Evaluating a Mindfulness-Based Intervention for Adolescents with ADHD and their Parents: A Mixed Methods Approach

by

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Abstract

Adolescents with Attention Deficit/Hyperactivity Disorder (ADHD) have difficulty regulating their attention, behavior, and emotions, which negatively impacts peer and family relationships. Mindfulness training may strengthen self-regulatory processes. The goal of the dissertation was to evaluate whether and how concurrent parent-adolescent mindfulness training improves individual and family functioning in adolescents with ADHD. In Study 1, I utilized a quantitative method to determine whether mindfulness training reduces symptomatology and ameliorates the functional impairment experienced by participants. In Study 2, I used a qualitative approach to accomplish two aims: 1) to explore participant experiences, perceptions, and beliefs related to mindfulness meditation; and 2) to examine potential mechanisms of action in mindfulness training.

Eighteen adolescents with ADHD (ages 13-18) and 17 parents participated. Participants completed questionnaires assessing adolescent symptoms, functional impairment, family functioning, parenting stress, and mindfulness at 4-week baseline, pre- and post-intervention, and
at 6-week follow-up. A subset of five families (n=12 individuals) participated in semi-structured interviews about their lived experiences of mindfulness 1 – 3 months after the intervention.

Parents reported reductions in adolescent inattention, conduct problems, and peer relations problems, decreases in parenting stress, and increases in mindful parenting after the intervention. Gains were maintained at 6-week follow-up. Adolescents did not report changes on quantitative measures. Thematic analysis of interview data revealed improved peer and family relationship quality after mindfulness training. The underlying mechanisms of action were consistent among parents and adolescents. They identified self-awareness, decentering, acceptance of others, and self-regulation of attention, behavior, and emotion as key components of the process of change.

Based on the findings of the dissertation, I developed a model of the process of change in parent-adolescent mindfulness training. I integrated the results from Study 1 and 2 under this conceptual framework. Overall, this mixed methods evaluation suggests that mindfulness training reduces ADHD symptoms and improves interpersonal functioning via enhanced self monitoring, self regulation, and emotional co-regulation among adolescents with ADHD and their parents.
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Chapter 1

1 Aims and Scope of Dissertation

1.1 General Introduction

Attention Deficit/Hyperactivity Disorder (ADHD) is a chronic and pervasive pattern of developmentally inappropriate levels of inattentiveness, hyperactivity and impulsivity beginning in early childhood (American Psychiatric Association, 2013). Individuals with ADHD often exhibit deficits in one or more areas of executive functioning (e.g., Sergeant, Geurts, & Oosterlaan, 2002) and emotion regulation (Barkley, 1997; Barkley & Murphy, 2010). These difficulties are associated with considerable functional impairment, including academic underachievement (Biederman et al., 2004; Shallice et. al., 2002), social isolation and rejection (McQuade & Hoza, 2008; Wehmeier, Schacht, & Barkley, 2010), and increased levels of family conflict (Edwards, Barkley, Laneri, Fletcher, & Metevia, 2001). Individuals with ADHD are at greater risk of comorbid behavioural and psychiatric disorders (Wilens, Biederman, & Spencer, 2002). The worldwide pooled prevalence of ADHD is 5.29% (Polanczyk, de Lima, Horta, Biederman, & Rohde, 2007). In more appreciable terms, approximately one student in every class of 25-30 students has ADHD.

Although ADHD was originally conceptualized as a disorder of childhood, research on the developmental trajectory of the disorder suggests that symptoms persist into adolescence and adulthood (Willoughby, 2003). There are challenges associated with traditional treatment approaches designed for children with ADHD. Adolescents exhibit poor adherence to medication (Wolraich et al., 2005), and behavioural interventions for adolescents and their parents have demonstrated limited efficacy (Barkley, Guevremont, Anastopoulos, and Fletcher, 1992; Barkley, Edwards, Laneri, Fletcher, & Metevia, 2001). As such, it is important to investigate alternative or complementary treatment approaches for this population. Previous studies have shown that mindfulness interventions are acceptable and feasible for youth, and have positive effects on the challenges faced by youth with ADHD and their families (e.g., Burke, 2010).
Mindfulness is the non-evaluative, present-centered awareness that results from the deliberate focusing and refocusing of attention on sensations, thoughts and feelings as they arise on a moment-by-moment basis (Williams, Teasdale, Segal, & Kabat-Zinn, 2007). Although the restorative effects of mindfulness practice have been acknowledged by religious, philosophical, and psychological traditions for centuries, mindfulness has only recently been embraced by modern Western society. Interest in mindfulness meditation has burgeoned, with the number of peer-reviewed research articles, books, and celebrity endorsements growing exponentially each year. Since Western researchers began exploring the therapeutic effects of mindfulness meditation in the 1970s, it has become widely accepted as a viable treatment option for a variety of health and mental health issues. Mindfulness has been empirically supported as a treatment for depression, anxiety, and chronic pain in adults, and is associated with a number of other health and wellness indicators (Allen, Chambers, Knight, & Melbourne Academic Mindfulness Interest Group, 2006; Baer, 2003; Grossman, Niemann, Schmidt, & Walach, 2004; Keng, Smoski, & Robins, 2011). Evidence is emerging to suggest that children and adolescents benefit from mindfulness practice in similar ways (for a review, see Burke, 2010).

The purpose of this dissertation is to conduct an evaluation of MYmind, a mindfulness-based intervention for adolescents with ADHD and their parents. MYmind is an eight week manualized group treatment program designed to foster mindfulness through formal and informal meditation practices, in order to reduce ADHD symptomatology and improve family functioning. A more detailed description of the intervention is contained in Chapter 2. MYmind was originally developed and piloted in the Netherlands (Bogels, Hoogstad, van Dun, de Schutter, & Restifo, 2008). Although preliminary investigations of MYmind yielded promising results (Bogels et al., 2008; van der Oord, Bogels, & Peijnenburg, 2012; van de Weijer-Bergsma, Formsma, de Bruin, & Bogels, 2012) further research is required to validate it as a viable treatment option for adolescents with ADHD.

1.2 Rationale for Mixed Methods Evaluation

When I began developing this program of research, I was primarily interested in evaluating the efficacy of MYmind. My initial research question focused solely on outcome. I wanted a clear answer to what I believed was a straightforward question: does it work? As I embarked on this mission, I began to realize that neither the question nor the answer were that simple. I revised
and refined my questions many times throughout the process. I recognized that in order for this program evaluation to be relevant and useful for other clinicians and researchers, I would need to investigate not only whether it worked, but for whom, and under what circumstances. The results of my initial pre-post analyses provided answers to some of these questions, and raised new ones. I had the before and after pictures, but no clear understanding of the transformation occurring within and between the participants during the training. In order to design, select and implement interventions with maximal clinical benefit, it is important to understand the underlying mechanisms contributing to positive outcomes. It was evident that further research was required to answer perhaps the most important question of all: how does it work? For this reason, I commenced a process-oriented examination of the lived experiences of MYmind participants. Consequently, this dissertation comprises two distinct yet complementary studies: Study 1 employs a quantitative approach to measure changes in ADHD symptomatology and functional impairment, while Study 2 employs a qualitative approach to examine the perceptions and beliefs of participants. Together, Study 1 and 2 provide a rich account of the outcomes and process of mindfulness training, and contribute to the growing body of evidence supporting mindfulness as a complementary or alternative treatment for ADHD.

Traditionally, quantitative and qualitative researchers were positioned on either side of a great divide, with each camp claiming methodological superiority. They argued that their methodologies reflected fundamentally different paradigms regarding the nature of reality, and as such, could not be combined to study the same phenomenon. Quantitative researchers operate under the assumption that there is one objective reality that can be verified through observable experience (positivism), while qualitative researchers believe that all phenomena are subjectively constructed and interpreted (Sale, Lohfeld, & Brazil, 2002). It is becoming increasingly common for researchers to cross the divide and borrow methods from other research frameworks. Many researchers now claim that quantitative and qualitative methods can be used to complement one another (Sale et al., 2002). More recently, a pragmatic approach to research design has been advocated (Johnson & Onwuegbuzie, 2004). Proponents of this approach contend that researchers should simply select the method, or combination of methods, that will help to answer the research questions. They argue that, in spite of the paradigmatic differences between them, quantitative and qualitative researchers engage in a similar process: they craft research questions, collect empirical observations, describe data, and explain outcomes, in an attempt to understand
how people think, behave, and interact with others and with their environment. Pragmatists assert that quantitative and qualitative approaches can and should be combined, when doing so will lead to greater understanding of the human condition. In keeping with pragmatism, I elected to utilize a mixed methods approach in order to achieve greater depth and breadth of understanding of how mindfulness training is experienced by adolescents with ADHD and their parents.

Mixed methods approaches are advantageous because they can capitalize on the strengths of one method to compensate for the limitations or biases of another method. Intentionally combining methods with offsetting biases allows the researcher to answer a broader range of questions, gain greater insight into a phenomenon, and corroborate results (Johnson & Onwuegbuzie, 2004). This process, known as triangulation, strengthens the validity of the research findings (Greene, Caracelli, & Graham, 1989). When designing a mixed methods evaluation, it is important to bear in mind that not all qualitative approaches were created equal. The phenomenological approach is well-suited to mixed methods research because of its flexibility and adaptability (Mayoh & Onwuegbuzie, 2013). Phenomenology allows for in-depth exploration of individual experience, as well as identifying trends amongst groups (Sadala & de Camargo Ferreira Adorno, 2002). A phenomenological approach may be particularly compatible with a quantitative approach because both aim to uncover the invariant, fundamental meaning of phenomena (Mayoh & Onwuegbuzie, 2013). Phenomenology differs from other qualitative research methods in that it attempts to minimize the influence of the researcher on the data, and in this way is similar to the quantitative assertion that researchers should remain as objective as possible (Mayoh & Onwuegbuzie, 2013). For these reasons, I decided to complement the quantitative methodology of Study 1 with a phenomenological approach in Study 2.

According to Greene et al.’s seminal framework for mixed methods evaluations, mixed methods approaches can be employed for several purposes, including complementarity, expansion, and initiation, in addition to triangulation (Greene et al., 1989). I elected to use a mixed methods approach to evaluate MYmind for the following purposes:

1) Although Study 1 and 2 were guided by different research questions, both evaluated participants’ perceptions of changes attributable to the intervention. I sought convergence between quantitative and qualitative results to strengthen the validity of the conclusions drawn (triangulation).
2) I employed quantitative and qualitative methods to evaluate different facets of the experience of mindfulness meditation, with the aim of obtaining a richer understanding of the phenomenon. For example, the vivid and personal accounts obtained through qualitative interviews illustrated and elaborated upon the data obtained in the quantitative study (complementarity).

3) Utilizing multiple methods allowed me to formulate a broader range of research questions and enhance the scope of the research. I used a quantitative method to measure outcomes, and a qualitative approach to evaluate the process of change (expansion).

4) The use of two different research approaches increased the likelihood of divergent results and led to unanticipated discoveries. I integrated the results of Study 1 and 2, using consistencies and discrepancies as opportunities to gain new insight into the nature of mindfulness meditation (initiation).

1.3 Structure of the Dissertation

The overarching goal of the research presented herein is to assess whether and how MYmind confers clinical and practical benefits to adolescents with ADHD and their parents. This dissertation consists of two comprehensive studies designed to investigate distinct yet related facets of mindfulness training for adolescents with ADHD and their parents. In Study 1 (Chapter 2), I utilize a quantitative method to establish whether mindfulness training reduces ADHD symptomatology and ameliorates the behavioural, emotional and social difficulties experienced by adolescents with ADHD and their parents. Study 1 was originally published in the Journal of Child and Family Studies (Haydicky, Shecter, Wiener, & Ducharme, 2013). I made minor adjustments to the language and content of the manuscript to improve the flow of the overall dissertation. In Study 2 (Chapter 3), I use a qualitative approach guided by phenomenology to accomplish two aims: 1) to explore participant experiences, perceptions, and beliefs related to mindfulness meditation; and 2) to examine potential mechanisms of action in mindfulness training. Pertinent literature reviews and interpretation of results are embedded within each chapter. Finally, in Chapter 4, I present an integrated discussion of the key findings and strengths and limitations of the overall research. Given that the methods employed in Study 1 and 2 represent different research perspectives, the style in which they are presented vary according to the conventions of each field. However, I strove to maintain consistent structure and formatting throughout the dissertation to enhance readability.
Study 1: Quantitative Evaluation of Mindfulness Training for Adolescents with ADHD and their Parents: Impact on Individual and Family Functioning

2.1 Introduction

ADHD is characterized by a chronic and pervasive pattern of developmentally inappropriate levels of inattentiveness, hyperactivity and impulsivity manifesting in early childhood (American Psychiatric Association, 2013). Individuals with ADHD often exhibit deficits in one or more areas of executive functioning (EF), including verbal working memory, emotion regulation, behavioural inhibition, motivation, planning, strategy generation and implementation, and self-monitoring (Barkley, 1997; Barkley, 2005; Clark, Prior, & Kinsella, 2000; Sergeant, Geurts, & Oosterlaan, 2002; Willcutt, Doyle, Nigg, Faraone, & Pennington, 2005). Youth with ADHD combined subtype frequently have comorbid oppositional or conduct disorders (Wolraich et al., 2005), depression (Wilens, Biederman, & Spencer, 2002), and anxiety (Barkley, 2004). The deficits associated with ADHD contribute to considerable functional impairment, including low academic achievement (Biederman et al., 2004), and challenges with peer relations (Bagwell, Molina, Pelham, & Hoza, 2001). Parents of children and adolescents with ADHD experience higher levels of parenting stress than the general population (Biondic, 2011; Johnston & Mash, 2001; Theule, Wiener, Tannock, & Jenkins, 2013). Parenting stress occurs when the perceived demands of parenting are greater than the resources for coping (Deater-Deckard, 1998). Parenting stress is a byproduct of, and contributor to, maladaptive family functioning. High parenting stress is associated with high levels of conflict in the home (Johnston & Mash, 2001), and more punitive (Webster-Stratton, 1990) and controlling (Putnick et al., 2008) parenting practices, which in turn are related to lower self-concept among adolescents (Putnick et al., 2008).

Although a limited amount of parent-adolescent conflict is adaptive (Smetana, Campione-Barr, & Metzger, 2006; Steinberg, 2001), high levels of conflict and low levels of relatedness in families are associated with poorer psychological adjustment and physical health in adolescents.
Adolescents with a genetic predisposition for behavioural or emotional difficulties are particularly vulnerable to the deleterious effects of family conflict (Repetti, Taylor & Seeman, 2002). Families with an adolescent with ADHD have higher levels of conflict than other families, particularly when the adolescent exhibits oppositional behaviour (Barkley, Anastopoulos, Guevremont, & Fletcher, 1992; Edwards, Barkley, Laneri, Fletcher, & Metevia, 2001; Markel & Wiener, in press). These families report arguing about more issues, feeling more anger, and using more negative communication than families without an adolescent with ADHD (Barkley et al., 1992; Edwards et al., 2001). When interacting with their children, parents of children with ADHD are less responsive, more over-reactive (Barkley, Fischer, Edelbroack, & Smallish, 1991), more controlling (Johnston & Mash, 2001) and show low levels of parental support (Khamis, 2006). Given the reciprocal effects of adolescent and parent behaviours, a treatment program targeting both parents and adolescents is needed.

Medication management is widely accepted as the most effective treatment for core ADHD symptoms in children (The MTA Cooperative Group, 1999). Children taking stimulant medication show improvements in sustained attention, impulsivity, compliance, cooperation, academic performance, and executive functions (Barkley, 2004). However, adverse effects, child oppositionality, forgetfulness, parental misconceptions about causes of the disorder, negative social pressure, and fear of stigma may account for the low adherence to medication observed among child samples (Charach, Skyba, Cook, & Antle, 2006; Gau et al., 2006). Adherence to medication continues to decrease sharply throughout adolescence, with up to 70% of teenagers stopping medication by the age of 15 (Wolraich et al., 2005). As such, alternative treatment approaches for adolescents with ADHD are essential.

While behavioural parent management training has been shown to reduce problem behaviour in children with ADHD, this approach has not been validated with adolescents. Furthermore, treatment approaches should be modified to reflect the increasing independence, self-awareness, and cognitive capacity of adolescents, by including them in treatment planning and developing approaches that involve both parents and adolescents (Chronis, Jones, & Raggi, 2006). Although behaviour management training, structural family therapy, and parent-adolescent problem solving and communication training (PSCT), singly and in combination result in reduced conflict, less anger and better communication between parents and their adolescents with ADHD, there are no differences between the approaches and the degree of clinically significant change is
small (Barkley, Guevremont, Anastopoulos, and Fletcher, 1992; Barkley, Edwards, Laneri, Fletcher, & Metevia, 2001). The limited success of such programs may be due, in part, to parenting stress. Parents with high levels of parenting stress are less able to implement effective parenting strategies, and are more likely to drop out of treatment (Friars & Mellor, 2007; Kazdin, 1995; 1997). Reductions in parenting stress are associated with increased treatment efficacy and better child outcomes (Kazdin & Whitley, 2003). However, traditional pharmacological and psychosocial interventions for ADHD do not improve parenting stress (Wells, et. al., 2000). Thus, interventions designed to improve parent-adolescent relations should also include a stress-management component for parents.

Mindfulness-based interventions address many of the shortcomings of traditional treatment approaches for ADHD. For the purposes of the current study, I adopted the definition of mindfulness proposed by Bishop et al. (2004), which states that mindfulness consists of two components: self-regulation of attention, and an open and accepting orientation towards experience. Mindfulness practice involves the deliberate focusing and refocusing of attention on sensations, thoughts and feelings as they arise on a moment-by-moment basis (Williams, Teasdale, Segal, & Kabat-Zinn, 2007). Mental events are attended to with an attitude of curiosity, acceptance, and non-reactivity. Mindfulness can be conceptualized as a metacognitive or EF skill, as it involves consciously monitoring cognitive processes. As is true of other skills, mindfulness can be cultivated with intention and effort through formal meditative practice and informal mindful activities. As such, mindfulness practice may benefit individuals with attention and EF difficulties, such as those with ADHD.

Mindfulness has been incorporated into several manualized treatment programs, such as Mindfulness Based Cognitive Therapy (MBCT; Ma & Teasdale, 2004; Teasdale et. al., 2000) for depression relapse prevention; Mindfulness Based Stress Reduction (MBSR; Kabat-Zinn, Massion, Kristeller, & Peterson, 1992) for chronic pain and stress-related disorders; Dialectical Behavior Therapy (DBT; Koerner & Linehan, 2000) for borderline personality disorder; and Acceptance and Commitment Therapy (ACT; Hayes, Luoma, Bond, Masuda & Lillis, 2006). In selecting a treatment approach, one must consider the type of impairment experienced by the client, the goals or target outcomes of the intervention, and the capacity of the client to participate in the treatment process. Due to the EF difficulties in adolescents with ADHD, they benefit from direct training in metacognitive strategies (Reid, Trout, & Schartz, 2005). There is
limited evidence supporting cognitive therapy alone as an effective treatment for ADHD beyond the laboratory setting (Chronis, Jones, & Raggi, 2006; Pelham, Wheeler, & Chronis, 1998). However, cognitive approaches that provide explicit training in self-monitoring and focused attention improve attention-related processes in individuals with ADHD (Toplak, Connors, Shuster, Knezevic, & Parks, 2008). Mindfulness-based interventions combined with cognitive therapy approaches emphasize self-monitoring, attention training, and repeated practice of metacognitive strategies, making this an appropriate intervention for reducing the core symptoms of ADHD. For these reasons, I elected to implement and evaluate a mindfulness-based intervention with elements of cognitive therapy for adolescents with ADHD.

Mindfulness has been established as acceptable and feasible for youth, and preliminary evidence suggests that mindfulness-based approaches ameliorate many of the social, emotional and behavioural difficulties that are experienced by youth with clinical diagnoses (Burke, 2010). A recent meta-analysis of mindfulness-based interventions for youth (Zoogman, Goldberg, Hoyt, & Miller, 2014) found that participants in mindfulness-based interventions outperformed active controls, with a small overall effect size ($d_e{l}=0.227$, where $d_e{l}$ is roughly equivalent to Cohen’s $d$). Clinical status of the participants was found to be a significant moderator of treatment outcome. Studies conducted with clinical samples of youth demonstrated significantly higher effect sizes ($d_e{l}=0.500$) compared to those conducted with non-clinical samples ($d_e{l}=0.197$), suggesting that mindfulness-based interventions may exert stronger effects on clinically-referred youth. However, results of the moderator analyses should be interpreted with caution, as only four of the 20 studies included in the meta-analysis were drawn from clinical samples. Given that sub-analyses of measures of attention were significant and of the same magnitude as the overall effect size, the authors speculated that improved attention is the mechanism by which mindfulness-based interventions exert their effects. To date, most research on the effects of mindfulness training with children and youth has been exploratory in nature. Small sample sizes, lack of randomization and control groups, and reliance on self-report measures make it difficult to interpret results (Black, Milam, & Sussman, 2009; Burke, 2010). Results will need to be replicated to confirm preliminary findings.

Studies conducted with youth with ADHD indicate that mindfulness-based interventions effectively target ADHD symptoms and co-occurring internalizing and externalizing difficulties. Single-subject multiple baseline evaluations with school-age children with ADHD showed
improvements in child compliance to parental request (Singh et al., 2010), increased on-task
behaviour in class, and reduced parent and teacher rated hyperactivity (Carboni, Roach, &
Fredrick, 2013) during the treatment and follow-up periods, compared to baseline. These studies
employed a rigorous design to establish experimental control, lending credence to the results.
The collection of behavioural observations in real time provided information regarding the
effects of the training in naturalistic contexts; this may be a more reliable index of change than
retrospective self-reports. However, since the youth were aware of, or actively engaged in, the
event recording procedures, changes in their behaviour may have been a response to being
observed, rather than an effect of the mindfulness training. Given the small samples and lack of
treatment standardization (e.g., practices were customized for each individual, and some
participants in Carbonie et al.’s study received more sessions than others), it is difficult to assess
the generalizability of the results.

Quasi-experimental studies using pre-post group designs provide preliminary evidence of the
effectiveness of mindfulness-based interventions for youth with ADHD. An evaluation of the
Sahaja Yoga Meditation program for children with ADHD and their parents (Harrison, Manocha
& Rubia, 2004) found reductions in parent-rated inattention and hyperactivity/impulsivity at
post-test, irrespective of initial medication status. More than half of those children taking
medication at the onset of treatment reduced their dosage during the course of the intervention,
and demonstrated significantly greater reductions in ADHD symptoms compared to children
who maintained their dosage. Parents also reported significant reductions in conflict with their
children after the intervention. Although this study did not have a control group, a wait list
condition indicated that ADHD symptoms remained stable during the waiting period and
decreased during the treatment period, suggesting that improvements represented intervention
effects rather than simple time effects. Despite the promising results, this study is not without
limitations. Results may have been impacted by the moderate drop-out rate (26-30%), such that
participants who did not experience treatment gains were potentially excluded from analyses.
Additionally, since details regarding the treatment protocol were not provided, it is not clear
what form of meditation was practiced, making it difficult to ascertain whether it truly was a
mindfulness-based intervention.

Zylowska et al. (2008) conducted a pre-post feasibility study of an eight week mindfulness-based
intervention with a mixed sample of adults and adolescents with ADHD. They found
improvements in self-reported inattention and objective measures of attention and EF (conflict detection and set-shifting) at post-test, but the small sample and lack of control condition limit the conclusions that can be drawn with respect to treatment efficacy. Adolescent results were not analyzed separately, making it difficult to ascertain effects with respect to the population of interest in this review.

A waitlist controlled evaluation of a combined mindfulness and martial arts intervention for adolescents with learning disabilities (Haydicky, Wiener, Badali, Milligan, & Ducharme, 2012) revealed that participants with co-occurring ADHD showed significant improvements in parent-rated externalizing behavior, oppositional defiant problems and conduct problems after the 20-week program. Participants with elevated hyperactive/impulsive symptoms improved on parent-rated social problems and monitoring skills, and those with elevated inattentive symptoms improved on parent-rated social problems, compared to the waitlist control group. It is unclear to what extent mindfulness meditation training contributed to the positive outcomes relative to the martial arts component of the program. To my knowledge, this is the only published study using a non-randomized control group to evaluate a mindfulness-based intervention for youth with ADHD. There are no randomized control trials of mindfulness for youth with ADHD. Nevertheless, results of quasi-experimental studies suggest mindfulness-based interventions show promise as alternative treatment options for children and youth with ADHD.

The emerging research on mindful parenting programs in terms of reducing parenting stress for parents of children with disabilities is promising. Mindfulness training for parents of children with developmental disabilities has been shown to reduce parenting stress (Blackledge & Hayes, 2006; Singh et al., 2007b) and increase parenting satisfaction (Singh et al., 2006). Mindfulness interventions involving both parents and youth appear to have positive impacts on family relationships. A randomized waitlist control study compared The Strengthening Families Program (an evidence-based intervention designed to improve parenting and delay the onset of risky behaviour in youth) against an adapted version infused with mindful parenting practices, and a waitlist control group. Mothers in the mindfulness-based condition reported greater improvements in mindfulness, anger management, interest in and awareness of their children’s emotional experience, and affective behaviour towards their children, compared to the other conditions. They also reported increases in their children’s positive affect towards them, and greater decreases in their child’s negative affect towards them, compared to the other conditions.
(Coatsworth, Duncan, Greenberg & Nix, 2009). Results of mediation analyses suggest that improvements in child management practices and parent-child relationship quality were mediated by changes in mindful parenting. Outcome variables relied on parent and youth report of behaviour change, which may have introduced a source of bias. Direct observation of parent-child interactions would have been a more reliable indicator of treatment effects. Despite this limitation, the direct comparison of the intervention with and without the mindful parenting components provided evidence that mindfulness training contributes additional benefits beyond those of a standard parent training course.

The intervention currently under investigation is a Canadian adaptation of MYmind, a mindfulness-based intervention for youth with ADHD and their parents. MYmind is an eight week group based program based on the empirically validated MBCT for depression relapse prevention developed by Segal et al. (2002). The main components of the intervention are mindfulness training, elements of cognitive therapy, and psychoeducation. The content and practices of MYmind were adapted to meet the developmental and clinical needs of the youth and parents. Mindfulness practices included body scan, mindful eating, mindful movement (e.g., walking, yoga), breathing space, and sitting meditation using both concentration and insight techniques. The program was delivered in parallel youth and parent groups lasting 90 minutes. Participants were expected to follow prescribed mindfulness exercises at home, and track their practice in weekly logs. A points-based incentive program was used to enhance engagement and treatment adherence among youth.

There have been three preliminary evaluations of MYmind with different populations. The first was a quasi-experimental pre-post evaluation of MYmind for adolescents with externalizing disorders (aged 11-18 years) (Bogels, Hoogstad, van Dun, de Schutter, & Restifo, 2008). The mixed sample included youth with primary diagnoses of oppositional defiant disorder, conduct disorder, ADHD, and pervasive developmental disorder. Data was collected at four time points: baseline (entry onto the waitlist), pre-test (immediately before treatment began), post-test (after the final session) and follow-up (8 weeks after the final session). Although the inclusion of a waitlist baseline period does introduce a measure of control over time and assessment effects, the waiting period was not consistent, ranging from six to 23 weeks. Scores remained stable during the waitlist period, with the exception of improvements on a performance-based measure of attention and concentration. Results of intent-to-treat analyses with 14 families indicated
significant improvements in youth self-report of goal attainment, attention, internalizing and externalizing problems, subjective happiness, mindful awareness and objective measures of attention and concentration from pre- to post-test. Improvements on the performance-based measure of attention and concentration cannot be attributed to the intervention, as significant changes were also evident during the no-treatment phase. Parents did not report improvements in child attention, internalizing or externalizing behaviour, but they did report improvements in child self-control from pre- to post-test. A similar pattern of results was found between pre-test and eight week follow up, with additional improvements in parent-rated attention and externalizing problems. The drop-out rate was high, with only seven families completing the full program. This may have been due in part to adolescent oppositionality. The small sample and heterogeneity among participants makes it difficult to determine the differential impact of the program for each clinical profile. For example, only four participants were diagnosed with ADHD, making it impossible to draw conclusions with respect to this population in particular. Parent mindfulness, parenting stress, and parent-youth relationship quality were not measured.

The second study was a quasi-experimental pre-post evaluation with 8-12 year old children with ADHD and their parents (n = 22 families) (van der Oord, Bogels, & Peijnenburg, 2012). Half of the sample (n=11 families) received baseline assessments to control for the effects of time and repeated measurements. This time, measures of parent functioning were included along with measures of child symptomatology. Although parental discipline style was measured, parent-child relationship quality was not assessed. Results revealed reductions in parent and child inattention and hyperactivity, and improvements in parents’ mindful attention and awareness, between pre- and post-test. Significant reductions in parental overreactivity and parenting stress were found between pre-test and eight week follow-up. While mindful attention and awareness of parents was assessed, it was not clear whether parents became more mindful in their parenting roles and interactions with their children. A specific measure of mindful parenting and relationship quality would help to determine whether parents are able to apply mindfulness principles and practices to interactions with their children. No changes were found on teacher-rated variables. This suggests that treatment gains were not generalized to the school setting. It may also reflect a potential bias in the ratings of parents who were highly invested in program. Since no child self-report measures were included, the experiences and perceptions of the youth participants are not represented in this study, and parental report could not be corroborated. The
The drop-out rate in this study was low compared to that of Bogels et al.’s (2008) study, at 14%. Given the younger age of the children in this study, parents may have had more influence over attendance.

The third evaluation of MYmind (van de Weijer-Bergsma, Formsma, de Bruin, & Bogels, 2012), was a non-controlled pre-post evaluation with a small sample (n=10 families) of younger adolescents with ADHD (aged 11-15) and their parents. To address some of the limitations of the previous study, the investigators collected data from multiple respondents and included performance based measures of attention and impulsivity. Mindful parenting and parent-adolescent relationship quality were not measured. Pre-post analyses found no significant changes on parent, teacher or self-report of mindful awareness, inattention, EF or internalizing symptoms. Fathers were the only raters to report significant improvements in adolescent externalizing problems, and nearly significant reductions in adolescent internalizing problems, at post-test. However, changes in adolescent and father-rated attention, and father-rated EF, reached significance at eight-week follow-up. Fathers reported significant reductions in parenting stress at post-test and eight-week follow-up. Results on objective measures of attention and parental report of parenting practices were mixed. Mothers of adolescents with ADHD reported decreases in overreactivity, whereas fathers reported increases in overreactivity. The reason for the low rate of agreement between maternal and paternal reports is unknown, although the authors speculated that parenting stress may have moderated paternal perceptions of youth behaviour. Due to the small sample and lack of control group, results of this study must be interpreted with caution.

Overall, despite certain methodological limitations, the three previous evaluations of MYmind point to reductions in ADHD symptomatology and improvements in parent functioning after the intervention. The impact of MYmind on mindful parenting and parent-youth relationship quality is unknown. Despite the promising results emerging, further research is required to substantiate the efficacy of MYmind for adolescents with ADHD. Given the need for further research on the effects of mindfulness meditation for adolescents with ADHD and their families, I conducted an independent investigation of MYmind. The first objective of the study was to support and extend the preliminary findings previously reported with respect to improved attention, internalizing and externalizing problems, and parenting stress, in a Canadian sample of 13-18 year olds with ADHD and their parents. The second objective was to investigate the impact of MYmind on
other areas of adolescent and family functioning not previously measured, including functional impairment associated with ADHD, comorbid depression and anxiety, mindful parenting, parent-adolescent conflict, and overall family functioning. I hypothesized that adolescents participating in MYmind would exhibit reductions in ADHD symptomatology, externalizing behaviour (i.e., oppositional-defiant and conduct problems), internalizing problems (i.e., depression and anxiety), and functional impairment (i.e. learning problems, executive functioning problems, and relational problems) at post-test, compared to their functioning at pretest. I predicted that parents participating in MYmind would experience less stress in relation to their parenting role at post-test, compared to their parenting stress at pretest. I expected families to report less conflict and improved relationship quality at post-test, compared to their family functioning at pretest. I also predicted that adolescents and parents would demonstrate greater levels of mindfulness at post-test, compared to their levels of mindfulness at pretest. I did not expect to find any differences between baseline and pretest functioning. Finally, I hypothesized that treatment gains would be maintained for six weeks after completion of the intervention.

2.2 Method

2.2.1 Participants

Participants were adolescents between the ages of 13-18 with a previous diagnosis of ADHD from a qualified health professional (e.g., physician, psychologist, or psychiatrist). Current ADHD status was confirmed by clinically elevated inattentive and/or hyperactive-impulsive symptoms, as indicated by a T-score of 65 or greater on at least one of the DSM ADHD subscales of the Conners’ 3 Parent Report at baseline. Although attempts were made to collect corroborating information from schools, teacher reports were not used to confirm ADHD status. Many teacher reports were returned during or after the intervention, precluding their use as baseline measures. All adolescents were required to have average cognitive abilities, indicated by an IQ estimate of at least 85 on the Wechsler Abbreviated Scale of Intelligence (WASI). Participants with autism spectrum disorders, youth with severe behavioural problems constituting a safety risk, or those who were living outside of the home (e.g., residential treatment services) were not eligible to participate. At least one parent was required to participate in the intervention with their child. Six families elected to enroll both parents. One family enrolled one parent for two adolescent siblings.
Twenty adolescents, 18 mothers, and six fathers initially enrolled in the program. Intervention completers were defined as individuals who attended at least 6 of 8 sessions, or those who attended fewer than six sessions and demonstrated a high level of commitment to the program. Commitment was established by attending individual make-up sessions, responding to email questionnaires several times per week, and meditating at home several times per week. Participants were asked to track home meditation practice via daily email questionnaires. One parent and two adolescents attended fewer than six sessions but were categorized as intervention completers because they demonstrated high levels of commitment and adherence to the program.

On average, adolescents attended 6.78 sessions (SD = 1.11) and parents attended 6.94 sessions (SD = 0.9). Two adolescents (one male), two fathers, and one mother did not complete the intervention due to personal health or scheduling issues. Of the adult intervention completers, seven parents had a (male) spouse who chose not to participate in the intervention for reasons unknown. Six had spouses who participated to some degree in the intervention. Of those spouses, three attended between 4-6 sessions but were not considered intervention completers and did not complete post-test questionnaires; the other three spouses completed the intervention. The identified primary caregiver was included in analyses; the remaining three eligible caregivers were excluded to prevent double-counting of adolescents (i.e., if some adolescents were rated twice, undue weighting would be placed on their particular pattern of symptoms, and the group means would be skewed). The results reported herein are based on maternal report, with the exception of one father who was the primary caregiver/attendee of the family. There were not enough fathers to be included in a separate analysis. The final sample for data analyses consisted of 18 adolescents (5 females, 13 males) and 17 parents.

The mean age of adolescent participants was 15.5 (SD = 1.58). The mean IQ score was 108.28 (SD = 10.87). Approximately 67% (n = 12) of the adolescents presented with both inattentive and hyperactive symptoms. Approximately 28% (n = 5) displayed primarily inattentive symptoms, while only 6% (n = 1) displayed primarily hyperactive/impulsive symptoms. More than half of the sample (n = 11; 61%) was taking medication for their ADHD when they enrolled in treatment. Over three quarters (n = 14; 78%) of the sample disclosed a comorbid diagnosis: 67% (n = 12) reported a previous diagnosis of Learning Disability; 22% (n = 4) a previous diagnosis of a depressive disorder; and 6% (n = 1) a previous diagnosis of anxiety disorder. Twenty-two percent (n = 4) were taking medication to treat comorbid disorders. Prior to
enrolling in mindfulness training, 50% (n = 9) of the families had attempted another behavioural intervention and 61% (n = 11) had attempted family therapy. Approximately one quarter of the adolescents had a parent with a self-disclosed diagnosis of ADHD (n = 4 or 22% fathers; n = 1 or 6% mothers).

Demographic information pertaining to family composition is based on 17 families. Most families were intact at the time of the intervention, with 77% (n = 13) of parents either married or cohabitating. Approximately 24% (n = 4) of parents were single, separated or divorced. The number of children living in the home varied: 88% (n = 15) of families had three or fewer children at home and 12% (n = 2) had more than three children at home. All of the mothers and all but one of the fathers completed secondary school. With respect to mothers’ highest level of education, 35% (n = 6) reported completing a college program, 35% (n = 6) reported earning a Bachelor’s degree, and 18% (n = 3) reported earning a Master’s degree. With respect to fathers’ highest level of education, 12% (n = 2) completed a college program, 47% (n = 8) earned a Bachelor’s degree, 12% (n = 2) earned a Master’s degree, and 12% (n = 2) earned a Doctoral degree. Sixty-five percent (n = 11) of mothers were employed full-time, 18% (n = 3) were employed part-time, and 18% (n = 3) were unemployed. More than three quarters (n = 13; 77%) of fathers were employed full time, 6% (n = 1) were employed part-time, and 18% (n = 3) were unemployed. Slightly more than half of the parents were born in North America (n = 10 or 59% of mothers and fathers each). Twelve percent (n = 2) of mothers and 6% (n = 1) of fathers were of European origins. Eighteen percent (n = 3) of mothers and 24% (n = 4) of fathers immigrated to Canada from Asian countries. Twelve percent (n = 2) of mothers and 6% (n = 1) of fathers were from Caribbean countries.

2.2.2 MYmind Program Description

MYmind, based on the empirically validated mindfulness-based cognitive therapy developed by Segal, Williams and Teasdale (MBCT; 2002), is an eight week manualized group treatment program for adolescents with ADHD and their parents. The purpose of MYmind is to foster mindfulness through training in formal meditation practices, and to integrate this awareness and attitude into the context of daily life as a means to cope with ADHD symptoms, stress, family relations and difficult emotions. It was originally developed and piloted in the Netherlands (Bogels et al., 2008). For the purposes of the current study, the manual and participant handouts
were translated from Dutch into English, with review by the original authors for accuracy. My co-investigator and I modified the Canadian version of the manual to reflect the goals of the current study and to meet the needs of the population under investigation. For example, psychoeducation about the history, meaning and applications of mindfulness was added because many participants were novices to mindfulness. To enhance treatment adherence, we sent participants daily text messages reminding them to practice mindfulness at home. Reflection sheets were incorporated into the 4th and 8th sessions in order to gauge treatment impact, enhance motivation for change, and maintain therapeutic rapport.

Families were enrolled in the program after an intake interview to assess readiness and suitability for the program. Parents and adolescents attended parallel groups. For both groups, each 1.5 hour session consisted of activities and discussions related to major themes, and included elements of mindfulness, cognitive behavioural therapy (CBT), and psychoeducation. The core mindfulness concepts emphasized throughout the program were awareness, non-judging, acceptance, letting go, beginner’s mind, and presence in the moment. Mindfulness exercises included the body scan, 3-minute breathing space, sitting meditation, and mindfulness in everyday activities such as eating. These exercises were modified for the needs of the participants. For example, adolescents began with very brief meditations (e.g. 5 minutes), and gradually increased the length of meditation each week. Initially, participants were guided in the practice of concentration meditation, where attention is focused on a single object (e.g., the breath). Participants were instructed to return their attention to the selected object whenever their minds wandered. For youth with ADHD, this task is particularly challenging and requires extensive practice. Over the course of the training, the practice shifted to insight meditation, where participants were encouraged first to observe the qualities of the breath, and then to observe the qualities of the mind (e.g., impermanence). These two forms of meditation were considered complementary practices, and participants were guided to shift between them as needed (e.g., one might temporarily shift back to concentration meditation to anchor and refocus the mind during insight meditation). The groups discussed the application of mindfulness practices to their everyday struggles (e.g. breathing space before a test or during an argument). The CBT component of the program consisted of identifying thoughts, feelings and sensations; exploring the ways thoughts and feelings influence actions; recognizing cognitive distortions; and noticing automatic thoughts and patterns of behaviour. In keeping with the philosophy of
mindfulness, emphasis was placed on awareness and acceptance of internal and external experiences. Psychoeducation about mindfulness, attention, and ADHD was delivered in the initial sessions through videos, didactic presentations and discussions, and reviewed in subsequent sessions as needed. For a summary of the main themes and exercises, see Table 1.

Home exercises were a required component of the program. Each family was given a CD with guided meditations to support their home practice. Parents and adolescents also received workbooks containing summaries of key concepts, assignments, and space to record their experiences during the week. Home assignments were taken up with the facilitators in session. Participants were asked to track the number of minutes of meditation they engaged in at home via daily email questionnaires. In order to increase levels of engagement and reduce the risk of dropout, adolescents earned points for participation in mindfulness exercises in session and at home. These points were exchanged for rewards from parents (e.g. computer time) and from facilitators (e.g. movie passes). A joint parent-adolescent booster session was held approximately 6 weeks after the completion of the intervention. The purpose of the booster session was to review progress toward goals, trouble-shoot with families who were having difficulty maintaining their mindfulness practice, and provide individualized feedback about improvements to each family.

Groups were facilitated by doctoral students with Masters degrees in clinical child psychology who had therapeutic experience with children and families. Both facilitators were Caucasian, female, and in their mid-twenties. Facilitators attended a 12 week mindfulness course for mental health professionals and practiced mindfulness meditation regularly. Supervision was provided in-vivo during sessions and in weekly debriefing meetings with two registered clinical child psychologists. One facilitator ran all five parent groups and the other facilitator (myself) ran all five adolescent groups to ensure treatment consistency and to control for therapist effects. We adhered to the manual closely and delivered the intervention as prescribed; however, we did not systematically measure treatment fidelity.

2.2.3 Design

I collected five phases of data over a period of one year to garner a sufficient sample size. Each phase consisted of an adolescent group comprised of 3-5 individuals, and a parent group comprised of 3-8 individuals. Participants who met the inclusion criteria were assigned to
treatment groups on a first come, first served basis. Due to ethical and practical considerations, I elected not to implement a randomized control design. I implemented a quasi-experimental single group pre-post design. Participants served as their own controls during a baseline period of 4 weeks prior to the onset of the intervention. I collected data at four time points: baseline, pre-test (Session 1 of the intervention), post-test (Session 8 of the intervention), and follow-up (approximately 6 weeks after Session 8). For all analyses, the within subjects factor, or independent variable, was time (baseline, pre, and post-test) and the dependent variable was the parent or youth report of the construct under investigation. Specifically, the dependent variables were ADHD symptoms, externalizing behaviour, and functional impairment of youth as measured by Conners 3 parent and youth report; adolescent internalizing symptoms as measured by the Revised Child Anxiety and Depression Scale parent and youth report; parenting stress as measured by the Stress Index for Parents of Adolescents; family functioning as measured by the Family Assessment Device; parent-adolescent conflict as measured by the Issues Checklist; parent mindfulness as measured by the Interpersonal Mindfulness in Parenting Scale; and parent and youth acceptance as measured by the Acceptance and Action Questionnaire. I hypothesized that no change would occur during the baseline (no treatment) phase. I expected changes in dependent variables to occur between pre and post-test (treatment phase). I anticipated that there would be no change in the dependent variables between post-test and follow-up (no treatment).

2.2.4 Procedure

The research was approved by the University of Toronto’s Research Ethics Board. Families who had previously given consent to be contacted for research purposes were contacted by telephone and invited to participate in the current study. Participants were also recruited from the community via flyers in schools, community centres, and physician’s offices, internet advertisements, and ADHD websites. Interested families participated in a telephone intake process to determine eligibility for the study. The intake included a demographics questionnaire and diagnostic screening. In families with multiple children, siblings who met inclusion criteria were also invited to participate. The telephone intake was conducted by trained undergraduate research assistants. Prior to beginning the intervention, adolescents and their parents attended an intake interview and/or an information session conducted by the primary investigators. We explained the program goals, expectations, potential risks and benefits, and confidentiality in detail at this meeting. Informed consent and assent were obtained at this time. Data were
collected from adolescents and parents in separate group testing sessions overseen by the primary investigators. Participants were also asked to complete short daily email questionnaires tracking their meditation, conflict, stress, and ADHD symptoms throughout the intervention. This data was collected for another research study, and results are reported elsewhere.

2.2.5 Measures

2.2.5.1 Descriptive Variables

2.2.5.1.1 Wechsler Abbreviated Scale of Intelligence (WASI; Wechsler, 1999)

The WASI is a standardized abbreviated intelligence test which provides an estimate of general cognitive ability. Vocabulary and matrix reasoning subtests were administered to obtain an IQ estimate. The IQ score derived from two subtests has an average reliability coefficient of .96.

2.2.5.2 Outcome Variables

2.2.5.2.1 Conners – 3rd edition (Conners, 2008)

The Conners 3 is often used to screen for ADHD in children and adolescents. The parent (Conners 3-P) and adolescent self-report (Conners 3-SR) scales were used in the current study. This measure evaluates inattention and hyperactivity/impulsivity as well as learning problems, aggression, oppositionality, and relationships with others. Internal consistency coefficients range from .77 to .97.

2.2.5.2.2 Revised Child Anxiety and Depression Scale- Youth and Parent Report (RCADS; Chorpita, Yim, Moffitt, Umemoto, & Francis, 2000)

The RCADS is a screen for depression and anxiety disorders in youth ages 6 – 18. The questionnaire consists of 47 Likert-scale items and yields six subscales corresponding to the DSM-IV categories of Separation Anxiety Disorder, Social Phobia, Generalized Anxiety Disorder, Panic Disorder, Obsessive-Compulsive Disorder, and Major Depressive Disorder. Both parent and youth self-report versions demonstrated good internal consistency and discriminant validity among youth in clinic-referred samples (Chorpita, Moffitt, & Gray, 2005; Ebesutani, Bernstein, Nakamura, Chorpita, Weisz, & The Research Network on Youth Mental Health, 2010).
2.2.5.2.3 The Stress Index for Parents of Adolescents (SIPA; Sheras, Abidin, & Konold, 1998)

This measure is used to identify areas of stress for parents of adolescents ages 11-19 years. The SIPA is a 112-item measure that assesses parenting stress across three domains: an adolescent domain, a parent domain, and an adolescent-parent relationship domain. The adolescent domain measures parenting stress as a function of the characteristics of the adolescent (e.g., mood, social isolation, delinquency, motivation). The parent domain measures parenting stress as a function of the effect of parenting on the parent’s other life roles (e.g., their relationship with their friends and their spouse, their level of confidence and feelings of competence). The adolescent-parent relationship domain measures the perceived quality of the relationship the parent has with the adolescent (e.g., degree of communication, amount of affection). In addition, the SIPA provides a measure of life stressors experienced by the parent in the past year (e.g., death in the family, financial problems) and an index of total parenting stress (i.e., a composite of all SIPA items across all domains). This measure has very good internal consistency (subscales range from .80-.90 and the domain indices exceed .90).

2.2.5.2.4 Family Assessment Device (FAD; Epstein, Baldwin & Bishop, 1983)

The FAD is based on the McMaster Model of Family Functioning, which describes the structure, organization, and relational patterns characteristic of healthy families. This is a self-report measure that describes emotional relationships and functioning within the family. Each family member rates 60 statements on a scale from 1 (“Strongly Agree”) to 4 (“Strongly Disagree”). The FAD yields seven subscale scores: problem solving (the ability to resolve problems that threaten the functioning of the family), communication (the ability to exchange information in a clear and direct manner), roles (the ability to assign and carry out tasks essential for family functioning), affective responsiveness (the extent to which family members experience an appropriate range of affective responses), affective involvement (the extent to which family members are interested in one another’s activities and feelings), behaviour control (the way the family upholds standards of behaviour), and general functioning (overall health of the family unit). Acceptable reliability (alphas ranging from .72-.92) and validity have been demonstrated.
2.2.5.2.5 Issues Checklist (IC; Robin, 1975; Prinz, R.J., Foster, S., Kent, R.N., & O'Leary, K.D., 1979)

Essential issues that might lead to arguments between parents and adolescents were assessed using the Issues Checklist. The IC is a 44-item list of issues that may be areas of disagreement between parents and adolescents. For the purposes of the current study, the vocabulary of the questionnaire was modified to reflect current linguistic and cultural trends (e.g., stereo was changed to music) and an item on Internet/computer use was added. Participants identified issues that had been discussed in the last month, and rated the intensity of the discussion on a Likert scale ranging from 1 ("calm") to 5 ("very angry"). Acceptable test-retest reliability and discriminant validity have been established (Edwards, Barkley, Laneri, Fletcher, & Metevia, 2001). Both parent and adolescent reports were administered.

2.2.5.2.6 Acceptance and Action Questionnaire (AAQ; Hayes et al., 2004)

The AAQ is a 9-item scale designed to assess experiential avoidance (tendency to avoid unwanted internal experiences), experiential control, psychological acceptance, and ability to take action despite aversive internal stimuli. Participants rated statements on a Likert scale with responses ranging from 1 ("never true") to 7 ("always true"). High scores on the AAQ are reflective of greater experiential avoidance and immobility, while low scores reflect greater acceptance and action. The AAQ has adequate internal consistency for use in research as well as convergent and construct validity.

2.2.5.2.7 Interpersonal Mindfulness in Parenting Scale (IM-P; Duncan, 2007)

The IM-P is a 10-item questionnaire assessing four domains of mindful parenting: (1) awareness and present-centered attention of self and child during parenting interactions; (2) present-centered emotional awareness of self and child; (3) non-reactivity or low reactivity to child behaviour (i.e. self-regulation); (4) non-judgmental acceptance of self and child. The IM-P demonstrates adequate reliability (alpha = .72), and preliminary convergent and discriminant validity in relation to mindfulness and other parenting constructs.
2.2.6 Data Analysis

To investigate treatment effects, I conducted one-way repeated-measures analyses of variance (ANOVA) on all variables. The effect size reported for the overall model is partial eta$^2$. Values less than 0.06 are considered small effect sizes, values between 0.06 and 0.14 are medium effect sizes, and values greater than 0.14 represent large effect sizes (Green & Salkind, 2008). When ANOVA results indicated significant time effects, I conducted post-hoc pairwise comparisons. The familywise error rate across pairwise comparisons was controlled using the Bonferroni procedure within the statistical analysis software SPSS, and the adjusted p-values were judged against the threshold of $p = .05$. I conducted paired t-tests to determine whether significant changes occurred in the follow-up period (between post-test and follow-up). The effect size statistic for this test is Cohen’s $d$, where values around 0.2 are considered small, values around 0.5 are considered medium, and values around 0.8 are considered large (Green & Salkind, 2008). Results of statistical analyses are presented in Tables 5, 6, and 7. Means and standard deviations for all dependent variables were computed to determine the direction of change; they are displayed in Tables 2, 3, and 4. The percentage of participants scoring in the Clinical range on the Conners 3 and SIPA at each time point are shown in Tables 2 and 3. I computed a cross-lagged panel correlation post-hoc to investigate the relationship between mindful parenting and parenting stress.

2.3 Results

2.3.1 Adolescent Symptoms: ADHD, Externalizing and Internalizing Problems, and Functional Impairment

I hypothesized that adolescents would demonstrate reductions in ADHD symptoms, comorbid externalizing and internalizing problems, and functional impairment at post-test, compared to pretest ratings. As shown in Table 5, results of the repeated measures ANOVA on the Conners’ 3 revealed a significant time effect on the DSM Inattentive, Learning Problems, Executive Function and Peer Relations scales, and a nearly significant effect on the Conduct Disorder scale, as rated by parents. Adolescents reported significant time effects on the Family Relations Scale and nearly significant effects on the Oppositional Defiant Disorder scale of the Conners’ 3. They also reported significant time effects on the Depression, Anxiety, and Total Internalizing problems scales of the RCADS (statistics displayed in Table 5).
Post-hoc pairwise comparisons indicated that there were no significant changes on parent rated variables during baseline. There were significant reductions in parent-rated conduct problems and peer relational problems, as well as nearly significant reductions in inattention, between pre- and post-test (see Table 5). The pretest/post-test comparisons were not significant for any other variables. Mean parent ratings of adolescent inattention, conduct problems, and peer relations across four time points are displayed in Figure 1. Adolescents reported reductions in oppositional problems and family relational problems during the baseline period only; no further changes were evident during the intervention period.

2.3.2 Parenting Stress

I predicted that parents would experience less stress in relation to their parenting role at post-test, compared to their parenting stress at pretest. Results of the repeated measures ANOVA for parenting stress on the SIPA indicated significant changes in select areas of stress (Table 6). Significant time effects were found in Social Isolation/Withdrawal and Failure to Achieve in the adolescent domain, and Life Restrictions in the parent domain. Post-hoc comparisons revealed no changes during baseline on any variables. There were significant reductions in stress related to social isolation/withdrawal and life restrictions between pretest and post-test (see Table 6). Mean ratings of parenting stress across all time points are presented in Figure 2.

2.3.3 Family Functioning

I hypothesized that families would experience less conflict and improved relationship quality at post-test, compared to their pretest levels of family functioning. Results of repeated measures ANOVAs for family functioning variables are presented in Table 7. Results pertaining to the Issues Checklist revealed no significant effects for the number or intensity of conflicts reported by parents. Parents reported significant time effects for overall family functioning on the Family Assessment Device, but there were no significant post-hoc pairwise comparisons. Although adolescents did not report changes in the amount of conflict, they did report a significant time effect for conflict intensity; however, post-hoc pairwise comparisons were not significant. Adolescents did not report a significant effect for overall family functioning.
2.3.4 Mindfulness

I hypothesized that all participants would experience greater levels of mindfulness at post-test, compared to their pretest levels of mindfulness. Results pertaining to mindfulness and acceptance variables are presented in Table 7. Results of the repeated measures ANOVA for the Interpersonal Mindfulness in Parenting Scale indicated significant increases in overall mindfulness in parents. Pairwise comparisons revealed that mindfulness remained stable during the baseline period, and significant change occurred between pre-test and post-test. Parents did not report changes in acceptance or experiential avoidance on the Acceptance and Action Questionnaire. Although significant time effects were reported by adolescents on the AAQ, post-hoc tests revealed that the changes occurred only during the baseline period.

I computed post-hoc cross-lagged panel correlations to explore the potential causal relationship between mindful parenting and parenting stress. In this design, correlations within and between both variables at pre-test and post-test were computed to determine the direction of association between them. A strong and significant negative association was found between mindful parenting at pre-test and total parenting stress at post-test, \( r(14) = -.52, p = .020 \). The relationship between parenting stress at pre-test and mindful parenting at post-test was small and non-significant, \( r(14) = -.13, p = .311 \). This suggests that higher levels of mindfulness in relation to the parenting role at pre-test predict lower levels of total parenting stress at post-test. Since this pattern may be influenced by the presence of moderating variables, definitive statements of causality cannot be made.

2.3.5 Follow-up

I predicted that treatment gains would be maintained for six weeks after completion of the intervention. I conducted paired samples t-tests to investigate whether significant changes occurred during the follow-up period (between post-test and follow-up). As shown in Table 5, there were no significant changes in parent or adolescent reports of inattention, externalizing problems, or functional impairment at follow-up, indicating that gains achieved during the intervention were maintained. Mean parent ratings of adolescent inattention, conduct problems, and peer relations across four time points are displayed in Figure 1. Adolescents reported significant reductions in internalizing symptoms at follow-up, indicating that they experienced reductions in depression, anxiety, and total internalizing symptoms after the intervention ended.
Although parents did not report significant changes in their adolescents’ internalizing symptoms at follow-up, they reported reductions in depression that approached significance (Table 5).

As shown in Table 6, parents reported significant reductions in several areas of parenting stress during the follow-up period, including parent domain stress and total parenting stress, indicating that they continued to experience benefits after the intervention ended. Trends for parenting stress across all time points are presented in Figure 2.

As shown in Table 7, neither parents nor adolescents reported changes in amount or intensity of conflict at follow-up, although reductions in parent-reported conflict intensity approached significance. There was no significant change in general family functioning reported by parents or adolescents at follow-up.

Parents did not report significant changes in mindful parenting at follow-up, indicating that improvements in mindful parenting were maintained during the six week period after the intervention ended (Table 7). Parents reported significant increases in acceptance and decreases in avoidance at follow-up, suggesting that they continued to experience increases in acceptance after the intervention ended. Adolescents did not report significant changes in acceptance at follow-up (Table 7).

2.4 Discussion

Overall, results of the current study support and extend the preliminary findings of previous investigations of MYmind that showed it to be a promising treatment. MYmind was associated with reductions in adolescent inattentiveness and conduct problems, improvements in adolescent peer relations, reductions in parenting stress, and increases in parental mindfulness. The addition of a month-long baseline period allowed for the differentiation of treatment effects from those that might have occurred due to placebo or maturation. This independently conducted treatment evaluation demonstrated that MYmind is feasible in cross-cultural contexts, and shows promise as an alternative or complementary treatment option for adolescents with ADHD and their parents.

The current study provided further evidence to support the preliminary evaluations of MYmind with respect to improved attention. Parents reported near significant improvements in inattention at post-test compared to pretest. Although the pairwise comparison did not reach significance ($p$
= .07), the effect size was in the medium to large range (d = .62). It is possible that a larger sample size would have garnered significant results. Improvements in inattention were maintained at follow-up. This is notable given the chronic course of ADHD. Parents did not report significant change in hyperactivity/impulsivity, and adolescents did not report changes in either domain. Despite the literature suggesting that hyperactive/impulsive symptoms decline in adolescence (Barkley, 2004), the current sample demonstrated clinically elevated levels of hyperactivity/impulsivity at intake; the lack of change in this domain is not due to floor effects. This suggests that the intervention targets attention related processes more so than hyperactive symptoms. These results are somewhat consistent with previous evaluations of MYmind for adolescents, which reported improvements in father report of inattention (van de Weijer-Bergsma et. al., 2012), adolescent report of inattention, and objective measures of visual attention (Bogels et al., 2008).

The hypothesis that adolescents would exhibit reductions in comorbid externalizing difficulties was partially supported. Parents reported significant reductions in conduct problems between pre-test and post-test, with a medium to large effect size (d = .70). Adolescents did not report significant changes in externalizing symptoms during the intervention. Interestingly, clinical change was evident even where statistical significance was not (e.g., approximately 24% of adolescents moved from the clinical to the subclinical range in terms of ODD symptoms during the intervention period). These results are consistent with previous quasi-experimental evaluations of mindfulness interventions for children and adolescents with ADHD, which reported reductions in parent-rated externalizing problems (Haydicky et al., 2012; Singh et al., 2010).

Parental report partially confirmed the hypothesis that adolescents would experience a reduction in functional impairment after the intervention. Adolescents exhibited large (d = 1.07) and significant reductions in peer relations problems at post-test, compared to pretest. The intervention effects were maintained at follow-up. This is notable considering the limited efficacy of social skills training for youth with ADHD (Chronis et al., 2006). Results of the current study are similar to those reported by Haydicky et al. (2012), suggesting that adolescents with ADHD demonstrate reductions in peer relations problems after participating in mindfulness-based interventions. These results are clinically relevant, as children with externalizing behaviour problems such as ADHD are more likely to be rejected by peers, and this
rejection can exacerbate externalizing problems, as well as contribute to the development of internalizing problems (Deater-Deckard, 2001). An intervention that reduces peer relational problems may serve as a protective factor, and reduce the risk of psychopathology amongst adolescents with ADHD (Deater-Deckard, 2001).

Remarkable reductions in functional impairment are evident when clinical status is evaluated. As shown in Table 1, after only eight weeks of treatment, between 24% and 35% of adolescents who originally displayed clinically significant learning, EF, and peer relations problems at pretest fell below the clinical cut-off at post-test. The robust treatment effects of the current study may be due, in part, to the involvement of parents, as there is some evidence to suggest that greater improvements occur when parent training is added to child training (Chronis et al., 2006).

Although there were no significant changes in internalizing symptoms at post-test, adolescents reported significant reductions in depression, anxiety, and total internalizing problems at six week follow-up. These effects were medium to large ($d = .64$ for depression; $1.02$ for anxiety; and $1.01$ for total internalizing problems). After the intervention ended, participants continued to receive daily reflection questions and reminders for several weeks, which may have encouraged the continuation of mindful practice and consolidation of concepts learned during the intervention. It is possible that it takes both time and practice with mindfulness meditation for the effect of treatment on anxiety and depression to reach a level that adolescents can detect. Results of previous evaluations of MYmind are inconsistent with regard to internalizing problems (Bogels et al., 2008; van de Weijer-Bergsma et al., 2012). Results of the current study suggest that MYmind may be helpful for reducing depression and anxiety among adolescents with ADHD, but further research is needed to separate true treatment effects from those attributable to maturation, placebo, or other factors.

Consistent with studies of parents of children with developmental disabilities (Blackledge & Hayes, 2006; Singh et al., 2006; Singh et al., 2007b), and similar to results reported by van de Weijer-Bergsma et al. (2012) concerning fathers of adolescents with ADHD, parents in the current study experienced significant reductions in parenting stress at post-test compared to pretest levels. They felt less stress related to their adolescent’s social isolation ($d = .77$), which may be associated with parental report of improved functional impairment in the social domain. They also felt less stress related to restrictions caused by their role as a parent ($d = .91$). As
shown in Table 3, reductions in the proportion of parents experiencing clinical levels of stress from pretest to post-test in these subdomains as well as in total stress and stress in the adolescent domain were substantial. Parents continued to experience large and significant reductions in total parent domain ($d = 1.02$) and total stress ($d = .81$) after the intervention ended, suggesting that mindfulness continued to exert an influence even after formal mindfulness training ended.

Parents reported significant increases in mindful parenting during the intervention period, representing improved present-centered awareness and non-judgmental acceptance of their children, as well as less reactivity to their child’s behaviour. These gains were maintained at follow-up. Although parents did not report changes in acceptance or experiential avoidance at post-test, they did report significant improvements at follow-up. This indicates that continued practice and time may have allowed parents to cultivate a more mindful orientation. Mindful parenting involves thoughtful, intentional responding rather than automatic reacting in challenging situations. This may lead to decreased conflict, less anger, and improved communication between parents and adolescents. Despite non-significant findings in the domain of family functioning and conflict in the current study, a qualitative evaluation of MYmind (reported in Chapter 3) indicates that parents who adopted a mindful approach to parenting experienced improved relationships with their children. Previous evaluations of MYmind did not measure mindful parenting. Furthermore, higher levels of mindful parenting at pre-test were associated with lower levels of total parenting stress at post-test. This suggests that adopting a mindful orientation towards one’s role as a parent may reduce the stress associated with raising a child with ADHD. Since this pattern may be influenced by the presence of moderating variables, further investigation with a larger sample is needed before definitive statements of causality can be made.

MYmind did not appear to be associated with meaningful changes at post-test in several areas of functioning, including adolescent anxiety and depression, parent-child conflict, and family functioning. There are several possible reasons why my hypotheses were not supported in these areas.

First, with regard to anxiety and depression, the pattern of scores indicates that these internalizing symptoms decreased gradually from baseline through post-test and follow-up. This suggests that improvements were due to other external (e.g., changes at school) or internal (e.g.,
maturation) factors. However, it is possible that the study procedures may have influenced the adolescents’ reports. At baseline, they attended a meeting with a facilitator to discuss motivation, commitment, and personal goals for the program. These meetings may have increased readiness for change and contributed to expectancy effects. Additionally, all participants received daily emails with questions to stimulate self-reflection during the baseline period (e.g., how much distress they experienced as a result of interactions with their parents) that may have increased self-awareness during the baseline period, contributed to symptom reduction, and served as a foundation for mindfulness training during the intervention and follow-up period.

Second, participants reported subclinical levels of internalizing problems and conflict intensity on average at baseline, indicating that families were experiencing minimal impairment in these domains before the intervention started. As such, there was little room for improvement.

Third, it is possible that some of the measures were not sufficiently sensitive to changes that occurred. The questionnaire used to measure family functioning (FAD), for example, required participants to rate their functioning in several domains on a 4-point scale. This scale may not have captured subtle changes occurring as a result of mindfulness training. The questionnaire used to measure adolescent acceptance of internal experience (AAQ), was not developed specifically for children or adolescents. It is possible that results would have been different had I selected a global measure of acceptance validated for use with adolescents.

Fourth, the treatment was short (eight 90 minute sessions). Changes in longstanding patterns of interpersonal relatedness may require a longer intervention or joint, rather than concurrent, parent-adolescents sessions. Results of qualitative interviews with MYmind participants (reported in Chapter 3) suggest that families were becoming more aware of their automatic reactions, and were making efforts to respond mindfully during conflict. Analyses of parent and adolescent ratings on the FAD indicate that, although there was no statistically significant change, some degree of change may have occurred across the intervention period. Family functioning as rated by parents and adolescents was within the clinical range prior to the intervention, and ratings fell into the non-clinical range after the intervention. This suggests that, with more time, families may have experienced greater and more meaningful improvements in family functioning.
In general, changes in functioning associated with MYmind were evident on parent-report measures but were not reported by the adolescents themselves. Unexpectedly, adolescents reported improvements during the baseline period but not after the intervention. As previously discussed, daily email questionnaires may have stimulated self-reflection and contributed to a more mindful orientation, thus indirectly influencing behaviour during the baseline period. The discrepancy between parent and adolescent ratings of ADHD and externalizing symptoms may be partially explained by the positive illusory bias (PIB). The PIB refers to the tendency of children and adolescents with ADHD to overestimate their competence and underestimate their difficulties relative to parent, teacher and objective ratings (Hoza et. al., 2010; Owens, Goldfine, Evangelista, Hoza, & Kaiser, 2007). Since parent reports are typically on par with teacher ratings and objective tasks (Owens et al., 2007), parents are considered more reliable raters of adolescent externalizing behaviour than the adolescents themselves. The consistent pattern of adolescent under-reporting of externalizing symptoms and functional impairment at baseline, compared to parent ratings of the same constructs, suggests that the PIB was present in the current sample (see Table 1). As such, lack of significant improvements in adolescent self-reports at post-test may be explained by their biased ratings at baseline. It is also possible that MYmind stimulated changes in parental perceptions of their adolescents, rather than true behavioural change in the adolescents themselves. As parenting stress decreased, and acceptance increased, parents may have viewed their adolescent’s behavior in a new light. Released from judgment, rumination, and recrimination, parents may have been able to observe and respond to “challenging” behavior from a more objective, present-moment perspective (e.g., “this behavior is what it is, and it will pass,” as opposed to “he’s being defiant again”). Changes in parental perceptions at the end of the intervention may have been reflected in lower ratings of adolescent problems on post-test questionnaires.

It is important to note that outcomes in the current study were based primarily on maternal report. Of the thirteen fathers eligible to participate in the intervention, close to half (46%, or six) participated in the program to some extent, although they were not, for the most part, eligible for inclusion in data analyses. The other half did not enroll in the program. Little is known about father involvement in parent-based treatments for ADHD, because fathers are often not included in outcome studies (Chronis, Chacko, Fabiano, Wymbs, and Pelham, 2004). Fabiano (2007) suggests that father involvement may improve child outcome and help sustain changes, although
very few studies have directly compared outcomes of interventions involving fathers to those involving mothers. A comparison of standard parent behavioural training for fathers only, and an adapted version for fathers involving interactive sports activities, revealed similar child outcomes in both conditions. However, there was significantly greater attendance, homework completion, and satisfaction with the intervention among fathers who attended the sports-based program (Fabiano, et. al., 2009). This suggests that adapting parenting programs for fathers increases engagement and retention, which is critical given the traditionally low adherence to parent behavioural training (Fabiano, 2007; Fabiano et. al., 2009). Fabiano (2007) identified individual and structural barriers to father involvement, including paternal ADHD, the format of parent training (e.g., didactic learning), inflexible scheduling, and content applicable to parenting responsibilities typically assumed by mothers (e.g., caregiving rather than recreational sports). Fathers are less likely than mothers to believe their parenting skills are in need of intervention, and thus may be less likely to enroll in programs that aim to remediate skills deficits (Fabiano, 2007). MYmind may reduce some of the barriers associated with typical parent training programs. For example, the experiential format of parent groups is engaging and the content is discussion-driven, allowing parents to explore the applications of mindfulness to their current parenting practices. Group facilitators adopt an accepting and non-judgmental stance, which encourages participation from all parents regardless of the role they play in their families. This may reduce stigma and increase a sense of belonging among fathers. The regular mindfulness practice may also ameliorate some of the ADHD symptoms experienced by fathers, allowing them to participate more fully in the program. Indeed, van de Weijer-Bergsma et al.’s (2012) evaluation of MYmind for adolescents with ADHD indicated that equal numbers of fathers and mothers participated, suggesting that the format of the group was amenable to fathers. What’s more, fathers (but not mothers) experienced significant reductions in parenting stress after the intervention. Future studies should attempt to recruit more fathers and include analyses of paternal report to measure engagement, retention, and outcome among fathers participating in MYmind.

Despite the promising results, the current study had several limitations. The small sample and lack of randomized control group made it difficult to assess the representativeness and generalizability of results. Although the sample of 18 adolescents was larger than previous evaluations of MYmind, it was not large enough to conduct subgroup analyses. Thus, I was
unable to compare boys vs. girls, younger vs. older teens, or examine the differential effects for adolescents concurrently taking medication. However, attempts were made to separate general time effects from treatment effects by adding a baseline period of treatment as usual, and conducting a multiple baseline time series study (reported elsewhere). Parent ratings of adolescent symptoms, parenting stress, mindfulness, and family functioning remained stable during the baseline period, and improvements occurred after the intervention was implemented. Another limitation of the study is reliance on self-and parent-report data. Given the tendency of youth with ADHD to underestimate their behavioural problems, observational or performance-based measures may have more accurately captured treatment effects. Furthermore, parents were highly involved in the intervention and invested in the outcome; thus, they may have been more likely to report positive changes. Despite the promising results and large effect sizes, the current study does not provide information about MYmind’s efficacy relative to other treatments, nor does it parse out the relative contribution of parent vs. adolescent training. Nevertheless, the results suggest that MYmind is a promising alternative or complementary intervention for adolescents with ADHD and their parents. Therefore, the logical next step is to conduct a large, multi-site randomized control trial of MYmind.

The treatment effects in the current study are large and meaningful. Effect sizes of significant ANOVA models were large, with partial \( \eta^2 \) values ranging from 0.34 – 0.55 (Green & Salkind, 2008). Significant pre-post changes were also associated with medium to large effect sizes, with Cohen’s \( d \) values ranging from 0.62 – 1.07. This is consistent with the large effect sizes reported by Bogels et al. (2008) and the small to large effect sizes reported by van de Weijer-Bergsma et al. (2012). Effect sizes of this magnitude are on par with, or larger than, those reported for cognitive interventions (Toplak et al., 2008), behavioural parent training (Chronis et al., 2006), and combined treatments using medication and psychosocial approaches (Majewicz-Hefley & Carlson, 2007). Furthermore, indices of clinical significance suggest that youth impairment was substantially reduced after the intervention.

These findings are notable in light of the complexity and severity of the sample. Over three quarters (78%) of the adolescents had a comorbid disorder that they were aware of, and many of them were experiencing significant functional impairment such as school failure and suicidal ideation. Prior to enrolling in mindfulness training, 50% of the families had attempted another behavioural intervention and 61% had attempted family therapy, with little amelioration of
distress. These families reported feeling overwhelmed, hopeless, and desperate. Nevertheless, many parents expressed high levels of readiness to try alternative approaches such as mindfulness. Remarkably, only 8 weeks of mindfulness training produced changes in adolescent inattentiveness, conduct problems and peer relations, and aspects of parenting stress and mindfulness. Furthermore, these treatment gains were maintained or improved upon after the intervention ended.

Perhaps one of the reasons for the success of the program was the fact that it involved concurrent parent and adolescent training. By attending weekly sessions and completing their homework, parents acknowledged that they have an important role to play in improving family functioning. The focus shifted away from the adolescent as the “identified patient” and expanded to encompass the family as a whole. This tacit understanding validated the adolescent’s role as an autonomous but connected member of the family unit. Throughout the intervention, parents were encouraged to model mindfulness techniques and reinforce concepts at home, thus enhancing their children’s adherence to the program and promoting generalization. The parent training component of the program emphasized non-judgmental acceptance of youth as they are, which may have altered parental perceptions of their children’s problem behaviours.

Clinicians provided support between sessions via daily emails and text messages. In addition to serving a research purpose, the emails functioned as mindful check-ins during the week, prompting participants to reflect on their daily intra- and inter-personal experiences. Although they were not part of the manualized treatment program, the electronic communication may have contributed to therapeutic effects and/or retention rates. Further research is required to separate intervention effects from the adjunctive effects of the use of technology. Motivation enhancement was added to the fourth and eight sessions in the form of reflections, goal-setting, and action plans for maintaining mindfulness practice. The very low attrition rate reflects the high level of commitment to the program. Of the 20 adolescents who initially enrolled in the study, one adolescent dropped out in order to attend camp, and one adolescent dropped out due to mental health concerns. Only one mother and two fathers did not complete the intervention due to scheduling conflicts. Considering the extremely low adherence rates to medication, the retention rates of MYmind attest to its feasibility as a viable treatment option for ADHD.
2.5 Tables
Table 1

Brief Overview of the Content of Adolescent and Parent Sessions

<table>
<thead>
<tr>
<th>Theme</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Attention</strong></td>
<td>Welcome, sitting meditation, psychoeducation about ADHD, group contract, review points system, mindful eating activity</td>
</tr>
<tr>
<td><strong>2. At Home in Your Body</strong></td>
<td>Sitting meditation, psychoeducation about mindfulness, body scan, yoga with emphasis on body</td>
</tr>
<tr>
<td><strong>3. Breath</strong></td>
<td>Sitting meditation, breath for daily activities, 3-minute breathing space, yoga with emphasis on breath</td>
</tr>
<tr>
<td><strong>4. Distraction and The Wandering Mind</strong></td>
<td>Bubble meditation, fixation exercise (stationary point vs. moving object), attention to detail game, meditation with sounds, yoga, half-way reflection</td>
</tr>
<tr>
<td><strong>5. Thoughts are Not Facts/ Doing Homework Mindfully</strong></td>
<td>Movie theatre meditation; moods, thoughts and alternative viewpoints exercise; detective thinking to challenge automatic thoughts; impulse control activity with candy bar; applying mindfulness skills to homework; yoga</td>
</tr>
<tr>
<td><strong>6. Automatic Reactions</strong></td>
<td>Sitting meditation, automatic pilot (expressway vs. pathway), role-play, yoga, breathing space with coping and choices</td>
</tr>
<tr>
<td><strong>7. Mindful Communication</strong></td>
<td>Sitting meditation with stressful event and empathy; thoughts, feelings and sensations related to automatic pilot; being present in communication; mindful listening role play; yoga</td>
</tr>
<tr>
<td><strong>8. On Your Own</strong></td>
<td>Sitting meditation, adolescent-led mindfulness exercises, reflection activity, action plan for continuing mindful practice, Metta meditation</td>
</tr>
<tr>
<td>-----------------</td>
<td>----------------------</td>
</tr>
<tr>
<td>1. Awareness</td>
<td>Welcome and introductions, sitting meditation, rationale of training, raisin exercise, introduction to mindfulness, explanation of homework assignments and adolescents’ reward system</td>
</tr>
</tbody>
</table>
Table 2

*Means, Standard Deviations, and Clinical Levels of Adolescent Symptomatology*

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Baseline</th>
<th>Pre-Test</th>
<th>Post-Test</th>
<th>Follow-Up (n=14)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>M</td>
<td>SD</td>
<td>Clinical</td>
</tr>
<tr>
<td>ADHD Symptoms</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P: Inattentive</td>
<td>18</td>
<td>81.17</td>
<td>8.68</td>
<td>94.4</td>
</tr>
<tr>
<td>P: H/I</td>
<td>18</td>
<td>78.17</td>
<td>13.35</td>
<td>72.2</td>
</tr>
<tr>
<td>A: Inattentive</td>
<td>18</td>
<td>64.28</td>
<td>10.69</td>
<td>38.9</td>
</tr>
<tr>
<td>A: H/I</td>
<td>18</td>
<td>61.06</td>
<td>10.45</td>
<td>22.2</td>
</tr>
<tr>
<td>Externalizing Symptoms</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P: CD</td>
<td>18</td>
<td>61.89</td>
<td>14.42</td>
<td>33.3</td>
</tr>
<tr>
<td>P: ODD</td>
<td>18</td>
<td>70.22</td>
<td>14.03</td>
<td>61.1</td>
</tr>
<tr>
<td>A: CD</td>
<td>18</td>
<td>59.50</td>
<td>13.26</td>
<td>33.3</td>
</tr>
<tr>
<td>A: ODD</td>
<td>18</td>
<td>55.28</td>
<td>10.16</td>
<td>22.2</td>
</tr>
<tr>
<td>Internalizing Symptoms</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>P: Depression</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------------</td>
<td>----------------</td>
<td>----------</td>
<td>----------</td>
<td>----------</td>
</tr>
<tr>
<td></td>
<td>17 65.29</td>
<td>11.25</td>
<td>47.1</td>
<td>17 68.00</td>
</tr>
<tr>
<td></td>
<td>P: Anxiety</td>
<td>17 52.47</td>
<td>10.52</td>
<td>17.6</td>
</tr>
<tr>
<td></td>
<td>P: Internalizing</td>
<td>17 55.94</td>
<td>10.24</td>
<td>17.6</td>
</tr>
<tr>
<td>A: Depression</td>
<td>18 57.72</td>
<td>10.54</td>
<td>33.3</td>
<td>18 53.83</td>
</tr>
<tr>
<td>A: Anxiety</td>
<td>18 50.06</td>
<td>14.55</td>
<td>16.7</td>
<td>18 46.56</td>
</tr>
<tr>
<td>A: Internalizing</td>
<td>18 51.89</td>
<td>13.95</td>
<td>16.7</td>
<td>18 48.22</td>
</tr>
</tbody>
</table>

Functional Impairment

<table>
<thead>
<tr>
<th></th>
<th>P: Learning</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>18 74.22</td>
<td>11.95</td>
<td>83.3</td>
<td>17 72.12</td>
<td>10.14</td>
<td>82.4</td>
<td>17 66.53</td>
<td>9.98</td>
<td>47.1</td>
<td>63.43</td>
</tr>
<tr>
<td></td>
<td>P: Executive Function</td>
<td>18 75.00</td>
<td>11.46</td>
<td>83.3</td>
<td>17 71.76</td>
<td>12.44</td>
<td>76.5</td>
<td>17 67.59</td>
<td>11.31</td>
<td>52.9</td>
</tr>
<tr>
<td></td>
<td>P: Peer Relations</td>
<td>18 70.22</td>
<td>18.16</td>
<td>66.7</td>
<td>17 69.53</td>
<td>17.54</td>
<td>58.8</td>
<td>18 60.82</td>
<td>17.66</td>
<td>35.3</td>
</tr>
<tr>
<td>A: Learning</td>
<td>18 60.94</td>
<td>8.95</td>
<td>44.4</td>
<td>17 57.18</td>
<td>8.66</td>
<td>23.5</td>
<td>18 59.83</td>
<td>9.33</td>
<td>38.9</td>
<td>60.29</td>
</tr>
<tr>
<td>A: Family Relations</td>
<td>18 52.94</td>
<td>10.77</td>
<td>16.7</td>
<td>18 49.06</td>
<td>11.05</td>
<td>5.6</td>
<td>18 50.78</td>
<td>11.83</td>
<td>5.6</td>
<td>46.64</td>
</tr>
</tbody>
</table>

Note. Mean values reported are t scores. “P” denotes parental report, and “A” denotes adolescent self-report. “CD” denotes Conduct Disorder, and “ODD” denotes Oppositional Defiant Disorder. “Clinical” denotes the percentage of adolescents exhibiting symptoms in the clinical range. Adolescents were classified in the clinical range if T-scores were 1.5 standard deviations above the mean, which corresponds to a T-score of 65 or greater.
Table 3

*Means, Standard Deviations and Clinical Levels of Parenting Stress*

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Baseline (n = 16)</th>
<th>Pre-Test (n = 17)</th>
<th>Post-Test (n = 18)</th>
<th>Follow-Up (n = 14)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>Clinical</td>
<td>M</td>
</tr>
<tr>
<td>Adolescent Domain</td>
<td>60.75</td>
<td>10.09</td>
<td>37.5</td>
<td>61.12</td>
</tr>
<tr>
<td>Parent Domain</td>
<td>54.75</td>
<td>10.84</td>
<td>12.5</td>
<td>55.12</td>
</tr>
<tr>
<td>Relationship Domain</td>
<td>55.13</td>
<td>10.03</td>
<td>12.5</td>
<td>54.29</td>
</tr>
<tr>
<td>Total Parenting Stress</td>
<td>58.75</td>
<td>7.57</td>
<td>25.0</td>
<td>58.82</td>
</tr>
<tr>
<td>Life Stressors</td>
<td>51.56</td>
<td>8.67</td>
<td>12.5</td>
<td>50.06</td>
</tr>
<tr>
<td>Adolescent Domain Scales</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moodiness</td>
<td>59.06</td>
<td>10.61</td>
<td>43.8</td>
<td>59.24</td>
</tr>
<tr>
<td>Social Isolation/Withdrawal</td>
<td>59.75</td>
<td>12.03</td>
<td>37.5</td>
<td>60.82</td>
</tr>
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*Note.* Values reported are T-scores. “Clinical” denotes the percentage of parents exhibiting symptoms in the clinical range. Parents were classified in the clinical range if T-scores were 1.5 standard deviations above the mean, which corresponds to a T-score of 65 or greater.
Table 4

*Means and Standard Deviations of Family Functioning and Mindfulness Variables*

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*Note.* Ratings of general family functioning range from 1-4, with higher scores representing poorer functioning. Mean scores of two or greater in this domain are considered to be in the clinical range. Ratings of conflict intensity range from 1-5, with higher scores representing more anger. Mindful parenting mean scores range from 1-5, with higher scores representing higher levels of mindfulness. Acceptance scores are sums from the Acceptance and Action Questionnaire. Total sum scores can range from 9-63, with higher scores representing greater experiential avoidance and immobility, and lower scores reflecting greater acceptance and action.
Table 5

Results of Repeated Measures ANOVA and Paired t-Tests for Parent and Self Report of Adolescent Symptoms

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<th>Follow-Up</th>
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<td>.170</td>
<td>1.43</td>
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<td>1.57</td>
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<td>A: H/I</td>
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<td>1.71</td>
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Internalizing Symptoms
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<th>Time 4</th>
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<tr>
<td><strong>P: Anxiety</strong></td>
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**Functional Impairment**

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*Note.* “P” denotes parental report, and “A” denotes adolescent self-report. “CD” denotes Conduct Disorder, and “ODD” denotes Oppositional Defiant Disorder. T1 denotes Time 1, or baseline; T2 denotes Time 2, or pre-test; T3 denotes Time 3, or post-test; and T4 denotes Time 4, or follow-up. Pairwise comparisons were only conducted when the overall ANOVA model was significant. Follow-up analyses are paired *t*-tests. Effect sizes reported for pairwise comparisons and follow-up paired *t*-tests are Cohen’s *d.*
### Table 6

*Results of Repeated Measures ANOVA and Paired t-Tests for Parenting Stress*

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<th>T1-T2 d</th>
<th>T2-T3 t</th>
<th>T2-T3 p</th>
<th>T2-T3 d</th>
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*Note.* T1 denotes Time 1, or baseline; T2 denotes Time 2, or pre-test; T3 denotes Time 3, or post-test; and T4 denotes Time 4, or follow-up. Pairwise comparisons were only conducted when the overall ANOVA model was significant. Follow-up analyses are paired *t*-tests. Effect sizes reported for pairwise comparisons and follow-up paired *t*-tests are Cohen’s *d*.
Table 7

*Results of Repeated Measures ANOVA and Paired t-Tests for Family Functioning and Mindfulness Variables*

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<th>Partial η²</th>
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<th>p</th>
<th>d</th>
<th>T2-T3</th>
<th>p</th>
<th>d</th>
<th>T3-T4</th>
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Note. T1 denotes Time 1, or baseline; T2 denotes Time 2, or pre-test; T3 denotes Time 3, or post-test; and T4 denotes Time 4, or follow-up. Pairwise comparisons were only conducted when the overall ANOVA model was significant. Follow-up analyses are paired $t$-tests. Effect sizes reported for pairwise comparisons and follow-up paired $t$-tests are Cohen’s $d$. 
2.6 Figures

Figure 1. Mean parent ratings of adolescent symptomatology at four time points.
Figure 2. Parenting stress scores at four time points.
“Remember daddy, be mindful:” A Qualitative Exploration of Mechanisms of Action in Concurrent Parent-Child Mindfulness Training

3.1 Introduction

Despite the promising results from the quantitative evaluation of MYmind, several questions remain unanswered. While parents reported significant improvements in their own and their adolescent’s functioning in Study 1, it is unclear how these changes were engendered, and thus, what aspects of the intervention were associated with these positive outcomes. I did not examine the participants’ perceptions of the intervention process in Study 1, nor did I explore their understanding and application of mindfulness concepts. For these reasons, Study 1 did not yield information regarding the mechanisms of change, which is needed in order to identify the essential components for a maximally efficient and effective intervention. Furthermore, results from Study 1 did not support my hypothesis with respect to improved family functioning. In contrast to the results obtained in Study 1, participants often spoke of their improved family relationships during sessions. This perplexing discrepancy between quantitative and anecdotal evidence highlighted the need for additional analyses. Consequently, I set out to investigate participants’ perceptions and cognitions related to mindfulness, how they incorporated mindfulness into their lives, and whether increased mindfulness had an impact on their functioning in various domains, particularly with respect to social relationships. Therefore, in Study 2, I use qualitative interviews to explore the lived experiences and process of change among five families who participated in MYmind.

Prior to describing the methodology and results of Study 2, I provide a conceptual definition of mindfulness based on a survey of the literature. I then review research on the process of change in mindfulness-based interventions. As discussed below, enhanced emotion regulation ability seems to be a central mechanism contributing to outcomes in mindfulness-based interventions. Accordingly, I describe research on emotion regulation in the context of mindfulness-based interventions. I then discuss the social impact of emotion dysregulation among adolescents with ADHD, and the potential role of mindfulness in improving social relationships via enhanced
emotion regulation. As MYmind involves parents as well as teens, I review literature on the process of change in mindful parenting interventions. I conclude the introduction with the proposal of a new process model that synthesizes the conclusions drawn from the literature, followed by a statement of the questions that guided the present investigation.

3.1.1 The Process of Change in Mindfulness Interventions

3.1.1.1 Defining Mindfulness

The evaluation of mindfulness-based interventions poses a challenge, as the term mindfulness is used interchangeably to refer to the practice, process, and outcome (Bishop et al., 2004). Most attempts to operationalize the construct are descriptive in nature, and do little to settle debate regarding fundamental issues such as whether mindfulness is a state or a trait (Chiesa, 2012), and whether it is a single- (Brown & Ryan, 2003) or multi-faceted construct (Baer et al., 2006; Bishop et al., 2004). Although the field has not yet reached an unequivocal agreement on the definition of mindfulness (Chiesa, 2012), a careful reading of the most popular and widely cited definitions reveals several key concepts that seem to reflect the essence of the construct.

Mindfulness is most commonly conceptualized as a fluctuating state of non-elaborative awareness of the present moment, cultivated through self-regulation of attention, and an open, curious and non-judgmental orientation to internal experiences (e.g., Bishop et al., 2004). This mode of awareness can be fostered through formal meditation practice. During meditation, the individual attempts to maintain focus on the sensations of the breath while noticing with curiosity the thoughts, feelings and sensations that inevitably arise, without judgment, elaboration, or action (Segal, Williams, & Teasdale, 2002). The positioning of self-as-observer is believed to result in de-identification with mental events, an experience known as decentering (Shapiro, Carlson, Astin, & Freedman, 2006). It is postulated that cultivating a state of decentered awareness allows individuals to reperceive (Shapiro et al., 2006) their thoughts and emotions as impermanent, to disengage from automatic modes of responding, and to gain insight into the nature of the body and the mind (Bishop et al., 2004). Mindfulness meditation has been likened to a form of metacognitive training that fosters self-monitoring and self-regulation, otherwise known as executive function (Bishop et al., 2004; Black, Semple, Pokhrel & Grenard, 2011). This conceptual framework will serve as the working definition of mindfulness for the
The current study, and will provide direction for the survey of research on the mechanisms of action in mindfulness-based interventions.

3.1.1.2 Theories of Change

While there has been a proliferation of research demonstrating the beneficial outcomes of mindfulness training (for reviews see Baer, 2003; Brown, Ryan, & Cresswell, 2007; Burke, 2010; Chiesa, Calati, & Serretti, 2011; Eberth & Sedlmeier, 2012; Keng, Smoski, & Robins, 2011), research on the process of change has been relatively less abundant (Hayes & Wilson, 2003). A review of existing literature reveals that although several theories regarding mechanisms of action in mindfulness training have been advanced, the proposed pathways are diverse and there is no consensus on a comprehensive, unified, and empirically validated theory of change. Preliminary research suggests that the process of change in mindfulness training is complex and multi-faceted (Baer, Smith, Hopkins, Krietemeyer & Toney, 2006) involving alterations in neurological activity, cognition, and behaviour (e.g., Chiesa et al., 2011; Chiesa & Serretti, 2010).

Grabovac, Lau, and Willett (2011) present a conceptual model of the mechanisms of action in mindfulness training based on Buddhist psychological theories. The Buddhist psychological model (BPM) is built on three core concepts: impermanence, not-self, and suffering. Buddhist theories posit that sense impressions (e.g., physical sensations) and mental events (e.g., cognitions) are transient; they arise and pass so rapidly as to appear continuous, but they are in fact discrete, impermanent events. Despite the subjective sense of continuity, these events do not represent a fixed or distinct entity that could be identified as the self. According to BPM, the awareness of a sensation or cognition is accompanied by an affective tone, which may be experienced as positive, neutral, or negative. Our tendency to pursue or prolong positive feelings (attachment) and avoid or eliminate negative feelings (aversion) triggers a cascade of mental events known as mental proliferation. This automatic chain reaction ultimately leads to suffering. According to BPM, mindfulness practice leads to insight into the nature of impermanence, not-self, and suffering, which reduces attachment/aversion to passing mental events and feelings, and subsequently decreases mental proliferation. Grabovac et al. contend that insight is necessary for producing lasting clinical improvements. BPM distinguishes insight-oriented meditation from concentration meditation, which focuses attention on one object to the exclusion of all else. The
authors hold that concentration practices can enhance attention regulation, increase primary processing of sensations, and limit secondary elaboration, leading to temporary disruption of mental proliferation. They do not expand on cognitive or behavioural regulation, as these processes are seen as offshoots of attention regulation rather than products of insight. They also acknowledge the important role of acceptance as a quality of awareness that can prevent the elaboration of negative thoughts during meditation practice, reduce aversion to the practice, and expand the field of awareness. However, they maintain that insight is required to achieve a permanent change in perception. The authors note that most other existing theories of change are based on concentration practices and intervention effects can be understood as a function of attention regulation and/or acceptance.

Secular models of the process of change in mindfulness-based interventions often identify attention regulation and acceptance as key mechanisms of action, particularly for practitioners who are new to mindfulness. This is consistent with the conceptualization of mindfulness advanced by Bishop et al. (2004) as previously discussed. Most current models focus on a limited set of variables that can be reliably measured to better understand the processes that contribute to temporary changes in state levels of mindfulness following brief mindfulness training. The models presented below do not emphasize insight to the same extent as the BPM.

Holzel et al. (2011) consolidated the findings emerging from the fields of psychology and neuroscience to produce the first integrated theory of change. They found that four distinct yet related processes were implicated time and again in studies using an array of measures, including self-report, behavioural observation, and neuroimaging. Holzel et al. suggest the following processes interact to produce the changes observed after mindfulness training: 1) attention regulation; 2) body awareness; 3) emotion regulation; and 4) change in perspective of the self (i.e., decentering). The component processes influence and reinforce each other to varying extents under different conditions. Holzel et al. assert that the ability to regulate attention, including conflict monitoring, alerting and orienting, is a pre-requisite for the development of the other components; thus, attention regulation is positioned as the initiating process in this model. Focusing attention on sensory experiences leads to enhanced awareness of somatic and affective states. They contend that this awareness of sensation and affect is related to the ability to regulate emotions. Two types of emotion regulation strategies (reappraisal and exposure/extinction) are featured in the model. Change in perspective of the self, or decentering, is seen as a result of,
rather than condition for, enhanced body awareness and emotion regulation. Unlike most conceptual models of mindfulness, which emphasize the importance of one’s attitude or posture towards experience, this model does not feature acceptance as a component process.

In contrast, Teper, Segel, and Inzlicht’s (2013) model emphasizes acceptance as equally important as present-moment awareness in the early stages of mindfulness training, and views the regulation of attention and affect as outcomes of these processes. They contend that awareness of interoceptive affective cues (e.g., bodily sensations) and acceptance of affective experience alerts meditators to the need for regulation and motivates self-regulatory action. In this way, awareness and acceptance are thought to improve executive functioning. Teper et al. include attention regulation under the umbrella of executive function, along with cognitive flexibility and inhibitory control. They posit that improvements in executive functioning lead to enhanced emotion regulation abilities in meditators, along with other unspecified beneficial outcomes. The model proposed by Teper et al. does not discuss the kinds of emotion regulation strategies that may be strengthened by this process, nor does it address the role of decentering in mindfulness meditation.

The models proposed by Holzel et al. (2011) and Teper et al. (2013) represent attempts to integrate conceptual explanations such as the BPM with empirical evidence from a variety of fields to develop a comprehensive theory of the process of change in mindfulness meditation. These models, among others, serve to stimulate debate and guide scientific inquiry into the mechanisms of action in mindfulness-based interventions. While these models provide a useful starting point, they may be of limited utility with respect to the population of interest in the current investigation. The existing models were based on research conducted with adults, and may not accurately reflect the process of change for youth. Mindfulness-based practices are often adapted to be more developmentally appropriate for youth; a common adaptation is to shorten the length of sitting meditations (Hooker & Fodor, 2008). Since youth do not receive the same “dose” of treatment as adult participants, the underlying mechanisms of action may differ from that of adults. Existing models also fail to discuss potential variations owing to individual differences in neurocognitive abilities. It is not clear whether these models are applicable to individuals with neurocognitive impairments such as ADHD. Furthermore, these models were not developed in a relational framework, so they tell us little about the process of change within a family system. Nonetheless, the available research on the process of change serves as a guide for
this preliminary investigation of the process of change in MYmind. Emerging process-oriented research suggests that improved emotion regulation skills account for a substantial portion of the symptom reduction and enhanced psychological well-being reported after mindfulness training (e.g., Coffey & Hartman, 2008; Coffey, Hartman, & Fredrickson, 2010).

3.1.2 Emotion Regulation

Emotion regulation is “the processes by which individuals influence which emotions they have, when they have them, and how they experience and express these emotions” (Gross, 1998, p. 275). This process involves consciously or automatically monitoring and modifying experiential, behavioural and/or physiological subsystems of the emotion system (Gross, 1998; Gross, 2002) in the service of personal, social or survival goals (Southam-Gerow & Kendall, 2002). It is important to note that emotion regulation does not refer solely to controlling or attenuating negative emotional processes (Gross, 1998; Gross, 2002; Southam-Gerow & Kendall, 2002). In fact, there may be situations in which greater emotional arousal or expression of emotion is advantageous (Southam-Gerow & Kendall, 2002), such as when the expression of sadness elicits caring or soothing responses from social partners. Emotion regulation is a dynamic and context-dependent process of up- or down-regulating positive or negative emotions (Southam-Gerow & Kendall, 2002). Emotion regulation is considered a developmental process, in that competency in this area continues to develop throughout the lifespan. As children gain greater emotion understanding (e.g., recognition of and attributions for emotions in self and others) with age and experience, they demonstrate greater complexity and planful use of emotion regulation strategies (Southam-Gerow & Kendall, 2002). Gratz and Roemer (2004) suggest that an adaptive response to emotions requires awareness and understanding of emotions, acceptance of distressing emotions, ability to inhibit impulses and engage in goal-directed behavior when experiencing distressing emotions, as well as access to and flexible use of emotion regulation strategies.

3.1.2.1 Emotion Regulation Strategies

There are many strategies used to modulate the type or intensity of emotional experience or alter the emotion-eliciting situation, some of which have received more research attention than others due to their relationship with mental health variables (Aldao, Nolen-Hoeksema, & Schweizer, 2010). While emotion regulation is not inherently good or bad (Gross, 1998), some emotion regulation strategies seem to be associated with psychological well-being and markers of
adaptive functioning. For the purposes of this review, emotion regulation strategies will be broadly categorized as adaptive (i.e., related to healthy psychological functioning) or maladaptive (i.e., risk factors for distress and psychopathology) (Aldao et al., 2010).

Adaptive emotion regulation strategies include cognitive reappraisal, problem solving, and acceptance (Aldao et al., 2010). Cognitive reappraisal is a process whereby a person modifies his or her thoughts about an emotional stimulus in order to attenuate the emotional impact of the stimulus (Troy, Shallcross, Davis, & Mauss, 2012). For example, positive reappraisal involves re-construing a stressful event as harmless, beneficial, or meaningful, thereby reducing distress and creating opportunities for productive re-engagement with the stressor (Garland, Gaylord, & Fredrickson, 2011; Garland, Gaylord, & Park., 2009). Reappraisal effectively down-regulates negative emotions and increases the experience of positive emotions, without placing excessive demands on cognitive resources (Gross, 2002). Problem solving involves conscious effort to reduce or eliminate stressors by altering the situation or limiting negative consequences. Problem solving indirectly regulates distress by changing the environmental stimuli, rather than targeting the emotion directly (Aldao et al., 2010). Cognitive reappraisal and problem solving strategies are negatively associated with psychopathology in adults; specifically, reappraisal is associated with lower levels of depression and anxiety, while problem solving is negatively associated with depression, anxiety, and eating disorders. The strength of the associations is moderated by age, indicating that children are less likely to use these strategies, or are less effective at implementing them, than adults are (Aldao et al., 2010). Non-judgmental acceptance of emotional experience is also regarded as an adaptive emotion regulation strategy. The attitude of non-judgment is negatively predictive of levels of depression, stress and anxiety (Cash & Wittingham, 2010).

Maladaptive emotion regulation strategies involve avoidance of and over-engagement with experiences (Hayes & Feldman, 2004). Avoidant strategies include suppression, experiential avoidance, and behavioural avoidance, all of which have the unintended effect of increasing the availability of the avoided stimuli in one’s consciousness (Aldao et al., 2010). Suppression of emotional experience and/or expression has been found to increase negative cognitions and physiological arousal, and results in hypersensitivity to the avoided emotional experiences (Aldao et al., 2010). Avoidance increases negative cognitions and decreases coping actions (Aldao et al., 2010). Over-engagement with emotions in the form of rumination is also
considered maladaptive. This strategy involves repetitively focusing on the symptoms, causes, meanings, and consequences of one’s emotions, in an attempt to understand and regulate them (Nolen-Hoeksema, Wisko & Lyubomirsky, 2008). However, rumination actually prolongs and intensifies negative emotions, activates negative cognitions, and interferes with effective problem solving (Nolen-Hoeksema et al., 2008). Rumination is associated with abstract, over-generalized thinking, cognitive inflexibility, and difficulty switching attention (Nolen-Hoeksema et al., 2008). Children and adolescents seem just as likely as adults to use rumination to regulate emotions, and longitudinal studies suggest this increases their risk of developing depression (Aldao et al., 2010) and substance use problems as adults (Nolen-Hoeksema et al., 2008). Overall, the maladaptive strategies of avoidance and rumination have been positively associated with adult psychopathology such as depression, anxiety, and eating disorders (Aldao et al., 2010).

3.1.2.2 Emotion Regulation as a Mechanism of Action in Mindfulness Training

In this section, I identify the metacognitive or executive functioning skills cultivated by mindfulness training, and provide conceptual and empirical evidence of their relationships to improved emotion regulation in meditators. Mindfulness training promotes decentering (Troy et al., 2012), self-focused attention, and acceptance (Baer, 2009), which lead to cognitive defusion (Chambers, Gullone & Allen, 2009) and cognitive flexibility (Shapiro et al., 2006). These processes ultimately lead to more flexible and effective use of adaptive emotion regulation strategies, and less rigid adherence to maladaptive strategies.

3.1.2.2.1 Increased Use of Adaptive Emotion Regulation Strategies

Decentering, also known as reperceiving (Shapiro et al., 2006) or metacognitive insight (Chambers et al., 2009), refers to the cognitive set-shift that occurs when individuals step back from their thoughts to observe them more objectively (Shapiro et al., 2006). Distanced observation allows individuals to know their minds more deeply and intimately than is possible when fettered by automatic preconceptions (Shapiro et al., 2006). With practice, individuals begin to recognize their thoughts as passing mental events rather than representations of self or reality, a process known as cognitive defusion (Chambers et al., 2009); as such, they are able to de-identify with the contents of their minds and develop greater awareness of the processes of
their minds (Shapiro et al., 2006). Although Holzel et al. (2011) assert that total de-identification with the self only occurs in experienced meditators after extensive practice, they allow that novices may achieve a partial de-identification from mental events as they cultivate a sense of self-as-observer. Decentering in this way promotes cognitive flexibility, such that individuals are able to recognize and disengage from conditioned, rigid and automatic patterns in order to respond with intention to things as they are (Shapiro et al., 2006).

Increased cognitive flexibility may improve the ability to disengage from an initial negative appraisal of a situation, switch the focus of attention, and reappraise the situation in order to regulate emotional experience (Garland et al., 2011; Garland et al., 2009; Troy et al., 2012). Present-moment awareness may also provide individuals with pertinent information from the internal and external environments that can be used to form reappraisals (Troy et al., 2012). Conversely, cognitive reappraisal may represent a form of experiential avoidance when individuals are motivated by the desire to withdraw from contact with distressing thoughts or emotions; in such instances, cognitive reappraisal may be inconsistent with mindfulness (Chambers et al., 2009). However, both mindfulness and cognitive reappraisal involve relating to thoughts and feelings in a new way, and thus may be similar at the level of process, if not content (Chambers et al., 2009).

Troy et al. (2012) compared the cognitive reappraisal abilities of adult graduates of MBCT, graduates of CBT and a no-treatment control group. They found that individuals who completed MBCT training in the past were significantly more effective in the use of reappraisal strategies to reduce their distress in a laboratory task than were those who had completed CBT or had no therapy experience. This suggests that mindfulness training promotes the use of adaptive emotion regulation strategies to a greater extent than cognitive-behavioural interventions alone. Increases in the use of reappraisal account for some of the positive outcomes of mindfulness training. In a clinical sample of adults participating in MBSR, the relationship between enhanced present-centred attention and stress reduction was partially mediated by increases in positive reappraisal ability from pre-test to post-test (Garland et al., 2011).
3.1.2.2 Decreased Use of Maladaptive Emotion Regulation Strategies

The honing of self-focused attention via mindfulness training paradoxically leads to reductions in the maladaptive emotion regulation strategy of rumination. While too much self-focused attention, particularly if it is critical or ruminative, can be maladaptive, self-focused attention that is oriented to the details of the present moment has been associated with improvements in well-being (Baer, 2009). Some researchers contend that processing concrete details (e.g., physical sensations of breath) uses cognitive resources that otherwise would be recruited for the elaboration of abstract and negative over-generalizations about the self (Bishop et al., 2004; Teasdale et al., 1995). In this way, mindful awareness of the present moment is antithetical to maladaptive rumination. Enhanced self-focused attention from a decentered perspective allows individuals to more quickly identify their automatic ruminative tendencies and disengage from them (Troy et al., 2012).

An experimental comparison of mindfulness meditation, loving kindness meditation, and progressive muscle relaxation found participants in the mindful breathing group were more aware of their repetitive thoughts, and those who had a higher frequency of repetitive thoughts had less negative emotional reactions to them (i.e., decentering), compared to the other groups (Feldman, Greeson, & Senville, 2010). A waitlist control evaluation of MBCT found that the clinical benefits of mindfulness training were partially mediated by reductions in maladaptive rumination and increases in present-moment self-focused attention (Heeren & Philippot, 2011). A randomized control trial comparing MBSR to relaxation training and no treatment indicated that, while mindfulness training and relaxation training both ameliorated distress and increased positive mood states compared to no treatment, only mindfulness training resulted in reductions in rumination. Further, the reductions in rumination partially accounted for the impact of mindfulness training on changes in psychological distress (Jain et al., 2007). Results of a study using structural equation modeling suggest that reductions in rumination mediate a large percentage (47-52%) of the impact of mindful attention on psychological distress (Coffey & Hartman, 2008). This implies that one of the primary mechanisms of action in mindfulness training is reduced rumination.

An integral element of the process of decentering and self-observation is the attitude of acceptance. Non-judgmental acceptance of present-moment experience makes it possible to
observe thoughts and emotions without evaluating or labeling them, eliminating the negative self-judgments, shame, and blame that lead to suffering. Thoughts and emotions are then permitted to enter the field of awareness without triggering distress. This reduces experiential avoidance and increases tolerance for the once stress-inducing stimuli (Hayes & Wilson, 2003). As individuals observe previously avoided internal experiences, they learn that thoughts and emotions are changeable and impermanent. With repeated exposure and desensitization, the fear response is extinguished and the need for maladaptive avoidance is eliminated (Shapiro et al., 2006).

The quality of non-judging is negatively correlated with experiential avoidance and thought suppression (Baer, 2006). Furthermore, increases in non-judgmental acceptance of inner experience have been associated with positive treatment outcomes. Following MBSR training, the relationship between mindfulness practice and improvements in psychological well-being was mediated by a non-judgmental attitude (Baer, 2009). Another study found that reductions in self-harm after acceptance-based treatment were mediated by reductions in emotional avoidance (Gratz & Gunderson, 2006). A path analysis with a sample of non-clinical adults suggests that acceptance of internal experience leads to clarity about and ability to identify emotions (the opposite of avoidance), which in turn improves the ability to regulate negative emotions. These enhanced emotion regulation skills predicted reductions in distress and improvements in mental health (Coffey et al., 2010).

3.1.2.2.3 Mapping the Process of Change

I synthesized the literature in the form a theoretical model of the process of change in mindfulness-based interventions. Figure 4 depicts a proposed pathway from mindfulness meditation to positive outcomes via improved executive function and emotion regulation. In this theoretical model, the awareness, decentering and acceptance cultivated through mindfulness meditation result in improved self-monitoring (i.e., awareness of internal states, recognition of affect changes, identification of automatic tendencies) and self-regulation (i.e., inhibitory control and attention regulation, including conflict monitoring, alerting, orienting, and shifting), which in turn leads to increased use of adaptive emotion regulation strategies (i.e., reappraisal, acceptance) and decreased use of maladaptive emotion regulation strategies (i.e., rumination,
avoidance). Enhanced emotion regulation results in improved mental health and well-being, and amelioration of distress.

### 3.1.2.3 Emotion Dysregulation and Impairment in Individuals with ADHD

In adolescence, the key behavioural symptoms associated with ADHD (i.e., inattention, hyperactivity, and impulsivity) are associated with impairments in terms of academic achievement, job performance, and family and social relationships (Harpin, 2005). Emotion dysregulation has been posited as a central feature of ADHD, with as many as 86% of adults with ADHD displaying features of temper, emotional lability, and emotional reactivity (Barkley, 1997; Barkley & Murphy, 2010) distinct from mood disorders (Reimherr et al., 2010). Emotion dysregulation predicts social, occupational, and other functional impairments beyond what is predicted by traditional ADHD symptoms (Barkley & Fischer, 2010; Barkley & Murphy, 2010).

Difficulties with emotion regulation are thought to contribute to the development and maintenance of many psychological disorders (Berking et al., 2008). Emotion dysregulation has been associated with mood disorders, eating disorders, personality disorders, and substance abuse disorders (Aldao et al., 2010). Children diagnosed with, or at-risk for, psychological disorders exhibit delays in emotion self-understanding and difficulties with emotion expression (e.g., inhibited, under-controlled, or atypical expressions), suggesting emotion dysregulation (Southam-Gerow & Kendall, 2002).

Therapeutic interventions that target emotion regulation may result in symptom reduction and improved psychological health for individuals with ADHD with or without co-occurring disorders. A study comparing cognitive behaviour therapy (CBT) to CBT plus emotion regulation skills training (CBT+ER) among psychiatric inpatients with mixed symptom presentations found that patients in the CBT+ER group demonstrated higher levels of overall emotion regulation, greater increases in positive affect, and greater symptom reduction post-treatment. More specifically, improvements in the ability to modify, accept and tolerate negative emotions were predictive of treatment gains (Berking et al., 2008). This suggests that acceptance-based approaches promoting the development of adaptive emotion regulation skills may enhance the efficacy of standard cognitive-based treatment protocols.
A qualitative exploration of the experiences of adolescents with Learning Disabilities and co-occurring disorders such as ADHD found that a combined mindfulness and martial arts intervention increased their ability to remain calm, and tolerate and accept difficult emotions (Milligan, Badali, & Spiroiu, 2013). This indicates that mindfulness training for youth with executive functioning deficits may be associated with improvements in emotional reactivity and emotional regulation.

3.1.3 Mindfulness, Emotion Regulation and Family and Social Relationships

A domain in which emotion dysregulation may have a particularly detrimental impact is that of social relationships. Youth with ADHD have difficulties in family and peer relationships characterized by greater family conflict (particularly when comorbid ODD is present; Edwards, Barkley, Laneri, Fletcher, & Metevia, 2000), fewer reciprocal friendships, and more social rejection than their typically developing peers (McQuade & Hoza, 2008; Wehmeier, Schacht, & Barkley, 2010). Excessive emotional reactivity and poor emotional self-regulation have been linked to lower social status among youth with ADHD-Combined subtype (Maedgen & Carlson, 2000). The use of adaptive emotion regulation strategies (i.e., reappraisal and problem solving) by boys with ADHD in response to an emotionally arousing task predicts better compliance to adult requests (Melnick & Hinshaw, 2000).

Mindfulness-based interventions may exert indirect effects on social relationships via enhanced emotion regulation. A qualitative investigation of the impact of mindfulness on interpersonal relationships revealed that long-term meditators became less emotionally reactive to others as a result of decentering, enhanced self-awareness of emotional triggers and physiological responses to emotions, and acceptance of others (Pruitt & McCollum, 2010). Literature from the field of intimate/marital relationships indicates that mindfulness training modifies brain systems implicated in social and emotional intelligence, and that levels of mindfulness are associated with marital satisfaction, communication, partner acceptance, and reductions in relationship stress (Atkinson, 2013). Correlational studies suggest that dispositional mindfulness is associated with emotion regulation during conflict (i.e., inhibiting impulses to respond negatively, and responding constructively instead). In an experimentally induced conflict situation, individuals with higher levels of dispositional mindfulness entered conflict discussions with their intimate partners with lower levels of anger and anxiety, and subsequently experienced less emotional
reactivity during the conflict. State mindfulness negatively predicted verbal aggression, negativity, and conflict during the task (Barnes, Brown, Krusemark, Campbell, & Rogge, 2007). One study found the association between dispositional mindfulness and marital satisfaction was fully mediated by anger reactivity and identification and communication of emotions (Wachs & Cordova, 2007), indicating that mindfulness improves romantic relationship quality through enhanced emotion regulation skills. Correlational and experimental studies have demonstrated that mindfulness is associated with improved empathy and perspective taking between intimate partners (Atkinson, 2013). Mindfulness is theorized to enhance empathy by cultivating awareness and acceptance of one’s own feelings, which makes it easier to recognize and understand the emotions of others (Block-Lerner, Adair, Plumb, Rhatigan, & Orsillo, 2007). Given that mindfulness is associated with improved emotion regulation, enhanced relationship satisfaction, greater empathy and more perspective taking in intimate relationships, similar correlations may exist within other relationship dyads, such as peer and parent-child relationships.

3.1.3.1 Emotion Regulation in the Context of Mindful Parenting

Several models of mindful parenting have been proposed (e.g., Bogels, Lehtonen, & Restifo, 2010; Dumas, 2005; Duncan, Coatsworth, & Greenberg, 2009), all of which are based on the premise that the psychological changes associated with mindfulness training inevitably impact one’s intra- and interpersonal relationships. Bogels et al.’s (2010) model of mindful parenting proposes several potential mechanisms of improved parent-child relationships that are similar to those described in the literature on romantic relationships. They note that reductions in parenting stress, anxiety and/or depression will likely enhance parenting skills and increase satisfaction with family relationships. Reductions in rumination and preoccupation may lead to greater presence and attunement, strengthening the security of parent-child attachment. When parents are no longer preoccupied with negative cognitions related to their own upbringing or to their history with their children, they are better able to attend to and accept them as they are in the moment. Bogels et al. further propose that acceptance of self, or self-compassion, fosters compassion for the child. This leads to reduced parental reactivity to their children’s behaviour, as well as reduced reactivity in co-parenting interactions. Central to this model is the concept of regulating one’s thoughts and emotions in order to be present and attuned to other members of the family, and to respond skillfully rather than react automatically. Although automaticity is a
natural and necessary component of family interactions, in families of children with disruptive
behaviours these interaction patterns are often characterized by hurt, anger and conflict (Dumas,
2005). A mindful approach to parenting can help to replace automatic patterns of negative
interaction with more thoughtful, measured and adaptive responses (Dumas, 2005).

One study of dispositional mindfulness revealed that fathers who were able to accept, rather than
avoid, difficult thoughts and emotions related to their children with intellectual disabilities, gave
higher ratings of psychological adjustment, and perceived more positive benefits from their
children (which may reflect the use of positive reappraisal). Moreover, paternal acceptance of
internal experiences partially mediated the impact of child behaviour problems on paternal
depression, anxiety and stress (MacDonald, Hastings, & Fitzsimons, 2010). These results lend
support to Bogels’ conceptual model of mindful parenting.

Coatsworth, Duncan, Greenberg, and Nix (2010) developed a set of mindfulness-based activities
targeting five dimensions of mindful parenting: 1) listening with full attention; 2) non-
judgmental acceptance of self and child; 3) emotional awareness of self and child; 4) self-
regulation and low emotional reactivity; and 5) compassion for self and child. The activities were
added to a pre-existing parenting program for parents of adolescents. They conducted a
randomized waitlist control evaluation comparing the intervention with and without the
mindfulness activities. The greatest gains in parent-adolescent relationship quality occurred in
the mindfulness-infused group. Specifically, mothers in the mindfulness-infused group reported
more improvements in their ability to regulate their anger, attend to their children’s emotional
experience, and express positive rather than negative affect towards their children. Interestingly,
mothers in the mindfulness-infused group indicated their adolescents expressed more positive
and less negative affective behaviour towards them, even though the youth did not receive
mindfulness training. Improvements in parent-adolescent relationship quality were mediated by
increases in maternal mindfulness.

The results of the Coatsworth et al. study are intriguing because they suggest a process of co-
regulation, whereby the improved emotion regulation skills of the parents give rise to improved
emotion regulation skills in children. This process of co-regulation may be particularly important
for children with ADHD. One study of parents and their children with ADHD during an
emotionally arousing task found that lower levels of parental emotional reactivity and greater
parental emotion regulation, as well as parental emotional coaching of the child, were significantly correlated with greater child emotion regulation during the task (Melnick & Hinshaw, 2000). This suggests that parents play an important role in helping youth with ADHD regulate their emotions in vivo, which has implications for family-based interventions.

Given this process of emotional co-regulation, it is reasonable to expect that increases in mindful parenting might result in changes in child behavioural difficulties as well as parent-child relationship quality. Indeed, parent mindfulness is significantly negatively correlated with child internalizing and externalizing behaviour (Parent et al., 2010). A series of small sample multiple baseline studies by Singh et al. found that when parents received mindfulness training, their children with disabilities demonstrated reductions in noncompliance (2006; 2010), aggression (2006; 2007b), and self-injury (2006), and improved social skills (2007b). Furthermore, parents experienced greater happiness and satisfaction with their parenting and their relationships with their children (2006; 2007b; 2010). Similar outcomes are observed in parents at risk for psychopathology and child maltreatment. A randomized control study comparing a mindfulness-infused parenting program with brief parent skills training and treatment as usual for high-risk parents on methadone maintenance found significant reductions in parenting stress, parenting rigidity, child abuse potential, and child behaviour problems, as well as increases in child prosocial behaviour (Dawe & Harnett, 2007). These results support the relationship between parent mindfulness and improved child outcomes. Further research is needed to elucidate the pathway to positive child outcomes observed in these studies.

Taken together, results of preliminary investigations of mindful parenting support the proposed mechanism of improved emotion regulation as a key factor in enhancing parent-child relationship quality.

3.1.4 Synthesis of Literature Review and Objectives of Current Study

In Figure 6, I present a theoretical pathway from mindfulness training to improved parent-child relationship quality that is supported by a review of the literature pertaining to mechanisms of action in mindfulness training, as well as conceptual models of mindful parenting. Similar to the pathway delineated in Figure 5, this model proposes that parents participating in mindfulness training cultivate awareness, acceptance and objectivity towards their internal experiences. These processes support and enhance one another in an iterative progression which leads to improved
self-monitoring (i.e., awareness of internal states, recognition of affect changes, identification of automatic tendencies) and self-regulation (i.e., inhibitory control and attention regulation), elements of executive functioning. More skillful monitoring and regulating of self allows parents to recognize the need to regulate emotions as they arise, select adaptive rather than maladaptive strategies, and implement them more effectively. Improved emotion regulation abilities provide the foundation for greater empathy and perspective-taking, listening and speaking with awareness, reduced conflict intensity, and increased relationship satisfaction, which ultimately lead to improved parent-child relationship quality.

What remains unknown is whether child mindfulness training uniquely contributes to improved relationship quality via similar mechanisms, particularly among children with ADHD. Due to underlying deficits in executive function and emotion regulation, children with ADHD often exhibit impairments in social-cognitive functioning such as empathy and social-perspective taking (Marton, Wiener, Rogers, Moore, & Tannock, 2009). It is possible that mindfulness training for youth with ADHD may improve executive function and emotion regulation skills, thereby increasing the ability to consider the emotional experience of a social partner and respond appropriately to the social context. Improvements in these domains of child functioning may produce corresponding improvements in parent-child and peer relationship quality. In the absence of solid theory or research on the mechanisms of mindfulness for youth with ADHD, the applicability of the proposed model to youth participating in mindfulness training is speculative.

Further research is required to examine the process of co-regulation, which may serve to reinforce and maintain the positive outcomes observed after parent mindfulness training. It is not clear whether additional benefits may be experienced when both members of the parent-child dyad receive mindfulness training, particularly when emphasis is placed on applying mindfulness to relationships, as it was in MYmind.

I will use in-depth semi-structured interviews to elucidate the individual and shared meanings of mindfulness meditation for adolescents with ADHD and their parents. In so doing, I hope to gain insight into the practice of mindfulness meditation, the process of metacognitive change, and the mediating impact of emotion regulation on the intra- and interpersonal functioning of participants. I will endeavour to adopt a curious, open, and accepting attitude as I explore the following questions in Study 2:
1. What is the nature of the experience of meditation for adolescents with ADHD and their parents?

2. What are the mechanisms of therapeutic action of MYmind for adolescents with ADHD and their parents?

3. How does MYmind affect the social relationships of adolescents with ADHD?

3.2 Method

3.2.1 Theoretical Framework

The methodology I selected for use in the current study was based on the philosophy of phenomenology introduced by Edmund Husserl (1859-1938) (Giorgi, 2008; Lindseth & Norberg, 2004). This system of thought was later articulated into a methodological approach for psychological research by Amedeo Giorgi (1997; 2008). Husserl’s phenomenology was based on the belief that there is no objective external reality; rather, humans construct their subjective reality in personal consciousness (Groenewald, 2004), by interpreting and ascribing meaning to experiences (Sadala & de Camargo Ferreira Adorno, 2002). In this way, people shape, and are shaped by, their interaction with the world (Sadala & de Camargo Ferreira Adorno, 2002). According to this theory, since the world exists only in relation to personal consciousness, phenomena must be studied through the lens of human experience (Sadala & de Camargo Ferreira Adorno, 2002). *Phenomenon* refers to the presence of something as it is perceived and understood in human consciousness (Giorgi, 1997; Moustakas, 1994). The phenomenological approach to research aims to uncover the implicit essence, meaning or structure of phenomena by describing and synthesizing the lived experiences of participants (Finlay, 2009; Lindseth & Norberg, 2004). Husserl believed this could be achieved through the processes of reduction, description, and search for essential structures (Finlay, 2009; Giorgi, 1997).

3.2.1.1 Phenomenological Reduction

The phenomenologist acknowledges the intersubjectivity between the researcher and the participants (Moustakas, 1994), and views data collection as a process of co-construction (Finlay, 2009). Indeed, the very act of communicating experiences via language is, in itself, an interpretive process (van Manen, 1997). Since subjectivity is inevitable, a rigorous research design must acknowledge and, insofar as is possible, attempt to control for the impact of human
consciousness on the research (Giorgi, 1997). The unreflective researcher is at risk of making inaccurate or biased interpretations, thereby skewing the results and obscuring the true essence of the phenomena under investigation. Thus, the researcher must become aware of, and set aside, her preconceptions about the phenomena in order to see what emerges from the data in the present (Giorgi, 2008). This process is referred to as bracketing or *epoche*, a Greek word meaning to stay away from or abstain from (Giorgi, 2008; Moustakas, 1994). When the researcher releases herself from over-categorization and conceptualization, new or forgotten meanings may come to light (Laverty, 2003). This nonjudgmental receptivity to experience, described as *disciplined naivete* or *disinterested attentiveness* (Finlay, 2009), is similar to the open and curious attitude cultivated through mindfulness practice. Phenomenological reduction involves describing things as they appear to our senses without further elaboration, as in the oft-quoted adage: “returning to the things themselves” (Moustakas, 1994). Further to the development of a phenomenological attitude, the researcher also must refrain from assuming any truth or reality about the phenomena, and acknowledge that any claims made about the phenomena relate solely to the experience of the subject (Giorgi, 1997; 2008). This attitude is maintained throughout the research process.

### 3.2.1.2 Description

The phenomenological researcher aims to describe the concrete, lived experiences of people gleaned through communication with them (Finlay, 2009). Language is used to convey the phenomenon as it is experienced by the individual (Giorgi, 1997). Description in this case is different from explanation, interpretation, or construction because the latter processes involve departure from the phenomenon as it is given by the participants (Giorgi, 1997). In the early stage of the process, the researcher must stay close to the data as it is given (Finlay, 2009). Initially, each statement is considered equally important. The researcher sits with the data, examining it from multiple perspectives, and makes corrections to her initial descriptions as shifts in perception occur with the discovery of new knowledge (Moustakas, 1994). Next, repetitive statements or those unrelated to the research question are removed. Following that, the researcher delves beyond explicit expressions in order to unearth implicit meanings (Finlay, 2009). Finally, she develops a complete description of the essential structure of the phenomena (Moustakas, 1994).
3.2.1.3 Search for Essences

Most day-to-day experiences are encountered with a natural attitude (in contrast to the phenomenological attitude previously discussed) in which knowledge remains unexamined and taken for granted (Giorgi, 1997; Lindseth & Norberg, 2004). Our ability to converse with others about an object without having to explain its meaning suggests an implicit meaning, or essence, that is shared by all (Lindseth & Norberg, 2004). Essence, in Husserlian terms, is the fundamental, invariant meaning of a phenomenon (Giorgi, 1997). The purpose of descriptive phenomenological research is to illuminate the underlying meaning structures of phenomena. This work can be conducted at the ideographic (individual) or nomothetic (group) level (Sadala & de Camargo Ferreira Adorno, 2002). Husserl developed the technique of free imaginative variation to explicate the essential structure of an object (Giorgi, 1997). In this technique, the researcher changes features of the phenomena to observe whether it remains identifiable (Laverty, 2003; Giorgi, 1997). For example, one might consider whether a chair is still a chair if it has no legs (Lindseth & Norberg, 2004). Through this process, the researcher determines what elements cannot be subtracted without violating the basic structure of the phenomena; in other words, she finds the essence of it (Giorgi, 1997).

3.2.2 Procedure

The research was approved by the University of Toronto’s Research Ethics Board. I invited a subset of families who completed the intervention to participate in interviews about their experiences. I used purposive sampling to select families from the clinical program who possessed attributes representative of the diverse population under investigation (Sandelowski, 1995). There is some debate concerning adequate sample size for phenomenological research, and no clear guidelines exist in this regard (Cresswell, 1998; Mason, 2010; Sandelowski, 1995). Researchers often aim for saturation, the point at which no new constructs emerge from the data. However, it is difficult to make an a priori determination of the number of participants required for saturation (Mason, 2010; Sandelowski, 1995). Sample sizes between 5 – 25 participants have been suggested for in-depth interviewing (Cresswell, 1998). A review of PhD dissertations found that sample sizes for phenomenological studies ranged from 7 – 89 (Mason, 2010). Given the aims and scope of the current study, I estimated that saturation could be achieved through in-depth interviews with approximately 25% of the overall population of families who participated...
in MYmind. Thus, five families (n = 12) were invited to participate in interviews about their experiences of MYmind.

I conducted all of the interviews. Having facilitated the adolescent groups, I shared with the participants a common vernacular and set of experiences with respect to mindfulness. However, I did not share characteristics salient to the population under investigation, such as ADHD diagnosis or parenthood. A familiar interviewer was selected to foster comfort, trust, and openness during the interviews.

Interviews took place approximately one to three months after completion of the intervention. Interviews were held in a quiet room free from distractions. The room contained a table, several chairs, and meditation cushions on the floor. When participants entered the room, the purpose and procedures were reviewed, informed consent was obtained, and the interview commenced. Parents and adolescents were interviewed separately, with the exception of one mother-son dyad who were interviewed together. Interviews took approximately 1 hour.

3.2.3 Participants

Participants in MYmind were adolescents between the ages of 13-18 with a previous diagnosis of ADHD from a qualified health professional (e.g., physician, psychologist, or psychiatrist). Current ADHD status was confirmed by clinically elevated inattentive and/or hyperactive-impulsive symptoms, as indicated by a T-score of 65 or greater on at least one of the DSM ADHD subscales of the Conners’ 3 Parent Report at baseline. Although attempts were made to collect corroborating information from schools, teacher reports were not used to confirm ADHD status. Many teacher reports were returned during or after the intervention, precluding their use as baseline measures. All adolescents were required to have average cognitive abilities, indicated by an IQ estimate of at least 85 on the Wechsler Abbreviated Scale of Intelligence (WASI). Participants with autism spectrum disorders, youth with severe behavioural problems constituting a safety risk, or those who were living outside of the home (e.g., residential treatment services) were not eligible to participate. At least one parent was required to participate in the intervention with their child. Please see Table 8 for a summary of participant characteristics. Note that all names are pseudonyms.
Family 1 consisted of a married heterosexual Caucasian woman, Jennifer, and her 18 year old son, Matt. Matt’s father and younger sister did not participate in the intervention. Jennifer was diagnosed with ADHD as an adult. During MYmind, she was not taking any medication for ADHD, but at the time of the interview she was experimenting with a new medication. Matt was diagnosed with ADHD-Inattentive Subtype in 2003, when he was 10 years old. He has a comorbid diagnosis of Learning Disability. He took medication for his ADHD for several years, and elected to discontinue due to side effects. He was not taking any medication while enrolled in MYmind, but subsequently started a trial of medication. Matt and Jennifer both reported experiencing anxiety. Matt was in his final year of high school when he enrolled in MYmind, and at the time of the interview he was preparing to attend university. They described themselves as creative people who enjoy art, film and literature.

Family 2 consisted of a divorced heterosexual Caucasian woman, Mary, and her 15 year old son, Tony. Tony has three half-siblings who do not live in his household. Tony was diagnosed with ADHD-Inattentive Subtype in 2009, when he was 13 years old. He takes medication for his ADHD. He has a comorbid diagnosis of Depression, for which he was prescribed medication. The family participated in behavioural and family-based treatments in the past. Tony was in Grade 9 when he enrolled in MYmind, and was attending summer school at the time of the interview. Mary and Tony are animal lovers who enjoy spending time with their pets. Tony is a competitive skateboarder.

Family 3 consisted of a married heterosexual Caucasian couple, Madeline and Tom. They participated in the intervention with their 17 year old daughter, Jess. Their adult son did not participate in the intervention. Madeline and Jess both have ADHD. Jess was diagnosed with ADHD-Inattentive Subtype in 2003, when she was 9 years old. She takes medication for her ADHD. Jess had recently completed her final year of high school when she began MYmind. She was unable to participate in the interview because she had moved out of town to attend University. Jess enjoys playing sports and spending time with her boyfriend.

Family 4 consisted of a heterosexual married couple, Meg and Ron, and their 17 year old daughter, Georgia. Their adult son did not participate in the intervention. The family emigrated from Asia in 2004, when Georgia was 10 years old. She was diagnosed with ADHD-Inattentive Subtype in 2010, when she was 16 years old. She takes medication to treat her ADHD.
also has comorbid diagnoses of Learning Disability and Depression. She participated in the intervention during the summer between Grade 10 and Grade 11. Meg and Ron enjoy playing tennis, and Georgia enjoys singing and playing piano.

Family 5 consisted of a divorced heterosexual Caucasian woman, Julia, and her two children: 18 year old Catherine and 13 year old Andrew. They were both diagnosed with ADHD and Learning Disability in 2006, when Catherine was 13 and Andrew was 8 years old. When they enrolled in MYmind, Catherine was taking medication for her ADHD, and Andrew had elected to discontinue his medication. They participated in family therapy in the past. At the time of the interviews, Catherine had recently started University, and Andrew had recently started his first year of high school (Grade 9). When she is not studying or working at her part-time job, Catherine enjoys spending time with her boyfriend. Andrew is a goalie on his competitive hockey team.

3.2.4 Measures

Wechsler Abbreviated Scale of Intelligence (WASI; Wechsler, 1999). The WASI is a standardized abbreviated intelligence test which provides an estimate of general cognitive ability. The vocabulary and Matrix Reasoning subtests were administered to obtain an IQ estimate. The IQ score derived from two subtests has an average reliability coefficient of .96.

Conners – 3rd edition (Conners, 2008). The Conners 3 is often used to screen for ADHD in children and adolescents. The parent (Conners 3-P) and adolescent self-report (Conners 3-SR) scales were used in the current study. This measure evaluates inattention and hyperactivity/impulsivity as well as learning problems, aggression, oppositionality, and relationships with others. Internal consistency coefficients range from .77 to .97.

Qualitative Interview. A semi-structured interview was developed for use in the current study. Participants completed a brief guided meditation at the beginning of the interview to encourage mindful presence and focus during the interview. Following this, they were asked to describe their experience of meditation (e.g., tell me about your experience of meditation today). Participants were prompted as needed to describe the thoughts, feelings, and sensations that arose during the meditation (e.g., did you become aware of any images/sounds/thoughts?). This style of inquiry was familiar to participants, and was included in the interview to create an
atmosphere of comfort and safety. For the remainder of the interview, I asked open-ended questions to explore the conceptual areas of mindfulness, family relationships and ADHD. Within each of these broad categories, a variety of questions pertaining to knowledge and facts (e.g., How often do you meditate? For how long?), descriptions (e.g., what did your relationship with your child/parent look like before the intervention? What does it look like now?), sensory experiences (e.g., how does it feel in your body?), emotions (e.g., what emotions do you experience during an argument with your child/parent?), and opinions/values/meaning (e.g., what does mindfulness mean to you?) were included to capture multiple facets of the phenomena. The interview was conversational in nature, and questions were omitted, added, re-ordered or re-worded as needed throughout the interview. Portions of the interview were guided by the participants. For example, when a participant introduced a topic, I deviated from the interview guide and encouraged him/her to elaborate. In this way, information emerged naturally and I was able to explore what was most important or pertinent for participants in that moment. See Appendix A for the semi-structured interview guide.

3.2.5 Transcription

I elected to use a denaturalized approach to transcription in order to reflect the theoretical basis and research goals of the current study (O’Connell & Kowal, 1999). This approach has been referred to as literacized because the idiosyncrasies of oral language are changed or omitted to resemble features of written language (Davidson, 2009). For example, commas, periods, and paragraphs are added to improve the readability of the transcript (Davidson, 2009; Oliver, Serovich, & Mason, 2005). Researchers using this approach are primarily concerned with accurately representing the meanings and perceptions conveyed in the interview, rather than the manner in which they were expressed (Oliver, Serovich, & Mason, 2005). Naturalized transcription, on the other hand, maintains all aspects of oral discourse, including involuntary vocalizations, rate, intonation, and volume (O’Connell & Kowal, 1999). While this approach may provide details useful for conversational analysis, it can disrupt the flow of the passage and create confusion for the reader (Oliver et al., 2005). The naturalized approach reflects the belief that there is one true reality which can be set down in text, while the denaturalized approach reflects the belief that language is a vehicle for communicating individualized constructions of reality (Oliver et al., 2005).
Interviews were audio-recorded and labeled with the date and participant identification number. Recordings were transcribed by two undergraduate research assistants who agreed to abide by a confidentiality agreement. I reviewed the transcripts by checking the text against the audio recording to verify accuracy. Efforts were made to preserve the expressed content and intended meaning of the oral discourse, while enhancing readability. Slang words and errors in grammatical structure were recorded as uttered, and clarification was included in parentheses as needed. Accents, pronunciation errors, and grammatical errors made by English language learners (e.g. omitting word endings, errors in tense) were transcribed as Standard American English. Involuntary repetitions (e.g., “you you can be mindful without meditating”), time-filling vocalizations (e.g., “I think it’s um the goal to um incorporate it all the time”), and continuation sounds (e.g. the interviewer says “mm” to indicate that she is listening) were omitted. Other vocalizations that clearly served a conversational function (e.g., “mm hm” to indicate agreement, or “huh?” to request clarification) were included. Non-verbal communication, such as gestures, fidgeting and pointing were omitted, since the audio recording was not accompanied by a video. Notation was limited in order to minimize disruption and maximize legibility. Dashes (-) are used to indicate an abrupt change or break in speech (O’Connell & Kowal, 1999). Three periods (…) indicate a pause of approximately 2 or more seconds. Ellipses ( … ) indicate omission of one or more words (O’Connell & Kowal, 1999).

3.2.6 Data Explication

I used Giorgi’s (1997; 2008) descriptive phenomenological approach for psychological research as a guide for data explication in the current study. Thematic analysis, as described by Braun and Clarke (2006), was used to identify themes related to the research questions (see step 4). It is important to note that analysis of this sort is a recursive process requiring flexibility on the part of the researcher. Although data explication proceeded generally in the order presented below, steps were revisited as needed throughout the process.

1. Phenomenological reduction and bracketing: After obtaining a concrete description of the phenomenon as experienced by the participant, I read the entire transcript to begin to formulate a sense of it as a whole. I attempted to set aside, or bracket, my own preconceptions in order to be open to the data as it emerged. I wrote down my initial impressions and potential themes.
2. Delineating meaning units: I returned to the transcript and read through it again slowly, identifying elements of the description that conveyed meaning. Meaning units consisted of words, phrases, or multiple sentences that conveyed a single concept.

3. Organizing and expressing meaning units: I eliminated repetitive statements and units of meaning not related to the phenomena under investigation. I then transformed the meaning units into concise and simplified statements that conveyed the crux of the participant’s statements.

4. Synthesizing and summarizing themes: Themes were primarily analyzed at the semantic, or explicit, level. I used an inductive, data-driven approach to search for recurring patterns of meaning units, rather than using a predetermined coding frame. I clustered the units of meaning to form themes and subthemes under working titles. Themes were characterized by prevalence across the data set (i.e., number of instances), space within each data item (i.e., participant gave considerable attention to the topic), and relevance (i.e., the theme was related to the overall research questions). Adolescent and parent transcripts were analyzed separately. Among the adolescent group, a topic had to be mentioned by at least two of the five participants (40%) to be considered for inclusion as a theme. Among the parent group, the criterion for prevalence was two out of five households. As new themes were identified, I returned to earlier transcripts to look for meaning units to support or disconfirm the theme. I reviewed the meaning units regularly to ensure I was coding them consistently across time.

5. Creating a composite summary: I examined the common and unique themes within each group and created thematic maps illustrating the structure of the phenomena as reported by adolescents and parents. I then compared adolescent and parent maps, and merged themes that were consistent across groups. I selected titles that represented the voices of participants. Themes unrelated to the research questions were removed. Finally, I created a composite summary in the form of a visual map of the overall themes and subthemes common to both adolescents and parents, as well as the unique themes identified within the groups (Figure 5).

6. Reporting results: Rather than presenting all of the quotations pertinent to each theme, I selected a few quotations to convey the essence of the theme. I endeavored to represent the voices of all participants, honouring those who may have been reserved, hesitant or inarticulate during the interview, as well as those who were more eloquent. I also aimed
for proportional representation in the text (e.g., if the majority of parents spoke to a particular theme, and very few adolescents did, then I attempted to include more quotations from parents in the summary). I organized and grouped similar themes together in order to create a structured and cohesive narrative. This process in itself was a form of analysis, as I became aware of patterns of results I had not recognized in the earlier stages of analysis. In order to make the results meaningful to readers, I often provided background information, context, and interpretations in the text.

7. Comparing results with existing literature: After thematic analysis was completed, I consulted the literature regarding mechanisms of action in mindfulness meditation to assess whether the results of the current study were consistent with, or contradictory to, existing theories. I purposefully did not review the literature prior to conducting the thematic analysis because I did not want to form expectations that might influence my interpretation of the data. After reviewing the literature, I refined some of my language to reflect the accepted terminology for established concepts and reorganized some sections, but otherwise left the content unchanged. Direct quotations from participants were not altered.

3.2.7 Reliability

In order to reduce the impact of coder bias and to enhance reliability of the results, I implemented several reliability checks throughout the data explication process. I reviewed the themes with a committee of experts on ADHD and mindfulness to ensure that my interpretation of the data was consistent with relevant research on the self-perceptions of adolescents with ADHD, as well as theories on the process and outcomes of mindfulness-based interventions. I also invited a lay (i.e., non-clinician, non-researcher) graduate of a MBCT program to review themes and provide input based on his personal experience of mindfulness training. Finally, I triangulated the results with quantitative data analysis and time-series graphs of the same intervention to search for convergence of themes across multiple sources.
3.3 Results

I keep six honest serving-men
(They taught me all I knew);
Their names are What and Why and When
And How and Where and Who. (Kipling, 1912, Just so Stories, p.83)

In the pages that follow, I will attempt to relay the experiences of the families who participated in MYmind with the same authenticity and insight as they displayed during the interview process. With Kipling’s six honest serving-men in my employ, I hope to weave together individual narratives to tell the story of how a mindfulness-based intervention impacted the lives of adolescents with ADHD and their parents. Each of the following sections corresponds to one of the three guiding research questions. The first section will explore participants’ lived experience of mindfulness meditation: their actions, sensations, perceptions, and beliefs about meditation practice. The second section will investigate the underlying psychological processes that contributed to behavioural changes reported by participants. The third and final section will examine the impact of MYmind on the social relationships of adolescents with ADHD.

3.3.1 The Essence of the Phenomenon of Mindfulness Meditation

“Real isn't how you are made,” said the Skin Horse. “It's a thing that happens to you. When a child loves you for a long, long time, not just to play with, but REALLY loves you, then you become Real.”

“Does it hurt?” asked the Rabbit.

“Sometimes,” said the Skin Horse, for he was always truthful. “When you are Real you don't mind being hurt.”

“Does it happen all at once, like being wound up,” he asked, “or bit by bit?”

“It doesn't happen all at once,” said the Skin Horse. “You become. It takes a long time. That's why it doesn't happen often to people who break easily, or have sharp edges, or who have to be carefully kept. Generally, by the time you are Real, most of your hair has been loved off, and your eyes drop out and you get loose in the joints and very shabby. But these things don't matter at all, because once you are Real you can't be ugly, except to people who don't understand.” (Williams, 1922, The Velveteen Rabbit, p.5)
The Skin Horse, a budding phenomenologist, explains how an object becomes Real when it is infused with meaning. Just as a toy comes to life in the eyes of the child who loves it, all phenomena are likewise created in the human mind. In other words, reality is constructed through a process of perception, interpretation, and meaning-making.

This section explores the subjective experience of mindfulness meditation for adolescents with ADHD and their parents. Interview data suggest that the phenomenon of meditation consists of several essential features experienced by many participants. These features were deconstructed and organized into themes, presented below. The first four themes draw attention to the process of meaning-making: how participants understand and experience their meditation practice, and how that translates into observable actions. The next theme, pertaining to the generalizability of mindfulness practices, represents the merger of process and outcome. The final theme presented in this section conveys the perceived mental health benefits of mindfulness meditation, otherwise known as intervention outcomes. When the themes are stitched together and considered as a whole, they take on the familiar and undeniably Real shape and texture of the experience of mindfulness meditation.

3.3.1.1 "Training your mind:" Meditation as an Exercise to Cultivate Mindfulness

Most participants considered mindfulness and meditation to be distinct, yet related, concepts. Mindfulness was described as a state of mind or a lens through which experiences were viewed and interpreted. Meditation was described as a discrete activity that was used to cultivate a mindful orientation. As one parent, Jennifer, explained,

I think of them as separate. I mean, I think of my practice of mindfulness as being more drawn out by the situations that I’m in and affecting the way in which I interpret stuff, so it’s very much in context. And meditation being something that I set time aside to do.

Jennifer’s 18 year old son, Matt, shared a similar perspective: “they’re related, but they’re different (...) there are more means of becoming mindful than just meditation, but meditation’s one of the best ways, I find.” Another parent, Tom, elaborated on the concept of meditation as a means to an end, using the metaphor of an exercise program.
I think the meditation is part of training your minds so that you can be mindful. So, it’s almost like an exercise, training, getting yourself into the condition to be mindful, as opposed to the meditation in itself being mindful.

As is true of most forms of exercise, meditation was viewed as a skill requiring practice. Several families referred to the importance of regular practice, such as one parent, Julia, who stated, “I think it’s important for people to stop and actually do this and go home and practice and come back and see how it went, and fine-tune.” With such fine-tuning, noted another parent, Madeline, focusing on breath during meditations went from effortful (“I would hold my breath, or I would breathe too fast”) to effortless (“And then it became no problem, like, oh yeah, I’m breathing, that’s fine”). The benefits of regular practice were noted by parents and teens alike. Jennifer noted, “the more I practice meditation the easier it is for me to do it.” Fifteen year old Tony explained, “Well I’ve noticed recently it’s been actually a lot longer. Like I’m able to do it for a lot longer (...) ‘cause I’ve just been able to be more relaxed or just not get as fidgety.” Meditation during weekly group sessions was not considered sufficient training; participants recognized that additional home practice during the week was required to augment their skills.

3.3.1.2 “The mind’s eye:” Meditation is a Sensory Experience

Most participants described meditation as a sensory experience. Many individuals described vivid visual imagery during meditation, with a particular emphasis on colour. Colours were imbued with meaning, as Jennifer described,

There’s something that I like to do if I’m having a hard time focusing, which is giving my breath a colour, like thinking of my breath in terms of a colour. Usually the way I think of it is sort of like a detox kind of visualization. I sort of think of it going in as a clear colour or like a translucent blue or a very clear, bright colour, whatever colour I feel like that day, a good colour (...) and then coming out kind of cloudy and murky as if I’m getting rid of all of the garbage.

In this case, colour represented the cleansing process of meditation. For some, colour symbolized a desired state and an index of the success of the meditation. One parent, Mary, described her experience of “the mind’s eye” as a purple light in the centre of her internal visual field. As Mary
directed her attention to the purple light, her awareness of other senses faded and she experienced a sense of being disconnected from her body.

It’s all just in the mind’s eye. I don’t really notice the body so much. By the time I’ve gone to where that purpleness happens, it’s almost like you’re not in your body anymore. That’s how it is for me.

Such depersonalization was rare, since participants were guided to attend to their bodies during meditation. Several adolescents reported a heightened awareness of physical sensations during meditation. Sixteen year old Georgia noted her experience of “more sensation to me (...) lots of sensation.” Physical sensations were described as “tingly” or “vibrations.” These sensations became more prominent as attention was directed to various body parts (e.g., during a body scan). Eighteen year old Matt explained, “They happen generally where I’m focusing, like if I’m focusing on my arm or something, I feel the vibration there.”

Some families visualized familiar or pleasant settings during meditation, such as the reclining sofas in the living room. One adolescent girl visualized herself singing. Most described watching, as if from a distance, as fleeting visual images passed through their field of awareness. As 18 year old Matt put it,

And as to what I’m seeing, it changes every time. It’s just sometimes like an idea pops into my head and it’s generally an image, and I can pay attention to it for a few seconds, but then it just kind of goes away.

Participants were encouraged to observe their sensory and cognitive experiences with curiosity, and then to let them go. The metaphors of watching clouds, bubbles, and a movie screen were used to introduce the concept of detached observation. It is possible that the use of visual metaphors primed participants to pay particular attention to their own visual experiences during meditation.

3.3.1.3 “It’s difficult sometimes:” Challenges of Meditation

Despite their recognition of the benefits of regular practice, most participants acknowledged that meditation is difficult at times. Families identified several challenges to formal meditation
practice, including external and internal distractions, expectations about their performance, critical self-talk, and heightened emotions.

Several participants indicated that distractions in the environment made it difficult to meditate. Most of these distractions were social in nature, such as Facebook, friends, and romantic interests (e.g., “whenever there’s a crush, and then you see that person, and then you go fluttery and you just go stuttering. I just can’t get my mind to be mindful”). Other distractions were work or task-related. Eighteen year old Matt described the sense of urgency to complete his never ending ‘to-do’ list before meditating.

Oh I just get distracted. I’m like, you know what, I should meditate right now, but I’ve gotta finish doing this next thing that I’ve gotta do. So I have to get that done, and then five other things pop up that I want to do, so I gotta get those done, and then suddenly it’s two in the morning and I’m like, I gotta go to sleep.

Others described the experience of mentally composing a ‘to-do’ list even in the middle of meditating. Such thoughts were often emotionally-laden and difficult to disengage from. One parent, Ron, explained that his thoughts often turned to his recent lay-off and subsequent job search, making it difficult to focus on the present moment during meditation.

Here’s the thing for me, I have difficulty to concentrate. The reason being is this: I just…my company just closed down the division in April, so I’m in a career transition, so every time, every day when I’m with you guys, half of my brain is thinking about “ok, let me apply for the job” and not thinking about the session I’m supposed to attend. I’m just totally honest, so it’s difficult sometimes, ‘cause when your mind is still wandering and worried then it’s hard to concentrate.

The wandering mind posed a particular challenge for some, as they were often unaware that their thoughts had drifted until the facilitator drew attention to it during guided meditations. Meg described her experience of recognizing the wandering mind when she was prompted by the facilitator: “and I noticed during the meditation I tried to focus on my breathing, but as you say ‘noticing as your mind [wanders],’ it’s oops you’re right.” Meg’s 16 year old daughter Georgia echoed this when she said, “but then again I got off track and thank God your voice was there because I was like ‘darn it, darn it, darn it, I need to go back’ (...) I’m just like, ‘oops.’” In these
cases, the wandering mind was recognized with a mild “oops” and gentle redirection back to breath. There were times, however, when the wandering mind led to self-reckoning. Mary described the critical self-talk she engaged in when she was struggling with meditation.

Yea my frustration is always with myself. It’s like, why aren’t you focusing? Internal dialogue. What’s going on? It’s much more frustration with the self of not being able to calm and focus in the time I’m generally used to being able to do it. It doesn’t last long, that frustration, but it happens once in a while.

This suggests that some participants held expectations about meditation, and made judgments about their performance, which resulted in negative affect.

Other participants described their heightened emotional experience during meditation. Eighteen year old Catherine described feeling “overwhelmed” during group meditations, and 16 year old Georgia described her sense of “panic” when attempting to relinquish control over her breathing. Madeline explained that the emotional tenor of her day was amplified during meditations, to the extent that she became tearful on occasion.

And a couple of times I had to stop mid-way through because I just became so emotional because whatever I had come in with that day (...) a couple of times I had to [tell myself], “Okay. I gotta step back or else it’s gonna be waterworks in this place, completely.”

The challenges of distraction, wandering mind, critical self-talk, and heightened emotions were often discussed in session within the context of group inquiry. Sharing these experiences helped to normalize and reframe them as natural elements of human experience which should be greeted with kindness and acceptance. For example, in the adolescent group the wandering mind was likened to a curious and energetic puppy exploring the environment. Just as a puppy can learn to return to its owner when called, so too can we teach the wandering mind return to breath when called. Challenges were treated as integral to the process of coming to know the mind, rather than obstacles to be avoided.
3.3.1.4 “It comes to the forefront when there’s stress:” Waxing and Waning Practice

Participants reported using meditation as a coping technique during times of stress. They intentionally increased their practice when they identified a need for stress management, and they allowed their practice to wane during periods of relative calm. For example, Jennifer, a teacher, noticed fluctuations in her level of practice throughout the week. “Sometimes on a Friday or Saturday I would skip it. On Sundays I did it the most because I was anxious about the week ahead.” Jennifer also allowed her meditation practice to decrease over the summer holiday.

And I will say that in the summer I tend not to do it as much as I did during the year. I think a lot of it is because I’m doing a lot of really relaxing things, it almost is like the need doesn’t manifest itself as strongly.

Several other parents reiterated that certain situations or experiences resulted in a perceived need to meditate to alleviate stress. Mary described “triggers in my world” that signaled a need to meditate. Madeline explained that conflict with her daughter often increased her desire to meditate.

‘cause Jess made me meditate more, like I mean she really put my head into it, because she…always brought me to the level of challenging me, and really pushing hard, then I had no other option – I had to do it.

Eighteen year old Catherine also reported an increase in formal practice during stressful periods: “especially when I’m really stressed out or just like crying or frustrated. Just depends on the situation, if it’s critical in a bad way or not (…) I think I meditate more.” The deliberate increase in practice during times of stress suggests that participants used mindfulness meditation as a stress management technique. This implies a belief that meditation effectively reduces psychosocial distress.

3.3.1.5 "It's a skill worth keeping:" Maintenance

Families expressed their belief that mindfulness should be included as part of a healthy lifestyle. As Madeline said, “I think it’s healthful to do it.” Recognizing the benefits of mindfulness, they made a concerted effort to practice meditation on a regular basis. At the time of the interview, approximately six weeks after the completion of the program, several individuals reported
meditating on a daily basis. Mary continued to meditate “every day before bed (...) sometimes during the day as well.” Julia said that she practiced mindfulness “every day” and “more than just the 5-10 minutes I write down in the [log].” Ron explained his disciplined approach to maintaining his practice: “what I do every morning is I try to concentrate at least five, ten minutes. At least if I cannot stand for ten, I consider five minutes. I think to be honest this exercise helps.” Most other participants reported a decrease in their practice since the end of the program, with an average of 1 – 3 times per week at follow-up. As 18 year old Matt explained, “generally I try for once every day, but I only end up getting it about once every two or three days. And I generally meditate for like 10 minutes or 15 minutes.” Sixteen year old Georgia was more likely to make time for a breathing space, “well, not every day, but I try to find time.” Julia explained that she is still working toward her goal of approaching all situations mindfully, “I haven’t gotten there yet. Working on it.”

Most participants felt they were likely to continue practicing mindfulness in the future (“definitely,” “for sure”). Some described it as a habit or inclination that would not easily be lost. “It’s in the blood now,” said Ron. Eighteen year old Matt agreed, “I think so, yea, like it’s almost become an instinct now.” Others articulated a goal to continue their practice in the future, but they acknowledged that it may be difficult to uphold. Jennifer discussed the tendency to “slide back” into old habits, and placed the onus on herself to keep up with regular practice:

As long as I don’t somehow let it slip, so part of it’s up to me. If I continue to keep it in my life and even more enhance what I’m doing more, I think it definitely makes a huge improvement in all respects.

Julia also feared falling out of practice without continued support, “because when we’re here, it really makes a difference, but our lives can get very busy, and I’m hearing that from the other parents. And it’s very easy to fall back into old habits.” Several parents indicated that they would be more likely to maintain their practice if it was part of a broader culture or community. Tom explained why being part of a group would help him maintain his practice.

Like if I wanted to be part of a group where we would like practice the meditation and those kinds of things, I think helping people kind of carry on (...) And I’m not necessarily sure I would take advantage of it, but I think it would be useful to kind of have that opportunity to say this becomes really part of a lifestyle. And actually, I think whether you took advantage
of it or not, knowing that there is opportunity to carry on and that the expectation is that it becomes part of your lifestyle, I think is also important in itself, right? I may not go to a gym every day, but knowing that there are thousands of people that do, am I more likely to work out on my own, just sort of – you know what I’m saying? Just because it’s almost a cultural thing.

Others echoed a desire for continued support from, and accountability to, a group. Meg wondered, “maybe we should do [the program] again” because “we need somebody to guide, like to talk and at least bring us back” during formal meditations. Julia suggested, “I think it would be great to get level 1 and maybe level 2.” She felt that she would benefit from reminders and help with trouble-shooting obstacles. She explained how facilitators could provide longer-term support: “you really want to keep in touch and see, are you practicing? And what do you need to help you?” Many participants described the advantages of belonging to a group, such as normalizing difficulties (e.g., “I’m not alone on this”) and generating new ideas (e.g., “you can learn something from others”). Eighteen year old Matt explained how being accountable to a group increased his motivation to practice.

I guess since I was in the MYmind program, it was more like a regular part of my life, and people were kind of checking up on me more to make sure I was meditating. So that gave me either more incentive, or it built up on what I have to do, and it just kind of became something that I should be doing more often during that time.

Some participants attempted to create their own mindfulness community at home. Meg and Ron stressed the importance of meditating together as a family, “We try to at least three of us together (...) try to get it to be in the family. Hopefully that will help.” Julia felt that the structure of the MYmind program fostered the creation of a mindful family. “I’m really pleased, number one, that both the children and myself were attending it. It isn’t just the child going off, it’s a focus on the whole family.” It is possible that weaving mindfulness into the family culture will support individual maintenance goals.

Overall, participants expressed a commitment to continue practicing mindfulness in the future. They cited general benefits (e.g., “we know it’s good”) as motivation to maintain their practice. Many people acknowledged the challenges of maintaining a regular mindfulness routine, and conveyed some concern about their ability to practice independently. Several participants
conveyed their desire for ongoing support from a broader mindfulness community, by way of follow-up sessions or meditation groups.

### 3.3.1.6 "I can meditate everywhere:" Generalization

Almost all of the participants reported using the mindfulness practices learned in group sessions (e.g., meditation, breathing space) in other settings. They often adapted the practice to suit their lifestyle and interests, and applied it to new activities.

Most participants described mindfulness as portable, something that could accompany them anywhere they went. As 18 year old Matt explained, “yea doesn’t really matter where I am, I can meditate everywhere, as long as there’s not a bunch of stuff going on all around me.” Adolescents reported meditating in the shower, in their bedroom, on trains, and outdoors. Several teens identified their bedrooms as their location of choice. Matt stated, “I’m usually in my room, so that’s become kind of like an unofficial place of meditation.” Sixteen year old Georgia agreed, “And then in my bedroom (...) Just sitting down on a bed.” Eighteen year old Catherine explained that she preferred to meditate lying down on her bed because, “I just don’t feel like I’m gonna be bothered. I just feel relaxed (...) My room is just quiet, nobody’s around, no noise.”

Several teens also enjoyed meditating outdoors, despite the potential for distractions. Fifteen year old Tony often found a place to meditate in a bustling skate park: “well if I’m at a skate park usually all you hear is just yelling and screaming and laughing and bunch of board sounds, so I’ll normally go around a hill or something and just try to be a bit away from them.” Georgia found a serene place in her backyard to meditate: “sometimes outside in my back yard, sometimes in the tree house like all alone, in silence, and just listening to nature and such.” Catherine attempted to meditate while sunbathing, “If I’m lying outside or I’m just tired and taking a few minutes to myself, it’s usually a body scan just to see how I’m feeling.”

Many participants described how they adapted their practice to suit their lifestyle. Matt explained, “I did my own thing” by incorporating music into his meditations. Julia noted, “I don’t do meditation the way we’re taught here.” She went on to explain how she experimented by incorporating mindfulness into various daily activities, such as walking, yoga, singing, and household chores (“washing the dishes, cleaning the house, believe it or not”). Julia’s goal was
to bring mindful awareness to all aspects of her day-to-day life: “I live my life. I try to get into meditative mode as much as I can.” Another parent, Jennifer, explained how her practice did not always entail staying seated with her eyes closed. She took up mindful walking as a supplementary form of meditation: “I can do it even when I’m walking along (...) and just focus on something that’s neutral, like your breath, or if I’m walking and doing it then my footsteps I’ll think about that.” This suggests that, with little guidance from group facilitators, participants spontaneously generalized mindfulness concepts and adapted mindfulness techniques in order to incorporate them into their daily activities.

3.3.1.6.1.1 Mindfulness at Work

Several parents brought mindfulness practices to work. They reported applying mindfulness in interpersonal contexts with colleagues or clients. Tom, a manager, explained how he used mindfulness to communicate more effectively with his staff: “And so I guess I’ve been applying it more in terms of the approach to my staff, and just being mindful about the way I communicate.” Meg, a medical professional, took a breathing space when she arrived at the office before interacting with her patients. This helped her to maintain a professional demeanour with challenging patients.

I noticed as I talk, sometimes dealing with patients with so many…it can be frustrating when they don’t understand what you are trying to say and then keep asking the same questions again and again and then again. And you’ve been answering it again and again the same…Yea…at some points sometimes it helps (...) be more patient, be mindful.

Fifteen year old Tony shared that he had been thinking about entering the workforce. He envisioned mindfulness as a useful tool in his job search: “I think it will help me with jobs as well. Especially with interviews because I will be able to explain a lot more about myself instead of giving them the bare minimum and showing them my résumé and stuff.” Tony believed that mindfulness would facilitate more meaningful in-depth discussions with potential employers. It appears that individuals generalized the concept of mindful communication discussed in group, to their interpersonal relationships in the workplace.
3.3.1.6.1.2 Mindfulness at School

Several adolescents found mindfulness to be helpful for managing academic stressors and pressures. Eighteen year old Catherine described how mindfulness changed her attitude towards school.

Well, in school I’m just chill. I don’t know if that’s always a good thing, but… I’m just relaxed… (And is that different from before?) Yeah. I used to be very stressed, uptight, like fight for the little marks, type of thing.

At the time of the interview, Catherine was successfully managing a full course load at university, despite the challenges associated with having ADHD and a learning disability. Sixteen year old Georgia explained how breath awareness helped her cope with the daunting task of completing homework: “definitely meditating, especially during homework, if you have a lot, just breathe in and breathe out and do a breathing space and just work your way through.” Georgia acknowledged the benefits of this practice, and noted that the quality of her work may have been even better had she consistently applied mindfulness to homework: “I think my school performance would’ve been so much better, too, if I’d practiced my mindfulness thing every day.”

Fifteen year old Tony was frequently truant from school and in danger of losing several credits when he began attending the MYmind program. At the time of the interview, Tony proudly reported that he had a perfect attendance record at summer school and was doing well on his assignments. Tony and his mother, Mary, reflected on the process of mindful writing.

Tony: I think it helps a lot with school work, with creativity and stuff. Because like say if I have to write a story or something, or if I have to make up a question, then I could make it a lot more interesting and get a better mark just by including more vocabulary or something and making it that much more interesting.

Interviewer: Okay. And how does mindfulness help you to use more vocabulary or make it more interesting?

Tony: I’m not too sure.
Interviewer: I wonder if it’s connected to what you were saying about getting deeper in things.

Mary: Taking the pathway to getting your work done instead of the expressway. From the outside looking in, I’ve known him in school doing the, you know, you have to write a sentence, and he’d do the quickest shortest sentence he could do to get it over with. So the pathway/expressway is a really good way, from outside looking in – and I can’t speak for you – but maybe that’s exactly what’s he’s doing, taking the slower path to get to the result, therefore picking up much more interesting stuff. I don’t know, is that – does that kind of describe it?

Tony: Well yea, instead of just trying to get through a test right away, I actually just try to get a better mark. If you think about it to start, instead of just thinking about how long it’s going to take you, then it’s going to be a lot easier to do, and you’re gonna get a better mark for it.

Tony found that his output was richer and more interesting when he slowed down and focused on the present moment. By approaching his assignments mindfully, he was able to produce better work and get more out of his experience at school.

### 3.3.1.6.2 Mindfulness for Sport

Several participants identified sport as a chief priority in their lives. More than just a hobby, for some, sport represented identity, self-efficacy, and future goals. It is perhaps remarkable, then, that these participants generalized mindfulness concepts to this arena. This speaks to the recognition of the potential benefits of mindfulness training, and a certain level of flexibility and adaptability in thinking and behaviour. What’s more, these individuals reported improved athletic performance as a result of incorporating mindfulness practices into their sport of choice.

Fifteen year old Tony is a competitive skateboarder. His friends have gotten used to seeing him meditate at the park before getting on his board. Tony doesn’t mind the odd looks he receives sometimes. “I’m sure some of them think I’m weird, just trying to sleep sitting up (...) I think that a lot of my friends understand that it can help a lot.” Tony explained how meditation helped him remain calm and focused before a competition.
Like I’m sure you wouldn’t understand, just because you’re not skateboarding, but in any other sport if you get really pumped up to keep playing the sport, your heart’s gonna start racing yourself and you’re starting to get really energized, and that’s not always something you want because it makes you feel way too good about yourself, and you don’t want to do that ‘cause you’re just going to screw up. So you’re gonna want to be more calm and ready to actually concentrate on what you’re doing. So I feel it helps a lot for skateboarding.

Tony’s mother, Mary, explained that adopting a mindful attitude towards skateboarding improved Tony’s performance and reduced the number of accidents and subsequent injuries.

Tony has told me before describing the skateboarding and how it helps in the sense of particular tricks, like what he was saying, trying to keep yourself focused as opposed to the adrenaline taking over. Because you take too many risks and then you get injured and you don’t actually get the trick to happen. Versus he has said, “if I get the meditation in while I’m at the park, I’ll stay more controlled and try a new trick and get less injured and land it more often.”

Thirteen year old Andrew explained how enhanced focus and the ability to regulate strong emotions helped him with hockey. As a goalie, Andrew felt a lot of pressure to perform well for the sake of his team. When the other team scored a goal against him, Andrew would “keep on thinking about it and get angrier.” Out of sheer frustration, Andrew would “whack my stick against the post,” sometimes breaking the stick entirely. Andrew’s emotions often distracted him from the game, which interfered with his performance. Using mindfulness, Andrew was able to calm down, filter out the distractions from the spectators, and focus on his task. He explained it in this way:

Well, if you’re worrying or thinking about something, you can’t really think when it happens, you just kinda have to be doing it, which I think is kinda mindful because you’re just looking at the situation and seeing it how it is and then just doing it, instead of thinking about it, kinda thing. And you kinda have to forget about what’s around you and the audience, or whatever. ‘Cause if you’re thinking about that or being distracted, it’s not good.

Andrew found that this focus on present-moment experience made him a better goalie. When asked what mindfulness techniques he used, Andrew said, “I do it in a different form, you know?
Just not focusing on my breath, but focus – picturing myself doing what I do.” According to Andrew, “it works for me, I just do it in a different way.”

Meg, Ron, and their 16 year old daughter Georgia also found ways of adapting mindfulness practices for an important family activity: tennis. As Meg explained, a formal meditation or a full three minute breathing space is not possible in the middle of a fast-paced game of tennis. “I of course can’t do three minutes because I’m changing places one minute.” However, she began to use “mini breathing spaces” “before tennis, before serving some shots.” This helped her to re-energize, re-focus, and regain confidence during challenging matches.

Sometimes you don’t have confidence with yourself but I know it’s becoming so tired, and I think “ok, this is a critical point, so breathe in, breathe out, breathe in, breathe out, just relax, just focus on what you need to do,” like back to basics.

Meg and Ron encouraged their children to use breathing space on the courts as well. Georgia explained how this approach helped her with her fear of swinging and missing the ball, “just calming your body, concentrating, and just not worry about anything.” For his part, Ron attempted to be a mindful coach and spectator by checking his automatic reaction of criticizing or yelling when his children made mistakes, and responding in a more calm and even manner. The family reported that, as a result of incorporating mindfulness into sport, they enjoyed playing tennis together more. Participants who applied mindfulness to sport experienced enhanced focus, reduced emotional reactivity, and better athletic performance than they did prior to mindfulness training.

3.3.1.7 “I know it’s beneficial:” Improved Mental Health

Madeline summarized the benefits of the program with a simple turn of phrase: “well I know it’s beneficial. The writing was on the wall for us. It showed us what it can do.” “The writing on the wall” is an idiom for a warning of imminent doom that is visible to most people. Madeline’s outlook was dire prior to the intervention, but her forecast shifted as she witnessed the improvements in her family as a result of mindfulness training. Many MYmind participants reported reductions in psychological distress and physical pain, as well as increases in positive affect and psychological well-being, as a result of the intervention.
3.3.1.7.1 Psychological Distress

Parents reported reductions in stress and anxiety as a result of MYmind. Stress related to parenting roles and parent-child interactions decreased substantially, according to several parents. As one father, Tom, explained,

> The change for us has been fairly substantial just in the kind of the release of the day-to-day stress about – ‘cause, stuff that’s issues around like what’s for dinner, isn’t really an issue anymore (laughs), like we don’t really worry so much about… are the kids are gonna like this, are the kids are gonna like that, or whatever.

Mary explained how meditation helped her cope with stress brought on by her son’s hyperactive behaviour, “when I started doing meditation in the first place and he would literally climb walls, it would really de-stress me.” She emphasized the benefits of the breathing space in particular, saying “I mean even the three minute [breathing space] when it’s really stressful. If we’re in an argument or something, or something really stressful is going on, I’ll do that quick three minute anywhere.” Julia echoed this sentiment when she said, “for me the breathing is huge end of stress.”

In addition to reductions in parenting stress, some individuals experienced reduced anxiety. Jennifer described how mindfulness helped her cope with worry and anxiety during periods of transition in her life.

> It’s a busy time because Matt is getting ready to go off to university, my daughter is getting ready to start high school and I’m changing grades and changing classrooms. So everything is very much a whole bunch of new things happening… and right now the way I’m trying to use mindfulness is not to overly worry about all of these things.

Jennifer explained how she was able to distance herself from her thoughts and emotions and evaluate them more objectively, “So I’m going through all of those thoughts, as I say, just sort of reminding myself to just step back and not let this overwhelm me.” Jennifer was pleased that her new attitude toward work was noticed by her spouse.

> My husband was just commenting today, he said “you’re not freaking out about this as much as I expected you were going to, as much as you have in the past years.” And I think that – so
that’s one way in which the mindfulness helps me with my work because I do experience a fair amount of work related anxiety and a lot of it is almost free floating anxiety, and so it sort of helped me get a bit more of a handle on that.

The reductions in Jennifer’s anxiety were particularly noteworthy given her disclosure that “it’s been an ongoing struggle for me all my life to deal with anxiety.”

Reductions in parenting stress and anxiety may contribute to improved mental health and psychological well-being among parents participating in MYmind. It is important to note that this theme was not evident in adolescent interviews.

3.3.1.7.2 “It helped me cope with this pain”

Several individuals described how mindfulness approaches helped them cope with physical discomfort or pain. Several people noted that when they calmly observed the sensation, it often dissipated. Julia described the process of sitting with her pain. “When I sit and meditate I’m suddenly aware of my right hip hurting, my right knee hurting, my shoulder pain. And last time I observed it, and it actually worked. I just observed it, but sat with it.” When Julia accepted her pain and remained connected with it, the pain subsided. Similarly, Meg found that her discomfort lessened when she directed her attention to it, “I just notice the tingling there but it’s for some reason gone.” The descriptions of some participants suggested that, in addition to observation, other cognitive processes were involved in pain management. Jennifer explained her experience in the following way.

And actually at one point I did notice I was pleased because I’m having some nerve problems with my right arm at the moment, and there’s some numbness and pain associated with it and I didn’t notice that at all during the meditation (...) and I was really last week in very bad shape with all this (...) it was really, really frustrating, and the mindfulness actually helped me with all of that. (How?) Because I was thinking of yes I’m in physical discomfort, but I’m not gonna judge that, I’m just gonna sort of go with it and accept the fact that there is this physical discomfort, but that’s not the only thing, that doesn’t have to be the overwhelming sensation. And that I can sort of choose my approach to it. And I was happy about that because that would never have occurred to me before I did MYmind - to think of it that way.
It appears that observing and accepting the sensation without judgment allowed participants to re-appraise the situation, which reduced their perception of discomfort.

3.3.1.7.3 Emotional Well-being and Positive Affect

Most participants reported that meditation induced a temporary state of relaxation, positive affect, and sense of peace. When asked to describe their experience immediately following a guided meditation, 18 year old Matt said it was “very, very relaxing, as usual.” Sixteen year old Georgia conveyed her experience through expansive sighs, saying, “it just feels really…ahhhh (exhaling) ahhh it’s good, it feels good.” Others reported that meditation helped them relax before bed in order to fall asleep more easily. Thirteen year old Andrew indicated that the relaxed state extended beyond the formal meditation: “In every day, it’s just kinda…relaxing, not being uptight about everything, mindful helps about that, I guess.”

Several people reported that regular mindfulness practices promoted positivity and happiness. As one parent, Julia, put it, “I’m happier. I’m singing more, which is to me, meditation. I have more pep when I’m actually awake and stuff.” Ron described how 5 to 10 minutes of breath awareness each morning helped him maintain a positive outlook, despite losing his job.

I think to be honest this exercise helps. At least I’m not worried as much as before. I’m more calm. I think one of the things I noticed is that I’m more focused, I’m more – in a way, I’m becoming more positive. Even though there’s no result yet but at least you’re trying to be positive on things. So that helps.

Although Ron’s sense of optimism was transitory (“at least the positive mind can stretch about half of the day”), he found that his attitude impacted his interactions with family members, and as a result increased positive affect in others: “And for my son and my daughter they feel happy too, right.”

In addition to his positive attitude, Ron also described the sense of peace he experienced during meditation. “For me, it’s like I’m at peace…I just feel peaceful.” His daughter Georgia reported a similar experience, “just being in peace with my body.” Catherine, a single mother of two, explained how she was able to access a space of inner calm in the midst of her busy day.
I’ll be in the car, I’m going to court, and I know I have to face my ex, and judges, and lawyers, and the process (...) And I’ll just stop and breathe. And just close my eyes and deep breaths. And it actually crowds out thoughts, and allows me a moment of peace before I jump back in the fray. It makes me calmer, and I think I appear calmer.

This brief moment of peace allowed Catherine to clarify her thoughts and regulate her feelings in order to respond to the situation at hand. Similarly, single mom Jennifer described mindfulness as an internal sense of balance.

I want balance in almost every place that you can possibly get it, because that brings happiness. So it really helps with balance. When things start to go off kilter, it’s a real easy way to start to bring them back in line.

According to MYmind participants, regular meditative practices promote emotional and psychological well-being. The experiences reported by most individuals suggest short-term alterations in state, rather than trait, levels of relaxation, happiness, and peacefulness.

### 3.3.2 Mechanisms of Action

It is the nightly custom of every good mother after her children are asleep to rummage in their minds and put things straight for next morning, repacking into their proper places the many articles that have wandered during the day. If you keep awake (but of course you can't) you would see your own mother doing this, and you would find it very interesting to watch her. It is quite like tidying up drawers.

You would see her on her knees, I expect, lingering humourously over some of your contents, wondering where on earth you had picked this thing up, making discoveries sweet and not so sweet, pressing this to her check as if it were as nice as a kitten, and hurriedly stowing that out of sight. When you wake in the morning, the naughtiness and evil passions with which you went to bed have been folded up small and placed at the bottom of your mind; and on the top, beautifully aired, are spread out your prettier thoughts, ready for you to put on. (Barrie, 1911/1992, *Peter Pan*, p.12)

The preceding section expanded on participants’ lived experience of MYmind using five of the six honest serving-men of storytelling. The who, what, when, where, and why of meditation were
described in the words of MYmind participants. One question remains: How? The following section offers an analysis of the potential mechanisms of therapeutic action. The themes described herein explain how psychological processes involved in MYmind training gave rise to the positive outcomes reported by adolescents and their parents. As a result of the training, participants became more adept at examining, organizing and regulating their thoughts, feelings, and impulses. To hear some of them tell it, this form of mental “uncluttering” is quite like tidying up drawers.

3.3.2.1 The Observing Self (Decentering)

Participants adopted the stance of impartial observer with respect to their thoughts. Jennifer described it as “taking a sort of objectivity towards everything including your own thoughts.” Eighteen year old Catherine imagined herself in a movie theatre, watching her thoughts as they flickered across a screen, “so I focus on the movie screen, and all the thoughts going in.” From this vantage point, participants were able to examine their thoughts momentarily, and then let them go. Catherine’s mother, Julia, found she was able to observe her thoughts “without them affecting me.” She watched thoughts pass by without latching onto them, “and if they come in, you kind of observe them. Oh here they come, eh – later. And dismiss them.” Her 13 year old son, Andrew, described a similar experience: “It does help when I meditate and then thoughts come up and you think about them and then put them aside. That helps a lot.”

Jennifer explained how the process of “just observing the thoughts come up, noticing them and then shifting them to the side” allowed her to temper the automatic emotional response often triggered by thoughts.

And that you can step back and look at that and pause, and I think the thing that has helped me the most with mindfulness is the pausing, the take a moment, look at things, including your thoughts, and just wait before you keep on with your worries or anxieties or even sometimes if you’re just hugely happy about something, sometimes you think, well, just take a look, you know, are you over reacting to this?

This “stepping back” or decentering from mental events allowed participants to evaluate their thoughts objectively; or, as Andrew put it, to “see things how it is.”
3.3.2.2 Mental Clarity

Individuals with ADHD depicted their natural state of mind as a jumble of thoughts, feelings and sensations. Jennifer called it a “bombardment of sensation,” while Catherine described it as “having everything buzzing around in your head.” These participants likened mindfulness to a form of mental spring cleaning, a process of clearing out and organizing the mind. Jennifer described meditation as “time set aside to unclutter your mind and let all the thoughts go.” She visualized herself placing her thoughts on shelves, storing them for a later time. Her 18 year old son, Matt, concurred that “mindfulness is basically keeping your brain uncluttered and focused.” He explained how mindfulness helped him hone in on relevant thoughts and filter out extraneous stimuli.

Well, if you’ve got ADD, or at least I’ve got ADD and this is how it affects me. It’s just kind of like you have a thought, and then another thought comes in and goes on top of that one, and then they both kind of mix a little bit, so you’re looking at both of them at the same time, and then more and more and more pile on, until you’ve got this huge stack of thoughts that are all going on at once, and you’re not sure which one to focus on, so mindfulness and meditation gets rid of that huge stack and brings you back to thinking about more specific things. Helps you focus your thought.

This act of tidying up or de-cluttering the mind allows for greater clarity and precision of thought. Tom found the process to be gratifying, much like clearing out a cluttered closet. He described a sense of feeling lighter after a meditation.

It creates I guess a lightness and a clarity. When I say a lightness, I guess the clarity, the clearing of the mind, focusing really on one thing, focusing on your body, not focusing on external issues, which again, almost seems to have a cleansing kind of feel to it.

Mindfulness meditation helped participants to organize, prioritize, and clarify their thoughts, which enhanced their ability to focus on present moment experiences.

3.3.2.3 "I need to be in the now:" Present-Moment Experience

Participants reported greater present-centred awareness as a result of MYmind. “Mindfulness is about being in the moment,” explained Julia. “I take every situation in the moment, as it comes
towards me.” Prior to mindfulness training, participants described their tendency to dwell on their thoughts about the past or the future, rather than living fully in the present. Eighteen year old Catherine described how her thoughts automatically turned to worry about the future, before processing what was happening in the present.

But I find before the mindfulness, I’d be really quickly in my head, I’d be like (snaps fingers) “if I react like this, it’ll lead to this, and this is what I want, or this will lead to this, but I don’t want that.” (...) So, being mindful, it’s just like, I need to be in the now. Yeah, I still think about [the future], but it’s less. So instead of always trying to get an outcome a week from now, a month from now, it’s more like what’s good for me right now.

Catherine made a concerted effort to redirect her thoughts to the present moment. When she recognized her thoughts straying to the future, she used self-talk to coax her mind back to the present.

Sometimes I get caught up in the thoughts, and I’m like, “well I can deal with those after and analyze those after, but right now – ” (laughing) doesn’t always work, but sometimes it’s just like, “try and just breathe and think about how you’re feeling now, and go over the day.”

Catherine and others realized that they often missed out on experiences because their attention was directed at the past or future. They explained how redirecting their attention to the present allowed them to engage more fully with what was in front of them. Sixteen year old Georgia said that mindfulness is “like being present and [seeing] what’s in front of you, just being in the present moment. And not worrying about the future and such, and just appreciating…yea just appreciating what’s in front of you, I guess.” Present-moment awareness increased 18 year old Matt’s sense of clarity about, and connection with, experiences. He explained that mindfulness invited him to “become more in tune with reality, basically. It kind of brings you out of your own mind and into what’s actually happening.” Some participants conveyed a growing sense of “trust in the moment.” They began to rest more comfortably in the present when they realized that the future would unfold from each moment. Catherine was able to let go of worry and stop trying to control the future when she realized, “the now will lead into other things instead of other things affecting the now.” This allowed participants to “live every moment to the fullest,” as Julia put it. When participants intentionally directed their attention to the present moment, they became more attuned with their internal and external experiences.
3.3.2.4  Self-Awareness

Families reported greater awareness of their automatic thoughts, feelings and behaviours after the intervention. Several parents identified self-awareness as one of the key facets of mindfulness. Jennifer noted that her understanding of mindfulness included, among other things, “cultivating a greater awareness of your own mental states.” Julia concurred when she said, “to me, mindfulness means that you become self aware of your thinking and your actions.” This awareness allowed participants to identify automatic reactions before acting on them. Tom found that his unconscious automatic reactions were more accessible to him at a conscious level: “I think being conscious of your reaction to certain situations.” As a result, he was able to evaluate and select a response, rather than impulsively reacting. Thirteen year old Andrew also found that he was less impulsive, and instead “just now more aware of what I do before I do it.” Single mom Mary said that her growing awareness of her instinctual responses helped her avoid potentially unpleasant dating experiences. She described intentionally checking in with herself during a date, “really paying attention to: is that triggering something in me that says alarm? And if so, listening.”

Some people found that the daily email questionnaires facilitated self-reflection and increased self-awareness. Julia endorsed them as a useful tool, “the questionnaires were fabulous because it made me stop and review my day.” Fifteen year old Tony said the emails helped him become more aware of how often and why he argued with his mom. As a result, he made an effort to change that pattern. “They definitely help to reflect on it. And I think it’s made me think a lot more about arguing, and not wanting to do it, first of all because I don’t want people knowing (laugh).” This suggests that self-awareness was a precursor for the executive function of behavioural inhibition.

3.3.2.4.1  Enhanced Awareness of ADHD Symptoms

Several adolescents reported enhanced awareness of their ADHD symptoms after MYmind. Fifteen year old Tony explained that, prior to the program, he did not notice or think about his ADHD much at all.

This program has made me become more aware of it, like I definitely did not really care about it at all before this (…) It’s not that I had no idea or I didn’t know it was there, but I
felt that it wasn’t something that I needed to focus on, it was something that was just more of a background thing.

Psychoeducation, group discussions, and mindfulness exercises drew Tony’s attention to his ADHD. After the program, Tony felt that he had a better understanding of his ADHD, and was able to make more positive attributions about it.

MYmind’s definitely given me a lot better of an idea of what it is and how I can control it, and that it’s easy to control it and it’s not always there. It’s not always going to be in the way like screwing stuff up.

This statement reflected Tony’s hopefulness about his future with ADHD. This hope, combined with his growing interest in and awareness of his ADHD symptoms, motivated Tony to become more active in his own treatment.

Noticing it in the way that I’m talking about is like…being able to try to fix it, more than anything, not just noticing that it’s there more. And noticing about what I’m doing differently and what I should be doing differently.

Tony realized that he could relate to his symptoms in a new way. He noticed that he was able to temporarily alleviate or manage some of his symptoms when he was aware of them. Tony explained how becoming aware of his motor restlessness enabled him to change his behaviour.

[Before MYmind] I could definitely maybe stay in my seat, but I couldn’t stop fidgeting or talking, I would always be really excited. (And now?) Yea I’ll still be excited, but I’m not going to be jumping in my seat or running around excited or jumping up and down.

Tony’s enhanced awareness of his ADHD allowed him to become more actively engaged with it. As a result, he began to implement self-management techniques that reinforced his sense of hope and self-efficacy.

I feel that getting to be involved with [my ADHD], and trying to learn more about it, is a good thing. I feel that it’s helped a lot with it, trying to actually get more involved with it, and getting interested.
Other teens corroborated Tony’s experience. Eighteen year old Matt indicated that learning more about his ADHD helped demystify some of his own behaviour.

It did help like affirm some of the beliefs I had about it. Like how certain projects I just couldn’t get motivated in at all, and no matter how much I wanted to do a good job, it ended up turning out like crap because I just wasn’t interested. Or like if I was interested in a project, how I could just like – POOF – and instantly do it and have it be really, really good, and it didn’t even seem like I’d be trying (...) I kinda figured it was part of ADD, but MYmind made it certain what exactly was part of ADD and what wasn’t.

Eighteen year old Catherine noted that she became more aware of her symptoms in the moment, which allowed her to consciously adapt her behaviour to the environment: “because when you’re in the moment, you’re like, ‘oh crap, being extremely ADHD right now, need to try and leave that alone,’ and you can try and leave it alone.”

These teens indicated that better understanding of ADHD and enhanced awareness of their unique symptom profile led to more positive attributions for their behaviour, and paved the way for spontaneous implementation of self-management techniques.

3.3.2.5 Self Regulation

Many people experienced improvements in the ability to regulate their attention and behaviour. Parents and adolescents became more adept at selecting, monitoring, and shifting the focus of their attention. Parents were able to recognize and inhibit automatic impulses and evaluate response options in order to respond mindfully to others.

3.3.2.5.1 Intentional Attention

Almost all of the participants described meditation as the practice of focusing attention on a single experience or sensation. Ron explained, “for me, my understanding is when you try to be focused on one thing. That’s my definition of my meditation.” Common to most definitions was the aspect of intentionality. Participants noted that mindful attention is conscious, deliberate, and purposeful. As Julia put it, meditation involves skillfully directing attention to “whatever I decide to focus on.” Once the object of attention is selected, extraneous stimuli are actively filtered out. Meg explained how she “put everything away” in order to “focus on one thing.” This
form of active, targeted, and honed attention is unlike the poorly regulated and uneven attention that characterizes the typical state of most individuals, especially those with ADHD. Thirteen year old Andrew described how his attention often jumped around from moment to moment. “With ADD I’d say you kinda think whatever you’re interested in at the time,” he said. “But if you’re more mindful of things you notice that.” Eighteen year old Matt explained how he practiced this skill of attention regulation when he noticed his attention straying from an important social interaction.

Well I’m busy thinking about things, and then it’s just like, oh wait a second, I have to focus on this, ‘cause it’s my friend’s baby shower, it’s something I need to pay attention. And then I kinda do a breathing space and I’m able to shut out whatever’s going on in my mind previously, and bring my attention to what I need to focus on.

Matt expressed his intention to be present and engaged with his friend on this occasion. When he recognized his mind wandering, he selected a strategy (breathing space) to re-focus his attention. This form of attention regulation was effortful and deliberate. Fifteen year old Tony noted that when he actively regulated his attention, complex tasks became simpler. “I just feel that every time I actually focus on what I need to do, it’s a lot easier to do,” he said. Tony found that when he concentrated on each of the small movements involved in a skateboarding trick, they came together effortlessly: “I started realizing that all I really need to do is just flick it and concentrate on actually catching it, and that’s all I needed to do, and then I did it.”

Parents and adolescents used formal meditations to practice the skill of selecting and monitoring the focus of their attention. As they became more adept at regulating their attention, they transferred their skills to the settings and situations that were most meaningful to them.

3.3.2.5.2 “Getting the reacting out:” Behavioural Regulation in Parents

Most of the parents reported improved behavioural regulation as a result of the MYmind training. Perhaps owing to their increasing self-awareness, parents were able to recognize and curb their automatic impulses before acting rashly. Ron, for example, realized that he was quick to anger and apt to yell when his son made mistakes in tennis. As he became more aware of his pattern of behaviour, he was able to respond differently, “’cause you have those automatic reactions every time, but if you start realizing you don’t have to do that, then it’s not a hard
decision not to do that.” Ron explained that he still got upset, but he chose to speak calmly and focus on what his son did well. Ron believes his relationship with his son improved as a result. Another parent, Tom, described how his relationship with his family also changed when he began noticing and regulating his impulses. “I don’t react to them as much because it’s not effective,” Tom said. His wife, Madeline, observed, “I can see you sometimes thinking before you say something to me. You know, like consciously… thinking, whereas you would react right off the cuff before.” Tom explained that it required considerable effort and practice for him to respond mindfully to challenging situations.

And I think that’s what takes practice, actually. Learning to apply it in a stressful situation and not just kind of revert to reacting in an impulsive way to certain situations and being conscious of how you really think it’s appropriate to react.

This process of mindful responding, or “getting rid of the reacting” as Mary called it, led to noticeable behavioural changes in parents. Jennifer reflected, “I think I have been able to become a bit more measured in my response to things.” According to several parents, responding mindfully is a multi-step process. They highlighted the importance of “stepping back” and “taking time to think.” When parents recognized an automatic impulse, they intentionally paused, creating space between the impulse to act and the action. Within this space, parents were able to assess the situation, consider their thoughts and feelings, weigh their options, and select the most appropriate response. Julia outlined the process she referred to as “the old stop-think-review.”

It’s the old stop-think-review. Do and then review. That’s what mindfulness basically is. When you feel something you connect with yourself: Why am I feeling angry? What is it that’s making me feel angry? Then the thought comes. And then you analyze it: Is it real? Is it preconceived? And then make a decision on how you’re gonna deal with something and then review: How did it work?

Responding mindfully, rather than reacting automatically, appears to require the intentional application of a number of executive function skills including response inhibition, metacognition, and self-monitoring. It is interesting to note that although adolescents exhibited improvements in some components of executive function and emerging self-management skills, they did not as a group explicitly identify behavioural regulation as an area of improvement.
3.3.2.6 Emotion Regulation

3.3.2.6.1 Reduced Emotional Reactivity and Increased Strategy Use

Most participants demonstrated less emotional reactivity and greater implementation of strategies to manage negative emotions by the end of the intervention. Adolescents, in particular, described their reduced emotional reactivity. They reported feeling less frustrated and recovering more quickly than they had at the outset of the program. Andrew, a 13 year old hockey player with a quick temper on the ice, declared “now I don’t get as frustrated as I used to.” Andrew explained how he uses coping self-talk to regulate his strong emotions related to his athletic performance. “I used to get frustrated with myself ‘cause I couldn’t hit the ball 100%,” he recalled. “But now I just say to myself, ‘I’m not gonna get mad,’ you know?” Georgia noticed that her mother, Meg, also appeared better able to manage sports-related upsets after mindfulness training. Georgia said, “I see my mom, like I know during tennis my mom was always frustrated, but she got calmer and better.” These participants demonstrated improvement in their ability to cope with and recover from frustration over their athletic performance.

Other teens found they recovered more quickly after conflict with their parents. Matt found his mother’s reminders less aggravating than usual, and he noted how much easier it was for him to move past his irritation: “and even when she bothered me, I was only angry about it for like 15 minutes or something, and then I could forget about it.” Tony noticed that his anger subsided as quickly as it flared up during arguments with his mother. He described making the choice not to expend energy on anger, “I’ll just have a quick frustration now, and just give up. I’ll be like, Okay you’re doing that and I’m just not going to deal with it. I’m not going to sit and waste my time (laugh).” When Tony realized that holding on to his frustration was unproductive, he was able to let it go.

Parents and teens implemented mindfulness strategies to regulate their emotions throughout the day. Matt reflected that meditation freed him from his emotions, “well, during meditation my feelings kind of just go away, and that’s pretty nice actually. It’s kind of nice not to be bothered by feelings.” Tony noticed his attitude and disposition were more positive on days when he meditated. He said, “but the actual day I feel goes a lot better, like I feel like I’m not as angry or anything at people to start out. And I’m not just in a grumpy mood.”
In addition to formal meditations, participants reported using the breathing space to cope with feelings as they arose throughout the day. Eighteen year old Catherine used the breathing space to manage her school-related stress.

It does help though when you’re panicking, the 3 minute thing is great, ‘cause sometimes with the ADD, you overwhelm yourself (...) when I have a to-do list, I’m like, I gotta do this now, now, now, now, now (...) Or if I’m getting frustrated I need to realize to use the 3 minute thing.

Catherine was not the only member of her family to use the breathing space to cope with overwhelming emotions. She observed her mother, Julia, use breath awareness before entering emotionally arousing situations.

She’s learning one step at a time, the breathing, the 2 to 3 minutes in the car before she sees Andrew or before she goes into the lawyer’s office or before she gets into court. It’s really helping ‘cause before, we used to be driving down the highway two days after court, and she’ll just burst out crying.

Julia’s use of mindfulness practices not only helped her maintain composure in times of peak stress, but it also attenuated her emotional reactions to ongoing stressors like her divorce. According to Catherine, mindfulness helped her family learn to accept their emotions rather than avoid them. She indicated that her mother was better able to manage her emotions when she did not try to fight them: “she’s learning it’s okay to feel the way she feels.” For her own part, Catherine attempted to sit with the feelings that made her feel most vulnerable, rather than hiding from them.

I’m learning to go with it, like if I’m sad about something or I’m feeling really upset and I feel tears coming on, I’m not gonna stop them and leave the room, I’m gonna try and talk it out with you and if they come, they come, but I’m not gonna run away and be like, “whatever screw this.”

Participants reported that mindfulness helped them relate to their emotions in a new way. As Jennifer explained, “definitely it’s helped me be aware that the way you’re feeling about something is the way you feel about something, it’s not necessarily what the thing is.” Participants were more apt to accept, rather than avoid, their emotions, and implement strategies
to regulate intense emotional responses. Adolescents demonstrated less emotional reactivity and recovered more easily from negative emotions after MYmind.

3.3.2.6.2 “I have a choice in how I perceive these things:” Cognitive Reappraisal

Participants reported greater cognitive flexibility after completing the MYmind training, which allowed them to reappraise situations from different perspectives and generate multiple solutions to a problem. As Julia phrased it, “I don’t think in black and white anymore.” Julia reflected on the changes she noticed in the content of her thoughts, “where the thoughts are not the usual thoughts that are in my head.” Jennifer described her realization that thoughts are not facts, and that she had the choice to perceive things differently.

Because you know a lot of this sort of happened at the end of the summer and a few times I was sort of thinking oh it’s gonna ruin the end of my summer, but then I thought no, I don’t have to take it that way, I have a choice in how I perceive these things actually.

Jennifer felt empowered by her ability to choose; she no longer felt controlled by her automatic thoughts. Eighteen year old Matt explained how mindfulness illuminated his tendency to “jump to conclusions,” and helped him re-evaluate his automatic thoughts.

Like if I do something and I instantly think, “oh ****, I shouldn’t have done that,” then I can kind of think about it more clearly using mindfulness strategies, and generally I reach a different conclusion when I stop to really think about something.

Matt was able to reappraise the situation and come up with alternative thoughts. Similarly, 18 year old Catherine found that she was able to consider multiple factors and evaluate all possible outcomes of a situation, rather than assuming the worst-case scenario: “you’re more aware of other options, instead of – it’s not black and white. It’s not like, this is gonna happen, or this is gonna happen, it’s like well you gotta look at the domino effect type of thing.” Madeline described the changes she observed in her 17 year old daughter’s ability to evaluate setbacks from a new perspective.

But yeah, oh, honestly, it really made a big difference. Even though during the program we had major, major issues, all related to her schooling and that kind of stuff and, you know,
equally, she would recover from them and discuss them – like be able to look at them
differently, at her episodes differently than she had before.

This cognitive shift allowed her re-evaluate distressing situations in order to productively re-
engage with them. Meg and Ron also discussed their increasing flexibility with respect to
problem solving.

Meg: Because we can try and then –

Ron: If it’s not working –

Meg: Try different doors, whatever we can do, whatever works for us, or for her.

Enhanced cognitive flexibility was evidenced by participants’ growing capacity for cognitive
reappraisal, ability to predict various outcomes, and ability to generate multiple solutions to
problems.

3.3.2.6.3 Reductions in Rumination

A subset of the participants experienced reductions in rumination. As they were released from
the compulsive tendency to focus on negative thoughts of the past, they were able to live more
fully in the present. Thirteen year old Andrew, for example, described his tendency to dwell on
his mistakes in hockey: “kinda just like, if you keep on thinking about the same thing, how you
did it wrong, you keep on wanting the situation back, but you can’t. It’s a mess.” The more
Andrew ruminated on thoughts of the past, the more careless he became in the present. Andrew
explained how interrupting this spiral allowed him to focus on, and ultimately improve, his
performance in the present. According to Andrew, “I used to be like, ‘I made a mistake’ and I’d
keep on thinking about that one mistake, when really you can’t do anything about it anymore, so
there’s no point of thinking about it.” Eighteen year old Matt experienced a similar benefit from
formal meditation. He noted that he was able to let go of the negative thoughts he was dwelling
on, “it’s just kind of like your problems melt away, and you don’t – if you were dwelling on
them, then you’re not afterwards.”

Some parents were also susceptible to rumination. Madeline pointed out that Tom’s tendency to
“obsess” over things impacted his family relationships. After mindfulness training, she noticed a
reduction in his rumination.
Madeline: And you obsess about things, I think that’s what the kids find hard.

Tom: Yeah, I do. That’s a characteristic I have, there’s no question.

Madeline: And I think you’ve tried not to do that as much.

Tom: Yeah, and I think mindfulness…certainly has helped with that.

3.3.2.6.4 Acceptance of Child’s Limitations

Some parents reflected on the process of accepting others for who they are. In particular, they spoke of the importance of learning to accept their child’s ADHD. Ron and Meg described the stigma associated with a diagnosis of ADHD in their home country in Southeast Asia. “It wasn’t that popular back home at the time,” explained Meg, because the general public was ill-informed about ADHD (“there was a wrong conception”). Meg and Ron found their daughter’s limitations frustrating, and they pushed her to behave like developmentally typical children. Ron described how they came to accept Georgia’s diagnosis with the support of MYmind.

Yea finally we have to digest what it was. Because I think in the past probably we were not happy to know that she can’t do certain things. You’re normal, but what’s so difficult to do something? But at the end of the day, when we had more understanding, I said well maybe she’s a bit different. And just accepting is better than rather than criticizing her and pushing her, because if you push her she can become depressed.

Mary experienced a similar revelation with respect to her son, Tony. Although Mary was educated on the topic of ADHD and was a strong support and advocate for her son, she still found his symptoms frustrating. It was only when she fully accepted Tony with all his strengths and limitations that she was able to regulate her emotions in order to more effectively accommodate his ADHD.

I mean I’ve always realized this has been an issue, and this is something he has to deal with, and we all have to, to try and have somewhat of a normal life, as much as you can, whatever you consider normal (laugh). But to actually look at him and say, these are the boundaries he’s dealing with, and instead of getting frustrated by them, accept them and see what we can do to walk the right path, to make things easier for him.
Mary found the concept of acceptance to be so transformational that she encouraged others to adopt a similar approach. Mary recalled advising her brother that he would be happier if he accepted their mother rather than trying to change her. “I was trying to teach him acceptance on the spot, I really was.” She told him, “It’s time you accept she is who she is. She’s never going to change. You getting frustrated about it isn’t going to change it. You’re just going to be frustrated all the time.” Mary found that accepting others as they are allowed her to experience relationships in a new way. Mary advocated acceptance so strongly because she felt it enriched her experience of life and relationships.

I mean acceptance was a big one for me. Very big one. And learning that probably will forever change my world, in a sense of being able to accept really makes me be able to make choices better. Really makes me react better with people at all levels, whether it’s friends, family, work (...) Initially and first and foremost, acceptance was about Tony. But past that, a lot of other areas. And I think it makes a huge difference in how I feel about the world. Not so much how I treat the world, but how I feel.

When parents accepted the limitations of their children with ADHD, they experienced less frustration, responded with greater understanding, and provided more appropriate support.

3.3.2.7 Discovery

A subset of participants spoke of a process of rediscovery; of finding value or worth in things taken for granted. Fifteen year old Tony used the poignant analogy of an adult rediscovering a beloved childhood toy that he had outgrown.

I feel it’s kind of like embracing something, in a way, like using something for more than it’s worth or ... I don’t know how to explain it. It’s kind of like having an old toy that you haven’t used in a while and still using it twenty years later or something. You shouldn’t be using it at the age that you’re at, but you’re still using it. I dunno. I just…it’s about sensations that I feel, it’s like actually focusing on something more than it normally is.

Tony spoke of embracing experiences more fully, of delving beyond what is known to discover the unexpected or forgotten meaning within. This resonated with Tony’s mom, Mary, who said, “I thought Tony’s analogy of the old toy was kind of interesting. Because it’s a good analogy. Something that’s been sitting there forever and you don’t notice wow that actually has some
value. I should pay attention to it.” Mary described the ways in which she ventured more deeply into her own life.

And noticing, really paying attention to things, whether they’re just in the background, or not. (...) I walk up there, and instead of just walking down the street, actually noticing every tree I walk by. Noticing the sound of the traffic. Noticing what way the wind’s blowing. Different things like that, that make the walk more fun than just walking.

A corollary to the process of discovery was the experience of greater pleasure and appreciation. Simple acts seemed richer and more satisfying. Some adolescents reported enjoying their food more because the flavour was enhanced (“It’s not that it tastes different, but it’s a lot better”). Participants discovered beauty and joy in mundane experiences. Julia described her growing appreciation of things she previously overlooked.

And certainly an appreciation for things, too, I found. Even if it’s a quick glance out the window to see if I need to water my plants, to stop and go, oh that really looks nice. Which I might not have done before.

This contributed to the subjective experience of better quality of life. As 18 year old Catherine attested, “I enjoyed what I was doing more.” As one parent shared, the process of discovery was intimately connected to her personal identity. “And it’s like it’s the old me that’s coming out, I think,” said Julia. “What I used to be like when I was younger, before all the responsibility of the children and the learning disabilities and ADHD and the divorce and everything. I used to be very optimistic and outgoing person.”

For several participants, the process of rediscovering value, beauty, worth, and meaning in taken-for-granted objects and experiences resulted in greater pleasure in, and appreciation of, life. This act of dwelling deeply in the present exemplifies mindfulness.

3.3.3 Mindfulness Improves the Social Relationships of Adolescents with ADHD

“And Max, the king of all wild things, was lonely and wanted to be where someone loved him best of all.” (Sendak, 1963, Where the Wild Things Are, p.29)
Adolescents in the current study identified social relationships as a chief concern. Like Max among the wild things, they manoeuvred through the wild rumpus of social relationships with a combination of exhilaration and fear, seeking connection, acceptance and belonging. As is often the case for adolescents with ADHD, they experienced social difficulties including social anxiety, peer victimization, romantic strife, parent-adolescent conflict, and sibling conflict. This chapter explores the impact of MYmind on the social relationships of adolescents with ADHD. Participants reported enhanced social awareness, increased empathy, improved social communication, and reductions in parent-adolescent conflict as a result of mindfulness training.

3.3.3.1 “It helped me bridge the gap between myself and other people:” Peer Relationships

Adolescents developed greater awareness of themselves and others in social contexts, which improved the quality of their social relationships. After MYmind, adolescents felt more connected to their peers, as 18 year old Matt explained, “I’d say that MYmind, like the central area of my life that it helped me make better was the social part of it. It really helped me kind of like bridge the gap between myself and other people.” Prior to the program, Matt experienced anxiety in social situations, which made it difficult for him to interact with his peers. Mindfulness training helped Matt recognize and regulate his anxiety in social situations. His use of mindfulness strategies helped him sustain social interactions and communicate more effectively with his peers.

It really helps in social situations, like if I run out of things to say and I start thinking, “oh god, I’m out of things to say. What do I do next to keep this conversation flowing and not awkward?” Then I take a breathing space for a minute or something, and my friends are usually like, “Matt what are you doing?” I’m like, “shhh.” And then when I come back from doing that breathing space or whatever it was called, then I generally find that I’m more able to communicate with people.

Other participants found that they became more sensitive to nonverbal social cues. Sixteen year old Georgia described her heightened awareness of her own and others’ nonverbal communication. She found herself attending to “just the body language and the body movement.” Georgia described feeling more receptive to others, “in a way of, I guess, opening up myself to other people.” Fifteen year old Tony became more aware of his friends’ reactions to
his hyperactive behaviour. “I’m able to actually notice when people are getting frustrated,” he stated. Tony’s social awareness grew throughout the course of the intervention. He noted, “it’s something that I’ve been learning since at least the beginning of the program.” Tony explained how observing the subtle social signals of others helped him differentiate genuine friends from false friends.

Some that aren’t actually friends that I’ve started to realize aren’t being with me to be my friend, they’re just hanging around with me to do what I’m doing or whatever. I’ve actually started to realize now and I’ve been able to tell them that. And if they’re not gonna be able to actually be my friend, they’re not gonna be accepted as one.

Tony’s enhanced awareness in social situations helped him to evaluate the quality of his friendships and select the most appropriate peers to socialize with. Some participants became more attuned to the experiences of others in social situations. Madeline and Tom noticed their daughter Jess’ increasing ability to consider the perspective of others, a skill that had previously been under-developed in the 18 year old.

Tom: She certainly has a hard time seeing things from other people’s perspectives. And I know you’ve seen situations where she’s had friends that have really reached out to her and I’ve seen it as well, and she just, either doesn’t see it or doesn’t want to see it, and has tended to ignore it. (...)  

Madeline: But is better since the program.

Tom: Yeah absolutely, it’s certainly better since the program.

After MYmind, they described Jess as more aware of the impact of her actions on others. In particular, they found her to be more sensitive to her brother and more likely to acknowledge her role in arguments with him. Madeline commented on her daughter’s transformation.

It was completely altering to Jess, you know? It’s just so easy to see it in her (...) Jess never was mindful of how she was affecting other people. Completely could only see her own side, right? And yeah, it’s remarkable, the change.
Adolescents reported improvements in verbal and nonverbal social communication after mindfulness training. They used mindfulness to manage social anxiety, sustain conversation, pick up on nonverbal social cues, and take the perspective of others in social situations.

3.3.3.2 Changing Family Relationships

3.3.3.2.1 “I’m trying to take it from other people’s perspectives:” Increasing Empathy

After MYmind, parents and adolescents exhibited greater understanding of, and sensitivity to, one another’s thoughts and feelings. Julia reported, “I’m more empathetic, and sympathetic to both my kids.” Julia’s growing awareness of the subjective experience of her children led her to relate to them differently. She explained that she began giving her children transitional warnings between activities because she was able to consider the situation from their perspective:

But I am more aware of the fact that they’re involved with what they’re doing. And I really don’t feel right in pulling them out of it so suddenly, just like if I’m doing something, give me a moment to finish what I’m doing before I go to something else.

Julia was able to personally identify with the feelings of her children by imagining how she might feel in a similar situation. Julia recognized that it was difficult for her children to suddenly shift their attention from one thing to another, and realized they would benefit from a different approach. Similarly, Meg and Ron discussed how their increasing awareness of Georgia’s state of mind changed the way they responded to her. They referred to a handout provided in session which contained a fictional “Bill of Rights” written from the perspective of a child with ADHD. Meg recalled, “Yea I remember one of the sessions, I think [the facilitator] gave us as like the point of view of a child. I liked that one.” Meg found the handout and subsequent discussion “really good” because it encouraged her to “try to understand Georgia more.” Ron described how his increasing understanding of Georgia’s experience helped him to be more patient with her.

Yea I think from my side it was a bit more patient with her. It comes from the session that you have to try to understand how she thinks rather than – because sometimes, yesterday for me maybe I’m mad again. “Oh c’mon it’s simple, just do it.” But when you are trying to understand from the point of view of people it’s different.
When Ron considered situations from Georgia’s perspective, he was able to empathize with her struggle to complete tasks that appeared simple to others. Meg and Ron wondered if this approach might help their son to be more patient with Georgia as well. Meg observed her son’s frustration with his sister:

Yea she can keep asking the same questions again and again within one minute, and I noticed my son, “Georgia, you already asked me. You asked me three times now.” And then, “Georgia, this is the fourth time!” So I asked him to read that [Bill of Rights] too, to understand her.

Some parents discussed their growing sensitivity to the emotional state of their child. Madeline described her heightened empathy for her daughter’s distress.

And then she had a difficult time with university, like them saying that “Yeah well, you don’t meet the qualifications”, with only a few weeks left of school, so at that point (…) I just felt so badly for her that – oh my God, I’m gonna start crying now even (laughs) – I felt so badly for her having worked so hard, you know, and then and having to deal with that, that I got into the meditation and I [became emotional myself].

Madeline was so attuned to her daughter’s emotions that she experienced a strong emotional response of her own. Madeline also noticed that Jess appeared more aware of and interested in her mother’s experience.

Well just today, she had a test this morning in accounting and I guess all of them found it really hard and found the teacher unfair, you know, the whole scenario, and so we were texting a little bit and she expressed herself, and we went through all that and I was giving her some words of comfort and support, and then she asked me how I was. And… that would never have happened before. ‘Cause when she’s in a stressful situation and… focused on her own anxiety, there wasn’t anyone else that mattered.

Despite her own stress, Jess expressed curiosity about her mother’s experience. Other teens described their increasing awareness of the state of mind of family members. When asked what areas of her life were impacted by the mindfulness training, 18 year old Catherine responded, “family, as in, I’m trying to take it from other people’s perspectives.” Catherine explained that this increased her empathy for her younger brother, “I sometimes understand where Andrew’s
coming from more.” For his part, Andrew described his increasing ability to set aside his own feelings in order to take his mother’s perspective.

Yea, when sometimes my mom’s trying to tell me something and at the moment I think of it as like, she’s nagging me. But really, when I actually think about it, she’s just trying to help me in any way she can. Being a good mom.

Others also noticed that their frustration with parents decreased as their empathy increased. Sixteen year old Georgia interpreted her parents’ perfectionism in a new way when she considered things from their perspective.

’Cause I always was really just frustrated with them being like they want to be perfect at anything, but I realize that… what I’ve realized from my dad’s punctuality and my mom’s anxiousness, like maybe they do have anxiety disorder but they never really want to admit it, and just want to hide it.

When Georgia empathized with her parents’ anxiety, she was able to understand and accept their behaviour. When asked if this awareness of her parents’ experience impacted their relationship, Georgia reflected, “Yea in a way. In a way, actually, it does. (How?) Like I know them more and I understand them more.”

It is notable that parents and adolescents alike described greater empathy for one another. The reciprocity of empathy was reflected in Tony’s statement, “I feel we’ve both realized to – not get along better, but understand each other’s feelings a lot more.” This shared awareness of thoughts and feelings fostered improvements in parent-adolescent relationships.

3.3.3.2.2 “It opened up a dialogue:” Mindful Communication

Families reported improved communication, characterized by mindful listening and sharing more openly with one another, after the intervention. Parents explained that attending MYmind with their teens gave them a topic to stimulate conversation and a common vernacular with which to communicate. Jennifer described how she and her son were able to “share our experiences” after each session. Jennifer described the discussions that took place during the car ride home with Matt:
We always talked about the benefits of it, and after the sessions we talked about what each other did, and what we thought of the other people we were with and things like that (…) it sort of opened up a dialogue that we hadn’t had before.

Joint participation in MYmind facilitated meaningful communication between Jennifer and Matt. Similarly, Ron and his daughter Georgia developed a shared vocabulary with which to converse about mindfulness concepts. Ron explained how invoking the common language of breathing space, acceptance, and other key concepts diffused conflicts: “I think with the sessions, at least we have the common terms, right. Rather than maybe in the past we didn’t have that. So we would just start attacking whatever.” Other parents also noted that they were more likely to communicate respectfully during conflicts using mindfulness strategies. When Mary began taking breathing spaces during arguments, she found that she and her son Tony were able to talk about the problem. “It makes him step away as well,” Mary said of the time-outs during arguments, “and then he’ll come back and we actually talk.” Mary was pleased that she and her son developed a method to “communicate properly instead of screaming,” as they were inclined to do before the intervention.

As parents learned to recognize and manage their emotional reactions during conversations, they found themselves becoming better listeners. Julia described how her ability to listen mindfully to her children without “reacting and jumping on them” improved throughout the program.

And I listen to them give me feedback on my behavior and I don’t take that as a judgment from them, I take that as a “Hey Mom, I’m trying to tell you something.” And I’d say a good 80-90% of the time I’m actually able to… take it in. I mean I’m always able to take it in, don’t get me wrong, but yeah… I’m more open to them.

Julia was able to listen to and consider the opinions of her children without getting lost in her own internal experience. Her children were free to communicate their needs without sparking an automatic negative reaction from Julia. Likewise, Tom and Madeline found that their son (who did not participate in MYmind) began sharing more with them when they set aside their automatic judgments and negative reactions. Tom reported that their son was “opening up more about his successes. A little bit about his frustrations.” Tom reflected on why his son was communicating more openly:
I think that he doesn’t feel to as great an extent that he has to kind of defend himself or justify himself – I’m speculating there – and so he doesn’t feel as threatened by talking to us. ‘Cause I guess we reacted to some of the things he’s done.

As Tom noted, when parents listened mindfully, with awareness of their own reactions during the interchange, their adolescents began communicating more openly. This communication was more positive in nature than it had been prior to the intervention. Meg reported that conversations with her son (who also did not participate in MYmind) became “more positive and he’s more open and then we have a good talk, good communication, so it’s not tense. So it’s just being open and then we talk in a peaceful way.” Meg’s daughter Georgia explained how the mindfulness training made her want to “be more open” with her parents. She described her effort to improve communication with them, “I try to talk to my parents more and more.”

The quantity and quality of communication between parents and adolescents increased after the intervention. The common language developed in the program facilitated conversations, and gave families a vocabulary to use during conflict. Parents set aside their automatic reactions and regulated their emotions to listen mindfully to their youth, which in turn encouraged adolescents to communicate more openly with their parents.

### 3.3.3.2.3 Parent-Adolescent Conflict

Most families considered parent-adolescent conflict as a normative developmental process. “Well, I’m a teenager,” said 16 year old Georgia, “of course I’m going to get into fights with them.” Fifteen year old Tony agreed. “I wouldn’t want it to get like a really, really, really good relationship because that would just be creepy,” he joked. His mother, Mary, also felt that “it’s not normal” for families to have no conflict at all. Another mother, Julia, believed that arguments were opportunities to teach and learn important lessons.

And even the fighting, I value, because it lets me think how they think. Lets me see how they think, it teaches me about me, if I’m being too ingrained, and I tell them, “It’s okay to fight with me. You’re gonna fight with everybody. Tell me what you’re thinking so we can sort it through.”

Although conflict was regarded as a typical, and even valuable, component of parent-adolescent relationships, most families reported maladaptive levels of conflict when they enrolled in
MYmind. In fact, many participants identified reduction in conflict as an intervention goal. Prior to the training, parents and adolescents frequently engaged in power struggles characterized by anger, poor communication, and poor problem-solving. These conflicts escalated quickly and continued until someone ceded their position or left the interaction. Jennifer described the power struggle that ensued on a regular basis in her household. She explained how her need to prove a point would result in protracted arguments about inconsequential matters. “But there’s also a part of me that likes to have the last word, and actually everyone in the household has this problem,” she said. “I’d feel like I had to argue my point and so we would have conflict often over very stupid little things.” Once locked in this battle, Jennifer and her children had difficulty resolving the conflict. Her 18 year old son Matt developed the strategy of leaving the room and refusing to talk in order to escape the situation:

Yea or she’d follow me and get her last her word in, and then shut the door, and then she’d come back like 10 seconds later and get another last word in, and then shut the door, and then when she realized that she couldn’t get any other responses from me, then she’d just leave me alone after that, pretty much.

In this way, arguments ended abruptly without opportunities for relationship repair or problem-solving. Jennifer and Matt experienced a range of emotions during their arguments. Jennifer explained, “he usually gets really angry at me and I usually feel very angry at him. And I always would feel badly as well that we’re having the argument.” Matt’s frustration with his mother led him to distance himself from her, emotionally and physically. He described feeling “annoyed. Not exactly angry, just like I really don’t want to think about this stuff right now, so can you please leave me alone?”

After MYmind training, Jennifer and Matt adopted a new approach to conflict. Jennifer noted “sometimes I think I’ve been more willing to let things go,” which reduced the frequency and duration of power struggles. She also felt that Matt became more cognizant of his contributions to conflict: “I think sometimes he’s also been sort of more aware of – in retrospect after the argument – he’s been more aware that maybe he went a little overboard on it.” Matt also noticed a reduction in conflict after MYmind. “I hardly ever get into arguments with my parents anymore,” he said. Matt concurred that his mother was more likely to let small things go, noting
that she doesn’t “push things” as much as she used to. He attributed this change to mindfulness training:

I think it helps her when she feels like starting a conflict. If she feels like really worrying about something at me, then she can kind of slow down and ask herself, is this something I really need to be worried about, or is this just a trivial thing that I’m being anxious about for no reason?

Mindfulness helped Jennifer pick her battles, which reduced the frequency of conflict in the family. Other families also reported applying mindfulness concepts to parent-adolescent conflict. Similar to Matt, 18 year old Catherine often fled from conflict to avoid unpleasant emotions. After MYmind, she adopted a new approach characterized by “less pull back, more… compromise, or try to work it out, instead of leaving all the time, ‘cause I used to just leave.” Catherine found that remaining engaged in the interaction helped to resolve the conflict. “It’s beneficial, so instead of just dropping everything that doesn’t work out or seems difficult, it makes me feel like I’ve accomplished things, and I think it helps relationships grow in a positive way,” she explained.

Fifteen year old Tony described what conflict with his mother, Mary, looked like prior to the intervention. “It used to be almost like an actual fight. It would pretty much be like screaming so loud there’s no point in screaming, like you can’t even understand what you’re saying yourself,” he said. Tony described the mounting anger, frustration and sadness he experienced when his mother did not understand his point of view.

There’s times during arguments where I’ll feel that I need to keep going and explaining myself, because I know there’s no way that she understands what I’m trying to get across (...) so there’s like a sadness that there’s no way you can get it across to her, but then a frustration at the same thing.

Mary described their mutual lack of perspective taking as “head-butting.” She described a similar emotional response to conflict as Tony did, “yea you’re frustrated at the situation, and angry about whatever it is you’re arguing about. But the sadness from the parent perspective of God, I want the best for him.”
Mary and Tony described how mindfulness practices changed the way they approached conflict. They began to use breath awareness to de-escalate arguments. Mary explained,

And the breathing, and because we have reminders in the middle of the argument, “have you breathed? Maybe you should.” And he does it to me, and that’s not a bad thing, it’s a good thing. Even if neither one of us walks off and takes a three minute breathing space, just a reminder is, “You know what, maybe we’re carrying this a little much. Let’s stop for a second, rethink the approach, and start over.”

Mary and Tony engaged in a process of emotional co-regulation, cueing one another to use calming strategies in moments of stress. Mary emphasized the reciprocal nature of their approach. “And that is from, I think, both sides,” she said. “Certainly I’m not going to take credit for it alone.” Tony found that using breathing spaces reduced the duration and intensity of their conflict. “So if we are getting into arguments, they’re, first of all, not as long,” he explained, “and not as –” Mary chimed in, “intense.” Tony also commented on their improved ability to listen mindfully during conflict: “like we pretty much realize now to listen to what each other is saying. Before we were just like, I’m louder than you, I’m winning (laughter).” Although they still had disagreements, Tony and Mary found that the quality of their relationship improved as they learned to regulate their emotions and communicate more respectfully during conflict. Mary reflected that mindfulness did not help them argue less, it helped them argue better: “yea we argued a lot, we had a lot of frustration that came from a lot of places. Learning how to do that better really was the missing piece.” Tony summarized the overall improvements in his relationship with his mother, “I mean I just think that we have come a really long way after coming here. This has helped a lot with our relationship.” Tony was confident that he would be able to apply mindfulness to other relationships in his life, too. “Yea like even for relationships as well. I feel like I’m going to argue a lot less and be able to like solve problems a lot easier,” he stated.

Mary and Tony were not the only family to use breathing space to co-regulate their emotions during conflict. Ron explained how his daughter Georgia reminded him to use mindfulness to manage his anger.
I’m an impatient person. I get upset very easily. Every time I raise my voice or even attempt to raise, my daughter she says “daddy remember, be mindful. Take a breathing space.” So at the time I start to laugh.

Like her father, Georgia also benefitted from the use of mindfulness to regulate her own emotions and communicate more effectively. She explained, “if I was in a fight with the family and using mindfulness, I would probably be calm, definitely, and just be aware of what they’re feeling and that, and just explaining myself more thoroughly.”

Overall, families agreed that taking a mindful approach to parent-adolescent conflict reduced the frequency, duration and intensity of arguments; improved communication and problem-solving; and served as a form of emotional co-regulation during arguments.

3.3.4 Concluding Comment on Results

Although newcomers to the practice may initially view mindfulness meditation as a solitary activity, the results of the current study highlight the interpersonal nature of mindfulness. Most participants discussed their experience of mindfulness in the context of their relationship with others. The family-focused approach of MYmind underscored the importance of mindful relationships, and promoted the application of mindfulness principles to parent-child relationships in particular. This approach was consistent with the core values held by most parents who enrolled in the intervention. Julia, a single parent of two adolescents with ADHD, explained why she values communication and cooperation in family relationships.

What I value about my relationships... that we get along. Cooperation is the utmost because like, I don’t know if you’ve heard about the story of the five fingered family, but the family that works together survives and does well in life. We are not individuals where we – we can’t survive really on our own. There are times we need each other. And I think it’s a great lesson for everybody. So that’s what I value the most. And I’m happiest when we’re cooperating.

_The Five Fingered Family_ is an ancient allegory about family unity from the Punjab peoples of Northern India. Preserved in the oral tradition of storytelling, this tale has been told to generations of children around the world. It illustrates what families can accomplish by working
together. The version presented here was adapted from Shatkta Kaur Khalsa’s (2000) retelling, and accessed via http://www.sikhnet.com/stories/audio/five-fingered-family

There once was a family called the Angulees, whose house burned down. They had no work and no place to live. The father said, “I know of another town, maybe we can find work there.” So they set out to the next town. On the way they had to pass through a dark forest. Papa Angulee said, “OK we can rest here under this Pipal tree. We will sleep here. Son, go to the river and bring back some water to boil for soup. Daughter, collect sticks to start a fire with. My dear wife, you can chop the vegetables while I start the fire.”

Every one worked together and did their tasks. Very soon they had a soup brewing. The smell of the soup drifted up into a nearby tree. There was a troll who lived there! “Hmmm, smells good,” said the troll. “These humans think they are going to enjoy a meal, I’ll cook them and eat them for my dinner.” The troll jumped down from the tree in front of the father and said with a sly voice, “cooking food are you? What are you going to eat?”

Papa Angulee looked at him very calmly and confidently said, “Don’t you know? We are going to eat you.” The whole Angali family looked at him fearlessly. The troll had seen how this family worked together so well. He noticed when they were doing their tasks how they were completely united together. He got scared and thought to himself, “they are like a hand with five fingers. I can’t defeat all of them at the same time.” So he told the family, “please don’t eat me! I’ll give you my treasure. Dig right here and you will find a great treasure, take what you want, just leave me alone!”

So the Angulee family worked side by side and dug. They were amazed, “wow, we have never seen so many rubies and other gems and so much gold.” They went back to their village and started a new business, worked hard and lived in prosperity and happiness.

Now, the Angulee’s neighbors, the Lobha’s, knew that they had found a treasure somewhere. Mr. Lobha asked Papa Angulee, “where did you get all this gold?” So Papa Angulee told him the whole story. Mr. Lobha immediately went home and told his wife, “we have to go to the forest and tell a troll we are going to eat him, and he will give us all kinds of money!”
So the Lobha family went to the same forest and camped under the same Pipal tree. The father told his kids, “now go to the river and bring back some water to boil. Also go and find some sticks to make a fire. Wife! You chop while I start the fire.” But the kids complained, “the river is too far away and the water buckets will be heavy, I don’t want to.” Another child said, “the branches will be too hard to carry, I don’t want to do that either!” Now the parents started yelling at them, “you’d better do what I say or else!” Then the kids started fighting with each other and the parents blamed each other for the way the kids were acting.

The troll was watching all this and he jumped down exclaiming, “I’m going to eat you for my dinner!” Mr. Lobha said, “no! We are going to eat you.” The troll wasn’t convinced. “You are trying to be like that other family. But you are not together. You don’t stand a chance against me. I will eat you.” And the troll leaped at them. Mr. Lobha immediately said, “everybody, hold my hands, we have to run!” This time they all worked together. They held hands and ran away together and the troll didn’t catch them. They got home and told the Angulees the whole story. Everyone learned a great lesson: when we are divided, we will fall; when we are united, we will succeed.

3.4 Discussion

3.4.1 Brief Overview of Results

This study is the first to compare the lived experiences of adolescents and adults partaking in mindfulness training, and the only study to explore the mechanisms of action among adolescents with ADHD. Due to of the cognitive and developmental differences between adults and adolescents, as well as the functional impairment of adolescents with ADHD, the structure and content of the adolescent groups differed from that of the parent groups. Despite these modifications to program delivery, the lived experiences of parents and adolescents were strikingly similar. Participants in both groups described meditation as a form of mental training used to cultivate a mindful orientation. They experienced meditation as a challenging exercise, citing distractions, wandering mind, expectations about their performance, and critical self-talk as obstacles in their practice. They found they were drawn to the practice during times of stress, and lapsed during periods of relative calm. Despite the challenges associated with meditation, parents and adolescents expressed a commitment to maintaining their practice. Most continued to practice meditation on a regular basis up to six weeks after the intervention ended. Parents and
adolescents felt that the support of a group or mindful community would help them maintain their practice. Participants spontaneously adapted the exercises presented in session to meet their individual needs, and generalized them to other contexts. Participants described how they utilized mindful practices at home, at school or work, and during recreational activities. Parents and adolescents alike reported beneficial outcomes that were not evident in Study 1. They reported reductions in physical discomfort and pain, as well as improved psychological well-being, after mindfulness training. They also experienced marked improvements in the quality of their relationships. These results suggest that even with variations in program delivery, parents and adolescents shared a common understanding and experience of mindfulness, and attained similar outcomes. Further, it appears that the underlying mechanisms of action are consistent among parents and adolescents participating in mindfulness training.

3.4.2 Preliminary Validation for the Proposed Model of Mechanisms of Action

Results of the current study partially support my proposed model of the mechanisms of action in mindfulness training (refer to Figure 5). Parents and adolescents indicated that enhanced present-focused awareness and detached self-observation were key components of the process of change. They indicated that these processes contributed to a sense of clarity about internal and external experiences. Enhanced awareness of mental states contributed to improved self-monitoring (i.e., detecting changes in sensations, thoughts, and feelings and noticing impulses as they arise) and self-regulation (i.e., regulating attention and behaviour). Adolescents discussed how their increased awareness of their ADHD symptoms allowed them to relate to and engage with their symptoms in a new way. For example, one adolescent explained how early detection of motor restlessness allowed him to initiate self-management strategies in order to remain seated during class. Parents and adolescents both identified attention regulation as a mechanism of action. They described their improved abilities to intentionally select and monitor the focus of their attention, recognize distractions, and shift their attention. This allowed them to engage more fully in social and recreational activities without becoming distracted or losing focus. Parents indicated that enhanced self awareness and decentering contributed to greater behavioural inhibition. As they became more adept at noticing impulses and “stepping back” from them, they found it easier to evaluate the situation, inhibit inappropriate reactions, and respond in accordance with their intentions. Despite their emerging self-management skills and improved
attention regulation abilities, adolescents did not explicitly identify behavioural regulation as a mechanism of action. Although they reported a subjective sense that they were better able to manage their ADHD symptoms and behaviour, they did not explain how they did so. This may be a function of one or several of the following factors. Firstly, behavioural regulation may occur automatically, and adolescents may not be consciously aware of the steps they are taking to manage their impulses. It is also possible that adolescents were not able to articulate their behavioural regulation techniques as clearly as parents were able to, resulting in less material for analysis and obscuring this finding. Alternatively, inhibition of behavioural impulses may be an area of executive functioning that is particularly difficult for youth with ADHD to master, and eight weeks of mindfulness training may not be sufficient to consolidate gains in this area.

Parents and adolescents concurred with respect to improved emotion regulation skills. They experienced less emotional reactivity and recovered more quickly from negative emotions after mindfulness training. As participants began to view their thoughts and feelings as impermanent mental events rather than representations of self or reality (i.e., cognitive defusion), they experienced increased cognitive flexibility. Greater flexibility released the participants from habitual modes of responding and made it possible for them to consider alternative approaches in emotionally arousing situations, leading to the use of adaptive emotion regulation strategies. Parents’ and adolescents’ enhanced self-monitoring skills alerted them to the need for emotion regulation strategies, and their improved self-regulation skills allowed them to inhibit automatic emotional reactions and select and implement adaptive emotion regulation strategies more often. Participants became better able to reappraise situations, generate alternative viewpoints, and productively re-engage in problem solving in the presence of a stressor. Most participants identified the three minute breathing space as an explicit emotion regulation strategy they intentionally applied to attenuate distress. Additionally, participants’ changing relationship with their thoughts resulted in less reliance on maladaptive emotion regulation strategies. Participants reported a reduction in their tendency to ruminate on negative and over-generalized thoughts about themselves and their past behaviour.

Non-judgmental acceptance of self, which I hypothesized to be a foundation for changes in self-monitoring, self-regulation, and emotion regulation, was not identified as a mechanism of action in the early stages of the process. Rather, parental acceptance of the limitations of their children, particularly acceptance of symptoms associated with ADHD, was identified as a strategy for
regulating emotions and re-engaging in positive parenting. This is consistent with models of mindful parenting, in which non-judgmental acceptance of children as they are in the present moment is believed to reduce emotional reactivity and enhance attunement (Bogels et al., 2010; Coatsworth et al., 2010). Although the existing models of mindful parenting emphasize self-acceptance as a primary mechanism of action, parents in the current study did not expound on self-acceptance. Some participants reported greater acceptance of emotions after mindfulness training, but it was not clear whether participants viewed self-acceptance as an integral component of mindfulness meditation. This raises the question of whether self-acceptance is a key mechanism of action in MYmind, and if so, where in the process of change it exerts its effects. Previous research suggested that self-acceptance contributed to better emotion identification and regulation, which predicted treatment gains (Coffey et al., 2010). These results were not confirmed by the current study. The closely related concept of self-compassion was not implicated as a mechanism of action either. Although the concept of self-acceptance was discussed throughout the program, participants in the current study did not engage in a guided loving-kindness meditation or other self-compassion exercises until the eighth session. Results suggest that self-compassion does not spontaneously emerge from meditation practice alone; rather, it may need to be explicitly emphasized through didactic and experiential learning.

Another unexpected result was the identification of the mechanism of action dubbed “discovery.” Parents and adolescents described their developing appreciation for the taken-for-granted aspects of their daily lives. They approached experiences with a “fresh perspective” (Matt, age 18) similar to the concept of beginner’s mind. When participants let go of preconceptions and engaged with their environment with a sense of wonder and innocence, they uncovered the essence of phenomena. This process was described by Tibetan Buddhist teacher Chögyam Trungpa as “the discovery of innate or primordial wisdom in the world as it is” (1984, p. 103). When participants were able to access the inner truth and beauty of phenomena, they experienced a heightened sense of joy and contentment. Although this process is not identified in the current or previously discussed models of mechanisms of action, it is consistent with the Buddhist concept of sukha. Sukha refers to the enduring happiness or well-being resulting from a balanced mind and unfiltered insight into the nature of reality (Ekman, Davidson, Ricard, & Wallace, 2005). This process warrants further investigation, as it may contribute not only to the
reduction of emotional distress and psychopathology, but to improved quality of life and greater resilience.

Overall, these results help to clarify and extend the preliminary models put forth by Holzel et al. (2011) and Teper et al. (2013), and validate my proposed model of the mechanisms of action in mindfulness training. Many of the mechanisms of action described by MYmind participants were consistent with those outlined by Holzel et al. (e.g., attention regulation, body awareness, emotion regulation, and decentering). Although Holzel et al. conceptualized decentering as a state of de-identification emerging only after extensive practice, MYmind participants appeared to achieve partial de-identification with thoughts early in the process. Furthermore, this positioning of self-as-observer was fundamental to the development of other skills such as emotion regulation, and as such, it is depicted in the initial stages of the current model. These results contrast with Teper et al.’s model, which did not account for the role of decentering in the process of change. Teper et al.’s conceptualization of executive function (i.e., attention regulation, cognitive flexibility, and inhibition) as a precursor for emotion regulation was borne out by the findings of the current study. These components of executive function are represented in the current model as “self-regulation.” The role of acceptance in the process of change remains unclear. Teper et al.’s inclusion of acceptance in their model was consistent with conceptual frameworks and traditional teachings of mindfulness, but was not supported by present findings. Given that MYmind participants did not identify self-acceptance as a primary mechanism of action, but parents identified acceptance of their children as an emotion regulation strategy, it is unclear whether and where to include acceptance in the current model. Results of the current study confirm that emotion regulation is a critical mechanism of action, and further extend previous models by elucidating the adaptive and maladaptive strategies used to regulate emotions. As a result of mindfulness training, participants’ use of adaptive emotion regulation skills increased, while their reliance on maladaptive emotion regulation strategies decreased. Improved emotion regulation abilities contributed to better social functioning, which is discussed below.

3.4.3 Mindfulness as a Foundation for Improved Social Functioning

Participants indicated that the most substantial improvements occurred in the domain of interpersonal relationships. Although mindfulness practice is in many ways an individual
practice, it takes place in the context of a supportive community. The group format and family oriented framework of MYmind helped to build a sense of community between participants and within families. The theme of mindful relationships was woven into the curriculum, and participants took part in activities and discussions related to relationship-building. Given the implicit and explicit emphasis on relationships in MYmind, it is perhaps not surprising that participants experienced improvements in social and family relationships as a result of the training.

Adolescents reported improved social awareness and more adaptive social behaviour after mindfulness training. They used mindfulness to manage social anxiety, sustain conversation, read subtle social cues, and consider the perspectives of their peers. These results are notable considering that social skills interventions have demonstrated limited efficacy at ameliorating the social difficulties of adolescents with ADHD (Barkley, 2004; Chronis et al., 2006). The limited success of these interventions may be the result of targeting the wrong skills for remediation (Gresham, Sugai, & Horner, 2001). Poor social skills may be the result of deficits in the acquisition, performance, or fluency of a skill, or they may be due to an interfering or competing problem behaviour (e.g., anxiety or impulsivity) (Gresham, Sugai, & Horner, 2001). Adolescents in the current study appeared to possess knowledge of appropriate social behaviour, but had difficulty performing the behaviour in the presence of interfering behaviour. Improved self-monitoring, self-regulation, and emotion regulation skills helped participants manage, reduce or eliminate the interfering behaviour in order to apply their social knowledge fluently. For example, Matt knew that he was expected to contribute to conversation to maintain the flow of the interaction, but his anxiety interfered with his ability to generate conversational topics and participate in the social exchange. After mindfulness training, Matt recognized when his anxiety was rising, identified the need for an emotion regulation strategy, initiated the strategy of breathing space, maintained focus on his breath while filtering out distractions, and finally re-engaged in the conversation. This suggests that mindfulness training provided adolescents with the ability to manage interfering behaviour in order to successfully implement the social skills they already possessed. Additionally, mindfulness training appeared to cultivate a heightened awareness of others, thereby increasing the participants’ sensitivity to the social cues of their peers and alerting them to social problems. In combination, increased social awareness and improved social behaviour contributed to greater social connectedness between adolescents with
ADHD and their peers. Parents in the current study did not report changes in their peer relationships, perhaps because the content of the parent training focused primarily on parent-child relationships.

### 3.4.3.1 MYmodel: The Process of Co-Regulation in Parent-Child Mindfulness Training

Consistent with theories of mindful parenting, parents in the current study reported increased empathy, reduced emotional reactivity, improved communication, and lower levels of conflict within the parent-child relationship after mindfulness training. Likely as a result of their enhanced sensitivity to the emotional experiences of their children, parents intuitively adapted their parenting practices to better fit the needs of their children (e.g., giving transitional warnings). They refrained from automatic judgments and attenuated their emotional reactions in order to attend to their children in the present moment. This enabled them to listen more openly and communicate more effectively with their children, which reduced the intensity and duration of conflicts. Interestingly, results did not confirm previous findings of improved relationship satisfaction. Although parents in the current study expressed high levels of enjoyment and satisfaction in their relationships with their children, it was unclear whether this represented a change from their typical experience. Since baseline levels of satisfaction were not adequately established, this cannot be considered a treatment effect.

This study is the first to suggest that youth contribute to improved parent-child relationship quality in ways similar to their parents. After MYmind, adolescents showed an increased interest in, and understanding of, their parents’ experiences. When they considered situations from the perspective of their parents, adolescents made more positive attributions for their parents’ behaviour (e.g., “she’s just trying to help me”), and felt less frustrated with their parents. They described communicating more openly with their parents and actively regulating their emotions during conflict. This pattern of results is suggestive of a parallel process of enhanced self-awareness and self-regulation that conjointly contributed to improved parent-child relationships. Furthermore, as each individual of the parent-child dyad became more adept at regulating their emotions, they mutually reinforced the emotion regulation skills of their social partner. For example, several parents described their automatic tendency to become frustrated and critical towards their children, which invited defensiveness, anger and avoidance from the child. When parents became aware of their automatic reactions and down-regulated their emotions during
conflict with their children, the youth in turn more effectively managed their emotions, expressed less negative affect, and communicated more openly with their parents. As a result, both parties remained engaged in the interaction, and were able to solve problems more collaboratively. This increased the likelihood of future positive interactions.

Remarkably, after mindfulness training, parents and adolescents were able to monitor and regulate their own emotions as well as the emotions of their social partner. Since parents and adolescents received similar mindfulness training, they developed a shared language and a common set of emotion regulation strategies to draw on during conflict. The breathing space became a popular method of co-regulation during parent-child conflict. When one member of the dyad paused during an argument to take a breathing space, it served as a visual reminder and model for the other member to activate their own emotion regulation strategies. In some instances, one member of the dyad explicitly instructed the other to stop and breathe when they noticed their partner becoming dysregulated. Notably, adolescents were just as likely as their parents to initiate co-regulation. Parents and adolescents used behavioural and verbal cues to prompt one another to employ the strategies learned in MYmind, and in this way collectively bolstered their emotion regulation skills. This process of mindful co-regulation is illustrated in Figure 6. Due to the mutually reinforcing nature of this interaction, it is difficult to parse out the relative input of each partner; nonetheless, it is clear that the individual and shared processes depicted in the current model contributed to improved parent-child relationship quality.

The model proposed in Figure 6 is the first to elucidate the process of emotional co-regulation in parent-child mindfulness training. This proposed pathway illustrates the mechanisms by which entrenched negative patterns of interaction between parents and their children can be transformed into more adaptive and constructive exchanges. Dynamic systems theory provides a useful framework for understanding how relationship patterns emerge, stabilize, and change through an internal feedback system (Granic & Patterson, 2006). According to this theory, invisible forces such as emotional and cognitive processes within parents and children reciprocally interact to form dyadic patterns. Repeated interactions contribute to the formation of expectations, and over time, the interaction is reinforced and maintained. When patterns of interaction are stable, less activation is required to set them in motion (e.g., a subtle change in facial expression or tone of voice can initiate an argument). The system is resistant to change, and parent-child dyads are likely to exhibit behaviour consistent with previous interaction patterns (similar to the
automatized hostility of parents and children with disruptive behaviour disorders, as described by Dumas, 2005). However, environmental changes can destabilize the system and initiate reorganization of behaviour.

The developmental stage of adolescence is a transitional period during which new roles and responsibilities are negotiated, and the structure of family interactions is reorganized. During this period, adolescents experiment with new behaviour, altering the established patterns of interaction with parents. Following this phase of variability and flexibility, the system settles into more stable and predictable patterns again (Granic, Hollenstein, Dishion, & Patterson, 2003). Adolescence, then, may be an ideal time to introduce new behaviour into the system. The timing of the MYmind intervention may have coincided with endogenous changes already occurring within the system. Adolescents and parents were willing to test new coping strategies, such as breathing space. This behaviour was quickly incorporated into their repertoires, and subsequently shaped new patterns of interaction and influenced the developmental trajectory of the system. Current results suggest that this new dyadic pattern was reinforced and maintained for at least six weeks after the intervention; future research will be required to determine whether this pattern remains stable over longer periods of time.

3.4.4 Implications for the Delivery of Mindfulness-Based Interventions

The results of this study attest to the benefits of including multiple family members in mindfulness interventions. Although interventions targeting only parents or children have produced meaningful change, current results suggest that treatment gains can be reinforced and enhanced when the parent-child dyad is treated simultaneously. At an instrumental level, engaging multiple members of a family increases the likelihood that the child will attend sessions and follow the treatment protocol. Poor attendance and lack of adherence are often obstacles to treatment efficacy. A recent review of child and adolescent psychotherapy suggests that as many as 50% of families prematurely terminate treatment, with families of older children accounting for a disproportionately large number of drop-outs (Nock & Ferriter, 2005). Parental adherence to child treatment accounts for a substantial amount of change in parenting practices and better child outcomes (Nock & Ferriter, 2005). Thus, interventions that reduce parents’ perceived barriers to treatment and enhance parental participation and engagement are critical for treatment success (Koerting et al., 2013). The mindful parenting component of MYmind is designed to do
just that. Unlike behavioural interventions for externalizing disorders which focus on improving parenting skills and changing child behaviour, the mindful parenting program cultivates intentions, attitudes, and qualities that contribute to healthy intra- and inter-personal functioning. Parents were encouraged to articulate their values, which increases motivation for change. With a focus on being rather than doing, many parents experienced reductions in stress and improvements in psychological well-being, which may have reduced perceived barriers to involvement. Participating in a group with other parents in similar situations reduced shame and stigma, increased social support, and enhanced treatment engagement. Mary commented on the benefits of the group process: “It was great to [realize] hey, I’m not the only one dealing with this.”

The family-focused nature of the intervention removed blame from any one individual and communicated that all members of the family were responsible for making changes. Julia stated, “I’m really pleased, number one, that both the children and myself were attending it. It isn’t just the child going off, it’s a focus on the whole family.” Parents and adolescents were expected to attend weekly sessions together and contribute equally to the therapeutic process. They were encouraged to support each other outside of the session. The development of a shared language and common set of skills increased the likelihood that parents and youth would discuss concepts outside of session, remind each other to practice, and incorporate mindfulness into the family system (e.g., some families reported that they meditated together several times per week). This may have increased program adherence, promoted generalization to naturalistic settings, and supported the maintenance of treatment gains. The positive results of the current study, as well as feedback from participants regarding the format of treatment delivery, suggest that mindfulness interventions for children should be augmented with a mindful parenting program to maximize the potential for lasting change.

3.4.5 Limitations of the Research

The results of this study may have been influenced by selection bias. I used purposive sampling to select individuals who represented the diverse demographics and diagnostic profiles of the population under investigation. However, youth with oppositional behaviour, tics or severe motor restlessness were less able to and interested in participating in an hour-long interview. As a result, the youth included in the current sample exhibited more internalizing than externalizing
symptoms. Their experience of the intervention may have differed from that of adolescents with externalizing profiles. For example, youth with internalizing difficulties may have a greater propensity to ruminate, and thus may have derived greater benefit from mindfulness practices designed to reduce rumination. Parents of youth with more problematic externalizing behaviour may have found it more difficult to accept their children’s behaviour or regulate their emotions in the face of defiance. Had these participants been included in the sample, the results may have been slightly different. Participants who missed more than two sessions were not considered intervention completers, and so they were not invited to participate in the interviews. These participants may have provided valuable insights about barriers to treatment and ways to increase motivation and engagement in treatment. Future qualitative studies may wish to examine the expectations and perceptions of treatment non-completers, to determine how to target a potentially underserved portion of the population.

3.4.6 Comment on the Data Analytic Approach

The collection and analysis of data was initially guided by phenomenology, with the general aim to uncover the essence of mindfulness through in depth exploration of the lived experiences of MYmind participants. As the research unfolded, the method evolved and expanded to include other methodologies. A simple thematic analysis grew into a more conceptually driven search for patterns of meaning. Unexpectedly, a theory of the process of change in mindfulness meditation emerged from this systematic analysis of the data. Thus, the latter stages of the research came to resemble a grounded theory approach.

The methodology of grounded theory is based on the tenet that theories should be generated from, and verified by, the data at hand (Glaser & Strauss, 1967). Grounded theorists are interested in exploring the patterns and processes linking multiple perspectives (Strauss & Corbin, 1994), and using these patterns to explain and predict behaviour (Glaser & Strauss, 1967). Grounded theory can be used in conjunction with other approaches (Strauss & Corbin, 1994). Some of the procedures used in the current study were consistent with a grounded theory approach. I transformed the raw data into concepts that represented various facets of the phenomenon; these concepts then formed the units of analysis. I grouped the concepts into categories, and explored the relationships between categories. I compared each new concept against others to ensure precision and consistency of coding, and searched for patterns and
variations within the categories. I broke the phenomenon down into stages to explore underlying processes, and I noted when these processes changed in response to other conditions. I also wrote notes to keep track of the categories, hypotheses, and questions throughout the analysis, and consulted with others regularly. All of these steps are typically taken to generate grounded theories (Corbin & Strauss, 1990).

My data analytic approach diverged from that of grounded theory in some key ways. The biggest difference between the procedures of the current study and those advocated by grounded theorists has to do with the integration of data collection and analysis. To generate a grounded theory, it is advisable to analyze each piece of data as it is collected, then use the resulting hypotheses or questions to guide the collection of the next piece of data. For example, if during analysis of the first interview I perceived the potential trend of increasing meditation practice during periods of stress, I could have asked the next participant to describe specific conditions that increase or decrease stress, explored whether increased meditation is associated with specific types of stress, such as financial, familial, or health-related concerns, and explored other contextual factors such as availability of time and space to meditate when under stress. In this way, each interview becomes an opportunity to confirm, disconfirm, and revise hypotheses. In the current study, I did not engage in data analysis until all the data had been collected, so I was not able to tailor each interview to investigate specific hypotheses other than those formulated prior to data collection. The approach to data collection in the current study was more closely aligned with a phenomenological framework, wherein participants are encouraged to share their stories in the manner which is most meaningful and relevant to them, with minimal guidance from the researcher.

Since I incorporated procedures from multiple methodologies into the research design, it would be inaccurate to claim that this study represents any one approach wholly. Rather, I prefer to characterize the research as a qualitative evaluation informed by phenomenology and grounded theory.

3.4.7 Directions for Future Research

Further research is needed to validate the proposed model of change in mindfulness training. Although the model is presented linearly, it is possible that the processes maintain one another in an iterative fashion, forming one great feedback loop. For example, increased self-observation
may draw attention to the experience of rising anger, and alert one to the need to employ emotion regulation strategies. In turn, effectively regulating anger may make it easier to engage in objective self-observation, thereby increasing the likelihood of noticing emotions as they arise. Mediation analyses with a larger sample would help to confirm the mechanisms of action in mindfulness training, and clarify the nature of the relationships between them.

Results of the current study suggest that involving multiple family members in mindfulness training may yield additional benefit. In order to determine whether greater gains are achieved with the inclusion of multiple family members, and whether these gains are additive or even multiplicative, future studies should compare the outcomes of mindful parent training, child training, and concurrent parent-child training. It would also be helpful to explore whether the number of family members involved (e.g., single vs. dual-parent families, single vs. multiple children) is predictive of treatment adherence or outcomes.

Increased use of adaptive emotion regulation skills, and less reliance on maladaptive emotion regulation skills, was associated with improved functioning among adolescents in the current study. Considering that emotion dysregulation contributes to functional impairment in individuals with ADHD (Barkley & Fischer, 2010; Barkley & Murphy, 2010), and increases risk for comorbid psychiatric disorders (Berking et al., 2008), interventions targeting emotion regulation skills are of particular import for youth with ADHD. Mindfulness training may help to prevent or buffer against the development of symptoms of mood and anxiety disorders, eating disorders, and / or substance use disorders. Longitudinal studies are needed to determine whether involvement in MYmind as a youth is predictive of better psychological adjustment in adulthood.

Researchers may also wish to explore whether timing of intervention is associated with outcome. The development of adaptive emotion regulation skills in early childhood may mitigate the temper, emotional lability, and emotional reactivity often displayed by individuals with ADHD (Barkley, 1997; Barkley & Murphy, 2010), and contribute to greater social acceptance by peers. Improved emotional co-regulation between parents and young children could promote positive (rather than negative or hostile) interaction patterns, and ultimately alter the trajectory of the family system. Mary wondered whether her 15 year old son, Tony, would have experienced even greater benefit and developed differently had they participated in MYmind years earlier.
I wish this program existed when he was in grade two. The reality of what I’ve seen this year having gone through this, how he feels about himself, is just incredible (…) If a child in grade two (…) and a parent could get those tools and that acceptance and all of that back then…what a different teenager you’d have by the time they’d hit here.
3.5 Tables
Table 8. *Key Participant Demographic Information*

<table>
<thead>
<tr>
<th>Family</th>
<th>Participant Name (Youth, Parent)</th>
<th>Gender (m/f)</th>
<th>Age of Youth</th>
<th>Grade</th>
<th>IQ</th>
<th>C3P Inattention (Pre)</th>
<th>C3P Hyper/Impulsive (Pre)</th>
<th>Youth Comorbid Diagnoses</th>
<th>Parent Diagnosis</th>
<th>Family Composition</th>
<th>Hobbies / Interests of Youth</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Matt <em>Jennifer</em></td>
<td>M F</td>
<td>18</td>
<td>12</td>
<td>119</td>
<td>74</td>
<td>67</td>
<td>Learning Disability</td>
<td>ADHD Anxiety</td>
<td>![Family Tree 1]</td>
<td>Creative Writing</td>
</tr>
<tr>
<td>2</td>
<td>Tony <em>Mary</em></td>
<td>M F</td>
<td>15</td>
<td>9</td>
<td>101</td>
<td>90</td>
<td>71</td>
<td>Depression</td>
<td>N/A</td>
<td>![Family Tree 2]</td>
<td>Skateboarding</td>
</tr>
<tr>
<td>3</td>
<td>(Jess) <em>Madeline Tom</em></td>
<td>F F M</td>
<td>17</td>
<td>12</td>
<td>114</td>
<td>67</td>
<td>64</td>
<td>No official diagnosis</td>
<td>ADHD (mother)</td>
<td>![Family Tree 3]</td>
<td>Romantic Relationship</td>
</tr>
<tr>
<td>4</td>
<td>Georgia <em>Meg Ron</em></td>
<td>F F M</td>
<td>16</td>
<td>10</td>
<td>90</td>
<td>66</td>
<td>64</td>
<td>Learning Disability Anxiety</td>
<td>N/A</td>
<td>![Family Tree 4]</td>
<td>Music (piano, singing)</td>
</tr>
<tr>
<td>5</td>
<td>Catherine <em>Andrew Julia</em></td>
<td>F M F</td>
<td>18 13</td>
<td>12 7</td>
<td>122</td>
<td>71 79</td>
<td>72 77</td>
<td>Learning Disability (both)</td>
<td>Chronic Pain</td>
<td>![Family Tree 5]</td>
<td>Romantic Relationship Hockey</td>
</tr>
</tbody>
</table>

*Note. Participant names are pseudonyms. Names in parentheses participated in the intervention, but were not available for the interview.*
3.6 Figures
Figure 3. Working model of the mechanisms of action involved in mindfulness meditation training. *Note:* ER denotes emotion regulation strategies.
Figure 4. Working model of mechanisms of action in improved parent-child relationships after mindfulness training.
Figure 5. Thematic map related to Research Question 1: What is the nature of the experience of mindfulness meditation for youth with ADHD and their parents?
Figure 6. Working model of the parallel processes and emotional co-regulation contributing to improved relationship quality in joint parent-child mindfulness training. Note: shaded items denote mechanisms that were not supported by current results.
4 Integrated Discussion

The purpose of this mixed methods evaluation was to assess the outcomes and processes of a mindfulness-based intervention for adolescents with ADHD and their parents. Collectively, the results of Study 1 and 2 indicate that mindfulness training reduces ADHD symptomatology and ameliorates the behavioural, emotional and social difficulties experienced by adolescents with ADHD and their parents. Participants demonstrated high levels of commitment and adherence to the MYmind program, and did not report any ill effects, suggesting that concurrent parent-child mindfulness training is acceptable and feasible for this population. These findings support and extend previous evaluations of MYmind (Bogels et al., 2008; van der Oord et al., 2012; van de Weijer-Bersma, 2013), and contribute to the growing body of evidence supporting mindfulness as a complementary or alternative treatment for ADHD.

I used a mixed methods approach to expand the scope of the outcome research described in Study 1, in order to obtain a richer, more vibrant description of the phenomenon of mindfulness than would have been afforded by a single methodology. Individually, Study 1 and 2 yielded ample information regarding the outcomes and processes associated with mindfulness training. Together, they have the potential to offer new insights into the nature, strengths and limitations of mindfulness-based interventions. The integration of results from multiple studies can pose a challenge, as there are few standards or guidelines for synthesizing data generated from mixed methods evaluations (McConney, Rudd, & Ayres, 2002). Jang, McDougall, Pollon, Herbert & Russell (2008) described several procedures for data integration that can be used singly or in combination, including parallel integration (e.g., summarize statistical data and interview themes in one report), data transformation (e.g., code qualitative themes numerically and analyze them statistically), data consolidation (e.g., create a set of themes consistent across studies), and case analysis (Jang et al., 2008). I used Jang et al.’s integrative mixed methods model as a guide for data integration in the current study. I elected to employ the analytic strategies of data transformation and data consolidation to integrate the results of Study 1 and 2.

After analyzing the quantitative and qualitative data independently, I transformed the data into the same format in order to directly compare the results of Study 1 and 2. One proposed technique for data transformation involves numerically coding qualitative themes in order to analyze them statistically or rank them on an ordinal scale alongside quantitative results.
(McConney et al., 2002). This procedure only provides a summative evaluation of the overall merit of a program (e.g., effective or not effective), which is of limited value for clinicians and policy-makers who need to know how, for whom, and under what conditions the program exerts its effects. Further, this approach would undermine the purpose of using multiple methods in the current study by transforming qualitative results into quantitative data, thereby reducing the complexity and detail of the interview data. In light of the aims of the dissertation, I elected to follow Jang et al.’s practice of converting quantitative results into narrative descriptions. I reviewed the scale descriptions and item content of the questionnaires administered in Study 1, and crafted brief narrative descriptions of the constructs measured. I was then able to compare these descriptions to the themes of Study 2.

I consolidated the narrative themes from Study 1 and 2 under the framework of the newly developed working model of the process of change in mindfulness training proposed in Study 2 (the figure depicting this model is reproduced at the end of this chapter). Using this model as a guide, I explored the consistencies and inconsistencies between results with respect to the process of change (i.e., awareness, decentering, acceptance, self regulation, and emotion regulation), and outcomes (i.e., peer relationships, family relationships, stress/distress reduction, and well-being), as well as generalization and maintenance of treatment effects. Table 9 displays the results of the thematic consolidation.

In this chapter, I present a summary of the results of the mixed methods data integration, using the proposed model of the process of change in mindfulness training as an organizing framework. I discuss the convergent themes related to process, outcome, and maintenance, and provide potential explanations for divergent and unexpected results. I then explore the methodological limitations of the overall dissertation, and offer directions for future research. I conclude the chapter with a discussion of the clinical implications of the dissertation findings.

4.1 The Process of Change in Mindfulness Training

Results of the data integration largely support my proposed model of the process of change in mindfulness training. Findings from Study 1 and 2 converge in several domains, particularly in key areas of self-regulation. However, inconsistencies between parent and adolescent reports, and between quantitative and qualitative results, obscure some of the findings and limit the conclusions that can be drawn. In this section, I present the overlapping and non-overlapping
themes relating to awareness, decentering, acceptance, attention regulation, behaviour regulation, and emotion regulation. It is important to note that although these constructs are presented in a linear model, it is likely that they interact in a cyclical manner. Each of the constructs develops within a mutually reinforcing relationship with the others.

The qualitative interviews uncovered several mechanisms of action that were not measured in Study 1, such as awareness and decentering. In Study 2, parents identified self-awareness as a key facet of mindfulness. Parents and adolescents described their growing awareness of internal and external experiences. After mindfulness training, parents became more aware of their thoughts, feelings, and impulses on a moment-to-moment basis. Adolescents noted that their increasing awareness of their environment gave them a greater sense of clarity about, and connection with, their experiences. Adolescents also reported gaining greater awareness of, and insight into, their ADHD symptoms after MYmind. They were more cognizant of their unique symptom profiles, and they noticed when their symptoms interfered with social or academic functioning. Their increasing awareness of their ADHD alerted them of the need to initiate self-management techniques. Interestingly, adolescent ratings of their ADHD symptoms on standardized questionnaires in Study 1 were markedly lower than that of their parents, which could be interpreted as evidence of adolescents’ limited self-awareness of their symptoms. While adolescents indicated that they developed more insight into their ADHD, they may continue to give inaccurate appraisals when questioned directly about specific symptoms. Overall, results of Study 2 indicate that parents and adolescents perceive awareness to be a critical component of the process of change in mindfulness training.

Results of the qualitative study indicate that participants began to position themselves as witnesses in relation to their own mental events. Parents and adolescents learned to “step back” from themselves in order to observe their thoughts and feelings. Some participants imagined the content of their minds projected onto a movie screen or displayed on a shelf. This process of decentering allowed them to consider their thoughts without becoming emotionally invested in them, and to let go of thoughts more easily. Since decentering was not measured in Study 1, these results could not be verified by quantitative data.

Neither study found robust changes in self-acceptance among parents or adolescents as a result of the intervention. This is surprising considering the emphasis placed on accepting thoughts and
feelings during the training. Parents did, however, report increased acceptance of others in the qualitative interviews. Specifically, parents explained how mindfulness training helped them to accept the limitations of their children, and respond to them with greater patience, understanding, and support. This theme was also reflected in the results of Study 1 with respect to mindful parenting. The construct of mindful parenting includes acceptance of self and acceptance of children; so, increases on the measure of mindful parenting may be partly due to the increases in acceptance described by parents in Study 2. While acceptance of children appears to play a prominent role in the process of change for parents, the role of self-acceptance in mindfulness training remains unclear.

Overall, results from Study 1 and 2 converge with respect to the process of attention regulation. In Study 1, parents reported improvements in their adolescents’ inattentive symptoms, including concentration and distractibility, after mindfulness training. Although adolescents did not report improvements in this domain in Study 1, they described their enhanced attention regulation skills in the qualitative interviews. Adolescents indicated that they became more adept at selecting, monitoring, and shifting their attention after the intervention. They gave examples of improved attention and focus in social interactions and recreational activities. Despite these improvements, it is possible that adolescents continued to have difficulty concentrating and sustaining their attention, particularly in the school context. This may explain why they did not endorse improvements on the symptom-oriented questionnaire. Nonetheless, their descriptions corroborated parental reports and validated the claim that mindfulness training improves attention in adolescents with ADHD. Further, parents themselves identified focus as a core component of mindfulness, and experienced improvements in their attention regulation abilities as a result of the intervention. This suggests that the mechanism of attention regulation is consistent across adult and adolescent populations, regardless of whether or not participants have ADHD.

Parents identified improved behavioural regulation as a mechanism of action in mindfulness training. They reported reductions in adolescent conduct problems, such as rule violations, aggression, and deceitfulness, after MYmind. This suggests that adolescents learned to inhibit their behavioural impulses and demonstrate more prosocial behaviour. Adolescents did not report a corresponding change in their own behaviour. Although adolescents became more aware of their impulses and recognized the need for self-management, their attempts to regulate their
behaviour may have required a high level of effort that was difficult to sustain. As a result, they may not have perceived any substantial improvements in this area of functioning. Alternatively, parents’ increasing acceptance of their children may have caused them to make more positive attributions for adolescents’ challenging behaviour, resulting in reductions in parent-rated conduct problems at post-test. According to results of the qualitative study, mindfulness training also increased the behavioural regulation of parents. Parents described how improved self-awareness and self-monitoring allowed them to recognize and inhibit automatic impulses and respond with less reactivity and greater intentionality to their children. The integrated results suggest that behavioural regulation may be a component process for adults and youth alike.

Although emotion regulation was not measured in Study 1, results of Study 2 strongly implicate improved emotion regulation as a critical factor in the process of change for adolescents and parents alike. Parents and adolescents experienced less emotional reactivity and recovered more quickly from strong emotions after the intervention. They used adaptive emotion regulation strategies, such as cognitive reappraisal and breathing space, more frequently and effectively to manage their emotions. They also reported a reduction in the use of the maladaptive emotion regulation strategy of rumination. The enhanced emotion regulation skills of participants directly contributed to the improved outcomes observed in Study 1 and 2, particularly with respect to interpersonal relationships.

4.2 Outcomes of Mindfulness Training

The most salient outcomes of mindfulness training identified by the participants were improved peer and family relationships, reductions in psychological distress, and greater perceived well-being.

Overall, results from the mixed methods evaluation provided strong and convincing evidence that mindfulness training improves the peer relationships of adolescents with ADHD. The large and statistically significant reductions in peer relations problems found in Study 1 were validated by Study 2. Adolescents reported substantial improvements in the quality of their peer relationships during the interviews. The qualitative approach provided the opportunity to explore subtleties of social interaction that were not systematically measured in Study 1. Analysis of the qualitative interviews illuminated the mechanisms of improved relationships, namely enhanced emotion regulation, social perspective taking, social awareness and ability to read nonverbal
social cues. In this way, results of Study 2 complemented and expanded upon the findings of Study 1 with respect to improved peer relationships.

Contrary to my predictions, neither parents nor adolescents reported improvements in family functioning or reductions in parent-child conflict in Study 1. However, when interviewed with open-ended questions in Study 2, parents and adolescents both reported better communication, greater empathy, and improved perspective-taking within the family after mindfulness training. They explained that although they still experienced conflict, it occurred less frequently, it was of shorter duration, and it evoked less anger and emotional reactivity than it had prior to the intervention. According to the results of qualitative analyses, parents and adolescents used mindfulness to implicitly and explicitly co-regulate their interactions, which reinforced their individual gains and contributed to improved parent-child relationship quality. These results directly contradict the findings of Study 1, and raise questions regarding how best to interpret the results of the overall dissertation with respect to family functioning.

In a related study (reported elsewhere), a subset of MYmind participants was surveyed on their daily levels of distress related to parent-adolescent conflict. This study found that 100% of parents and 78% of adolescents experienced reductions in distress from conflict during the latter half of the intervention (Shecter, 2013). The results from this independently analyzed quantitative evaluation are consistent with the qualitative reports of reduced emotional reactivity and improved emotion regulation during conflict. This strengthens my confidence in the results of study 2 with respect to improved parent-adolescent relationships, and suggests that measurement issues may account for the non-significant results of Study 1.

On the whole, this research revealed substantial reductions in parenting stress following the intervention. Parents reported reductions in stress related to their parenting roles and parent-child interactions in both studies. They described how mindful breathing practices helped them release stress and remain calm when their children exhibited challenging behaviour. In Study 2 only, some parents also reported more general reductions in stress and anxiety in other areas of their lives, such as work. These results are consistent with previous studies showing that mindfulness training helps parents manage and reduce stress associated with parenting children with disabilities (e.g., Singh et al., 2007b).
Parenting stress was not included as a variable in the process model developed in Study 2. Were it to be included in the model, I would conceptualize it as an outcome emerging from the improved emotion regulation skills of parents. This outcome would be positioned in relation to parents only, and would be distinct from the mutually reinforced outcome of parent-child relationship quality. Although parenting stress is conceptualized as an outcome, it may also serve as a moderating variable in the process of change. For example, parents with lower stress may find it easier to engage in meditation, which would provide them with more opportunity to cultivate awareness, acceptance, and decentering.

Although adolescent stress was not directly measured, other indices of general distress were considered. Neither study revealed convincing evidence of reductions in internalizing problems among adolescents, although questionnaires administered at follow-up in Study 1 revealed reductions in anxiety and depression. It is possible that more time and practice was needed to consolidate changes in these domains, which would explain why the results did not reach the threshold for significance until six weeks after the intervention. However, this tentative hypothesis was not supported by the qualitative study. Interviews conducted one to three months after the intervention did not reveal strong evidence of changes in adolescent depression and anxiety, suggesting that the results of the quantitative follow-up analyses may have reflected simple time or maturation effects rather than true intervention effects. More research is needed to determine whether MYmind produces clinically relevant changes in adolescent stress and/or internalizing problems.

Participants of study 2 described improvements in their sense of well-being as a result of the intervention. Parents and adolescents reported that meditation induced a temporary state of relaxation, positive affect, and sense of peace. These observations likely reflect changes in state, rather than trait, levels of affect. It is possible that the alterations in psychological processes and improved relationship functioning detailed above could contribute to enduring changes in the participants’ overall happiness, life satisfaction, and quality of life over time. However, these did not emerge as themes at the time of the interviews, approximately one to three months after the intervention. Measures of psychological well-being were not included in Study 1.
4.3 Generalization and Maintenance of Treatment Gains

Parents and adolescents indicated that they adapted mindfulness practices for use in settings other than the clinic. According to interview data, they engaged in formal meditation in their bedrooms, living rooms, backyards, shower stalls, and cars. They used breathing space to manage stress and enhance focus in the context of recreational activities such as skateboarding and tennis. Participants may have been more likely to maintain their mindfulness practice when it became part of their daily routine and contributed to improvements in their valued activities. Although parents and adolescents reported a decrease in the frequency of meditation practice after the intervention ended, most continued to practice one to three times per week, with some individuals practicing daily. Participants expressed a desire to continue practicing mindfulness in the future. These results suggest that participants are motivated to maintain their practice even without the support or incentives of the formal treatment program.

Perhaps due to their ongoing mindfulness practice, treatment gains were maintained over time. Results of paired-sample t-tests in Study 1 indicate that all treatment gains were maintained, or continued to improve, during the six week follow-up period. Participants did not experience deterioration in functioning after the treatment ended. Interview findings support the quantitative trends.

4.4 General Limitations of the Research

The specific limitations of Study 1 and 2 were discussed in the previous chapters. In this section, I briefly highlight the general limitations of the overall research. The method, measures and procedures of Study 1 were designed and implemented prior to the commencement of Study 2. This sequence of events had several disadvantages. The questionnaires selected for use in Study 1 did not measure some of the most critical constructs identified by participants in Study 2. Had I obtained the results from the qualitative study first, I could have used the emergent themes to inform the development of the quantitative study. For example, if I had conducted a pilot study using qualitative interviews in the initial stages of the research, I may have developed the proposed model of mechanisms of action prior to collecting data for the quantitative study. This model would have guided the design of the quantitative study. I could have included measures of adaptive and maladaptive emotion regulation strategies, such as reappraisal and rumination, to confirm my hypotheses regarding the role of emotion regulation in mindfulness training. I could
have garnered a larger sample size in order to run more advanced statistical analyses, which would have allowed me to identify mediators and moderators in the process of change. In light of evidence suggesting mutual co-regulation between parents and adolescents, I could have employed a dynamic systems approach to collect observational data on parent-child interactions to better understand how this relationship functions. However, since the quantitative study preceded the qualitative study, these variables were not considered in the former.

Overall, this dissertation relied heavily on self report of psychological and behavioural change. The biases inherent in self-report measures may have influenced the results. Measurement issues may partially account for the pattern of results observed in Study 1, particularly with respect to adolescent reports that did not suggest statistically significant change. In Study 1, participants were asked to complete a large package of paper-pencil questionnaires, which may have challenged the attention, concentration, and motivation of adolescents with ADHD. The consistent under-reporting of difficulties by youth with ADHD on standardized questionnaires has been well-documented (Wiener et al., 2012; Varma, 2013), and suggests that alternative methods of assessing treatment outcomes are needed. The semi-structured interview format of Study 2 may have been better suited to the communication style of adolescents in the current study. Adolescents may have found it easier to attend to and process questions presented in an interactive, flexible, and informal manner. Although the interviewer guided the discussion, adolescents were encouraged to elaborate, describe, give examples, and introduce new topics that were of interest and importance to them. This approach was non-threatening and respectful of the knowledge and opinions of the adolescents, and may have been more likely to stimulate self-reflection and elicit honest responses than the problem-focused symptoms checklists that were used in Study 1.

The content of the measures that were used in Study 1 may have also contributed to under-reporting. Several MYmind participants indicated the questionnaires used in Study 1 did not ask about salient topics or use appropriate language to elicit meaningful responses. For example, many adolescents used mindfulness to improve their athletic performance. The questionnaires in Study 1 did not inquire about recreational activities, so failed to uncover this outcome. One parent said, “the questionnaires can be – are skewed, quite frankly.” As this parent astutely pointed out, a certain amount of bias is contained in the rating scales themselves. Item ambiguity, priming effects, and demand characteristics are just a few of the sources of bias that can result in
measurement error (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). The scales chosen for inclusion in the study, and the items contained within them, reflect the presuppositions and values of the researchers and scale developers, which may not reflect those held by the participants. For example, the Issues Checklist, designed to measure the frequency and intensity of parent-adolescent conflict, contains a pre-determined list of potential sources of conflict. The conflict topics included on this checklist are solely related to the behaviour of the child (e.g., cleaning bedroom, getting to school on time, talking back), reflecting the assumption that children are always the source of conflict and parents do not display behaviours that are bothersome or hurtful to their children. In contrast, parents and adolescents in the current study acknowledged that some of their arguments resulted from parental behaviour. These issues were not included in the questionnaire. The Issues Checklist asks respondents to rate the level of anger associated with conflicts, as an indicator of conflict intensity. However, participants in MYmind experienced a wide array of emotions during conflict, including frustration, hurt, and sadness. Changes in the intensity of these emotions were noted in Study 2, but these treatment effects were not captured in Study 1 due to the limitations of the measure. The Issues Checklist also failed to inquire about the duration of conflict or recovery time, two aspects of conflict that were identified as areas of improvement in Study 2. Participants may have had difficulty completing a questionnaire that did not accurately reflect their experience of parent-adolescent conflict. Further, the questionnaires in Study 1 were not designed to evaluate co-regulatory processes within parent-child dyads. The questionnaire selected to measure family functioning may not have been sensitive enough to capture the complex dynamic patterns occurring between participants. These measurement issues may account for the lack of significant results with respect to parent-adolescent conflict and relationship quality in Study 1.

Alternatively, the discrepancy between adolescent reports in Study 1 and 2 may be the artifact of demand characteristics in Study 2. I acted in the dual-role of adolescent group facilitator and researcher, which may have placed pressure on the participants to give positive responses during the interview process. The adolescents may not have felt comfortable reporting negative or negligible results, or they may have exaggerated improvements in order to please their group facilitator. The anonymity of the questionnaires in Study 1 may have elicited more honest responses, and the pattern of results observed in Study 1 may be a more accurate reflection of the experience of the adolescents.
Additionally, the data analytic approach of Study 2 may have been vulnerable to researcher bias, which could have inflated the results of qualitative analyses. Although I attempted to set aside my presuppositions and approach the data with an open-mind, my knowledge of and experience with mindfulness-based interventions may have primed me to seek information that confirmed my hypotheses regarding the efficacy of MYmind. I attempted to minimize this potential source of bias by putting several safeguards in place. Firstly, I consulted with a committee of experts on ADHD and mindfulness to ensure that my interpretation of the data was plausible and consistent with relevant research. Secondly, I consulted with a lay graduate of MBCT to determine whether the emergent themes reflected the experiences of novice meditators. Finally, I did not review the literature on mechanisms of action until after I had completed the analyses and written the composite summary of results, in order to avoid forming expectations prior to encountering the data. I did not use member checking to validate the accuracy and completeness of my interpretations. Since considerable time had elapsed between data collection and thematic analysis, participants may have had difficulty recalling the intervention process and outcomes, and thus would have been of limited use for the purpose of validating the themes of Study 2. However, many of the results obtained from the qualitative analysis were consistent with findings from the quantitative study, giving me greater confidence in my interpretations. The fact that parents and adolescents described similar outcomes and processes despite being interviewed separately also lends credence to the findings of Study 2.

The current evaluation of MYmind did not include systematic measures of treatment fidelity, which limits the conclusions that can be drawn with respect to the strength, validity and replicability of effects. Gearing et al. (2011) identified four elements of intervention fidelity: 1) the treatment protocol clearly outlines the goals of the intervention, the target population, and procedures for implementation; 2) treatment implementers are adequately trained and supervised; 3) intervention delivery proceeds as prescribed and participants receive the intended dose; and, 4) participants are able to understand the core elements of the intervention and use treatment skills in session. The formal assessment of treatment fidelity is resource-intensive, as it requires two or more independent raters trained in the use of multiple measures to assess the aforementioned variables. For the purpose of the current study, all of the components of treatment fidelity were informally assessed, and concerns regarding implementation were noted. While the manual clearly stated the goals, content and procedures for the adolescent sessions, it
lacked detail with respect to the implementation of parent sessions. Although the treatment implementers were competent to lead therapy groups with clinical populations, they did not receive specific training to implement MYmind. Group facilitators were supervised by on-site clinical psychologists, but the original developers of MYmind did not observe the treatment groups, and thus were not able to comment on adherence to the protocol. The group facilitators implemented the required number of sessions and included all of the main themes delineated in the manual. Results of the qualitative interviews suggest that parents and adolescents understood the concept of mindfulness and were able to participate in mindfulness exercises both in and out of session. Overall, the research team was satisfied with the quality of treatment delivery. However, future evaluations should incorporate objective measures to assess treatment fidelity throughout the implementation of the intervention.

The participants in this study had complex and varied clinical profiles. Over three quarters (78%) of the adolescents reported having a comorbid disorder, such as learning disability, depression or anxiety, at the time of enrollment. While it is desirable to minimize variability in the sample for research purposes, recruiting a sample of youth with so-called “pure” ADHD is neither feasible nor desirable for a program evaluation of this nature. In a typical outpatient clinical setting, clients rarely present with a single problem or simple profile. Additionally, it is not uncommon for youth with emotional and behavioural difficulties to receive concurrent psychotherapeutic and pharmacological treatment. More than half of the current sample (61%) was taking medication for their ADHD during the intervention. This is both a strength and a limitation of the current study. To conduct a meaningful evaluation with ecologically valid results, it is important to include the type of participants the intervention is intended to serve. That being said, the lack of control over medication status and comorbidity complicates the interpretation of results.

4.5 Directions for Future Research

The results of this dissertation contribute to the growing body of literature suggesting that MYmind is feasible, acceptable, and beneficial for adolescents with ADHD. The results of several quasi-experimental evaluations conducted by two independent research groups found similar effects. To establish this treatment as probably efficacious or well-established, a large, multi-site, randomized control trial (RCT) is recommended. MYmind should be compared to other psychosocial treatments for adolescents with ADHD, such as behaviour management
training, structural family therapy, and parent-adolescent problem solving and communication training, in order to determine whether mindfulness-based interventions are superior to other non-pharmacological treatment approaches. Medication status should be controlled in order to assess whether mindfulness training is as effective as stimulants at alleviating ADHD symptoms. It is possible that the combination of mindfulness and medication is more effective than either treatment alone. This may be because medication controls the core symptoms of inattention, hyperactivity, and impulsivity, making it easier for participants of any age to engage in meditation practice. In turn, meditation practice helps participants to regulate their attention in behaviour, contributing to reductions in ADHD symptoms. The cumulative effects of medication plus meditation should be evaluated. The speculative model of the process of change presented in this dissertation should be used to guide the design of future studies. Measures should be included to assess potential mechanisms of action, and mediation models should be tested to determine the direction and strength of the relationship between these variables. Observational measures should be used to assess the quality of parent-child interactions and the process of emotional co-regulation during conflict-inducing laboratory tasks. Psychophysiological indices of emotion regulation would provide further support for the role of emotion regulation in mindfulness training, and would extend the model beyond cognitive emotion regulation strategies. Given the breadth and depth of information obtained by using multiple methods in the current study, a mixed methods approach is advocated to augment self-report data in future studies.

4.6 Considerations for Future Implementations of MYmind

Participants indicated that some of the research measures inadvertently contributed to clinical outcomes. The daily email questionnaires that were designed to measure symptom levels and functional impairment stimulated self-reflection among participants. Julia said, “the questionnaires were fabulous because it made me stop and review my day.” The emails served as daily reminders to pause and reflect on thoughts, emotions, and interactions. In this way, the emails became a form of mindfulness practice. Regular self-reflection may have enhanced self-awareness and contributed to behaviour change. Tony noted that the emails drew attention to how often he argued with his mother, and motivated him to reverse the trend; “And I think it’s made me think a lot more about arguing, and not wanting to do it, first of all because I don’t want people knowing (laugh).” In light of this feedback, it is recommended that future iterations
of MYmind incorporate daily email reflections to enhance adherence, increase engagement, and stimulate self-reflection.

Many parents expressed a desire for continued support to maintain their practice after the intervention ended. Some inquired about repeating the program or advancing to an intermediate or advanced MYmind group. They requested follow-up support from the facilitators to refresh their skills, address obstacles and enhance their motivation. This type of long-term support is not built in to the treatment protocol. In the interest of promoting maintenance and generalization of treatment effects, clinicians implementing this program may wish to consider methods for supporting former participants. This could include offering monthly drop-in mindfulness sessions for graduates of the program; offering web-based guided meditations that parents could access from home; or connecting participants with mindfulness groups in their community.

Overall, results from this mixed methods evaluation suggest that mindfulness training improves aspects of self regulation, emotion regulation, and social functioning among youth with ADHD. Research suggests that executive functions related to effortful control (i.e., focus, attention shifting, and inhibitory control), contribute to the development of social-emotional competence in children (Riggs, Jahromi, Razza, Dilworth-Bart, & Mueller, 2006), and are predictive of future resiliency, social competence, and popularity (Spinrad et al., 2006). The model of change proposed in Study 2 is consistent with the view that improving self-regulatory skills in youth leads to improved social functioning in adolescents with ADHD. Executive function processes have also been implicated in other childhood disorders, such as autism spectrum disorder (Hughes, Russell, & Robbins, 1994). Although the MYmind curriculum was developed to address the specific symptom profile of ADHD, these findings suggest that mindfulness training may be suitable for any youth presenting with deficits in self-regulation and impaired social functioning. Indeed, emerging research indicates that individuals with autism spectrum disorder are able to use mindfulness strategies to self-regulate their aggressive behaviour (Singh et al., 2011a; singh et al., 2011b). As such, clinicians may wish to assess the feasibility and efficacy of implementing MYmind with a broader range of clientele, including youth with comorbid disorders or subclinical symptom levels. Mindfulness training may also be considered as a preventative program to build self-regulation skills and social competence in children.
4.7 Tables
<table>
<thead>
<tr>
<th>Theme</th>
<th>Quantitative Questionnaires</th>
<th>Qualitative Interviews</th>
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<tbody>
<tr>
<td></td>
<td>Parents</td>
<td>Adolescents</td>
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<td><strong>Process</strong></td>
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<td>Awareness</td>
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<td>Adolescents</td>
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<td></td>
<td>adolescents tended to underestimate their difficulties relative to parental report, which may reflect limited self-awareness of their symptoms.</td>
<td>Parents identified self-awareness as one of the key facets of mindfulness. They experienced greater awareness of their automatic thoughts, feelings and behaviours in the moment. They also made an effort to remain aware of present-moment experiences in the world around them.</td>
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<tr>
<td>Decentering / Observing</td>
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<td>Adolescents</td>
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<td>Parents</td>
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<tr>
<td>“stepped back” and observed passing mental events, such as thoughts and feelings. They observed their thoughts momentarily, then let them go or shifted them to the periphery of their awareness.</td>
<td>Adolescents “stepped back” and observed passing mental events, such as thoughts and feelings. They observed their thoughts momentarily, then let them go or shifted them to the periphery of their awareness.</td>
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<tr>
<td>Acceptance</td>
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<td>Parents</td>
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<tr>
<td>No change in parents’ acceptance of their own distressing thoughts,</td>
<td>No change in adolescents’ acceptance of their own distressing thoughts,</td>
<td>Parents reflected on the process of accepting others for who they are. In</td>
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<td>Adolescents</td>
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Table 9. Integration of Results Through Data Transformation and Consolidation
feelings, and experiences. Parents did, however, report increases in overall mindful parenting, which encompasses parents’ acceptance of self and children. (AAQ, IM-P)

<table>
<thead>
<tr>
<th>Attention Regulation</th>
<th>Decrease in adolescent inattentive symptoms, including poor concentration, distractibility, and/or avoidance of tasks requiring sustained attention. (C3-P)</th>
<th>Adolescents did not observe a change in their own levels of inattentiveness.</th>
<th>Parents identified focus as a core component of meditation. Parents became better able to intentionally select and monitor the focus of their attention, recognize and filter distractions, and shift their attention at will.</th>
<th>Adolescents identified focus and concentration as core components of meditation. They became better able to intentionally select and monitor the focus of their attention, recognize distractions, and shift their attention at will. This helped them engage more fully in social and recreational activities.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behavioural Regulation</td>
<td>Decrease in adolescent conduct problems such as violations of rules or laws, aggression towards others, and/or deceitfulness. (C3-P)</td>
<td>Adolescents did not observe a change in their own behaviour.</td>
<td>Parents experienced improvement in their ability to monitor and inhibit their automatic impulses to yell or criticize their children.</td>
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</table>
than maladaptive emotion regulation strategies such as rumination.

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Parents noticed substantial improvements in their adolescents’ peer relations (friendships, being accepted, being connected). (C3P)</th>
<th>Adolescents reported improvements in verbal and nonverbal social communication after mindfulness training. They used mindfulness to manage social anxiety, sustain conversation, pick up on nonverbal social cues, and take the perspective of others in social situations.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improved Peer Relationships</td>
<td>No changes in frequency or intensity of conflict, or overall family functioning. (Issues Checklist, FAD)</td>
<td>Parents described improved family functioning, characterized by greater empathy for their children, listening without judgment, and more open communication facilitated by sharing “common terms” of mindfulness.</td>
</tr>
<tr>
<td>Improved Family Relationships</td>
<td>No changes in frequency or intensity of conflict, or overall family functioning. (C3P, Issues Checklist, FAD)</td>
<td>Adolescents became better at considering the perspectives of family members, especially their parents. Parents noticed their children become more sensitive and empathic toward family members, and communicate more honestly with parents.</td>
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<td></td>
<td></td>
<td>They reported reductions in conflict frequency, duration,</td>
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<td></td>
<td></td>
<td>Adolescents reported reductions in conflict</td>
</tr>
<tr>
<td>Stress / Distress Reduction</td>
<td>Parents experienced reductions in stress related to their parenting role. (SIPA)</td>
<td>Adolescents did not report reductions in anxiety, depression, or overall internalizing problems after MYmind. They did, however, indicate reductions in these difficulties 6 weeks later. (RCADS)</td>
</tr>
<tr>
<td>Well-Being / Positive Affect</td>
<td>Parents reported that meditation induced a temporary state of relaxation, positive affect, and sense of peace.</td>
<td>Adolescents reported that meditation induced a temporary state of relaxation, positive affect, and sense of peace.</td>
</tr>
<tr>
<td>Generalization and Maintenance</td>
<td>Effects were maintained or continued to improve up to 6 weeks after the intervention.</td>
<td>Parents spontaneously adapted the exercises presented in session to meet their individual needs, and generalized them to other contexts, such as work and school contexts.</td>
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<td><strong>Parents expressed a commitment to maintaining their practice. Most continued to practice meditation on a regular basis up to six weeks after the intervention ended. They felt that the support of a group or mindful community would help them maintain their practice.</strong></td>
<td><strong>Adolescents expressed a commitment to maintaining their practice. Most continued to practice meditation or engage in informal mindfulness practices on a regular basis up to six weeks after the intervention ended.</strong></td>
<td></td>
</tr>
</tbody>
</table>
4.8 Figures

Figure 7. Reproduction of Figure 4 - Working model of mechanisms of action in improved parent-child relationships after mindfulness training.
References


and dysregulation: Development, factor structure, and initial validation of the difficulties in emotion regulation scale. *Psychopathology and Behavioral Assessment, 26,* 41-54. doi:10.1023/B:JOBA.0000007455.08539.94


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doi:10.1177/1087054707308502
## Appendix

### Appendix A. Semi-Structured Interview Guide

<table>
<thead>
<tr>
<th>Mindfulness/AMBAT</th>
<th>Family Relationships</th>
<th>ADHD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge/facts</td>
<td>Who lives in your household?</td>
<td>Who in your family has ADHD?</td>
</tr>
<tr>
<td>How often did you meditate during the program?</td>
<td>Tell me about important family members who do not live in your household.</td>
<td>What treatments have you tried before?</td>
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<tr>
<td>How often do you meditate now?</td>
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<td>What worked and what didn’t work? Why do you think that is?</td>
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<tr>
<td>Instrumental barriers?</td>
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<table>
<thead>
<tr>
<th>Descriptions</th>
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<tbody>
<tr>
<td>How do you experience meditation?</td>
<td>Describe your relationship with your child/parent/spouse before and after AMBAT</td>
<td>What does ADHD look like in your life?</td>
</tr>
<tr>
<td>When did you last meditate?</td>
<td>Did AMBAT change your family relationships? How?</td>
<td>What impact does it have on you at home? At school? At work? With friends?</td>
</tr>
<tr>
<td>Describe that experience (where, when, how, thoughts, feelings, body)</td>
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<tr>
<td>What elements of AMBAT did you find most helpful?</td>
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<tr>
<td>Did AMBAT change the way you experience work/school/friends/etc?</td>
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<tr>
<th>Sensory experiences</th>
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<tbody>
<tr>
<td>Has mindfulness changed the way you experience things? How so?</td>
<td>What sensations do you experience when you are having an argument with your parent/child?</td>
<td>Where do you feel your ADHD most?</td>
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<tr>
<td>When you meditate, what do you see/hear/feel/smell?</td>
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<td>How does it affect your body?</td>
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<td>What sensations do you experience when you are having a positive</td>
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<tr>
<td>Emotions</td>
<td>How do you feel towards meditation?</td>
<td>What emotions do you experience during a negative interaction with your parent/child?</td>
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<tr>
<td></td>
<td>What emotions do you experience in relation to meditation?</td>
<td>What emotions do you experience during a positive interaction?</td>
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<tr>
<td></td>
<td>Has your relationship with your emotions changed? How so?</td>
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</table>

<table>
<thead>
<tr>
<th>Opinions and values/meaning-making</th>
<th>What does mindfulness mean to you?</th>
<th>What does it mean to be a “parent”/“child”?</th>
<th>What does it mean to you to have a child with ADHD?</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>What role, if any, has it played in your life in these past months? Give examples</td>
<td>What does it mean to be a “family”?</td>
<td>What does it mean to you to have ADHD?</td>
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<td></td>
<td>What role will it play in future?</td>
<td>What role do you play in your family?</td>
<td>What impact does your child’s ADHD have on the family?</td>
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<td>Has that role changed? How come?</td>
<td>What do you think caused your child’s ADHD?</td>
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<td>What do you think will happen with your child’s ADHD in the future?</td>
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<td>What impact, if any, do you have on your child’s ADHD?</td>
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<td>Do you think mindfulness can help you cope with your</td>
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<tr>
<td>Question</td>
<td>Answer</td>
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<tr>
<td>What would you like to change about your relationship with your child/spouse? Why?</td>
<td>own/your child’s ADHD? How?</td>
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<tr>
<td>Did AMBAT change the way you view ADHD? How?</td>
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