- Completed a College Diploma (program/specialization)
- University – Bachelor's Degree
- University Master's Degree
- University Ph.D.
- No completion of a certificate, diploma, degree
- Completed Other (Please Specify): _____

My child's ethnic/cultural background is (check all that apply):

- White
- Aboriginal/First Nations/Métis/Inuit
- Chinese
- South Asian
- Black
- Filipino
- Latin American
- Southeast Asian
- Arab
- West Asian

Japanese

Korean

Pacific Islander

Other (Please Specify) _____

Thank-you very much!

Appendix C: AFE

Adverse Family Experiences

(Centre for Disease Control and Prevention, 2011)

This questionnaire asks questions about adverse events that may have happened during your child's life. Please read each question and circle the appropriate response. Please answer each question to the best of your ability, if you are unsure of whether an event has occurred, please answer "don't know."

1. Since your child was born, how often has it been very hard to get by on your family's income (e.g., hard to cover the basics like food or housing)?

Very often Somewhat often Not very often Never Don't know

2. Did your child ever live with a parent or guardian who got divorced or separated after they were born?

Yes No Don't know

3. Did your child ever live with a parent or guardian who died?

Yes No Don't know

4. Did your child ever live with a parent or guardian who served time in jail or prison after they were born?

Yes No Don't know

5. Did your child ever see or hear any parents, guardians, or any other adults in their home slap, hit, kick, punch, or beat each other up?

Yes No Don't know

6. Was your child ever the victim of violence or witness any violence in their neighborhood?

Yes No Don't know

7. Did your child ever live with anyone who was mentally ill or suicidal, or severely depressed for more than a couple of weeks?

Yes No Don't know

8. Did your child ever live with anyone who had a problem with alcohol or drugs?

Yes No Don't know

9. Was your child ever treated or judged unfairly because of their race or ethnic group?

Yes No Don't know

10. If you answered yes to question 9, during the past year, how often was your child treated or judged unfairly because of their race or ethnic group?

Very often Somewhat often Not very often Never Don't know

Appendix D: BRIEF Scales

Behaviour Rating Inventory of Executive Functioning, Preschool and Second Edition (BRIEF-P/2)

Description: Assesses everyday behaviours associated with executive functions in the home environment for children ages 2-5 (P), and 5-18 (2). Both measures have 63 items, with the following item response options: “Never”, “Sometimes”, or “often”. BRIEF-2/P scores were manually converted from raw scores to T-scores. T-scores of 0-59 are considered within the normal range, T-scores of 60-69 are considered ‘at-risk’, and T-scores of 70 or higher are considered ‘clinically significant’ scores.

Variables: Shaded variables are composite scores; non-shaded variables are subscales.

BRIEF-2:

Behaviour Regulation Index (BRI)
Inhibit
Self-Monitor
Emotion Regulation Index (ERI)
Shift
Emotional Control
Cognitive Regulation Index (CGI)
Initiate
Working Memory
Plan/Organize
Task-Monitor
Organization of Materials

Global Executive Composite (GEC)

BRIEF-P:

Inhibit
Shift
Emotional control
Working memory
Plan/Organize
Inhibitory Self-Control Index (ISCI)
Flexibility Index (FI)
Emergent Metacognition Index (EMI)
Global Executive Composite (GEC)

Appendix E: BASC Scales

Behavior Assessment System for Children – Third Edition (BASC3)

Description: Measures adaptive and problem behaviors in various settings. The measure is appropriate for children ages 2 to 5 (Preschool version) and ages 6-11 (Child version) . The BASC-3 has 175 items, each having the following item response options: “Never”, “Sometimes”, “often”, or “almost always”. BASC-3 scores were converted from raw scores to T-scores using Q-Global software. T-scores of 0-59 are considered within the normal range, T-scores of 60-69 are considered ‘at-risk’, and T-scores of 70 or higher are considered ‘clinically significant’ scores.

Variables:

Composite
Adaptive Skills
Behavioural Symptoms Index
Externalizing Problems
Internalizing Problems
School Problems
Clinical and Adaptive Scales
Activities of Daily Living
Adaptability
Aggression
Anxiety
Attention Problems
Atypicality
Conduct Problems
Depression
Functional Communication
Hyperactivity

Leadership
Learning Problems
Social Skills
Somatization
Study Skills
Withdrawal
Content Scale
Anger Control
Bullying
Developmental Social Disorders
Emotional self-control
Executive Functioning
Negative Emotionality
Resiliency
Clinical Index
ADHD Probability Index
Autism Probability Index
Clinical Probability Index
EBD Probability Index
Functional Impairment Index
Executive Functioning Index
Attentional Control Index
Behavioral Control Index
Emotional Control Index
Overall Executive Functioning Index
Problem Solving Index

Appendix F: PSI-4SF

Parent Stress Index – Fourth Edition Short Form (PSI-4-SF)

Description: The PSI-4-SF is a 36-item questionnaire that measures the overarching domains of parenting stress. This form contains three subscales: 1) Parental Distress (PD), which is the level of distress a parent is experiencing in his or her role as a parent as a function of personal factors that are directly related to parenting, 2) Parent-Child Dysfunctional Interaction (P-CDI), which focuses on the parent's perception that the child does not meet his or her expectations and that his or her interactions with the child are not reinforcing to him or her as a parent, and 3) Difficult Child (DC), which focuses on the basic behavioural characteristics of children that make them either easy or difficult to manage. These three subscales total to create a Total Stress score, which provides an indication of the overall level of parenting stress that an individual is experiencing. Item response options are as follows: "strongly agree", "agree", "not sure", "disagree", and "strongly disagree".

Appendix G: Systematic Review Search Terms

Search Terms for Systematic Review:

Parent, child*, youth, parenting, family, training, practice, benefits, approach, mindfulness-based intervention*, mindful parenting, feasibility, acceptability, pilot study, increase, decrease, stress, behavior/behaviour, emotion regulation, cognition, mental health, non-clinical, community, concurrent, parallel, joint, mindful*, intervention, program, community

Appendix H: Ethics Approval



Research Ethics

**Western University Non-Medical Research Ethics Board
NMREB Full Board Initial Approval Notice**

Principal Investigator: Dr. Claire Crooks
Department & Institution: Education\Faculty of Education, Western University

NMREB File Number: 108218
Study Title: Mind UP for Young Children

NMREB Initial Approval Date: October 15, 2016
NMREB Expiry Date: October 15, 2017

Documents Approved and/or Received for Information:

Document Name	Comments	Version Date
Western University Protocol	Received October 15, 2016	
Instruments	Appendix A - School Personnel Demographic Information Form	2016/10/15
Instruments	Appendix B - ARTIC Items - Received June 29, 2016	
Instruments	Appendix C - Emotional Exhaustion and Personal Achievement Items	2016/06/28
Instruments	Appendix D - BASC - Received June 29, 2016	
Instruments	Appendix E - SRISI Items	2016/06/28
Instruments	Appendix F - MindUP Session Tracking Sheets	2016/06/28
Instruments	Appendix G - MindUP Satisfaction Survey	2016/06/28
Instruments	Appendix H - Focus Group Questions	2016/06/28
Other	Appendix I - Timeline and Participant Procedures - Received for Information Only	2016/06/28
Letter of Information & Consent	Appendix L - Parent	2016/10/13
Letter of Information & Consent	Appendix M - School Personnel	2016/10/15
Instruments	Appendix N - Parent Demographics Questionnaire	2016/10/15
Other	Appendix O - Research Assistant Agreement - ECEs - Received October 14, 2016	2016/09/14
Other	Appendix P - Research Assistant Agreement - Teachers - Received October 14, 2016	2016/09/14
Other	Appendix Q - Letter of Support - LDSCSB - Received for Information	2016/01/11
Other	Appendix R - Letter of Support - Merrymount - Received for Information	2015/01/11
Other	Appendix S - LDSCSB Meeting Outline	2016/09/14
Other	Appendix T - Research Assistant Agreement - Combined Teacher/ECE Role - Received October 14, 2016	

The Western University Non-Medical Research Ethics Board (NMREB) has reviewed and approved the above named study, as of the NMREB Initial Approval Date noted above.

NMREB approval for this study remains valid until the NMREB Expiry Date noted above, conditional to timely submission and acceptance of NMREB Continuing Ethics Review.

The Western University NMREB operates in compliance with the Tri-Council Policy Statement Ethical Conduct for Research Involving Humans (TCPS2), the Ontario Personal Health Information Protection Act (PHIPA, 2004), and the applicable laws and regulations of Ontario.

Members of the NMREB who are named as Investigators in research studies do not participate in discussions related to, nor vote on such studies when they are presented to the REB.

The NMREB is registered with the U.S. Department of Health & Human Services under the IRB registration number IRB 00000941.

Ethics Officer, on behalf of Dr. Riley Hinson, NMREB Chair

Ethics Officer: Erika Basile ___ Nicole Kaniki ___ Grace Kelly ___ Katelyn Harris ___ Vikki Tran Karen Gopaul ___

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**Western
Research**

Research Ethics

Western University Non-Medical Research Ethics Board
NMREB Amendment Approval Notice

Principal Investigator: Dr. Claire Crooks
Department & Institution: Education\Faculty of Education, Western University

NMREB File Number: 108218
Study Title: Mind UP for Young Children

NMREB Revision Approval Date: March 15, 2017
NMREB Expiry Date: October 15, 2017

Documents Approved and/or Received for Information:

Document Name	Comments	Version Date
Instruments	Appendix V BRIEF preschool version. Received February 26, 2017.	
Instruments	Appendix U BASC-3 Parent Version. Received February 26, 2017.	
Caregiver Letter of Information & Consent	Consent form for community site	2017/03/14
Instruments	Appendix Y Parenting Stress Index Short Form. Received February 26, 2017.	
Instruments	Appendix AA Parent feedback	2017/02/10
Instruments	Appendix W: Adverse Family Experiences Questionnaire	2017/02/10
Instruments	Appendix X Parent Demographic Form Community Version	2017/02/10
Revised Western University Protocol	Received February 26, 2017.	

The Western University Non-Medical Science Research Ethics Board (NMREB) has reviewed and approved the amendment to the above named study, as of the NMREB Amendment Approval Date noted above.

NMREB approval for this study remains valid until the NMREB Expiry Date noted above, conditional to timely submission and acceptance of NMREB Continuing Ethics Review.

The Western University NMREB operates in compliance with the Tri-Council Policy Statement Ethical Conduct for Research Involving Humans (TCPS2), the Ontario Personal Health Information Protection Act (PHIPA, 2004), and the applicable laws and regulations of Ontario.

Members of the NMREB who are named as Investigators in research studies do not participate in discussions related to, nor vote on such studies when they are presented to the REB.

The NMREB is registered with the U.S. Department of Health & Human Services under the IRB registration number IRB 00000941.

Ethics Officer, on behalf
EO: Erika Basile Nicola

son, NMREB Chair
Grace Kelly Katelyn Harris Nicola Morphet Karen Gopaul

Bax, K, Wells, S., Read, M., Pacholec, E, & Mueller, A. (2020, May). Making Mindfulness Matter: Creating a Culture of Resiliency with the Family (Workshop) Co-Presenter.

A Mindful Society Live Online Conference

Bax, K. & Read, M. (2019, October). Guest lecturer for the second year Bachelor of Education Social-Emotional Learning course. Western University, London, ON

Read, M. (2019, September). Lead a half-day research training session on protocols and proper data collection associated with the M3 study. London, ON

Bax, K, Wells, S., Read, M., & Pacholec, E. (2019, September). Co-Facilitator of the M3 booster training session for Merrymount Staff. London, ON

Bax, K, Read, M., & Pacholec, E. (2019, May). Making Mindfulness Matter (M3): Practicing the Skills at Home. Poster Presentation at the Child Health Symposium. Western University Department of Paediatrics, London, ON

Bax, K, Wells, S., Read, M., & Pacholec, E. (2019, April). Faculty Partnership Day Presentation: Research and Practice in a Real-World Setting: Creating Making Mindfulness Matter (M3) - A concurrent Parent-Child Group to Build Resilience Within the Family. Western University, London, ON

Read, M., Bax, K., & Crooks, C. (2019, March). Exploring the relationships among executive functioning, behaviour, and adaptive skills in young children. Poster Presentation at the Banff International Conference on Behavioural Science. Banff, AB.

Read, M. (2018, October). Connecting research to practice human library: Introducing the M3 program; how to implement social and emotional learning and mindfulness into the classroom. Faculty of Education Year 2 Teacher Candidate Transition to Professional Practice Event. Western University, London, ON

Read, M. (2017, October). Strategies to Improve Executive Functioning in children. Contributions from a Neuroscience Perspective. Breakout session at Faculty Research Partners Day. Western University, London, ON

Publications

Bax, K., Wells, S., Read, M., Mueller, A., Amico, C. (2022 – in press). Making Mindfulness Matter Child and Parent Program. Curriculum document. Western Social Science Department, London, ON

Cadieux, C., Read, M., & Charles, E. (2020). Supporting children during the Coronavirus (COVID-19) Crisis Online Resource. Mary J. Wright Centre, London, ON

Read, M. (2019). Exploring the Relationships among Executive Functioning, Behaviour, and Adaptive Skills in Young Children. Electronic Thesis and Dissertation Repository. 6339.
<https://ir.lib.uwo.ca/etd/6339>

Bax, K. & Read, M. (2019, January). Plain language summary of M3's first year of implementation. Published on the Centre for School Mental Health website. Western University, London, ON

Bax, K. & Read, M. (2019, January). Making Mindfulness Matter Program brochure. Published on the Mary J. Wright Research and Education Centre website. Western University, London, ON