EVALUATING AN ONLINE-DELIVERED MINDFULNESS-BASED STRESS REDUCTION PROGRAM FOR PARENTS OF CHILDREN WITH EXTERNALIZING BEHAVIOR CONCERNS

By

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ABSTRACT

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Many parents experience elevated levels of stress, or the perceived inability to cope with one's situational demands. Parents of children with externalizing behavioral concerns tend to experience even higher levels of stress than parents of children without significant behavior concerns due to the transactional and bidirectional nature of child behavior and parent stress. The Family Adjustment and Adaptation Response (FAAR) model suggests that families work to balance demands with capabilities, which interact with family meanings, to achieve adjustment or adaptation. Thus, increasing capabilities is an important task for families experiencing stress.

Mindfulness-based stress reduction (MBSR), rooted in mindfulness theory, is an increasingly popular framework for reducing stress, anxiety, and depression. MBSR has been successfully used in many populations including parents to reduce parent stress and even help to improve child outcomes. However, there is a dearth of research on MBSR for parents of children with externalizing behavior concerns. One accessible, research-supported, online-delivered MBSR program is called Be Mindful. Currently, there is no extant research on the effects of this program for parent stress and child behavior outcomes.

This hybrid effectiveness-implementation intervention study sought to evaluate the effectiveness of this publicly accessible, online, self-mediated MBSR program (Be Mindful) for reducing parent stress and decreasing child externalizing behavior immediately following completion of the program and at one-month follow-up. Other major aims of the study were to

determine whether the online-delivered MBSR intervention was acceptable to parents and to characterize how parents engaged with the MBSR program. Participants included a 38 mothers, fathers, and other primary caretakers of children ages two to ten years with behavioral concerns living across the United States. Children were a community sample presenting with externalizing behavior concerns at or above the at-risk range (raw score ≥ 115) based on the Eyberg Child Behavior Inventory whose parents had stress levels at or above the 60th percentile on any domain of the Parenting Stress Index, Fourth Edition. Parents engaged in the 4-module Be Mindful (MBSR) program for between 4 and 10 weeks and completed pre-, post-, and follow-up adult stress and child behavior measures. Parents also completed usage and satisfaction reports throughout the study.

Results of the study provided promising support for the Be Mindful intervention within this particular population: there were robust, statistically significant and clinically meaningful reductions in both parent stress and externalizing child behavior problems following completion of the intervention that maintained through one-month follow-up. Additionally, participants generally found the intervention to be acceptable and practiced the skills a moderate amount during the intervention phase. Open-ended and quantitative feedback provides information regarding barriers and facilitators to intervention use. These results are important within the context of the global COVID-19 pandemic, provide further support for the increasingly popular MBSR framework in an online format, and uniquely examine effects on both parent stress and child behavior in a real-world sample. Limitations, directions for future research, and implications for practice are discussed.

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KEY TO ABBREVIATIONS

ADHD: Attention Deficit/Hyperactivity Disorder

ASD: Autism Spectrum Disorder

BPT: Behavioral Parent Training

ECBI: Eyberg Child Behavior Inventory

EBP: Externalizing Behavior Problem

FAAR: Family Adjustment and Adaptation Response

MBSR: Mindfulness-Based Stress Reduction

NASP: National Association of School Psychologists

PSI-4: Parenting Stress Index, Fourth Edition

PSS: Perceived Stress Scale

INTRODUCTION

Many parents experience elevated levels of stress (Abidin, 1990; Deater-Deckard, 2004), or the perceived inability to cope with one's situational demands (Lazarus, 1966). Parents of children with externalizing behavioral concerns (i.e., opposition, noncompliance, hyperactivity, and aggression; Campbell et al., 2000; Tremblay, 2010) tend to experience even higher levels of stress than parents of children without significant behavior concerns (Anastopoulos et al., 1992; Morgan et al., 2002) due to the transactional and bidirectional nature of child behavior and parent stress (Lagasse et al., 2016; Neece et al., 2012). Indeed, high parent stress, related either directly to the child or otherwise, is associated with more negative parenting behaviors and cycles of unhealthy parent-child interactions and can be predictive of future exacerbated child conduct problems (Deater-Deckard, 2004; Webster-Stratton, 1990). Conversely, increasing social support and parent wellbeing can mitigate stress and negative parenting practices and child behavior (Webster-Stratton, 1990), along with family unit functioning (Anthony et al., 2005). The COVID-19 pandemic has also presented families with significant additional stressors and difficulties (Russell et al., 2022).

The Family Adjustment and Adaptation Response (FAAR) model (Patterson, 1988; 2002) suggests that families work to balance demands with capabilities, which interact with family meanings, to achieve adjustment or adaptation. Thus, increasing capabilities is an important task for families experiencing stress. Behavioral parent training (BPT) programs are well-established and efficacious (e.g., Eyberg et al., 2008) in the treatment of externalizing behavior problems (EBPs) such as hyperactivity, aggression, defiance, and impulsivity and can help parents to learn effective and safe behavior management strategies. However, with a national shortage of child mental and behavioral health providers (Health Resources and Services

Administration/National Center for Health Workforce Analysis & Substance Abuse and Mental Health Services Administration/Office of Policy, Planning, and Innovation, 2016), there are often long waiting lists for such programs (Holt, 2010) and there can also be residual stress unaddressed by these treatments (e.g., Thomas et al., 2017). Another standalone or adjunctive way to increase parent capabilities is through the use of increasingly popular, self-delivered mindfulness-based stress reduction programs. Such programs could increase parents' ability to cope with stressful life events and challenging child behaviors through lower physiological reactivity and could thus increase parents' propensity for positive parenting.

Mindfulness-based stress reduction (MBSR; Kabat-Zinn, 1992), rooted in mindfulness theory, is an increasingly popular framework for reducing stress, anxiety, and depression (Gu et al., 2015; Khoury et al., 2015) that teaches individuals to practice non-judgmental present awareness through techniques such as breath awareness, loving-kindness and other meditations, movement techniques, learning about the relaxation response, body scan activities, and self-observation without evaluation (Dykens et al., 2014; Kabat-Zinn, 2015). MBSR has been successfully used in many populations, including parents (e.g., Burgdorf et al., 2019; Dykens et al., 2014; Neece, 2014) to reduce parent stress and even help to improve child outcomes (e.g., Lewallen & Neece, 2015; McGregor et al., 2020) especially among parents of children with ASD or other developmental disabilities. However, there is a dearth of research on MBSR for parents of children with externalizing behavior concerns. Research suggests that MBSR can positively impact family systems in addition to having individual benefits (Bögels & Emerson, 2019), which aligns with the premise of the FAAR model (Patterson, 1988; 2002).

Promising support is emerging for MBSR for parent stress and child outcomes (e.g., Lewallen & Neece, 2015; McGregor et al., 2020), but multiple limitations to the literature exist.

Most of the MBSR interventions applied to parents were conducted in person and required fairly intensive time commitments. Moreover, much of the work focused on parents of children specifically with autism spectrum disorder (ASD) or other developmental disabilities. Therefore, there is a gap in the available research related to evaluating the effectiveness of an easily accessible, self-mediated, general, evidence-based MBSR program for decreasing parent stress among parents of children with externalizing behavior concerns.

The efficacy and effectiveness of online-delivered MBSR for the general adult population have recently been established in two meta-analyses (Jayawardene et al., 2016; Spijkerman et al., 2016), and emerging literature suggests that online-delivered MBSR delivers enhanced outcomes, capability for personalization, and accessibility when compared to programs delivered in-person (Mrazek et al., 2019). While meta-analyses (Jayawardene et al., 2016; Spijkerman et al., 2016) showed promising effects from several different MBSR programs, many are not currently available or are published in languages other than English. One accessible, research-supported online-delivered MBSR program available in English is called Be Mindful (Wellmind Health, 2020). This program consists of four modules, and participants generally complete it in approximately six weeks. There are five published studies about Be Mindful (Krusche et al., 2012; Krusche et al., 2013; Krusche et al., 2018; Querstret et al., 2017; Querstret et al., 2018), and effect sizes are large for reduction in stress, with additional reductions present for anxiety and depression, indicating that it is a promising, research-supported program for reducing adult stress. However, there is not yet research on this program specifically relating to parent stress and child behavior.

Thus, given the demonstrated demands and stress levels that many parents experience regularly and within the context of a global pandemic and given the promising nature of online-

delivered MBSR, it is important to examine whether an accessible, online MBSR program with favorable effects for the general adult population shows effectiveness for stressed parents of children with behavior problems and whether it would be a program worth recommending to these families, perhaps while they are waiting for other evidence-based BPT or more intensive therapeutic services for themselves, in situations where they cannot access such services, or in addition to such interventions. Research is also needed to examine whether parent participation in such a program might have auxiliary positive effects on externalizing child behavior. The FAAR model (Patterson, 1988; 2002) suggests that increasing parent capacity to handle the demands of life both within and beyond the parent-child relationship should promote better adaptation and ameliorated feelings of stress. With MBSR rising in popularity, it is germane to investigate its effectiveness as a potentially useful tool for parents of children with varying levels of externalizing behavior concerns.

This intervention study sought to evaluate the effectiveness of a publicly accessible, online, self-mediated MBSR program (Be Mindful) immediately following completion of the program and at one-month follow-up among parents of children with behavioral concerns to see if there were benefits for reducing stress and decreasing child externalizing behavior. Other major aims of the study were to determine whether the online-delivered MBSR intervention was acceptable to parents and to characterize how parents engaged with the MBSR program. Thirty-eight mothers, fathers, or other primary caretakers of children with behavioral concerns between the ages of two and ten years living across the United States participated in the study. Children were a community sample presenting with externalizing behavior concerns at or above the at-risk range (raw score ≥ 115) based on the Eyberg Child Behavior Inventory (ECBI; Eyberg & Pincus, 1999), whose parents had stress levels at or above the 60th percentile on any domain of the

Parenting Stress Index, Fourth Edition (PSI-4; Abidin, 2012). After screening, eligible parents who consented to participate in the research study were provided access to the Be Mindful (MBSR) program. Parent participants then completed pre-treatment, post-treatment, and follow-up adult stress and child behavior measures. During the active treatment phase, parents completed usage and satisfaction reports within the online program and via Qualtrics to indicate how many of the MBSR practices they were doing and to measure engagement with Be Mindful. Parents also completed acceptability measures for MBSR following treatment. At follow-up, they completed a measure of mindfulness usage to indicate how they had used the strategies after the intervention.

Results of the present study provided promising support for the intervention within this US-based sample of 38 primarily White, female parents of children with or at risk for behavior problems who were experiencing elevated stress: there were robust, statistically significant and clinically meaningful reductions in both parent stress and externalizing child behavior problems following completion of the intervention that maintained through one-month follow-up. Additionally, participants generally found the intervention to be acceptable and practiced the skills a moderate amount during the intervention phase. These results are important within the context of the global COVID-19 pandemic, provide further support for the increasingly popular MBSR framework in an online format, and uniquely examine effects both on parent stress and child behavior in a real-world sample.

LITERATURE REVIEW

This dissertation study sought to evaluate the effectiveness and acceptability of an online MBSR intervention called *Be Mindful* for parents of young children with behavior concerns. The study addresses a gap in the literature by evaluating the effectiveness of an accessible, self-delivered, general, promising MBSR program for decreasing parent stress among parents of children ages two to ten with externalizing behavior concerns. The study focused on reducing overall parent stress (comprised of a composite of stressors both external to the parent-child relationship and directly related to the parent-child relationship). In alignment with the hybrid type 1 effectiveness-implementation study design (Curran et al., 2012), parent engagement with MBSR and acceptability of the intervention were measured. Secondary goals included investigating whether the MBSR program resulted in a reduction in negative child behaviors.

Parent Stress

The primary construct in this study is parent stress. In general, stress is defined as the psychological state resulting from situational demands one perceives to be beyond his or her coping capacity (Lazarus, 1966). Individuals experience stressful situations both psychologically through the cognitive experience of feeling unequipped to deal with demands and physiologically through autonomic reactions, since the body's homeostasis or equilibrium has been disturbed. Physical reactions to stress may include increased heartrate and breath rate, increased blood pressure, and increased skin perspiration (Goleman & Schwartz, 1976). Cognitive behavioral theory would suggest that the cognitive and physical experiences of stress interact with and impact each other (González-Prendes & Resko, 2012).

In parenting-related stress, there is a discrepancy between a parent's perceived ability to cope based on available resources (e.g., support, knowledge, self-efficacy) and the requirements

of being a parent (Deater-Deckard, 2004). Broadly, parenting stress theories suggest that stress arises both from the parent-child relationship and other stressors in a parent's life, and this stress negatively influences the parent's wellbeing. Abidin (1990; 2012), a prominent parent stress researcher, proposed a tripartite model of parenting stress suggesting that parenting stress arises from child characteristics (the child domain), parent characteristics and experiences (the parent domain), and the relationship between the parent and the child (parent-child domain). The parent domain encompasses areas such as the parent's mental or physical health status, perceptions of self-efficacy, cognitive appraisal styles, marital discord, and perceived role restrictions, as well as other possibly stressful events happening in the parent's life (Morgan et al., 2002). The child domain consists of child traits, including temperament, behavior and learning concerns. Finally, the parent-child domain pertains to the presence of conflict and tension in the relationship between parent and child (Abidin, 1990; 2012).

Studies indicate that parenting stress is transactional and bi-directional, meaning that parent stress is both an antecedent *and* a consequence of child behavior (Lagasse et al., 2016; Mackler et al., 2015; Neece et al., 2012). Longitudinal data support this transactional, bi-directional model in both mothers and fathers: high levels of child behavior problems increase parenting stress over time, and high levels of parenting stress also lead to greater amounts of challenging child behavior over time (Neece et al., 2012). Indeed, parenting stress has been shown to significantly relate to young children's externalizing and internalizing behaviors and social competence in preschool (Anthony et al., 2005). Parent stress may cause changes or deficiencies in parenting behaviors that can lead to increased presence of child behavior issues (Deater-Deckard, 2004). Webster-Stratton (1990) suggests that a variety of stressors in a parent's life can cause them to use unhealthy and potentially harmful parenting practices due to increased

irritability, critical talk, and punitive actions. Indeed, such parenting behaviors can lead to cycles of negative, coercive parent-child interactions, which may lead to later conduct problems and further exacerbated parental stress. Moreover, both parent stress and child behavior problems can affect the entire family affective environment and permeate to all family members (Anthony et al., 2005).

Research suggests that parents of children with externalizing behavior disorders or concerns experience stress at higher levels than parents of children without behavior problems (Anastopoulos et al., 1992; Morgan et al., 2002), which logically follows Abidin's (1990; 2012) tripartite model of parenting stress and Neece and colleagues' (2012) and Lagasse and colleagues' (2016) findings about the transactional nature of parenting stress and child behavior problems. Children with behavior problems require more supervision and may not respond as well to some intuitive parenting strategies (Barkley, 1997). Due to these increased difficulties with parenting and the bidirectional relationship between parent stress and child behavior, and due to the negative impact of parent stress on other facets of life, it is important to address parent stress in both parent and child interventions to try to facilitate better outcomes for both children and parents. Moreover, addressing parent stress could help parents to feel more equipped to deal with life and parenting demands (i.e., lowering stress, as stress is the feeling of being unable to deal with situational demands, per Lazarus, 1966), especially in the face of additional risk factors for stress, such as economic hardship (Puff & Renk, 2014) or marital dissatisfaction (Elam et al., 2017; Robinson & Neece, 2015).

Family Stress and Coping Theory

This study is primarily influenced by family stress and coping theory, specifically the Family Adjustment and Adaptation Response (FAAR) model (Patterson, 1988; 2002). The

FAAR model (see Figure 1) posits that "families engage in active processes to balance family demands with family capabilities as these interact with family meanings to arrive at a level of family adjustment or adaptation" (Patterson, 2002, p. 350). Family demands (or risk factors) include three types of stressors: (1) discrete normative and nonnormative events of change, (2) ongoing family tensions and strains, and (3) daily hassles. Family capabilities (or protective factors), on the other hand, include (1) available physical and psychological resources and (2) coping behaviors.

The FAAR model adopts an ecological systems perspective, such that both demands and capabilities are thought to come from three levels of the family's ecosystem: (1) individuals in the family, (2) the family as a unit, and (3) community contexts. Patterson (2002) provides examples of demands at the different levels: a child's behavior problems or medical diagnosis would be an individual-level demand, spousal discord about how to manage the child's needs would be a family-level demand, and community and social stigma around the child's condition would constitute a community-level demand. Capabilities, too, exist in the different levels of the ecosystem: a parent's level of education is an example of a capability at the individual level, family cohesiveness is a capability at the family level, and available educational opportunities is a capability at the community level. The next piece of the FAAR model is family meanings. Patterson (2002) argues that family meanings help shape the resilience and adjustment process because parents often have to change their previously-held values and beliefs in order to adapt. Family meanings include (1) the primary appraisal of demands and the secondary appraisal of capabilities, (2) how a family sees itself as a unit, and (3) how a family sees itself in relation to other people, family, and contexts outside of their family (Patterson, 2002).

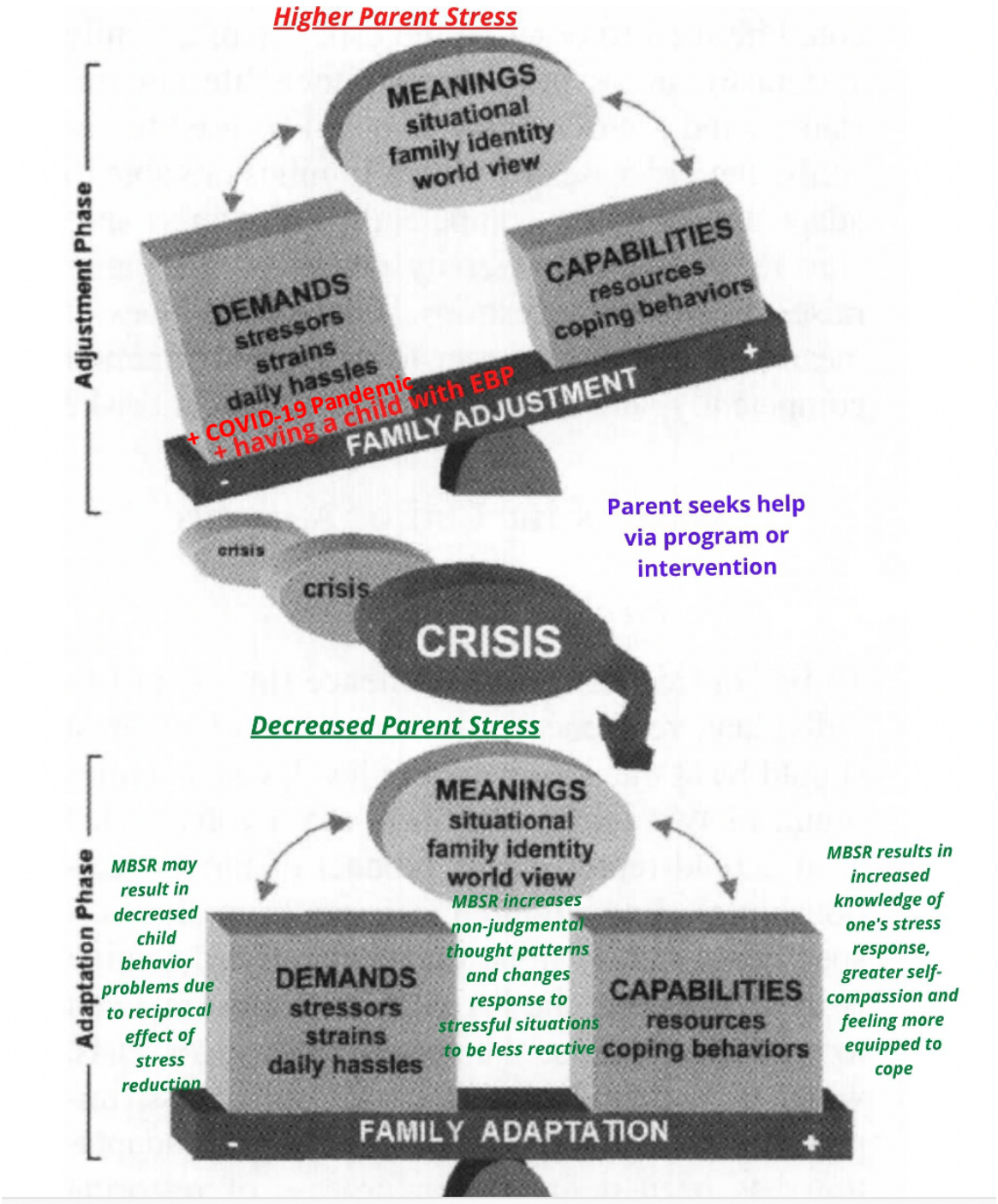
Finally, and perhaps most importantly in the context of the present study, the FAAR model explains possible outcomes as a result of a balance or imbalance of demands and capabilities on parents. Patterson (2002) explains that families generally experience fairly stable interactions in daily life, working to balance demands with capabilities in order to achieve adjustment. However, when demands become greater than capabilities, a crisis, or experience of considerable disorganization and disequilibrium, occurs. The FAAR model posits that a crisis may lead to either a restoration of balance through methods including reduction of demands, increasing of capabilities, and/or changing of family meanings. In such a case, the outcome is considered positive. Conversely, a crisis can lead to negative outcomes if families use negative coping strategies or strategies of limited value. In either case, a crisis is considered to be a turning point that changes the family's typical functioning to become either better or worse. Thus, having a child with difficult behavior will likely induce a crisis for a family, as would a global pandemic. Externalizing behavior problems and disorders are often experienced as a crisis for families and place ongoing, heightened stress on a family (e.g., Anastopoulos et al., 1992; Morgan et al., 2002).

Using the FAAR model (Patterson, 1988; 2002) as a guide, the current study focused on increasing family coping skills including reframing situational appraisals and learning nonjudgmental acceptance and awareness practices for parents experiencing high stress due to difficult child behavior and other life stressors via MBSR. Mindfulness-based stress reduction strategies may help parents to reframe their situational meanings to be less judgmental and more open (Shapiro et al., 2006) and can teach them healthy ways to recognize and respond to feelings of stress in their lives (Bögels & Emerson, 2019; Rayan & Ahmad, 2018). Parents were expected to practice non-judgmental, present-moment awareness through MBSR lessons, which would

then help them respond to stressors both related and unrelated to their children and to their own thoughts more compassionately and with less reactivity. With mindfulness practice, bodily reactivity to stressful situations would be expected to decrease (Gu et al., 2015), and individuals should be better able to cognitively reframe stressful situations.

While the MBSR intervention in this study does not specifically target the family identity or world view components of the meanings piece of the FAAR model (Patterson, 1988; 2002), family meanings were expected to change due to more present-moment awareness, decreased child behavior problems, or other areas of change, since meanings interact bi-directionally with both demands and capabilities, according to the model. Some demands of daily life and parenting cannot, of course, be changed due to the intervention, but the crux of the FAAR model is that there will always be demands; parents need to balance them out with capabilities in order to feel equipped to handle them and to reach a state of adaptation. This point is especially salient within the context of a global pandemic, which adds additional uncertainty and demands (e.g., Coyne et al., 2020; Russell et al., 2022). The MBSR program was thus expected to increase capabilities and change situational meanings while also hopefully decreasing the demands of dealing with problematic child behaviors. The proposed mechanism of change for this dissertation study, aligned with the FAAR model, can be seen below in Figure 1.

Figure 1. Proposed Mechanism of Change Applied to the Family Adjustment and Adaptation Response Model (Patterson, 2002)



Note. EBP = externalizing behavior problem

Externalizing Behavior Problems

Childhood behavior problems, generally, can be defined as problematic actions, including opposition, noncompliance, hyperactivity, and aggression (Campbell et al., 2000; Tremblay, 2010). Behavioral difficulties with an early onset present a high level of risk for later social and emotional difficulties, along with impaired academic functioning (Frick & Nigg, 2012). Significant early childhood behavior problems in conjunction with other risk factors such as elevated levels of family stress present high risk for continued behavior problems once young children enter school (Campbell et al., 2000). Disruptive behavior may be labeled as a disorder when a child fails to learn and implement socially acceptable behavior (Tremblay, 2010) or when behavior meets specified clinically significant diagnostic criteria (APA, 2013).

Mental and behavioral health disorders are quite prevalent among young children: estimates suggest that one in six children between ages two and eight (17.4%) have been diagnosed with a behavioral, developmental, or mental disorder (Cree et al., 2018). Specifically, these diagnoses often include disruptive behavior disorders (DBDs) and other externalizing behavioral problems (EBPs) such as ADHD and other symptoms of aggression and/or noncompliance. Between 4% and 16.6% of preschoolers have oppositional defiant disorder (ODD) diagnoses, and between 3.9% and 6.6% have conduct disorder diagnoses (CD; Hong et al., 2015). ADHD prevalence is estimated to be one in 15 for children ages 4 through 10 years (Visser et al., 2014). Behavior problems in young childhood are highly problematic and can lead to high rates of preschool expulsion that exceed K-12 expulsion rates (Zinsser et al., 2019), teacher (Zinsser et al., 2019), parent, and family stress (Anastopoulos et al., 1992; Morgan et al., 2002), and later issues for the individual.

Childhood externalizing behavior problems have significant implications for individuals, families, and society. Indeed, behavior problems are one of the most robust risk factors for serious delinquency, substance abuse, and violence (Loeber et al., 2000). DBDs are also extremely costly for society. Scholars estimate that national annual incremental costs due to ADHD may range from $143 billion to $266 billion. These figures come from loss of income and productivity for adults and health care and educational needs for children (Doshi et al., 2012). Mental health, law enforcement, educational, and social service costs are estimated to be 10 times more for children with DBDs compared to those without (Lee et al., 2012). Additionally, as discussed, having a child with behavioral concerns is associated with significantly increased parent stress, in comparison to children without such disorders (Anastopoulos et al., 1992; Morgan et al., 2002). Indeed, social information processing theory (Dodge & Crick, 1990) suggests that the relationship between parenting and child behavior is intertwined such that children who engage in patterns of disruptive behavior perceive and construe information from their environments in a manner that often leads to further disruptive or aggressive behaviors. Thus, because DBDs are highly prevalent and are both problematic for individuals and costly for society, early intervention for both parents and children is vital (N'zi et al., 2017).

Behavioral Parent Training

Behavioral parent training (BPT) programs are well-established and efficacious (Eyberg et al., 2008) in the treatment of EBPs such as hyperactivity, aggression, defiance, and impulsivity and are considered to be the gold standard of evidence-based care for this population. However, there are often long waiting lists and a shortage of providers for children and adults (Health Resources and Services Administration/National Center for Health Workforce Analysis &

Substance Abuse and Mental Health Services Administration/Office of Policy, Planning, and Innovation, 2016; Holt, 2010), leaving a need for other potential avenues for parental stress reduction. Additionally, while BPT programs like Parent-Child Interaction Therapy (PCIT; Eyberg, 1988) or the Incredible Years (Webster-Stratton, 2005) evidence excellent reduction in child behavior problems, parents still sometimes experience residual stress, especially related to factors external to their child (e.g., Thomas et al., 2017). Thus, there is a need to examine the effectiveness and acceptability of an accessible, adult stress-reduction program that parents may consider engaging in either as a standalone, while waiting for, or in addition to BPT programs.

Mindfulness-Based Stress Reduction (MBSR)

Mindfulness-based stress reduction (MBSR; Kabat-Zinn, 1992), rooted in mindfulness theory, is an increasingly popular framework for reducing stress, anxiety, and depression (Gu et al., 2015; Khoury et al., 2015) that teaches individuals to practice non-judgmental present awareness through techniques such as breath awareness, loving-kindness and other meditations, movement techniques, learning about the relaxation response, body scan activities, and self-observation without evaluation (Dykens et al., 2014; Kabat-Zinn, 2015).

Mindfulness Theory

Mindfulness is the second major theory that informs this study. Mindfulness, at its core, comes from ancient Buddhist teachings and can be described as "moment-to-moment, non-judgmental awareness, cultivated by paying attention in a specific way, that is, in the present moment, and as non-reactively, as non-judgmentally, and as openheartedly as possible" (Kabat-Zinn, 2015, p. 1481). Applied as a modern psychological intervention (e.g., mindfulness-based stress reduction; MBSR), this increasingly popular framework has been shown to reduce stress, anxiety, and depression in individuals across a variety of populations (Gu et al., 2015; Khoury et

al., 2015), including parents (e.g., Burgdorf et al., 2019; Dykens et al., 2014; Neece, 2014), and even when delivered in an online format (Jayawardene et al., 2016; Spijkerman et al., 2016). MBSR reduces cognitive and physiological reactivity (Gu et al., 2015), thus promoting balance and equilibrium as a mechanism for reducing stress.

Mindfulness theory underlies and informs mindfulness-based stress reduction (MBSR) interventions. Kabat-Zinn (1992) is considered to be the founder of MBSR, and in the decades following its inception, its popularity has grown. MBSR focuses on breathing techniques and breath awareness, loving-kindness and other meditations, movement techniques, learning about the relaxation response, body scan activities, and self-observation without evaluation (Dykens et al., 2014). Evidence is still emerging to explain proposed mechanisms of change in MBSR interventions, but broadly, several components have been identified as possible mechanisms of action. The first is "reperceiving", considered to be a "meta-mechanism" that occurs when one intentionally attends to thoughts, feelings, and surroundings with an open and non-judgmental mind (Shapiro et al., 2006). Reperceiving is thought to then influence more direct mechanisms that effect positive psychological changes. These mechanisms include self-regulation, values clarification, emotional, cognitive, and behavioral flexibility, and exposure (Shapiro et al., 2006).

Gu and colleagues (2015) conducted a systematic review and meta-analysis of mediation studies for both MBSR and mindfulness-based cognitive behavioral therapy to better understand the mechanisms underlying the efficacy of mindfulness-based interventions. All studies included (N = 20) employed randomized controlled trials or quasi-experimental designs that measured pre to post change and included mediation analyses. Strong support was found for the mediation effect of emotional and cognitive reactivity, moderate support was found for the mediation effect of mindfulness and change in rumination and worry, and preliminary evidence was found for the

mediation effect of psychological flexibility and self-compassion on stress reduction. By cultivating neutral present awareness, MBSR helps people to be less judgmental of themselves and of their potentially stressful situations and to consequently react in more constructive, emotionally balanced ways (Van Dam et al., 2014). Such mechanisms of action can help to explain the proposed stress-reduction potential of MBSR for parents experiencing stress in their lives, both related to and beyond their parenting role.

Evidence Base for MBSR

Studies examining the efficacy of MBSR interventions have become increasingly abundant in recent years. Meta-analyses have provided useful information about the efficacy of MBSR in reducing stress and improving wellbeing across many studies. Khoury and colleagues (2015) conducted a meta-analysis of 29 studies *(N* = 2,668) examining the effect of MBSR programs for healthy, non-clinical adults. Though the authors found a large amount of heterogeneity in study design, outcomes, and programs, they did overall see a moderate effect size for stress reduction in the 26 studies that used pre-post designs (Hedge's *g* = .55; 95% CI = .44 to .66) and the 18 studies that used between-group designs (Hedge's *g* = .53; 95% CI =.41 to .64). They also found positive results for follow-up effects, with studies on average collecting follow-up data at 19 weeks. The largest effects were found for stress reduction, with more moderate effects found for reduction in depression, quality of life, and distress, and small effects for reduction in burnout. Khoury and colleagues suggested that findings were promising, but that more research was needed to understand the mechanisms and components by which MBSR programs effect change.

It is important to note that while mindfulness-based strategies for stress reduction are purported to be inclusive of a broad range of ideologies, worldviews, and experiences (Williams

et al., 2022), the vast majority of RCT studies of MBSR and MBCT identified through a systematic review ($N = 69$) involved predominantly White (around 76%) and college-educated samples (Waldron et al., 2018). This is problematic because it limits understanding of MBSR's efficacy among racially, ethnically, and socioeconomically diverse adults and highlights the need for further RCT research into mindfulness-based interventions with diverse samples. According to Williams and colleagues (2022), there have, however, been several recent studies that have successfully adapted MBSR for specific populations such as Black or African American women experiencing sexism (Bergen-Cico & Proulx, 2018) pre-diabetic Black or African American adults (Woods-Giscombe et al., 2019), low-income, older Black or African American individuals (Szanton et al., 2011), Black or African American youth with HIV (Sibinga et al., 2011), Latinx adults (Castellanos et al., 2020), and various Asian communities (Thapaliya et al., 2018). More research about the efficacy, effectiveness, acceptability and feasibility of standard, non-adapted MBSR with diverse individuals is needed to better understand whether adaptations are needed.

MBSR and Parenting Stress

As previously discussed, parents of children with externalizing behavior concerns experience a high amount of parenting stress (Anastopoulos et al., 1992; Morgan et al., 2002), in addition to other life stressors. Parents are responsible for managing a great deal of demands and responsibilities and need to increase capabilities to achieve a balance of demands and capabilities, or to reach *adaptation,* according to the FAAR model (Patterson, 1988). One way to increase capabilities is to increase personal coping strategies, such as through mindfulness-based stress reduction. Research suggests that increased trait mindfulness may indeed act as a protective factor against exacerbated levels of stress (Conner & White, 2014). Applied to Patterson's FAAR Model, mindfulness practice would serve to help balance demands by both

increasing capabilities and by helping to change meanings and how one views a situation. Specifically, people may come to view stressors less judgmentally and with more mindful, open awareness and may learn healthy ways to recognize and respond to their own feelings of stress.

Beyond the individual stress-reduction benefits of mindfulness (e.g., Gu et al., 2015 Khoury et al., 2015), research suggests that individual mindfulness practices can also positively impact family and relationship systems (Bögels & Emerson, 2019). Some results suggest that increasing mindfulness helps parents to respond less reactively to their child's challenging behavior (Rayan & Ahmad, 2018). Indeed, one's stress regulation capabilities in relationships (e.g., spousal, parenting) gained through mindfulness practices seem to act as a mechanism to positively influence child behavior and spousal wellbeing (Bögels & Emerson, 2019). Several recent studies have focused on mindfulness interventions for parents aiming to effect various types of change. A meta-analysis of three randomized controlled trials and four descriptive studies of mindfulness-based parenting interventions showed support for their ability to reduce depressive symptoms in parents (Alexander, 2018). However, results did not specify changes in child behavior. Additionally, results focused on depressive symptoms rather than on stress in general.

One specific study investigated the ability of a mindfulness-based parenting intervention, Parenting Mindfully, to reduce parenting stress in highly stressed parents of adolescents (Chaplin et al., 2018). In their randomized controlled trial ($N = 83$), Chaplin and colleagues compared Parenting Mindfully to a basic parent education minimal intervention control group. Parenting Mindfully is a group treatment that runs for two hours per week for eight weeks. The program is similar to general MBSR but includes applications geared towards parenting and interacting with the child, so it targets both parent-child stress and other adult stress. Results showed medium to

large effect sizes for the reduction of stress related to parent life restrictions and relationship with their spouse or partner but results for overall parent stress were non-significant. In this study, Parenting Mindfully shows some promise as an intervention for reducing parent stress, but overall stress reduction was not shown. Moreover, the frequency and intensity of participation required and the group format present significant concerns around feasibility and accessibility for parents.

General MBSR may be more promising for broadly addressing parent stress, as it focuses on mindfulness skills broadly rather than just on one specific areas of life like parenting and should, in theory, effect change across stress domains. Indeed, research has shown that general MBSR can be quite effective in reducing stress, anxiety, and depression in parents of children with developmental and behavioral challenges (Dykens et al., 2014; Ferraioli & Harris, 2013; Neece et al., 2014; Rayan & Ahmad, 2018). For example, Dykens and colleagues (2014) conducted a randomized controlled study comparing the effects of an in-person, group-based, six-week long (1.5 hours per week) MBSR program and a program called "Positive Adult Development" for mothers ($N = 243$) of children with ASD and other developmental disabilities. Results showed that MBSR was superior, especially with regards to improvements in depression, anxiety, sleep, and overall wellbeing, although both programs were beneficial to participants. Additionally, in Ferraioli and Harris's (2013) small ($N = 15$) randomized controlled trial comparing an eight-week long (2 hours per week) group-based, in-person MBSR intervention for parents of children with ASD to a group-based behavioral skills training program for parents, results indicated significant reduction in parent stress at post-treatment only for the MBSR group, and stress change scores were significantly higher for the MBSR group at follow-up. One study even found that mindfulness training was helpful in reducing parents' stress specifically

related to attending their children's special education individualized education program meetings (Burke et al., 2017).

Moreover, general MBSR for parents has been shown to be effective in helping to reduce child behavior issues (Neece, 2014) and internalizing problems (McGregor et al., 2020) in children with developmental disorders while simultaneously helping to reduce parenting stress in the parents and even to help increase the children's social skills (Lewallen & Neece, 2015). Lewallen and Neece's (2015) randomized waitlist-control study ($N = 24$) involved mothers of children ages 2.5 to 5 years with developmental disabilities, 83% of whom had a "very likely" diagnosis of ASD, who participated in an eight-week, in-person, group MBSR program. Weekly sessions lasted for two hours, and there was a six-hour retreat after the sixth session. Parent and teacher ratings indicated positive changes in children's levels of self-control, and teacher ratings showed improvements in children's cooperation, responsibility, and communication. The indirect, positive effects of parent stress reduction found in previous studies likely occurred because addressing parent mental health and stress concerns works to promote "parental consistency in discipline and perceived attachment" (Lewallen & Neece, 2015, p. 3117), thus emphasizing the importance of addressing parent mental health to attain the best possible outcomes for both parents and children.

A recent meta-analysis (Burgdorf et al., 2019) of mindfulness-based interventions targeting parenting stress and child and adolescent behavioral and psychological outcomes included both general MBSR interventions and mindful parenting interventions, although the authors did not differentiate results between the two. Burgdorf and colleagues included 25 independent studies in their analysis (six randomized-controlled trials and 18 single-group designs) and found a small overall post-intervention effect in reduction of parenting stress ($g =$

.34), which increased to a moderate effect at two-month follow-up (g = .53). Interestingly, neither the child's diagnosis, child's age, nor length of time the parent spent in the mindfulness intervention (range of session length = 1.5 hours to 3 hours; range of treatment course = 6 to 12 weeks) moderated these effects. Notably, parenting stress reduction in turn predicted a decrease in child externalizing behavior problems but not in child internalizing symptoms. It is possible that when parent stress decreases, there may be a more significant reduction in child behavior problems due to the suggested mechanisms of more consistent discipline and more positive parent-child interaction (Lewallen & Neece, 2015) while changes in child internalizing symptoms would require different mechanisms such as reduced parental accommodation following parent psychoeducation.

As discussed, there is promising research to support MBSR for parents of children with developmental disabilities (e.g., Lewallen & Neece, 2015; Neece, 2014)and ASD (e.g., Dykens et al., 2014). However, there remains a considerable dearth of research about MBSR for parents of children broadly exhibiting externalizing behavior concerns regardless of diagnosis. One dissertation study by Walling (2008) focused on reducing parenting stress among parents of children with externalizing behavior disorders through participation in a general, therapist-delivered MBSR intervention. Using a multiple baseline across subjects design with 10 mothers scoring at least one standard deviation above the mean on the short form of the PSI (Abidin, 2012) and whose children scored in the clinically significant range of the ECBI (Eyberg & Pincus, 1999), Walling found through visual analysis of graphed data that most mothers showed reduction in stress, decreased intensity of parenting hassles, decreased negative child behavior, and increased mindful parenting skills. Notably, all parents anecdotally indicated that the intervention was beneficial. However, statistical analyses did not indicate statistically significant

effects. The findings from the visual analyses, however, indicate that mindfulness could still be a useful intervention and that more research is needed.

While strong research support for MBSR for parent stress and child outcomes is emerging, there are important limitations to the available literature. First, most of the MBSR interventions studied among parents have been provided in person and required relatively intensive time commitments. Additionally, much of the literature focused on parents of children specifically with ASD or other developmental disabilities. Thus, there is an important gap in the literature around evaluating the effectiveness of an easily accessible, self-mediated, general, evidence-based MBSR program for decreasing parent stress among parents of children with externalizing behavior concerns. It is important to examine whether an accessible, online MBSR program that has shown good promise would be a worthwhile intervention for parents of children with behavioral concerns, perhaps while they are waiting for other evidence-based BPT or more intensive therapeutic services for themselves or in situations where they cannot access such services. There is also a gap in the literature around whether parent participation in such a program might have secondary positive effects on externalizing child behavior. The FAAR model (Patterson, 1988; 2002) would suggest that increasing parent capacity to handle the demands of life both within and beyond the parent-child relationship should promote better adaptation and lowered feelings of stress. Given the emerging popularity of MBSR, it is important to evaluate its effectiveness as a potentially useful tool for parents of children with varying levels of externalizing behavior concerns.

Online Applications of MBSR

Current research suggests that online-delivered MBSR interventions provide enriched outcomes, accessibility, and personalization in comparison to traditional, in-vivo MBSR

interventions (Mrazek et al., 2019). Some scholars argue that the in-person aspect of traditional mindfulness-based interventions is necessary because of the support and dialogue, but recent research suggests that online mindfulness interventions actually show comparable effect sizes to in-person versions (Krusche et al., 2013). Regarding the benefits of online-delivered MBSR, accessibility is greatly enhanced because online programs are available to anyone with internet access, regardless of geographic location or lack of access to transportation. Given both the practical constraints and safety concerns of the COVID-19 pandemic, using a program that individuals can access from home is vital. Moreover, digital programs often offer greater cost effectiveness than in-person programs. Finally, research has indicated that many users of online-delivered mindfulness interventions report that the online nature of the program offers flexibility regarding when to use the program that helps them to stay engaged through the course of the intervention (Stjernswärd & Hansson, 2017). Other benefits include standardization, which refers to the fact that all users receive the same, high quality content, thus increasing intervention integrity and decreasing the risk of having more or less skilled instructors presenting material (Puzziferro & Shelton, 2008). Finally, personalization refers to the ability of digital programs to provide frequent feedback to the user about their progress and to also allow them to choose options within the program, when applicable (Dixson, 2010).

There are, of course, some drawbacks to self-mediated online-delivered mindfulness interventions in comparison to those delivered in-person. These include concerns with generalizability, including taking into account different peoples' views of mindfulness, their life experiences, and other aspects of personal and cultural diversity. Additionally, there are some potential concerns around maintaining engagement and low adherence (Fish et al., 2016). Some programs have attempted to guard against this by sending automated email reminders (e.g.,

Krusche et al., 2012), but there is ultimately less accountability in many cases (Mrazek et al., 2019). Finally, there are potential roadblocks if participants encounter understanding difficulties, since the programs are usually completely self-mediated, or if they encounter technological difficulties, especially if program does not have good technical support capabilities (Mrazek et al., 2019).

Two meta-analyses (Jayawardene et al., 2016; Spijkerman et al., 2016) have examined the efficacy and effectiveness of online-delivered MBSR interventions and have shown promising results. Spijkerman and colleagues included 15 studies in their meta-analysis. All included studies were randomized-controlled trials of online-delivered MBSR programs. Using a random effects mode to calculate pre-post, between-group effect sizes, they found a moderate effect size for stress reduction (g = .51), which was the most robust effect. There were also small but significant positive effects for decreasing anxiety (g = .22) and depression (g = .29) and for increasing wellbeing (g = .23). Heterogeneity was moderate for findings for anxiety and depression but was high for stress reduction. These results overall show that digital MBSR interventions are promising as an efficacious means of reducing stress in the general population and have some potential to reduce anxiety and depression.

Jayawardene and colleagues (2016) also conducted a meta-analysis of eight randomized-controlled studies of preventative online MBSR interventions. It is notable that all of the included studies participants in Jayawardene et al.'s meta-analysis consisted of healthy, non-clinically-referred individuals. Similarly to findings by Spijkerman and colleagues (2016), results from Jayawardene et al.'s meta-analysis showed significant, moderate effects for reduction in perceived stress (g = 0.43) at post-test with moderate heterogeneity among studies. They found the largest effects for middle-aged adults. Effects increased at follow-up (g = .70), and

heterogeneity in effect sizes was low. Again, these results are promising and suggest that online MBSR can be used preventatively and can show significant levels of change in stress even in adults who were not previously highly stressed.

Literature searches show that there are a variety of online-delivered MBSR interventions. However, the pool of available programs becomes smaller when considering the actual availability of the programs studied due to the existence of older articles with programs no longer available, programs developed exclusively for research purposes and not available to the general public, some programs developed specifically for certain populations including employees in high-stress jobs (Allexandre et al., 2016; Wolever et al., 2012), individuals with chronic illness (Buhrman et al., 2013), or individuals diagnosed with anxiety (e.g., Boettcher et al., 2014) or depression (e.g., Alexander, 2018). Additionally, some programs are only available in languages other than English (e.g., Glück & Maercker, 2011; Pots et al., 2016). Furthermore, some programs have limited research evidence, such as having only one published efficacy or effectiveness study (e.g., Morledge et al., 2013). It does not appear that any studies have examined online-delivered MBSR specifically in the parent population.

Be Mindful. Be Mindful (Wellmind Health, 2020) was chosen for this study because five published studies evidence its robust effects. Three of the studies are rigorously-designed randomized controlled trials that demonstrate its efficacy and two are pre-post effectiveness trials. Across the studies, large effect sizes are present, and it is on its way to being considered "evidence-based." Limitations to the evidence are that it is unclear whether any of the studies were conducted by completely external researchers, and only one of the three randomized-controlled trials included a general population. Of the five published studies on Be Mindful, three are applicable to the general population, and two targeted specific concerns/populations,

including pregnant women (Krusche et al., 2018) and work-related stress (Querstret et al., 2017). The three published studies about Be Mindful targeting the general population (i.e., Krusche et al., 2012; Krusche et al., 2013; Querstret et al., 2018) found strong effects on reduction of stress, along with reductions in anxiety and depression.

In the first study of Be Mindful, Krusche and colleagues (2012) conducted a feasibility study measuring pre- to post-intervention changes in stress in a sample of 100 healthy, self-referred individuals. The sample comprised participants with a mean age of 48 years (*SD* =11.25, range = 28 – 72), 74% of whom were women. Socioeconomic status, race, ethnicity, and geographic location were not reported. At baseline, the mean stress score for the sample was considered to be in the "highly stressed" range and outside of the mean expected for normal-distribution for the Perceived Stress Scale (PSS; Cohen et al., 1983). The PSS was measured at baseline, immediately following the intervention, and at one-month follow-up. Krusche and colleagues found a large pre- to post-treatment effect size *d* of 1.57, as measured by the PSS. The researchers indicated that effects remained stable at one-month follow-up, but the specific follow-up effect size was not reported. The authors found Be Mindful to be used fairly frequently by participants and was thus considered feasible and acceptable, as 33% reported using it every day or most days, 55% reported using it sometimes, and only 12% reported rarely using the program. Analyses indicated that those who practiced the most were the most highly stressed to begin with, but there was no significant difference in magnitude of stress reduction between participants who engaged in the practices daily/almost every day and those who practiced sometimes or rarely.

The second published study of Be Mindful (*N* = 273), by Krusche and colleagues (2013), involved individuals from the general population who self-referred for Be Mindful, paid for the

program themselves, and consented for researchers to analyze their usage data for research purposes. No control group was used as this was a feasibility study. The authors found a large pre-post effect size (d = 1.20) for perceived stress (measured by the PSS) and this time, they found that the effect size increased for pre-test to follow-up (d = 1.30), in comparison to pre-post. The post- to follow-up effect size was small but present (d = 0.24). The mean age of participants was 47.7 years (SD = 11.98, range = 20-80), and 78% of the sample was female. Socioeconomic status, race, ethnicity, and geographic location were not reported. In this study, the researchers found that more frequent practice of skills was related to larger pre-post stress reduction when they controlled for baseline stress severity. This finding was contrary to Krusche et al.'s (2012) finding that did not show differences in outcome based on frequency of skill practice. Krusche and colleagues (2012) did not offer an interpretation for this finding but the study sample size was rather small and not well characterized and they tested this hypothesis by splitting the sample into two groups (high practice n = 33, low practice n = 37) possibly limiting interpretability. Positive effects were also found for reduction in anxiety and depression. The pre–post effect size (d) for anxiety reduction (measured by the GAD-7; Spitzer et al., 2006) was 1.22, and the pre- to follow-up effect size (d) was 1.42. The effect size (d) for reductions in depression (measured by the PHQ-9; Spitzer, 1999) pre-post was .95, and was 1.08 for pre-test to follow-up. Mean time-to-completion of Be Mindful was 7.06 weeks, and mode was 4.14 weeks. Greater time to completion of the program predicted lesser magnitude of stress reduction.

A third, more recent study of Be Mindful focused on the general population and employed a stronger experimental design than the previous two studies by using a waitlist control randomized design (Querstret et al., 2018). Subjects in this study included individuals with a mean age of 40.68 years (SD = 10.45; range = 21 – 62), 80.5% of whom were female.

Most participants (94.9%) worked full-time and were married or had a domestic partner (72%), and half had at least one dependent child (50%). Race, ethnicity, and socioeconomic status were not reported. Although the course is designed to be completed in four weeks, mean time-to-completion was six weeks, three days, and all participants managed to complete the entire program within 12 weeks. No differences in outcomes were found between participants who completed Be Mindful within six weeks (n = 30) and those who completed it in more than six weeks (n = 15).

Positive effects found in Querstret and colleagues' (2018) study of Be Mindful were robust. Compared to subjects in the waitlist control group (n = 58), individuals who were randomized to and completed the Be Mindful program (n = 60) experienced significantly less stress after the program (d = -1.25; CI = -1.64, -0.85). Those who participated in Be Mindful also showed greater reductions in anxiety (measured by the GAD-7, Spitzer et al., 2006; d = -1.09; CI = -1.47, -0.98) and depression (measured by the PHQ-9, Spitzer, 1999; d = -1.06; CI = -1.44, -0.67) compared to waitlist control participants. Effects maintained through follow-up. Querstret and colleagues also conducted mediation analyses to better understand the hypothesized mechanisms (i.e., acting with awareness, describing, non-judging and nonreacting) effecting change in Be Mindful. For effects on perceived stress and anxiety, they found that increasing non-judgmental thinking partially mediated the effect of the intervention. For changes in depression, they found that the components of being non-judgmental and describing appeared to fully mediate the effects of the intervention.

The two published studies of Be Mindful that focused on the specific areas of work-related stress (Querstret et al., 2017) and pregnancy (Krusche et al., 2018) also showed strong effects. In their randomized-controlled trial, Querstret and colleagues (2017) examined the effect

of Be Mindful on 60 employees' work-related rumination, fatigue, and sleep in comparison to a waitlist control group of 58 employees. Significant, positive effects were found in all three areas, immediately and at follow-up time points, and acting with awareness was found to be a mechanism of change. In the final published study of Be Mindful, Krusche and colleagues (2018) recruited 185 pregnant mothers to participate in Be Mindful or a waitlist control group. While positive effects were found, dropout was of significant concern for the new mothers, as only 21 percent of participants completed the program, which was in stark contrast to completion rates in other studies of Be Mindful with the general population. The authors did not collect information about reasons for dropout, which is a significant limitation to the study.

Be Mindful was also appropriate for this study given that it was created for a general adult population rather than a specific population. Moreover, the intervention is currently available, supported, and is published in English. Be Mindful is a four-week, online, self-administered mindfulness/cognitive therapy stress reduction intervention. The intervention is a self-mediated program that includes automated email reminders. See Table 1 for an overview of the Be Mindful course modules and their content.

Table 1. Overview of Course Modules in Be Mindful

Module and Topic	**Activities**
Getting Started (~20 minutes; completed as part of Week 1)	Introduction, Stress Assessment and Orientation ("Here we meet Ed and Tessa and learn more about stress, anxiety, and mindfulness practices. You'll discover what to expect and what you will gain from the Pathway and take a simple stress test to assess your stress levels.") Routine Activity, Mindful Eating, Body Scan

Table 1 (cont'd)

Week 1: Stepping out of Automatic Pilot (~40 minutes)	("We explore why behaving mechanically is not constructive, the benefits of awareness and learn how to make more conscious choices. You will begin practicing exercises in mindfulness to become more present.")
Week 2: Reconnecting with Body and Breath (~40 minutes)	Mindful Movement, Event Awareness, Mindful Breathing ("We practice mindful breathing and mindful movement to tune into your body. Discover how our thoughts, emotions and body sensations are all connected.")
Week 3: Working with Difficulties (~40 minutes)	Breathing Space, Stress Awareness, Sitting Meditation ("This week you will learn about stress, signs of its arrival and tools to help you respond differently. We develop awareness of thought patterns and consider thoughts in a liberating new way.")
Week 4: Mindfulness in Daily Life (~40 minutes)	Activity Awareness, Breathing Space and Action Step, Stress Strategies ("In Week 4 we explore exercises to monitor stress levels and become aware of patterns so you can recognize, respond and manage them more effectively. We learn coping actions to help better take care of ourselves.")
Going Forward (~15 minutes; Completed as Part of Week 4)	Review of Stress, Certificate, and Additional Resources ("Here you'll reflect on your Pathway. We'll revisit the stress assessment to see how your scores have improved

Table 1 (cont'd)

	and consider how you can progress on your mindfulness journey, with your accessible course library and tips for continuing your learning.")

Note. Information for table retrieved from https://www.bemindfulonline.com/the-course

Implementation Factors

It is important to examine factors related to intervention uptake in addition to outcome effectiveness. Broadly, Forman and colleagues (2013) argue that considering implementation factors in research is key for effective translation of research to practice for school psychologists in applied settings. Implementation science research, or the study of uptake of research findings into school or clinical practice settings (Forman et al., 2013), often comes after an intervention's evidence base has been solidly established. Some scholars argue, however, that it is useful to study implementation factors concurrently with effectiveness outcomes to most efficiently facilitate translation to practice and to more richly contextualize effectiveness findings and bolster external validity. This approach is considered a hybrid effectiveness-implementation design (Curran et al., 2012). Curran and colleagues propose three models of hybrid effectiveness-implementation designs, differentiated by the main area of focus: Type 1 involves primarily testing effectiveness outcomes while secondarily gathering data on implementation factors, Type 2 focuses equally on outcomes and implementation strategies, and Type 3 involves testing an implementation strategy while secondarily collecting data related to clinical outcomes. The present study falls into the first type, as it seeks to simultaneously determine the effectiveness of the intervention for a particular population and collect descriptive information related to implementation factors to begin to understand a new context for implementation but not to

manipulate or specifically test implementation strategies (Curran et al., 2012). This type of design may be thought of as a gateway to future, more intensive implementation research. Curran and colleagues suggest that the following implementation factors should be examined in hybrid type 1 designs: feasibility and acceptability, barriers and facilitators to participation, and sustainability potential. Because this study only sought to examine very preliminary implementation factors and had a limited dissertation-length timeline, it addressed acceptability, feasibility, and barriers and (to a lesser extent) facilitators to participation the most and was not able to address long-term sustainability potential.

Curran and colleagues (2012) outline several prerequisites researchers should consider for hybrid type 1 studies. These include: 1) evident face validity for the intervention that would suggest it might be applicable in the new setting, mode, or population (in this case for parents of children with externalizing behavior concerns within the context of a global pandemic), 2) an established evidence base from somewhat similar populations, and 3) minimal anticipated risk for the intervention. The present study meets all of these guidelines.

Present Study

This study seeks to fill a gap in the literature as a type 1 hybrid effectiveness-implementation study (Curran et al., 2012) by 1) evaluating the effectiveness of an accessible, self-mediated, general, evidence-based MBSR program for decreasing parent stress among parents of children ages two to ten years with externalizing behavior concerns and 2) preliminarily examining its acceptability, feasibility, and barriers/facilitators to use. Given the demonstrated demands and stress levels that many of these parents experience – particularly within the context of a global pandemic – and provided the promising nature of MBSR, this study seeks to examine whether such a program shows effectiveness for this group and whether

it might be worthwhile to recommend to parents, perhaps while they are waiting for other evidence-based treatment for their children or concurrently.

Accessible, effective programs are especially important in light of the additional stressors brought about by the COVID-19 pandemic. Many families have experienced new challenges with their children due to isolation, change of routine, and closures of schools and other programming, and supports and services have been less accessible for many given the shut-downs (Brown et al., 2020). Uncertainty around changing regulations and guidelines, fear of infection, and economic vulnerability have been salient sources of stress for parents during the pandemic (Russell et al., 2022). Parents of children with ASD reported higher anxiety and stress during the pandemic than parents of typically-developing children (Corbett et al., 2020) suggesting that parents with children who have greater levels of support needs broadly may be at higher risk for negative effects on wellbeing during the pandemic. Thus, scholars argue that it is especially vital to bolster psychological flexibility and self-compassion for parents during the COVID-19 pandemic, and mindfulness training is one method to do so (Coyne et al., 2020). This study also seeks to fill a gap in the literature around whether parental participation in such a program might have auxiliary positive effects on child externalizing behavior. Given the emerging popularity of MBSR, it is important to evaluate its real-world effectiveness as a potentially useful tool for parents especially amidst the current added stressors and constraints of the COVID-19 pandemic while simultaneously examining implementation factors including feasibility, acceptability, usage, and barriers to help inform recommendations for uptake.

Research Questions and Hypotheses

This study sought to answer the following research questions.

Primary Research Questions

Research Question 1. Do parents who participate in the online MBSR intervention demonstrate significant reductions in stress immediately following the MBSR program as measured by the Total Stress score of the Parenting Stress Index, Fourth Edition (PSI-4; Abidin, 2012) and the Perceived Stress Scale, 10-item version (PSS; Cohen et al., 1983), and are effects maintained at one-month follow-up?

Hypothesis 1a. It was hypothesized that parents would show significantly decreased overall stress immediately following the MBSR intervention, as measured by the Total Stress score of the PSI-4, because there were large effect sizes found for the Be Mindful Online intervention in the general population (Krusche et al., 2012, $d = 1.57$; Krusche et al., 2013, $d = 1.20$; Querstret et al., 2018, $d = 1.25$) when measuring general adult stress (measured by the PSS). Previous research has also shown found positive effects of mindfulness interventions on parent stress (e.g., Burgdorf et al., 2019; Dykens et al., 2014; Neece, 2014).

Hypothesis 1b. The PSS was examined in addition to the PSI-4 to corroborate results from the PSI-4, since much of the research on the MBSR has used the PSS, yet much of the parenting stress literature uses the PSI-4. It was hypothesized that parents would evidence significantly decreased stress immediately following the MBSR intervention, as measured by the PSS, because there were large effect sizes found for the Be Mindful Online intervention in the general population (Krusche et al., 2012, $d = 1.57$; Krusche et al., 2013, $d = 1.20$; Querstret et al., 2018, $d = 1.25$) when measuring general adult stress (measured by the PSS). Previous research has also shown found positive effects of mindfulness interventions on parent stress (e.g., Burgdorf et al., 2019; Dykens et al., 2014; Neece, 2014).

Hypothesis 1c. It was hypothesized that stress reduction effects from the MBSR intervention would be maintained at one-month follow-up, as measured by the Total Score of the PSI-4, because previous studies of Be Mindful in the general adult population demonstrated that strong effects were maintained at three- and six-month follow-up points (Querstret et al., 2017; Querstret et al., 2018), at one-month follow-up (Krusche et al., 2012), and at one- and three-month follow-up points (Krusche et al., 2013). Burgdorf and colleagues (2019) even found that positive effects on parent stress increased after two-month follow-up in a meta-analysis of MBSR for parent stress.

Hypothesis 1d. The PSS was examined in addition to the PSI-4 to corroborate results from the PSI-4, since much of the research on the MBSR intervention has used the PSS, yet much of the parent stress literature uses the PSI-4. It was hypothesized that stress reduction effects from the MBSR intervention would be maintained at one-month follow-up, as measured by the PSS, because previous studies of Be Mindful in the general adult population demonstrated that strong effects were maintained at three- and six-month follow-up points (Querstret et al., 2017; Querstret et al., 2018) and at one- and three-month follow-up (Krusche et al., 2013). Burgdorf and colleagues (2019) even found that positive effects on parent stress increased after two-month follow-up in a meta-analysis of MBSR for parent stress.

Research Question 2. Is the MBSR program acceptable to parents, based on the Client Satisfaction Questionnaire adapted to Internet-based interventions (CSQ-I; Boß et al., 2016) scores, Be Mindful satisfaction questions, and open-ended feedback questions?

Hypothesis 2a. It was hypothesized that the MBSR intervention would be acceptable to parents, as indicated by a mean score of at least 3 (“somewhat helpful”) across the questions on the CSQ-I, because although previous studies of Be Mindful Online did not specifically include

acceptability/satisfaction results, researchers concluded that the program was acceptable due to positive outcomes and high rates of completion for a general, adult sample (e.g., Krusche et al., 2012; Krusche et al., 2013).

Hypothesis 2b. It was hypothesized that the MBSR intervention would be acceptable to parents, as indicated by a mean score of at least 3 ("neutral") across the four modules' embedded satisfaction questions in Be Mindful (i.e., "Please rate how helpful you've found week X of the course" on a five-point scale from "Very Unhelpful" to "Very Helpful") because although previous studies of Be Mindful Online did not specifically include acceptability/satisfaction results, researchers concluded that the program was acceptable due to positive outcomes and high rates of completion for a general, adult sample (e.g., Krusche et al., 2012; Krusche et al., 2013). Moreover, in other studies of mindfulness interventions, parents have reported finding the strategies helpful (e.g., Burke et al., 2017).

Hypothesis 2c. It was hypothesized that thematic analysis of open-ended parent satisfaction responses designed by the researcher, which parents completed following the CSQ-I, would corroborate quantitative findings from the CSQ-I that indicate treatment satisfaction. Moreover, this research question sought to add richness to the acceptability data and show a more nuanced picture of parent thoughts on the MBSR program, including what may or may not have worked or what could be improved.

Research Question 3. How compliant are parents with the MBSR program, as measured by their report of practicing the MBSR techniques outside of the lessons (3a), and do parents maintain the same level of practice one month after completing the MBSR program (3b)?

Hypothesis 3a. It was hypothesized that parents would report practicing the MBSR techniques a moderate amount (i.e., every day/most days or sometimes) during the active MBSR

phase of treatment. Krusche et al. (2013) found that 41% of parent participants reported practicing "every day or most days", 52% reported practicing "sometimes," and 7% reported practicing "rarely or never."

Hypothesis 3b. It was hypothesized that parents would report practicing the MBSR techniques less frequently after completing the active phase of MBSR, but it was expected that they would still use the strategies to some extent (i.e., sometimes). Ribeiro and colleagues (2018) found this pattern in a study of adherence to mindfulness practices during and after of a 6-week mindfulness course.

Secondary Research Question

Research Question 4. Do children of parents who participate in the online MBSR intervention demonstrate significantly decreased behavior problems as measured by the ECBI Intensity scale from pre- to post-treatment, and are these effects maintained at one-month follow-up?

Hypothesis 4a. It was hypothesized that participation in the MBSR program would be associated with a small but significant decrease in child behavior problems, as measured by the ECBI Intensity Scale and ECBI Problem Scale, parent-report measures of child problem behavior frequency and how problematic they found the behaviors. A meta-analysis by Burgdorf and colleagues (2019) found that mindfulness interventions led to a small but significant positive change in children's externalizing behaviors. Additionally, Mackler and colleagues (2015) explained that parenting stress is both affected by and affects child behavior. Moreover, Neece and colleagues (2016) found a support for a bidirectional, transactional relationship between parent stress and child behavior problems and indicated that, consequently, adult stress reduction interventions for parents may be indicated in reducing both parent stress and child behavior

problems. Furthermore, Lewallen and Neece (2015) and Neece (2014) found that MBSR helped to reduce both parent stress and child behavior problems. Thus, a decrease in child behavior problems was anticipated following parents' participation in the MBSR intervention even though child behaviors and parenting skills were not directly targeted.

Hypothesis 4b. It was hypothesized that participation in the MBSR program would lead to a small but significant decrease in child behavior problems that would be maintained at one-month follow-up, as measured by the ECBI Intensity and Problem Scales. Effects were expected to be maintained because parent stress reduction effects were expected to be maintained, based on previous findings (see RQ1), so the effects on both parent stress and child behavior problems would be expected to continue to function at follow-up.

METHOD

Participants

Parents were eligible to participate in the study if they met the following criteria. The term parents encompassed grandparents or guardians as long as the individual was a primary caretaker of a child between ages two and ten years who had externalizing behavior concerns at or above a raw score of 115 on the ECBI Intensity scale. Moreover, the parents' self-reported stress on the PSI-4 had to be at or above the 60th percentile in at least one of the following areas: Parent Domain, Child Domain *or* Total Stress score. A cutoff score in the 60th percentile (i.e., one standard deviation above the mean) was below clinical significance but still indicated at least moderately elevated levels of stress. Using this lower cutoff rather than the high stress cutoff of the 85th percentile per Abidin (2012) allowed for feasibility in recruiting the desired sample size within the constraints of a dissertation timeline and allowed the intervention to be tested with both moderately and highly stressed parents. Previous studies demonstrated that the Be Mindful program has shown significant levels of change with adults in the general population with a range of different baseline stress levels, including sub-clinical (Querstret et al., 2018). Parents excluded from the sample were those currently diagnosed with a serious psychiatric condition (e.g., schizophrenia, bipolar disorder, antisocial personality disorder, substance abuse), as determined by self-report during the eligibility screening. Anxiety, depression, ADHD, and other common disorders were acceptable for inclusion. One parent per child was eligible to participate to avoid nesting effects. Finally, parents had to have personal access to the internet via a smartphone, tablet, laptop, and/or desktop computer.

This study's community sample included children who were eligible to participate if they were between ages two and ten years and had externalizing behavior concerns at or above a raw

score of 115 on the ECBI Intensity scale, which authors of the measure indicate is the cutoff for the "at-risk" range. A raw score greater than 131 indicates clinically significant concerns (Eyberg & Pincus, 1999). Children could either have or not have a formal diagnosis. This expanded range allowed the researcher to evaluate the effectiveness of this program for a broader population of families, including those with children with clinical and at-risk (i.e., sub-clinical) behavior concerns. Moreover, to stay within the confines of a dissertation timeline, the researcher balanced feasibility with sample size and statistical power, using parent stress as the primary outcome upon which power was estimated.

All participants met all inclusionary criteria, which are described above. The following characteristics describe parents included in the study: parent participants (N = 38; also referred to as "parents") included 33 mothers, 4 fathers, and one grandmother (who was the child's primary caretaker) of children between the ages of two and ten years. These parents ranged in age from 23 to 63 years (M = 37.79, SD = 6.93) with one parent choosing not to disclose their age. Parents had between 1 and 9 children (M = 2.42, SD = 1.57) children in total. For 47.4% of parents, this was their first time learning mindfulness techniques. Of the 50% who had previous exposure to mindfulness (one participant chose not to answer this question), commonly learned strategies and exercises included breathing, body scan, journaling, sensory awareness, meditation, present awareness, and mindful eating. Notably, two participants reported that they had engaged in learning mindfulness during pregnancy. See Table 2 for detailed parent demographic and background information. Children ranged in age from 2 to 10 years (M = 6.15, SD = 2.57). See Table 3 for detailed child demographic and background information. See Table 4 for child CBCL and SCQ information and comparisons to children's parent-reported diagnoses.

Table 2. Parent Demographic and Background Characteristics (N = 38)

Characteristic	*n*	Percent
Gender Identity		
Woman	34	89.5%
Man	4	10.5%
Race/Ethnicity		
White	30	79.0%
Multiracial	6	15.8%
Hispanic	1	2.6%
Black/African American	1	2.6%
Region of the US		
Midwest	12	31.6%
South	10	26.3%
Northeast	9	23.7%
West	7	18.4%
Highest education obtained		
Some high school	1	2.6%
High school diploma	1	2.6%
Some college	7	18.4%
Associate's degree	6	15.8%
Bachelor's degree	3	7.9%
Master's degree	17	44.7%

Table 2 (cont'd)

Doctoral degree	3	7.9%
Employment status		
Employed full time (35 or more hours/week)	19	50%
Stay-at-home parent	13	34.2%
Employed part time (up to 34 hours/week)	4	10.5%
Unable to work	2	5.3%
Unemployed and looking for employment	1	2.6%
Unemployed and not looking for employment	1	2.6%
Annual household income		
Less than $20,000	3	7.9%
$20,000 to $34,999	3	7.9%
$35,000 to $49,999	7	18.4%
$50,000 to $74,999	7	18.4%
$75,000 to $99,999	6	15.8%
$100,000 to $199,999	9	23.7%
$200,000 or more	3	7.9%
Marital status		
Married or in a domestic partnership	30	78.9%

Table 2 (cont'd)

Single (never married/domestic partnership)	5	13.2%
Divorced	2	5.3%
Separated	1	2.6%
Co-parent status		
Living together full time	32	84.2%
No co-parent	4	10.5%
Living apart full time	2	5.3%
Ever had a mental health diagnosis		
Yes	24	63.2%
No	14	36.8%
Currently has a mental health diagnosis		
Yes	22	57.9%
No	16	42.1%
Current mental health diagnoses		
GAD or unspecified anxiety	20	52.6%
MDD or unspecified depression	15	39.5%
ADHD	3	7.9%
PTSD	2	5.3%
OCD	1	2.6%
Insomnia	1	2.6%
Social anxiety disorder	1	2.6%

Table 2 (cont'd)

Current mental health treatment		
None	22	57.9%
Psychotropic medication	14	36.8%
Psychotherapy	8	21.1%

Note. Participants reported the state in which they live, and regions of the US were determined based on the US census-defined regions. Multiracial combinations included White and Native American or Alaskan Native (n = 1), White and Hispanic (n = 3), White and Asian (n = 1), and Black and Native American or Alaskan Native (n = 1). Some parents identified as having more than one mental health diagnosis, more than one current employment status, and/or more than one modality of current mental health treatment thus percentages do not add up to 100. GAD = generalized anxiety disorder. MDD = major depressive disorder. ADHD = attention deficit hyperactivity disorder. PTSD = post-traumatic stress disorder. OCD = obsessive compulsive disorder.

Table 3. Child Demographic and Background Characteristics (N = 38)

Characteristic	*n*	Percent
Gender Identity		
Boy	23	60.5%
Girl	15	39.5%
Race/Ethnicity		
White	32	84.2%

Table 3 (cont'd)

Multiracial	3	7.9%
Black/African American	2	5.3%
Hispanic	1	2.6%
Current education status		
Attends elementary school full time	16	42.1%
Attends preschool full time	6	15.8%
Does not attend school	6	15.8%
Attends preschool part time	4	10.5%
Other	4	10.5%
Homeschooled	2	5.3%
Special education status		
Does not receive special education	27	71.1%
Speech-language services	6	15.8%
Emotional support	4	10.5%
Learning support	5	13.2%
Autistic support	3	7.9%
Occupational therapy	4	10.5%
Physical therapy	3	7.9%
Life Skills	3	7.9%
Counseling or therapy in school	1	2.6%
Current mental/behavioral health diagnoses		
No diagnosis	22	57.9%

Table 3 (cont'd)

GAD or unspecified anxiety	10	26.3%
ADHD	9	23.7%
ASD	5	13.2%
Depression	2	5.3%
ODD	1	2.6%
Conduct Disorder	1	2.6%
Reactive Attachment Disorder	1	2.6%
Current mental/behavioral health treatment		
None	25	68.5%
Psychotropic medication	4	10.5%
Psychotherapy	4	10.5%
Parent-Child Interaction Therapy	3	7.9%
Applied Behavior Analysis (ABA)	1	2.6%
Family counseling	1	2.6%

Note. Multiracial combinations included White and Hispanic (n = 2) and White and Asian (n = 1) Some children had more than one mental health diagnosis and/or more than one modality of current special education service and/or mental health treatment, thus percentages may not add up to 100. ADHD = attention deficit hyperactivity disorder. ASD = autism spectrum disorder. GAD = generalized anxiety disorder. ODD = oppositional-defiant disorder. DMDD = disruptive mood dysregulation disorder. Other current education statuses reported by parents included online schooling due to COVID-19 pandemic and attending ABA center full-time. Three parents who reported that their child was currently receiving mental/behavioral health treatment did not

indicate what the treatment was, and some children were currently receiving more than one modality of treatment.

Table 4. Children's Parent-Reported Mental Health Conditions and CBCL DSM-5 Oriented Scale T-scores

ID	CBCL Dep.	CBCL Anx.	CBCL Som.	CBCL ASD	CBCL ADHD	CBCL ODD	CBCL Cond.	SCQ Score	Parent Rep. Dx1	Parent Rep. Dx2	Parent Rep. Dx3	Parent Rep. Dx4
1†	--	--	--	--	--	--	--	--	ADHD	None	None	None
2[1]	63	54	--	61	54	70-C	--	--	None	None	None	None
3[2]	52	73-C*	50	--	62	73-C	65-B	17**	ASD	Anxiety	None	None
4[2]	76-C	97-C*	73-C	--	77-C*	55	63	18**	ASD	ADHD	Anxiety	None
5[1]	50	70-C	--	72-C	71-C	67-B	--	--	None	None	None	None
6[2]	65-B	82-C	65-B	--	75-C	62	63	--	None	None	None	None
7[2]	70-C	91-C	70-C	--	66-B	73-C	70-C	--	None	None	None	None
8[1]	60	78-C	--	68-B	60	70-C	--	--	None	None	None	None
9[1]	75-C	89-C	--	72-C	67-B	80-C	--	--	ADHD	None	None	None
10[2]	68-B	67-B	50	--	60	63	66-B	--	ADHD	Anxiety	Dep.	None
11[1]	56	50	--	54	51	59	--	--	None	None	None	None
12[2]	75-C	82-C*	68-B	--	75-C*	73-C	65-B	--	ADHD	Anxiety	None	None

Table 4 (cont'd)

13[1]	63	50	--	54	57	67-B	--	--	None	None	None	None
14[2]	60	67-B	50	--	53	62	65-B	--	None	None	None	None
15[1]	77-C	92-C	--	89-C	76-C	67-B	--	25**	ASD	None	None	None
16[1]	60	57	--	76-C	54	67-B	--	--	None	None	None	None
17[2]	68-B	64	56	--	73-C	77-C	70-C	--	None	None	None	None
18[1]	63	89-C*	--	54	60	55	--	--	Anxiety	None	None	None
19[1]	77-C	84-C*	--	87-C	76-C*	70-C	--	28**	ASD	ADHD	Anxiety	None
20[2]	68-B	60	56	--	75-C	70-C	71-C	--	Anxiety	None	None	None
21[2]	72-C	70-C	65-B	--	80-C	73-C	83-C	--	None	None	None	None
22[1]	56	60	--	70-C	54	59	--	--	None	None	None	None
23[2]	70-C*	85-C*	57	--	80-C*	70-C	71-C	--	ADHD	Anxiety	Dep.	RAD
24[2]	65-B	65-B	57	--	80-C*	80-C*	69-B	--	ADHD	ODD	Anxiety	None
25[1]	63	50	--	50	57	59	--	--	None	None	None	None
26[1]	56	51	--	50	52	64	--	--	None	None	None	None
27[2]	50	50	56	--	50	52	52	--	None	None	None	None

Table 4 (cont'd)

28[1]	51	50	--	51	57	51	--	--	None	None	None	None
29[1]	77-C	70-C	--	54	64	64	--	--	None	None	None	None
30[2]	72-C	73-C*	50	--	68-B	73-C*	73-C	--	ADHD	Anxiety	None	None
31[1]	75-C	63	--	83-C	76-C	80-C	--	27**	ASD	None	None	None
32[2]	70-C	67-B	57	--	72-C	66-B	54	--	None	None	None	None
33[1]	70-C	63	--	68-B	67-B	77-C	--	--	None	None	None	None
34[1]	63	63	--	51	71-C	64	--	--	None	None	None	None
35[1]	63	50	--	72-C	71-C	67-B	--	--	None	None	None	None
36[1]	63	73-C	--	58	52	59	--	--	CD	None	None	None
37[1]	72-C	54	--	51	60	52	--	--	None	None	None	None
38[2]	52	52	61	--	58	55	60	--	None	None	None	None

Notes. These scores are used to corroborate parent-reported child diagnoses. CBCL = Child Behavior Checklist (Achenbach & Rescorla, 2001). SCQ = Social Communication Questionnaire, Lifetime form (Rutter et al., 2003). † = Child 1's parent did not complete the CBCL because of being recruited through previous methodology; diagnosis confirmed by clinician instead. [1] = Younger child version of CBCL (CBCL/1.5-5). [2] = Older child version of CBCL (CBCL/6-18). B = Borderline clinically significant *T-score*. C = Clinically significant *T-score*. * = Parent-reported child diagnosis aligns with a Clinically Significant CBCL DSM-Oriented Scale

Score. ** = Parent-Reported ASD diagnosis aligns with suggested SCQ cutoff score (≥ 15); only parents who indicated child had ASD completed SCQ. CBCL Dep. = Depressive Problems DSM-Oriented Scale (both forms). CBCL Anx. = Anxiety Problems DSM-Oriented Scale (both forms). CBCL Som. = Somatic Problems DSM-Oriented Scale (CBCL/6-18 only). CBCL ASD = Autism Spectrum Problems DSM-Oriented Scale (CBCL/1.5-5 only). CBCL ADHD = Attention Deficit / Hyperactivity Problems DSM-Oriented Scale (both forms). CBCL ODD = Oppositional Defiant Problems DSM-Oriented Scale (both forms). CBCL Cond. = Conduct Problems DSM-Oriented Scale (CBCL/6-18 only). ADHD = attention deficit/hyperactivity disorder. ASD = autism spectrum disorder. CD = conduct disorder. Dep. = depression. ODD = oppositional defiant disorder. RAD = reactive attachment disorder.

Measures

Eligibility and Background

A demographic and background questionnaire (see Appendix A) was developed to determine eligibility for the study and to collect information about parent participants. This measure asked parent participants to list any mental health diagnoses, history of psychological treatment for themselves, and to identify their income level, education level, gender, age, race/ethnicity, co-parenting status, marital status, employment status, and number of children. Parents were also asked to identify their child's diagnosis, any history of child psychological/behavioral treatment, special education status, gender, date of birth, race/ethnicity, and school.

Child Behavior Checklist. To help characterize the sample and to corroborate parent-reported diagnoses if applicable, parent participants completed the Child Behavior Checklist (CBCL; Achenbach & Rescorla, 2001). The CBCL is a parent-report measure, and two forms of the CBCL exist: ages 1.5 to 5 (CBCL/1.5-5) and ages 6 to 18 (CBCL/6-18). The corresponding form appropriate for the age of the parent participant's child was used. The CBCL is one of the most established and widely-used broadband measures of child emotion and behavior both clinically and in research (Nakamura et al., 2009). It has been suggested that the CBCL's popularity may stem from its strong ability to discriminate between clinically-referred and non-clinically-referred populations, as well as to distinguish between various clinical populations (Nakamura et al., 2009). The CBCL/1.5-5 is a 99-item measure and the CBCL/6-18 is a 120-item measure. Both measures use a 3-point, Likert-type scale that includes the following anchors: 0=*not true (as far as you know)*, 1=*somewhat or sometimes true*, and 2=*very true or often true of the child*.

While both forms of the CBCL include total scores and domain scores (e.g., externalizing and internalizing), for the purposes of this study, the DSM-5-oriented scale scores were used to corroborate diagnosis. Original diagnoses were obtained via parent report. For the CBCL/1.5-5, the DSM-oriented scales include Affective Problems, Anxiety Problems, Autism Spectrum Problems, Attention-Deficit/Hyperactivity Problems, and Oppositional Defiant Problems. For the CBCL/6-18, these scales include Depressive Problems, Attention Deficit Hyperactivity Problems, Oppositional Defiant Problems, Conduct Problems, Avoidant Personality Problems, and Antisocial Personality Problems, Autism Spectrum Problems, Anxiety Problems, and Somatic Problems. The DSM-oriented scales were developed as a response to clinicians who desired a "closer linkage with prevailing DSM nosology" (Nakamura et al., 2009, p. 179). Instead of deriving these scales analytically, as they had done for previous syndrome scales, Achenbach and colleagues (2003) constructed the DSM-oriented scales through a process of expert agreement on ratings of items' alignment with DSM-IV diagnostic criteria. Achenbach and colleagues reported that test-retest reliability for the DSM-oriented scales was good (.75 to .84). Using a large sample (n = 673), Nakamura and colleagues further investigated the psychometric properties of the six DSM-oriented scales and found good reliability (.71 to .89), especially for conduct problems (.89). They also found appropriate convergent and divergent validity. The CBCL DSM-oriented scales were updated in 2014 to reflect any changes from DSM-IV to DSM-5 diagnostic criteria (Achenbach, 2014) using expert ratings.

Social Communication Questionnaire. If parents indicated that their child had autism spectrum disorder (ASD), parents were asked to complete the Social Communication Questionnaire, Lifetime form (SCQ; Rutter et al., 2003), a screener for ASD, to corroborate the diagnosis since the CBCL falls short in its ability to accurately screen for ASD (Havdahl et al.,

2016). The SCQ (Rutter et al., 2003) is a 40-item tool used for screening for behaviors consistent with a diagnosis of ASD. The items on the SCQ are based on the Autism Diagnostic Interview-Revised (ADI-R; Le Couteur et al., 2003), one of the gold-standard instruments for the diagnosis of ASD. Parents answer each question with a "yes" or "no," and the measure is scored by awarding one point for abnormal behavior and zero points for absence of abnormal behavior. The SCQ has two forms, Current and Lifetime. The Current form is used as a general screener, while the Lifetime version should be used when verifying a diagnosis. While the SCQ is normed for children ages four and above, Marvin and colleagues (2017) suggest that it is appropriate to use the Lifetime form for children ages two to four because for children under four, the psychometric properties of the Current form are poor. For these reasons, this study utilized the Lifetime form.

On the Lifetime form, the first 18 items ask parents to indicate whether each behavior has ever been present for the child, while the latter 20 items ask parents whether behaviors were present when the child was four years old, or to consider the child's behavior in the past year if the child is under four years of age. The general cutoff score to indicate likely presence of ASD is 15, but recent findings suggest that for verbal children under 4, a lower cutoff score (i.e., 12) may be warranted to increase sensitivity and specificity (Marvin et al., 2017). For verbal children, Marvin and colleagues found good sensitivity (.93) and specificity (.93) in the SCQ Lifetime form's ability to distinguish verbal children with ASD from their typically-developing peers. Sensitivity (.91) and specificity (.81) were slightly lower for nonverbal children. Internal consistency reliability has been found to be good for the SCQ (α = .94 for verbal children and .89 for nonverbal children; Marvin et al., 2017). Research indicates there is high convergent validity between the SCQ and the ADI-R (Rutter et al., 2013).

Parent Stress

Parenting Stress Index – Fourth Edition (PSI-4). Parent stress was assessed primarily using the Parenting Stress Index – Fourth Edition (PSI-4; Abidin, 2012). The PSI-4 (Abidin, 2012) is a 120-item measure of parenting-related stress for parents of children up to age 12 years. The PSI-4 has two domains (Child and Parent), which combine to form a Total Stress scale. This study used the Total Stress score as a primary outcome measure because the study sought to help alleviate stress both related to and external to the child. In the Child Domain, there are six subscales (Distractibility/Hyperactivity, Adaptability, Reinforces Parent, Demandingness, Mood, and Acceptability) that serve to identify sources of stress related to the parent's perception of their child's characteristics. In the Parent Domain, there are seven subscales (Competence, Isolation, Attachment, Health, Role Restriction, Depression, and Spouse/Parenting Partner Relationship) that serve to identify sources of stress related to the parent's perception of their own characteristics. An additional Life Stress scale provides information about whether big life changes have occurred in the past 12 months. There is one validity scale ("Defensive Responding"). The first 101 items, comprising the domains, subscales, and total stress score, are presented in Likert-type scales, with possible answers ranging from 5 ("strongly agree") to 1 ("strongly disagree"). The final 19 items list big life changes and are presented in a "yes/no" (0/1) format. The PSI-4 domains and subscale descriptions (Abidin, 2012, p. 3) can be found in Table 5.

Abidin (2012) provides recommendations for interpreting PSI-4 scores in the manual. High scores on the Child Domain indicate that there may be child traits that make parenting quite difficult and that child characteristics are likely contributing heavily to a stressful parent-child system (Abidin, 2012). High scores on the Parent Domain indicate that there is significant stress

(and potentially dysfunction) in the parent-child system that stems from the parent's own functioning (Abidin, 2012). High Total Stress scores, then, indicate that there is significant stress in one or both domains. On the PSI-4, scores between the 16th and 84th percentiles are considered normal, scores between the 85th and 89th percentile are considered high, and scores at or above the 90th percentile are considered clinically significant.

The PSI-4 is a well-validated and extensively used measure of parenting stress. Internal consistency reliability was calculated based on the normative sample for each subscale, domain, and for the Total Stress score. For the subscales of the Child Domain, α ranged from .78 to .88, while they ranged from .75 to .87 for the subscales of the Parent Domain. For both domains themselves, α was .96, and it was .98 for the Total Stress scale. Test-retest reliability within the normative sample administered one to three months after initial administration was .63 for the Child Domain, .91 for the Parent Domain, and .96 for the Total Stress (Abidin, 2012). Additionally, the PSI-4 demonstrates excellent treatment sensitivity (Holly et al., 2019). Moreover, the PSI-4 is one of the most widely used measures of parent stress in studies of families of children with a variety of concerns, including ASD (Zaidman-Zait et al., 2011), a population that experiences considerable stress (Keenan et al., 2016).

Table 5. PSI-4 Domain and Subscale Descriptions

Domain/Subscale	Description
Total Stress	Assesses overall parental experience of stress and risk for dysfunctional parenting and child behavior problems.
Child Domain	Assesses child characteristics that may contribute to overall stress.
Distractibility/Hyperactivity (DI)	Assesses behavioral characteristics of the child that reflect symptoms of attention-deficit/hyperactivity disorder.
Adaptability (AD)	Assesses the child's ability to adjust to change in the social or physical environment.
Reinforces Parent (RE)	Assesses the parent's experience of interactions with his or her child as positively reinforcing.
Demandingness (DE)	Assesses the parent's experience of the child as placing demands on him or her.
Mood (MO)	Assesses the child's affective status.
Acceptability (AC)	Assesses the extent to which child characteristics meet expectations of the parent.
Parent Domain	Assesses parent characteristics that may contribute to overall stress.
Competence (CO)	Assesses the extent to which the parent feels comfortable and capable in the parenting role.

Table 5 (cont'd)

Isolation (IS)	Assesses the parents' degree of social support.
Attachment (AT)	Assesses the parent's sense of closeness with the child and their ability to observe and effectively respond to the child's needs.
Health (HE)	Assesses the extent to which the parent's health contributes to overall parenting stress.
Role Restriction (RO)	Assesses the parents' sense of limited freedom and constrained personal identity as a result of the parenting role.
Depression (DP)	Assesses the parent's affective status.
Spouse/Parenting Partner Relationship (SP)	Assesses the parent's perception of emotional and physical support from the parenting partner.

Perceived Stress Scale (PSS). The 10-item Perceived Stress Scale (PSS; Cohen et al., 1983; see Appendix B) was used as a corroborating measure of adult stress external to the parent-child relationship. The PSS is a 10-item measure of an adult's perceived stress and is administered as part of the Be Mindful program. Parent participants were asked to think about the past month and answer questions such as "How often have you felt that you were unable to control the important things in your life?" on a five-point Likert-type scale, with possible responses ranging from 0 ("Never") to 4 ("Very Often"). Four items are reverse scored. The sum of the 10 items yields a total score, with a possible range from zero to 40, with higher scores indicating higher levels of perceived stress. Scores between zero and 13 indicate low stress,

scores between 14 and 26 indicate moderate stress, and scores between 27 and 40 indicate high stress.

The 10-item version of the PSS has been found to have better psychometric properties (Cronbach's α and test-retest reliability >.70) than the 4-item or 14-item versions across twelve studies reviewed (Lee, 2012) and was thus chosen for this study. The range for Cronbach's α was .78 to .91 and the range for test-retest reliability in a two-week period was .72 to .88 (Lee, 2012). Taylor (2015) conducted a confirmatory factor analysis of the 10-item PSS and found support for the hypothesized two-factor structure that comprises perceived helplessness and perceived self-efficacy. Existing studies (e.g., Allexandre et al., 2016; Krusche et al., 2013; Morledge et al., 2013; Querstret et al., 2018) use the overall score of the PSS as an outcome measure, rather than using the subscale scores. Thus, this study used the total score to be consistent with how the measure has been used in previous studies, and the MBSR program addresses stress holistically, so using the total score aligns with the purview of the program.

Acceptability

Embedded Satisfaction Measure. Parent acceptability of the Be Mindful Online MBSR intervention was measured at the end of each module using the built-in satisfaction question of "Please rate how helpful you've found week X of the course" on a five-point scale from "Very Unhelpful" to "Very Helpful." The Be Mindful researcher dashboard did not allow the researcher to see which modules participants rated which ratings, only how many modules they rated each level of helpfulness.

Client Satisfaction Questionnaire. Additionally, at the end of the course, parent participants completed the Client Satisfaction Questionnaire adapted to Internet-based interventions (CSQ-I; Boß et al., 2016). The CSQ-I is an eight-item scale that measures global

satisfaction with an internet-based intervention. Parent participants rated each item from 1 ("Disagree") to 4 ("Agree"). Sample items include "The training helped me deal with my problems more effectively," and "I would recommend this training to a friend, if he or she were in need of similar help." For this study, "the training" was replaced with "Be Mindful" for clarity.

One of the two samples on which this adaptation of the CSQ was validated was an internet-based stress management course, similar to the course that was used in this study. Internal consistency reliability of this one-factor scale was high, ranging from .93 to .95, using McDonald's omega (Boß et al., 2016). Adequate construct validity was established via significant correlations between the CSQ-I and reduction in perceived stress in the validation sample. The adaptation and validation of the measure was done in Germany and in the German language, so minor, non-substantive changes to the given English translation were made for the current study. The version of the measure used for this study can be found in Appendix C. Previous research indicated that the 8-item CSQ showed better psychometric properties than the 18-item version (Attkisson & Zwick, 1982), so it was appropriate that the CSQ-I was adapted from the 8-item version. Satisfaction with Be Mindful was indicated by a mean score of at least 3 across the questions. A score of "3" indicates some agreement with a statement, and statements are all worded positively. A mean score of at least 3 across all items indicates that participants found the intervention to be overall at least somewhat acceptable.

Open-Ended Questions. Finally, parent participants were asked to complete open-ended questions about their experience with Be Mindful to more fully capture parents' feelings about the treatment. Questions about the MBSR program included: "What was most helpful about Be Mindful?", "What would have made Be Mindful better?", "What was difficult in participating in

this intervention?", and "How did this intervention compare to other treatment that you've received for yourself/your child in the past?" Finally, the participants were asked to "Please share any other comments that you have about your experience participating in Be Mindful."

Parent Engagement

Parent engagement in the MBSR intervention was measured by a weekly Qualtrics survey across the active intervention phase. The engagement questions were modeled from questions included in the Be Mindful usage questionnaire since this usage data was not available to researchers through the Be Mindful program's management portal. Each week, parent participants were asked, "During week X, how often have you practiced X strategy?" All activities in the module were listed and parents answered this question about each activity. Responses include, "*Every day, 4-5 days, 2-3 days, 1 day, Not at all*." Engagement was also measured by viewing the back-end usage data for each parent participant from the Management Portal, including length of time between starting and finishing the program. At the follow-up time point, parents filled out a similar survey asking them to rate how often they had practiced mindfulness activities in the past week to gauge a typical week one month after completing the program.

Child Behavior

Eyberg Child Behavior Inventory. Changes in child behavior were measured using the Eyberg Child Behavior Inventory (ECBI; Eyberg & Pincus, 1999), a 36-item parent report instrument used to assess common child behavior problems that occur with high frequency among children with disruptive behavior disorders. The ECBI includes both an intensity scale (indicating how frequently each problem behavior occurs) and a problem scale (indicating whether or not parents find the behavior to be troublesome). The ECBI is sensitive to changes

with treatment and is commonly used to monitor weekly progress in BPT interventions such as PCIT (Eyberg, 1988). For the ECBI, it is expected that with successful treatment, behavior ratings should decrease in severity over the course of treatment. Scores range from 36 to 252 for the Intensity Scale and 0 to 36 for the Problem Scale. Scores of 131 or greater (*T-score* ≥ 60) on the ECBI Intensity scale are considered to be clinically significant as derived by the authors of the measure (Eyberg & Pincus, 1999) based on the frequency distribution of scores in the norming sample ($N = 789$), and raw scores between 115 and 130 indicate that children are in the "at-risk" range for behavior problems.

The ECBI has been shown to be sensitive to treatment effects (Schumann et al., 1998), and it has well-established psychometric properties, including internal consistency reliability coefficients between .88 and .95, inter-rater reliability coefficients between .79 and .86, and test-retest reliability coefficients between .86 and .88 (Eyberg & Pincus, 1999). Moreover, the ECBI Intensity Scale and Problem Scale both have high internal consistency ($\alpha > .90$; Colvin, et al., 1999). Convergent validity of the ECBI Intensity Scale has been established with other measures of childhood behavior concerns, including the Child Behavior Checklist (CBCL; $r = .75$; Boggs et al., 1990) and the Strengths and Difficulties Questionnaire (SDQ; $r = .068$; Axberg et al., 2008; Butler, 2011).

Research Design

The study was conducted as a type 1 hybrid effectiveness-implementation study (Curran et al., 2012) using a pretest, posttest design with follow-up. An effectiveness study seeks to examine whether an intervention shows utility in the real world under less controlled conditions and less strict inclusion/exclusion criteria than an efficacy study. To determine whether potentially influential background characteristics could be impacting results, post-hoc tests were

conducted. While some internal validity may be sacrificed due to less highly-controlled conditions, effectiveness studies tend to demonstrate higher levels of external validity than efficacy studies (Singal et al., 2014). Moreover, using a design that enables all participants to access the active intervention was considered beneficial for purposes of recruitment and feasibility within a dissertation timeline. A waitlist-control design was considered but it was determined that the time and human-power needed to screen the sample would have been inhibitory to this dissertation timeline if an entire group of participants needed to start at the same time. Finally, studying feasibility, acceptability, and barrier factors within effectiveness studies can help to couch the results in richer context (Singal et al., 2014) and are considered essential components in an effectiveness-implementation hybrid design, especially because effectiveness studies are highly concerned with external validity (Curran et al., 2012).

Independent Variables

The independent variable in the repeated measures ANOVA models was time.

Dependent Variables

Dependent variables included in the statistical models were parent stress as a primary outcome (measured by the PSI-4 and the PSS) and child behavior problems (measured by the ECBI Intensity scale) as a secondary, exploratory outcome. Other outcome variables not included in the statistical models were engagement in the MBSR intervention and with mindfulness techniques for parents and acceptability of the MBSR intervention for parents.

Procedures

This study was approved by the Michigan State University Institutional Review Board's Human Research Protection Program.

Recruitment

The first phase of recruitment occurred in the context of an initial study design that sought to compare reductions in parent stress between parents participating in Parent-Child Interaction Therapy (PCIT) as usual with PCIT + Be Mindful at partner behavioral health clinics. However, due to constraints of the pandemic requiring some partner centers to be unable to recruit and inclusion criteria that were too stringent given the limited number of clinics and new PCIT families for the dissertation timeline, only one participant joined the study in 3 months of recruitment. Thus, the methodology was changed to the present design, eliminating the PCIT component and loosening inclusion criteria. The one parent recruited through the original method remained a participant in the final study because they met all inclusion criteria and parents could be concurrently participating in other treatment modalities.

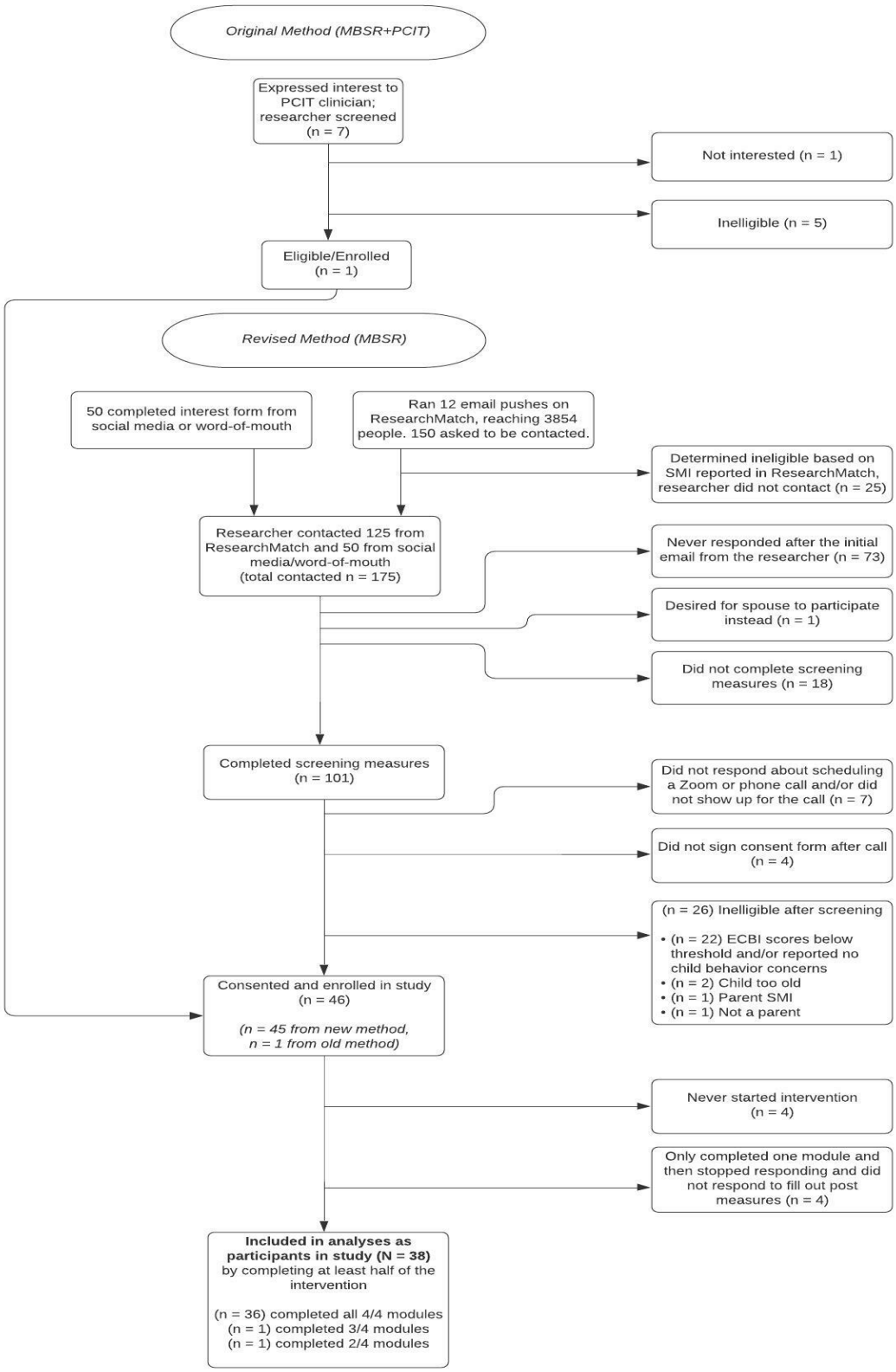
For the present study, parents were recruited through a flyer via social media advertising (Facebook and Instagram), word-of-mouth, and the ResearchMatch online service. On its website, ResearchMatch describes itself as a "national health volunteer registry that was created by several academic institutions and supported by the U.S. National Institutes of Health as part of the Clinical Translational Science Award (CTSA) program. ResearchMatch has a large population of volunteers who have consented to be contacted by researchers about health studies for which they may be eligible" (Research Match, 2021, FAQ Section). Parents recruited outside of ResearchMatch, such as via social media or word-of-mouth, could express interest in the study through email or using a Qualtrics form if interested. The response rate from ResearchMatch was relatively strong based on anecdotal information from other researchers, especially given the limited information that the researcher can see about the individuals. For example, the researcher can only see if people are parents if the volunteer chose to show that designation on their profile

and even so, the site does not show the age of the person's child. The researcher had to suspend recruitment with ResearchMatch because there continued to be interest after the study was full. To ensure that participants fully understood the study's requirements and the informed consent process and to guard against bots or scammers, the researcher conducted Zoom or phone calls with parents between screening as eligible and signing the consent form.

Altogether, 46 parents consented to participate in the study but four subsequently failed to start the intervention and did not respond to communication from the researcher, and another four completed the first module and then failed to complete further modules or respond to the researcher's request to complete post-test data at the end of 10 weeks. Therefore, these individuals did not provide information about why they dropped out, but it is possible that they were no longer interested in participating, did not like the program once they started it, felt overwhelmed, or were too busy with other life responsibilities. On average, these individuals' pre-treatment scores were similar to those of the full participants. Specifically, for the pre-treatment PSI-4 Total T-score, $m = 63.95$ for full participants and $m = 64.29$ for dropouts. For the pre-treatment PSS Raw score, $m = 24.13$ for full participants and $m = 23.43$ for dropouts. For the pre-treatment ECBI Intensity T-score, $m = 65.95$ for full participants and $m = 66.14$ for dropouts, and for the ECBI Problem T-score, $m = 69.00$ for full participants and $m = 70.29$ for dropouts.

Thus, 38 parents were considered full participants in the study because they completed at least half of the intervention. Of these individuals, 36 completed all four modules, one completed three out of four modules, and one completed two out of four modules. All 38 parent participants filled out every survey at each of the three time points. See Figure 2 below for a flow chart outlining the full recruitment process.

Figure 2. Recruitment Flowchart



Incentives

Financial incentives were provided for parent participants to encourage participation in the study and to guard against attrition. Parents accrued incentive money incrementally as they completed stages of data collection with the promise of receiving all funds following the follow-up data collection point to keep them motivated throughout the course of the study. Families were informed that if they dropped out of the study but completed some data collection points, they could receive their incentives one month following the follow-up time point. Study completers received their earned incentives immediately following the follow-up data collection point. Incentives were distributed via email using electronic Amazon gift cards codes. Parents were eligible to earn $40 for the baseline data collection phase, $40 for the post-treatment data collection phase, and $40 for the follow-up data collection phase for a total of $120. They were reminded throughout the study of how much they had accrued so far via email.

Interventions

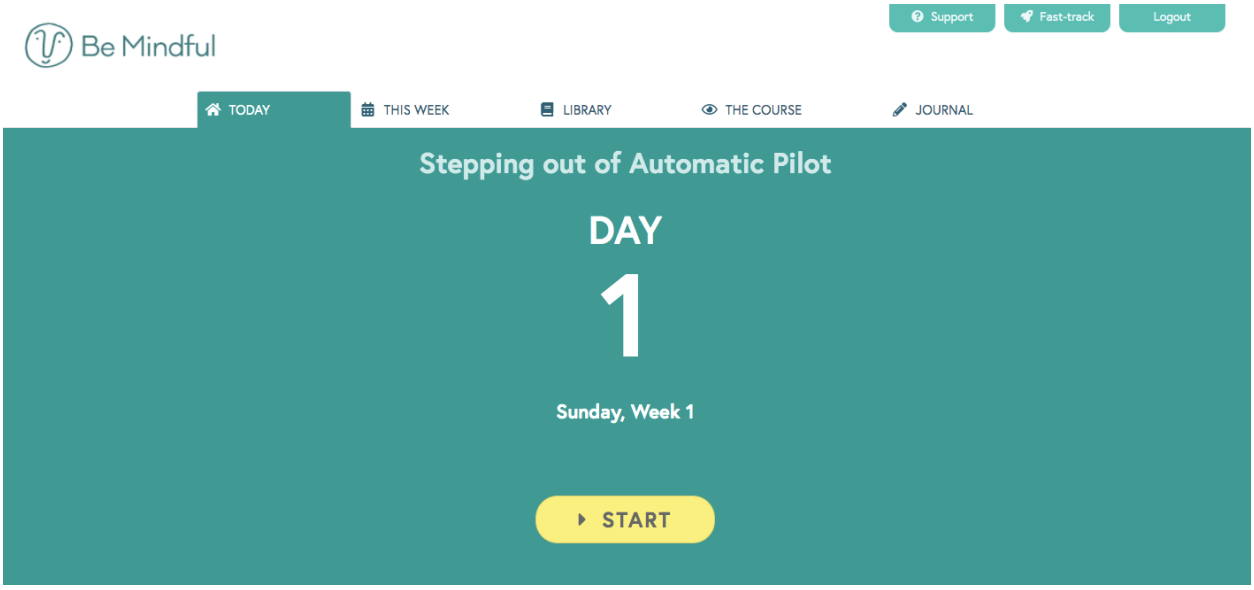
Be Mindful Online. Parents in the study participated in the online Be Mindful MBSR course. For the general public, Be Mindful costs £30 (approximately $40), but it was provided free of charge to all parent participants. Wellmind Media, the United Kingdom-based owner of the program, provided access to the program for the purposes of this study. As discussed in the literature review, this course is designed to be completed in four weeks, but parent participants had up to ten weeks to complete it. Notably, six weeks was the average time-to-completion found by Querstret et al. (2018) in their study using this intervention in a general, adult sample. Krusche and colleagues (2013) found that longer time-to-completion for Be Mindful Online predicted less frequent practice of skills and lesser changes in stress. However, time-to-completion did not appear to impact outcomes in Querstret and colleagues' 2018 study, and all

parent participants completed the program within 12 weeks. In the present dissertation study, participants took between four and ten weeks to complete participation in Be Mindful (M = 6.25, SD = 1.88).

The Be Mindful program sent bi-weekly, automated emails to parent participants to help them review content and to remind them to continue to use the course. The course was accessible on any web-enabled device, including desktop computers, laptops, tablets, and smartphones. After the completion of the course, parent participants retained access to their "library" of written content, videos, activities, and journal. See Table 1 for an overview of the Be Mindful course modules and their content. See Figure 3 for an example of the user interface for the program. The first module (i.e., "Getting Started") and last module (i.e., "Going Forward") are designed to be completed during the same week as Week 1 and Week 4, respectively.

Notably, Be Mindful was specifically chosen for this study because it is relatively brief, comprising only four weeks of content. In the decision-making process, it was important to choose an intervention that would minimize risk of adding on too many extra demands to parents. First, the intervention is online and self-mediated, which enhances accessibility and reduces the demand of having to attend scheduled sessions. Additionally, many online, self-mediated MBSR programs have a greater time commitment, with many lasting for 8 weeks (Spijkerman et al., 2016) and some up to 12 weeks (e.g., Wolever et al., 2012). In its published studies, Be Mindful was able to achieve robust effect sizes for stress reduction in the general adult population that were comparable to programs comprising more weeks of treatment.

Figure 3. Be Mindful Online User Interface



Data Collection Procedures

See Table 6 for an assessment schedule summarizing which measures were administered, when they were administered, and who completed the measures. See Figure 4 for a visual overview of timelines for individual participants. Data collection occurred from February 2021 through November 2021.

Screening Measures. Screening measures for parent participants included the demographic questionnaire (see Appendix A), the PSI-4, and the ECBI.

Pre-Treatment. Parent participants who qualified for the study then completed baseline data collection which, in addition to the screening measures they already completed, included the child behavior screening measure(s) (i.e., the CBCL and the SCQ, if needed). The PSS was also included as part of the Be Mindful Online program. All measures were completed online, either through Qualtrics or directly on the publishers' online platforms when applicable (see details in Table 6).

Post-Treatment. At the completion of Be Mindful (minimally 4 weeks after starting Be Mindful), parent participants completed stress measures (i.e., PSI-4 and PSS) and the child behavior measure (ECBI) again. They also completed the CSQ-I and short open-ended feedback questions online. At 10 weeks, parents (n = 2) who had not yet completed Be Mindful were still asked to complete the post-treatment measures, and they successfully did so.

Ongoing. Parent participants completed weekly self-reports of usage of the techniques and practices from Be Mindful via Qualtrics (i.e., "During week X, how often have you been practicing your chosen practice? *Every day, 4-5 days, 2-3 days, 1 day, Not at all*").

Follow-Up. One month after completing Be Mindful and filling out Post-Treatment data, parent participants were asked to complete the stress measures (i.e., PSI-4 and PSS) and the ECBI for one final time. They were also asked to complete a brief survey asking about their mindfulness strategy use in the past week to gauge a typical week one month after completing the program. Treatment non-completers (n = 2) were also asked to complete follow-up measures and successfully did so.

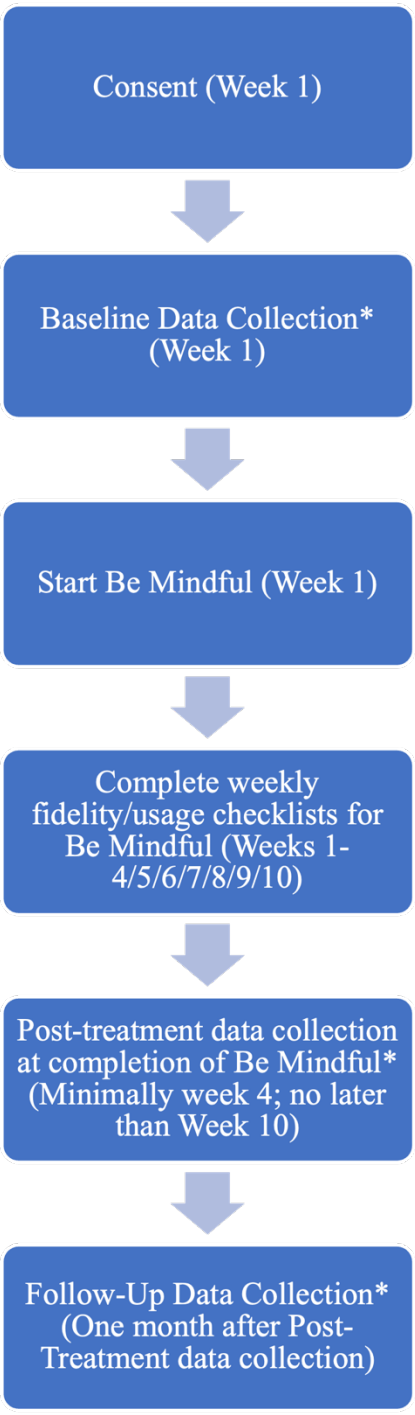
Table 6. Assessment Schedule

Measure (what it measures)	**When administered**	**Mode of administration**
Demographic Questionnaire (background information about parent and child)	Screening	Qualtrics
PSI-4 (Parenting stress)	Screening/Pre-treatment, Post-treatment, Follow-up	PAR iConnect

Table 6 (cont'd)

PSS (General adult stress)	Pre-treatment, Post-treatment, Follow-up	Built into Be Mindful (pre-, and post- treatment); Qualtrics (follow-up)
CBCL (characterizes sample; corroborates child diagnosis if applicable)	Pre-treatment	ASEBA-Web
SCQ (if needed, corroborates ASD diagnosis)	Pre-treatment	WPS Online Evaluation System
ECBI (Parent rating of child behavior problems)	Screening/Pre-treatment, Post-treatment, Follow-up	PAR iConnect
CSQ-I (Acceptability of Be Mindful) + open-ended feedback questions	Post-treatment	Qualtrics
Self-report of MBSR strategy usage	Weekly during Be Mindful; Follow-up	Qualtrics
Built-in MBSR acceptability	Weekly during Be Mindful	Built into Be Mindful

Figure 4. Timeline for Each Parent Participant



Note. (* = opportunity to accrue incentive money)

Handling of Missing Data

Participants accrued financial incentives incrementally throughout the course of participation in the study and were informed that about the money they were earning. To incentivize parents to complete all phases of data collection, including follow-up, they received their incentive money only after completing follow-up data collection. Families were informed that if they dropped out of the study but completed some data collection points, they could receive their earned incentives one month after the follow-up time point. Study completers received their earned incentives immediately after completing the follow-up data collection point. The researcher made a strong effort to contact families about completing measures. Moreover, the assessment burden was reduced as much as possible, for example by using built-in measures in Be Mindful Online when available and possible, using each measure only when necessary, and by providing online versions of all forms and rating scales. No missing data occurred for primary stress or child behavior outcome measures as all included participants (completers and non-completers) responded during all data collection stages.

There was a greater risk of missing data for weekly MBSR strategy usage reports than for the main outcome measure measurement points because of the greater frequency of these measurements. Number of weeks reported by participants is listed in the Results section. Because these analyses about usage were only descriptive, missing data from these measures did not preclude a participant from being included in other analyses. Rather, these missing data are simply noted as a limitation. Potentially-biased estimates due to missing data were of lesser concern here because the question is exploratory, and the statistical tests were not inferential.

Data Analysis

Analyses were conducted in SPSS (Version 28).

Primary Research Questions

Research Question 1. Do parents who participate in the online MBSR intervention demonstrate significant reductions in stress immediately following the MBSR program as measured by the Total Score of the Parenting Stress Index, Fourth Edition (PSI-4) and the Perceived Stress Scale, 10-item version (PSS) and will stress reduction effects be maintained at one-month follow-up after the completion of the MBSR intervention?

Analyses for RQ1. Broadly, an analysis of variance approach was planned for research questions involving changes in mean scores over time because this is the approach typically used in individual-level psychological intervention research, including Be Mindful (e.g., Krusche et al., 2013; Querstret et al., 2017; Querstret et al., 2018). A series of two, one-way, within-subjects repeated measures ANOVA models were proposed to address the primary research questions relating to change in mean parent stress over time using the PSI-4 Total Stress Score and the PSS. A Bonferroni adjustment was used to minimize the chance of Type 1 error for the planned series of two ANOVA models ($0.5 \div 2 = 0.025$). The series of ANOVA models was chosen to cleanly analyze the effects of time in the intervention using two different but likely highly related outcome measures of stress. Using a series of ANOVA models also allowed for the use of a feasible sample size, based on the given time constraints in a dissertation study. Moreover, one of the goals of this study was to not only determine whether there are statistically significant group differences, but also to estimate the magnitude, using the effect sizes partial eta squared (Cohen, 1973) and Cohen's *d* (Cohen, 1988) for differences.

While the sample size did not allow for enough statistical power to add covariates to the ANOVA models, two exploratory multiple linear regression models were run to examine the influence of potentially influential background variables based on previous studies about parent

stress on the post-intervention PSI-4 Total Scores and the PSS scores to help enrich understanding of findings. For each model, the pre-treatment scores were controlled for, and the other included predictor variables were parental level of education, household income, presence of current parent mental health diagnosis, number of children, parent age, PSI-4 pre-treatment Life Stress T-score, pre-treatment child behavior problems (ECBI Intensity), whether the parent was currently receiving mental health treatment, and whether they reported previous exposure to mindfulness training. Race and ethnicity were not included in the models because there was too little variability in the sample. Child diagnosis was also not included because continuous child behavior scores were considered to be more appropriate and salient in this supplemental analysis than categorical diagnoses. Additionally, all diagnoses were parent-reported and not clinician-confirmed, and all children had behavior problems at or above the at-risk range. Moreover, the subgroups were too small to make meaningful comparisons between diagnostic categories, and there was also considerable overlap. Finally, there were no corroborating measures of child diagnosis beyond parent report and there was no further information on how diagnoses were obtained.

Supplemental Exploratory Analyses. To examine how parents' stress profiles changed across time during and after the MBSR intervention, line graphs of mean stress scores in the Child Domain, Parent Domain, and the Total Score of the PSI-4 at the three phases of data collection (pre, post and follow-up) were created and examined.

Additionally, growth scores were calculated to measure change in PSI-4 Total Stress Scores between pre-treatment and post treatment and between pre-treatment and follow-up to determine the percentage of participants who showed decreases versus those who maintained or whose stress increased.

Research Question 2. Is the MBSR program acceptable to parents, based on the Client Satisfaction Questionnaire adapted to Internet-based interventions (CSQ-I; Boß et al., 2016) scores, Be Mindful satisfaction questions, and open-ended feedback questions?

Research Question 3. How compliant are parents with the MBSR program, as measured by their report of practicing the MBSR techniques outside of the lessons (3a), and do parents maintain the same level of practice one month after completing the MBSR program (3b)?

Analyses for RQ2 and RQ3. These questions were analyzed by examining descriptive statistics/measures of central tendency for quantitative measures and via thematic analysis (Braun & Clarke, 2006) for open-ended feedback questions. Braun and Clarke's technique includes five steps: 1) familiarization with the data, 2) generating initial codes by systematically noting interesting features across the data, 3) discovering themes by assembling codes into groups of potential themes and assembling information relevant to the theme, 4) reviewing themes to see if they align among the codes and within the dataset as a whole, 5) refining, defining, and naming themes, and 6) reporting on the process and findings.

Derived themes were corroborated by an independent researcher (a school psychology doctoral student) through the calculation of simple inter-rater reliability (IRR), specifically percentage of agreement. This involved dividing the number of themes on which the two researchers matched by the total number of themes. Maintenance of strategy use in RQ4 was also examined by looking at the difference between average use of MBSR practices during and after the active MBSR portion of treatment.

Secondary Research Question

Research Question 4. Do children of parents who participate in the online MBSR intervention demonstrate significantly decreased behavior problems as measured by the ECBI

Intensity scale and significantly decreased parental perception of how problematic the behaviors are as measured by the ECBI Problem scale from pre- to post-treatment, and are effects maintained at one-month follow-up?

Analysis for RQ4. This question was analyzed using a series of two, one-way, within-subjects, repeated measures ANOVA models. While the sample size did not allow for enough statistical power to add covariates to the ANOVA model, two exploratory multiple linear regression models were run to examine the influence of potentially influential background variables on the post-intervention ECBI Intensity and Problem scores to help enrich the interpretation of findings. For each regression model, the pre-treatment scores were controlled for, and the other included predictor variables were parent education, household income, presence of current parent mental health treatment, pre-treatment parent stress (PSI-4 Total Score), and whether they reported previous exposure to mindfulness training. Race and ethnicity were not included in the models because there was too little variability in the sample. Child diagnosis was also not included because child behavior scores were considered to be more salient in this supplemental analysis and all children had behavior problems at or above the at-risk range. Moreover, the subgroups were too small to make meaningful comparisons between diagnostic categories, and there was also considerable overlap. Finally, there were no corroborating measures of child diagnosis beyond parent report and there was no further information on how diagnoses were obtained.

RESULTS

Preliminary Analyses

Background characteristics were first examined for normality and for relationships with outcome variables. Data were examined via histogram and skewness and kurtosis values to assess for normality of distribution, outliers, and significant correlations between potentially influential background characteristics based on previous literature to determine whether these variables should be further examined to see if they could be affecting results. A broad rule of thumb states that skewness and kurtosis values between -2 and +2 are indicative of relatively normal distribution (George & Mallery, 2010). Two background characteristics – parent age and number of children – appeared to be both leptokurtic and to have two outlier cases. Outliers included one 63-year-old participant who was a grandparent (primary caregiver of the child) and another participant who had 9 children. The main analyses were re-run with these cases filtered out to determine whether they could be appropriately included, and results did not change when they were removed. Thus, to maximize power, these participants remained in the analyses.

Primary Research Questions

Research Question 1

Did parents who participated in the online MBSR intervention demonstrate significant reductions in stress immediately following the MBSR program as measured by the Total Score of the Parenting Stress Index, Fourth Edition (PSI-4) and the Perceived Stress Scale, 10-item version (PSS) and did stress reduction effects maintain at one-month follow-up after the completion of the MBSR intervention?

Outcome variables were examined via histogram and skewness and kurtosis values to assess for normality of distribution and outliers. For this research question, in which the

dependent variables were the PSI-4 Total Score and the PSS outcome variables at the three time points, skewness and kurtosis values were within the acceptable range to indicate normally-distributed observations.

A series of two, one-way, within-subjects, repeated measures analysis of variance (ANOVA) models were conducted to compare parent stress scores at Time 1 (prior to the intervention), Time 2 (immediately following the intervention), and Time 3 (one month follow-up) for the PSI-4 Total Score and the PSS outcome variables. The means and standard deviations for both models are presented in Table 7. A Bonferroni adjustment was used to minimize the chance of type 1 error for the planned series of two analysis of variance models ($0.5 \div 2 = 0.025$). Assumptions for repeated measures ANOVA include independent observations, normally distributed scores for dependent variables, and sphericity. Assumptions were met for independent observations and normal distribution. For both PSI-4 Total T-scores (Mauchly's test $p = .012$) and PSS scores (Mauchly's test $p = .014$), the sphericity assumptions were violated, so the Greenhouse-Geisser corrected results were used.

A repeated measures ANOVA with a Greenhouse-Geisser correction showed that mean PSI-4 Total T-scores differed significantly between time points [$F(1.64, 60.80)= 20.76$, $p < 0.001$]. Partial eta squared omnibus effect size was large at .36 (Cohen, 1973). Post hoc tests using the Bonferroni correction revealed that parent-reported stress levels based on PSI-4 Total T-scores decreased by an average of 4.16 points immediately following completion of Be Mindful ($p < .001$; $d = .49$) indicating a medium effect size (Cohen, 1988) and then further decreased by 1.42 points at one month follow-up ($p = .119$; $d = .17$) indicating a small effect size (Cohen, 1988). Average decrease from pre-treatment to follow-up was statistically significant, with an average decrease of 5.58 points ($p < .001$; $d = .68$) indicating a medium to large effect

size (Cohen, 1988). Changes across time were also clinically meaningful: pre-treatment mean PSI-4 Total T-scores were clinically significant and decreased to the upper end of the normal range for both post-treatment and follow-up time points. Scores between the 16th and 84th percentiles are considered normal, scores between the 85th and 89th percentile are considered high, and scores at or above the 90th percentile are considered clinically significant (Abidin, 2012). See Table 7 for mean T-scores and percentiles.

A repeated measures ANOVA with a Greenhouse-Geisser correction showed that mean PSS raw scores differed significantly between time points [$F(1.65, 61.05)= 26.49$, $p < 0.001$]. Omnibus partial eta squared effect size was large at .42 (Cohen, 1973). Post hoc tests using the Bonferroni correction revealed that parent-reported perceived stress based on PSS scores decreased by an average of 6.47 points immediately after completing Be Mindful ($p < .0001$; $d = 1.01$) indicating a large effect size (Cohen, 1988) but then increased by an average of .13 points from post-treatment to one month follow up (not statistically significant; $p = 1.00$; $d = .02$). Average decrease from pre-treatment to follow-up was statistically significant, with an average decrease of 6.34 points ($p < .0001$; $d = 1.04$) indicating a large effect size (Cohen, 1988). Clinical significance was not as apparent on the PSS given that at all three time points, scores remained in the moderate stress range. The PSS is not norm-referenced, so neither T-scores nor percentile rankings are available. On the PSS, scores between zero and 13 indicate low stress, scores between 14 and 26 indicate moderate stress, and scores between 27 and 40 indicate high stress (Cohen et al., 1983).

Post-hoc statistical power analyses using G*Power 3.1 (Faul et al., 2008) were conducted to determine the achieved power for the primary research questions related to change in PSI-4 and PSS scores over time, and power above 90% was achieved for both.

Table 7. Descriptive Statistics for Parent Stress Scores for Time 1, Time 2, and Time 3

Time Point	*M*	*SD*	*Percentile*
	PSI-4 Total T-score		
Time 1 (Pre-treatment)	63.95	8.57	91.85
Time 2 (Post-treatment)	59.79	8.38	83.62
Time 3 (1-month follow-up)	58.37	7.95	79.87
	PSS Raw Score		
Time 1 (Pre-treatment)	24.13	6.15	--
Time 2 (Post-treatment)	17.66	6.61	--
Time 3 (1-month follow-up)	17.79	6.03	--

Notes. PSI-4 = Parenting Stress Index, Fourth Edition (Abidin, 2012). PSS = Perceived Stress Scale, 10-item version (Cohen et al., 1983). N = 38 across all time points and both measures.

Supplemental Exploratory Analyses. While the sample size did not allow for enough statistical power to add covariates to the ANOVA model, two exploratory multiple linear regression models were run to examine the influence of background variables based on previous studies about parent stress on the post-intervention PSI-4 Total Scores and PSS scores to help enrich understanding of findings. For each model, the pre-treatment scores were controlled for, and the other included predictor variables were parental level of education, household income, presence of current parent mental health diagnosis, number of children, parent age, PSI-4 pre-treatment Life Stress T-score, pre-treatment child behavior problems (ECBI Intensity), whether parent was currently receiving mental health treatment, and whether they had had previous exposure to mindfulness training.

For the model with the outcome variable of the post-treatment PSI-4 Total Stress Score, the model as a whole significantly predicted the outcome, $F(8, 28) = 7.69$, $p < .001$, $R^2 = .69$. The only significant predictor variable was the pre-treatment PSI-4 Total Score ($p < .001$, $B = .85$). Parent age ($p = .07$) and number of children ($p = .08$) came the closest to significance of the other potential predictors.

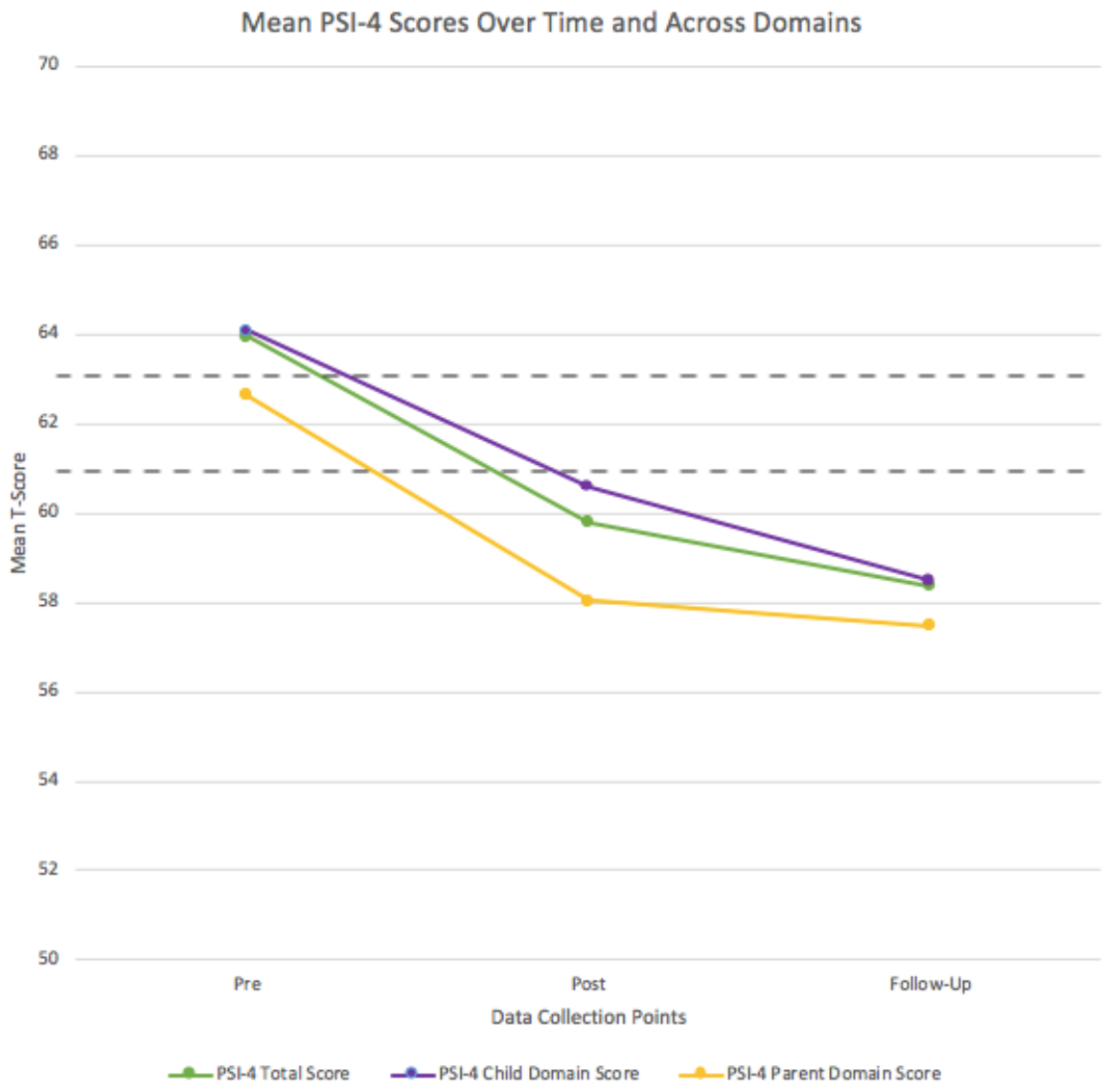
For the model with the outcome variable of the post-treatment PSS score, the model as a whole did not significantly predict the outcome, $F(8, 28) = 1.78$, $p = .125$, $R^2 = .337$. The only significant predictor variable was the pre-treatment PSS score ($p = .04$, $B = .43$). No other variables approached significance.

Additionally, growth scores were calculated to measure change in PSI-4 Total Stress Scores between pre-treatment and post treatment and between pre-treatment and follow-up to determine the percentage of participants who showed decreases versus those who maintained or whose stress increased. From pre-treatment to post-treatment, 71% ($n = 27$) of participants demonstrated decreased stress scores, while 28.9% ($n = 11$) demonstrated increased stress scores. From pre-treatment to follow-up, 78.9% ($n = 30$) demonstrated decreased stress scores, 5.3% ($n = 2$) demonstrated no change, and 15.8% ($n = 6$) demonstrated increased stress scores.

Finally, to examine whether there were similar patterns across PSI-4 domains and to better understand changes in parent stress, visual analysis was conducted using the line graph (Figure 5) of mean PSI-4 stress scores in the Child Domain, Parent Domain, and the Total Score at the three phases of data collection (pre-intervention, post-intervention and one-month follow-up). This graph demonstrates how parents' stress profiles changed across time during and after the MBSR intervention. The steepest slope exists for the Parent Domain and the flattest slope is present for the Child Domain. Of note, all three domains demonstrated average decreases

into to the upper end of the normal range from either the clinically significant or at-risk range (the Total and Child domains started in the clinically significant range and the Parent domain started in the at-risk range).

Figure 5. Mean PSI-4 Scores Over Time and Across Domains



Notes. Upper dashed line indicates threshold for "clinically significant" stress. Lower dashed line indicates threshold for "high" stress. Below lower dashed line indicates "normal" stress.

Research Question 2

Was the MBSR program acceptable to parents, based on the Client Satisfaction Questionnaire adapted to Internet-based interventions (CSQ-I; Boß et al., 2016) scores, Be Mindful satisfaction questions, and open-ended feedback questions?

Descriptive statistics from the CSQ-I demonstrated that participants overall found the Be Mindful intervention to be acceptable (Range = 1.43 – 4, *M* = 3.32, *SD* = .69) as a score of 3 indicates "somewhat agree" and because all modal scores were either 3 (somewhat agree) or 4 (strongly agree). Minimum possible scores are 1 and maximum possible scores are 4. Scores at the bottom of the range for both overall average satisfaction and for individual items included just one to two outlier cases each, as examined through box plots. Note that because Item 3 was accidentally omitted from the Qualtrics survey, participants did not answer Item 3. Minimum, maximum, mean, and modal scores for each item of the CSQ-I can be found in Table 8.

Table 8. Descriptive Statistics for CSQ-I Items

Item	*N*	*Min.*	*Max.*	*M*	*SD*	*Mode*
Item 1: The Be Mindful program was of high quality.	38	2	4	3.58	0.55	4
Item 2: I received the kind of help I wanted.	38	1	4	3.21	0.78	3
Item 3: Be Mindful has met my needs.	Missing due to Qualtrics entry error					
Item 4: I would recommend Be Mindful to a friend, if he or she were in need of similar help.	38	1	4	3.32	0.84	4
Item 5: I am satisfied with the amount of help I received through Be Mindful.	38	1	4	3.29	0.84	4
Item 6: Be Mindful helped me deal with my problems more effectively.	37	1	4	3.16	0.83	3

Table 8 (cont'd)

Item 7: In an overall, general sense, I am satisfied with Be Mindful.	38	1	4	3.39	0.76	4
Item 8: I would come back to such a program if I were to seek help again.	38	1	4	3.26	0.89	4

Note. CSQ-I = Client Satisfaction Questionnaire adapted to Internet-based interventions (Boß et al., 2016). Item 3 "Be Mindful has met my needs" was accidentally excluded from the Qualtrics survey due to an entry error.

Descriptive statistics from the embedded Be Mindful satisfaction/helpfulness questions indicated that participants overall found the program to be at least moderately helpful (Range = 2.75 – 5, $M = 3.85$, $SD = .53$), as a score of 3 out of 5 indicates "Neutral" and a score of 4 out of 5 indicates "Helpful." The Be Mindful management dashboard did not allow the researcher to see which modules participants rated specific ratings, only how many modules they rated. The number of within-program module ratings submitted by participants ranged from 1 to 4 modules ($M = 3.39$, $SD = .95$). In total, 38 participants rated at least 1 module, 35 rated at least 2 modules, 32 rated at least 3 modules, and 24 rated all four modules.

Thematic analysis (Braun & Clarke, 2006; see procedure section for details) was used to identify themes for each of the four open-ended feedback questions. For all questions, some participants indicated more than one answer, so responses do not add up to 100%. Derived themes were corroborated by an independent researcher (a school psychology doctoral student) through the calculation of inter-rater reliability (IRR). These metrics indicated an overall average of 94.5% IRR across the four questions, with IRR equaling 94%, 97%, 93%, and 94% for each question, respectively.

For the question, “What was most helpful about Be Mindful?”, answered by 37 participants, response themes included learning new ways to deal with stressful situations (*n* = 9; 24%), the videos and explanations (*n* = 7; 19%), learning breathing techniques (*n* = 6; 16%), learning to slow down or pause (*n* = 6; 16%), the non-judgmental approach of the program (*n* = 5; 14%), the program’s self-paced format with email reminders (*n* = 5; 14%), increased self-compassion (*n* = 4; 11%), learning to incorporate mindfulness into daily life (*n* = 4; 11%), learning relaxation techniques other than breathing (*n* = 3; 8%), having meditation audio files available for download (*n* = 3; 8%), and having the ability to create diary entries (*n* = 2; 5%) emerged as themes.

For the question, “What would have made Be Mindful better?”, answered by 32 participants, nothing (*n* = 8; 25%), having different presenters who were less boring, awkward or monotone (*n* = 6; 19%), having shorter sessions (*n* = 4; 12.5%), having more information or lessons available (*n* = 3; 9%), having a mobile app or better user interface on mobile (*n* = 3; 9%), teaching skills specific to parenting (*n* = 3; 9%), having different sequencing of lessons (*n* = 2; 6%), and having more frequent automated reminders to practice (*n* = 2; 6%) emerged as themes. Other responses indicated by only one person each included having the option to turn music off in videos, desiring more information about quick mindfulness skills for daily life, more clarity on the time expectation at the beginning, diversity of presenters including people of color, acknowledgement of serious stressors, an in-person component, and being more audio based rather than video based.

For the question, “What was difficult in participating in Be Mindful?”, answered by all 38 participants, finding the time and/or space to do sessions and practices (*n* = 16; 42%), focusing during practices (*n* = 8; 21%), nothing (*n* = 6; 16%), inflexibility of the program

regarding required logins and sequencing (n = 3; 8%), the program requiring screen time (n = 3; 8%), remembering to do sessions and practices (n = 3; 8%), and finding it hard to apply the skills to daily life (n = 2; 5%) emerged as themes. Other responses indicated by only one person each included disliking the presenters and difficulty grasping skills and concepts.

Finally, for the prompt "Please share any other comments that you have about your experience participating in Be Mindful," answered by 20 participants, themes included generally enjoying the program and finding it helpful (n = 14; 70%) and planning to integrate mindfulness into their life and to continue using skills learned (n = 5; 25%). Two participants noted that they felt the study measures might not have been the most appropriate for their personal situations (i.e., having multiple children with behavior concerns and having variable levels of life stressors throughout the study period, respectively). Other responses shared by one participant each included noticing positive changes in their child's behavior after completing Be Mindful, feeling better able to handle their own stressors and emotions, feeling better equipped to handle their child's behavior, finding the time commitment of the program to be too great, reiterating a desire for an app version, and reiterating a desire for specifically child/parenting-focused information.

Research Question 3

How compliant were parents with the MBSR program, as measured by their report of practicing the MBSR techniques outside of the lessons (3a), and did parents maintain the same level of practice one month after completing the MBSR program (3b)?

Descriptive categories were converted to continuous variables. ("0 days" = 0; "1 day" = 1; "2 to 3 days" = 2; "4 to 5 days" = 3; "every day" = 4). Descriptive statistics from the weekly mindfulness strategy usage surveys indicated that on average, participants practiced in the 2 to 3 days per week range or slightly more (M = 2.16). The number of weeks in which participants

reported their practice ranged from one to nine weeks (M = 5.18, SD = 1.71). The most frequently practiced skills included Body Scan, Mindful Eating, Mindful Breathing, and Mindfulness During Routine Activity.

Follow-up practice ranged from zero to 4 – 5 days with an average of 1.58 days, indicating somewhere between 1 day and 2 to 3 days per week and was overall less frequent than during the active intervention phase on average.

Length of time to complete the MBSR program ranged between 4 and 10 weeks (M = 6.25, SD = 1.88).

Secondary Research Questions

Research Question 4

Did children of parents who participated in the online MBSR intervention demonstrate significantly decreased behavior problems as measured by the ECBI Intensity scale and significantly decreased parental perception of how problematic the behaviors are as measured by the ECBI Problem scale from pre- to post-treatment, and are effects maintained at one-month follow-up?

A series of two, one-way, within-subjects, repeated measures ANOVA models were conducted to compare child behavior scores at Time 1 (prior to the intervention), Time 2 (immediately following the intervention), and Time 3 (one-month follow-up) for the ECBI Intensity Score and ECBI Problem Score. The means and standard deviations for both models are presented in Table 9. Assumptions for repeated measures ANOVA include independent observations, normal distribution, and sphericity. Assumptions were met for independent observations, normal distribution, and sphericity for both models.

A repeated measures ANOVA showed that mean ECBI Intensity T-scores differed significantly between time points [$F(2, 74)= 11.933$, $p < .001$]. Omnibus partial eta squared effect size was large at .24 (Cohen, 1973). Post hoc tests revealed that ECBI Intensity scores reduced by an average of 5.71 points immediately after completing Be Mindful ($p = .003$; $d = .70$) indicating a medium to large effect size (Cohen, 1988) and then further decreased by an average of .53 points from post-treatment to one month follow up ($p = 1.0$; $d = .06$), indicating a very small, non-significant effect size (Cohen, 1988). Average decrease in parent rating of child behavior problems from pre-treatment to follow-up was statistically significant, with an average decrease of 6.24 points ($p < .001$; $d = .78$) indicating an effect size on the cusp of large (Cohen, 1988). Changes across time were also clinically meaningful: pre-treatment mean ECBI Intensity scores were in the clinically significant range and decreased to the low end of the clinically significant range at post-treatment and finally decreased further to the at-risk range just below threshold for clinically significant at follow-up. T-scores greater than or equal to 60 on the ECBI are considered to be clinically significant (Eyberg & Pincus, 1999). See Table 9 for mean scores.

A repeated measures ANOVA showed that mean ECBI Problem T-scores differed significantly between time points [$F(2, 74)= 21.47$, $p < .001$]. Omnibus partial eta squared effect size was large at .37 (Cohen, 1973). Post hoc tests using the Bonferroni correction revealed that parent perception of how bothersome they found their child's behavior decreased by an average of 4.87 points immediately after completing Be Mindful ($p < .001$; $d = .60$) indicating a medium effect size (Cohen, 1988) and then reduced by an additional 2.29 points at one month follow up ($p = .17$; $d = .25$) indicating a small effect size. Average decrease in parent perception of troublesomeness of child behavior from pre-treatment to follow-up was statistically significant, with an average decrease of 7.16 points ($p < .001$; $d = .85$) indicating a large effect size (Cohen,

1988). Clinical significance for changes across time for the ECBI Problem score were not as apparent as statistical significance, as all T-scores remained in the clinically significant range. However, scores at follow-up approached the threshold to drop below the clinically significant range into the at-risk range. See Table 9 for mean scores.

Table 9. Descriptive Statistics for Child Behavior Scores for Time 1, Time 2, and Time 3

Time Point	*M*	*SD*
ECBI Intensity T-score		
Time 1 (Pre-treatment)	65.95	6.87
Time 2 (Post-treatment)	60.24	9.31
Time 3 (1-month follow-up)	59.71	9.05
ECBI Problem T-score		
Time 1 (Pre-treatment)	69.00	6.96
Time 2 (Post-treatment)	64.13	9.06
Time 3 (1-month follow-up)	61.84	9.61

Notes. ECBI = Eyberg Child Behavior Inventory (Eyberg & Pincus, 1999). N = 38 across all time points and measures.

Supplemental Exploratory Analyses. While the sample size did not allow for enough statistical power to add covariates to the ANOVA model, two exploratory multiple linear regression models were run to examine the influence of potentially influential background variables on the post-intervention ECBI Intensity and Problem scores to help enrich the interpretation of findings. For each model, the pre-treatment scores were controlled for, and the

other included predictor variables were parent education, household income, presence of current parent mental health treatment, pre-treatment parent stress (PSI-4 Total Score), and whether they had had previous exposure to mindfulness training.

For the model with the outcome variable of the post-treatment ECBI Intensity score, the model as a whole did not significantly predict the outcome, $F(5, 32) = .797$, $p = .56$, $R^2 = .11$. No predictor variables approached significance, including pre-treatment ECBI Intensity scores.

Finally, for the model with the outcome variable of the post-treatment ECBI Problem score, the model as a whole significantly predicted the outcome, $F(5, 32) = 14.32$, $p < .001$, $R^2 = .69$. The two significant predictors were the pre-treatment ECBI Problem score ($p < .001$, $B = 1.11$) and whether a parent currently had a mental health diagnosis ($p = .002$, $B = 6.70$). For parents without a current mental health diagnosis ($n = 16$; 42%), mean post-treatment ECBI Problem T-score was 58.94 (at-risk range) while it was 67.91 (clinically significant range) for those with a mental health diagnosis ($n = 22$; 58%). At pre-treatment, both groups' means were in the clinically significant range even though those with a mental health diagnosis had higher baseline scores. Pre-treatment parent stress (PSI-4 Total Score) came the closest to significance of the other potential predictors ($p = .07$).

DISCUSSION

Significance of Project

This type 1 hybrid effectiveness-implementation study (Curran et al., 2012) evaluated adult stress reduction and child behavior change immediately following and one month after completion of an online, self-mediated MBSR program (Be Mindful) among parents of children with behavioral concerns. Additionally, the study sought to determine whether the online-delivered MBSR intervention was acceptable to parents and to characterize how they engaged with the program. Thirty-eight mothers, fathers, and grandparents (primary caregivers) of children with behavioral concerns between the ages of two and ten years across the United States completed the study. Children were a community sample with externalizing behavior concerns at or above the at-risk range (raw score ≥ 115) based on the Eyberg Child Behavior Inventory (ECBI; Eyberg & Pincus, 1999), whose parents had stress levels at or above the 60th percentile on any domain of the Parenting Stress Index, Fourth Edition (PSI-4; Abidin, 2012).

In general, parents often experience elevated levels of stress (Abidin, 1990; Deater-Deckard, 2004), and parents of children with externalizing behavioral concerns typically report even higher levels of stress than parents of children without significant behavior concerns (Anastopoulos et al., 1992; Morgan et al., 2002), due to the bidirectional and transactional nature of child behavior and parent stress (Lagasse et al., 2016; Neece et al., 2012). In the Family Adjustment and Adaptation Response (FAAR) model, Patterson (1988, 2002) suggests that families work to balance demands with capabilities, which interact with family meanings, to achieve adjustment or adaptation. Therefore, it is important to increase capabilities for parents experiencing stress. Mindfulness-based stress reduction (MBSR; Kabat-Zinn, 1992), rooted in mindfulness theory, is an increasingly popular method for reducing stress, anxiety, and

depression (Gu et al., 2015; Khoury et al., 2015) that teaches people to practice non-judgmental present awareness through a variety of techniques. MBSR has been successfully used in many populations in addition to the general adult population, including parents (e.g., Burgdorf et al., 2019; Dykens et al., 2014; Neece, 2014) to reduce parent stress and even help to improve child outcomes (e.g., Lewallen & Neece, 2015; McGregor et al., 2020) especially among parents of children with developmental disabilities. However, there is a dearth of research on MBSR for parents of children with *externalizing behavior concerns*, including the examination of possible secondary effects on child behavior, and even less research utilizing accessible, *online* MBSR programs. The FAAR model (Patterson, 1988; 2002) would suggest that increasing parent capacity to handle the demands of life both within and beyond the parent-child relationship should promote better adaptation and lowered feelings of stress.

Given the emerging popularity of MBSR and online-delivered interventions, it was important to evaluate the real-world effectiveness of Be Mindful, an online MBSR program, for parents of children with varying levels of externalizing behavior concerns. The findings of this study also continue to add support to the broader growing evidence base for MBSR. This study is timely and contributes to the school psychology, clinical psychology, parenting, and early childhood literature because accessible, effective programs are especially important in light of the additional stressors brought about by the COVID-19 pandemic. This study also fills a gap in the literature related to whether parental participation in such a program has auxiliary positive effects on child externalizing behavior and provides qualitative information about parents' receptiveness to the intervention. In particular, this study is important to the field of school psychology because targeting families, an important component of a child's ecological systems, ultimately helps support children's behavioral and social-emotional development during a critical

young age. It is vital for today's school psychologists to be knowledgeable about parent training and work to increase family well-being both inside and outside of school settings. Indeed, Domain 7: Family, School, and Community Collaboration in the National Association of School Psychologists' (NASP; 2020, p. 8) professional standards and practice model states that school psychologists are trained and positioned to "use evidence-based strategies to design, implement, and evaluate effective policies and practices that promote family, school, and community partnerships to enhance learning and mental and behavioral health outcomes for children and youth." Findings from this study can inform school psychologists' recommendations for whole-family wellbeing and even child behavior improvements, though more research is needed to more fully substantiate findings from the present study.

Study findings provided promising support for the intervention: there were large, statistically significant and clinically meaningful reductions in both parent stress and externalizing child behavior problems following completion of the intervention that maintained through one-month follow-up. Additionally, participants generally found the intervention to be acceptable and practiced the skills a moderate amount during the intervention phase. These results are important within the context of the global COVID-19 pandemic, provide further support for the increasingly popular MBSR framework in an online format, and uniquely examine effects both on parent stress and child behavior in a real-world sample. Findings are discussed in further detail below, along with limitations, directions for future research, and implications for practice.

Interpretation of Results

Reduction in Parent Stress

Hypotheses 1a and 1b, that parents would show significantly decreased overall stress immediately following the MBSR intervention as measured by the Total Score of the PSI-4 and by the PSS, were supported. Previous studies showed large effect sizes for the Be Mindful Online intervention in the general population (Krusche et al., 2012; Krusche et al., 2013; Querstret et al., 2018) when measuring general adult stress with the PSS. Results from the present study demonstrated robust effect sizes for changes in pre-post stress on both the PSI-4 Total Score and PSS perceived stress outcome measures. Finding large, significant reductions in perceived stress on both a short, general measure of stress (PSS) and on an in-depth, norm-referenced, parent-specific measure (PSI-4) in a sample of stressed parents of children with behavior concerns speaks to its promise as a useful tool.

Additionally, in the present study, an important finding relating to clinical significance was that mean PSI-4 total stress scores actually decreased such that they were no longer in the "clinically significant" range (above the 90th percentile; Abidin, 2012) following completion of the intervention. Clinical significance, also called practical significance or clinical relevance or meaningfulness, is important in applied psychological research because it considers the practical impact and meaningfulness to individuals. One of the most commonly used measures for assessing clinical significance is determining whether the participant falls within normative levels of function following an intervention (Kazdin, 2016). The current finding that on average, participants' total PSI-4 stress scores decreased from clinically significant to the upper end of the normal range is important. This shows that decreases in stress were likely meaningful to participants' lives. Moreover, the clinical and practical meaningfulness of the results are further

underscored by the finding that a strong majority of participants demonstrated decreased stress from pre-treatment to post-treatment and an even greater number showed a decrease at follow-up.

Broadly, the reductions in perceived stress among parents in the present study support the promise of Be Mindful as an accessible tool to help bolster parents' psychological resources, especially amidst a global pandemic. This aligns with specific research about Be Mindful as an effective and efficacious program and with parent-focused literature which has also found positive effects of mindfulness interventions on parent stress (e.g., Burgdorf et al., 2019; Dykens et al., 2014; Neece, 2014). Many previous studies of MBSR for parents have utilized in-person interventions (e.g., McGregor et al., 2020; Lewallen & Neece, 2015) which have many merits but are less accessible in under-resourced areas and during a pandemic, so the present findings are promising and important in promoting a reduced barrier, online option for parents.

The exploratory regression models indicated that even when controlling for pre-treatment stress scores, none of the other background variables significantly predicted post-treatment stress scores. This suggests that the positive intervention effects held true for parents with different background characteristics, such as region, income, own mental health difficulties, and partnered-status. More research is certainly needed including replication studies with adequate sample size to properly examine and account for differences, as these analyses were strictly post-hoc and exploratory, but it is nonetheless promising that this intervention was on average helpful for this particular sample of parents. However, race and ethnicity were not included in the models due to limited variability, so it is unclear how well this program would resonate with racially and ethnically diverse parents. Further research is needed to examine

effectiveness among a more diverse sample and to determine whether cultural adaptations would be recommended or needed.

Hypotheses 1c and 1d were also supported: stress reduction effects from Be Mindful were maintained at one-month follow-up for both the PSI-4 Total Score and PSS. For the PSI-4 Total Score, there was a non-significant decrease from post to follow-up, and for the PSS, there was actually a small, non-significant mean increase in stress scores. Because the changes in both directions were non-significant, effects were still considered to be maintained. Previous literature on Be Mindful reflects similar maintenance of effects on stress reduction measured by the PSS. Krusche et al. (2012) found that effects remained stable at one-month follow-up, but the specific follow-up effect size was not reported, and Querstret et al. (2018) found that significant differences between the waitlist control and treatment groups maintained through follow up. Krusche et al. (2013) found a small but present post to follow-up effect size ($d = 0.24$). Their effect was larger than the post to follow-up effect for the PSS in the present study, but this could be due to differences in the population (e.g., general adult versus parent) or due to chance.

All three scores on the PSI-4 (i.e., Parent Domain, Child Domain, and Total Score) evidenced decreases from pre to post to follow-up, with the steepest slope present for the Parent Domain and the flattest slope present for the Child Domain (see Figure 5). All domains showed improvements in the expected direction, which aligns with the theorized transactional nature of parent stress and child behavior (Lagasse et al., 2016; Mackler et al., 2015; Neece et al., 2012). Results indicating the flattest slope of change was for the Child domain make sense given that the MBSR program did not specifically address child-related issues. Moreover, in terms of clinical meaningfulness, all three domains demonstrated average decreases into to the upper end of the normal range from either the clinically significant or at-risk range (the Total and Child

domains started in the clinically significant range and the Parent domain started in the at-risk range). This indicates that in addition to statistically significant changes, practical and meaningful differences were evident across participants' personal stress *and* stress related to their child.

While it was outside of the scope of the present study to examine mediation effects and to measure thought processes, it is possible that mechanisms of change in previous studies were also relevant to these findings. For example, in their randomized-controlled trial of Be Mindful, Querstret and colleagues (2018) examined possible mediators of effects and found that for perceived stress, increasing non-judgmental thinking partially mediated the effect of the intervention. Indeed, in the present study, the top open-ended response theme for the question about what was most helpful about Be Mindful was learning new ways to deal with stressful situations.

Previous studies of Be Mindful in the general adult population demonstrated that strong effects were maintained at three- and six-month follow-up points (Querstret et al., 2017; Querstret et al., 2018), at one month follow-up (Krusche et al., 2012), at one and three month follow-up (Krusche et al., 2013). In Krusche and colleagues' (2012) study, effects were maintained at one month follow-up, and in their 2013 study, there was a small but significant decrease in stress at follow-up as measured by the PSS. It is possible that the present follow-up findings differed from previous studies due to sample differences. Specifically, the present study focused on parents of children with challenging behaviors rather than a general population. Indeed, there is consistent evidence showing that parents of children with externalizing behavioral concerns experience higher levels of stress in comparison to parents of children without significant behavior concerns (Anastopoulos et al., 1992; Morgan et al., 2002), due to

the transactional and bidirectional nature of child behavior and parent stress (Lagasse et al., 2016; Neece et al., 2012). Moreover, parents in general tend to experience elevated stress (Abidin, 1990; Deater-Deckard, 2004). It is also noteworthy that we do not know the specifics about the makeup of some past studies' samples. For example, Krusche and colleagues (2012) did not report parent status, SES, race/ethnicity, or location. Moreover, their participants paid for the program themselves, which may have increased motivation to continue to use the MBSR skills to maximize the money they had spent.

Feedback from parents may inform changes to the program to support more long-term effects. Such suggestions include including providing an app-based version for easier access, breaking lessons into smaller, more manageable pieces, and providing more flexibility to move freely between modules and activities to fit parents' lifestyles more effectively.

Reduction in Child Behavior Problems

Hypothesis 4a, that participation in the MBSR program would lead to a small but significant decrease in child behavior problems, as measured by the ECBI Intensity Scale, a parent-report measure of child problem behaviors, was supported in that there was a significant reduction in both parent-reported frequency and troublesomeness of the behaviors. The effect sizes were larger than anticipated. Additionally, effects were maintained through follow-up, so Hypothesis 4b was supported as well. While both the ECBI Intensity and Problem scores evidenced large, significant reductions at post-test, the effect was larger for the Problem score. This finding indicates that parent perception of the troublesomeness of their child's behavior was perhaps even more sensitive to the intervention than the actual frequency of the behaviors. Even though mean T-scores for frequency of behavior problems (ECBI Intensity) dropped into the at-risk range from the clinically significant range at follow-up and mean T-scores for perception of

troublesomeness of behavior problems did not, this is likely due to the fact that mean T-scores for perception of troublesomeness of behavior problems (ECBI Problem) were considerably higher at baseline than frequency of behavior problems. Because frequency of behavior problems were still elevated on average, an MBSR program would not be recommended as a stand-alone intervention to address child behavior concerns. Evidence-based behavioral parent training is still recommended. However, findings support a need for future research into a possible integration of approaches for optimal outcomes.

Because parent *perception* of child behavior decreased more than *frequency* of behavior, findings suggest that parents may have learned to view stressful situations less judgmentally (Shapiro et al., 2006) than they had before engaging in mindfulness training. That is, the parent's cognitive appraisal of problematic behavior situations likely changed. Specifically, when thinking about their child's difficult behaviors, which may or may not happen at a similar frequency to pre-intervention, parents' thoughts might be less critical of the child and/or of themself as a parent, leading to them rating their perception of the behavior as less problematic. Future research might test this possible mechanism by including pre- and post-intervention scales that measure components and mechanisms of mindfulness to test for changes over time in addition to mediating or moderating effects.

The exploratory regression model examining possible predictors of post-treatment ECBI Problem scores revealed that presence of parent mental health seemed to play an influential role in response to treatment such that parents without a current mental health diagnosis demonstrated a stronger response to treatment related to perceptions of the troublesomeness of their child's negative behaviors. With reference to the FAAR model, it is possible that parents without a mental health diagnosis were able to simultaneously focus on both their own stress management

and their child's behavioral needs, perhaps more effectively than parents who were experiencing symptoms related to a mental health diagnosis. This finding and interpretation, while strictly exploratory, suggests that the role of parents' own mental health status should continue to be examined and considered in future studies and that further study is needed. Future studies could examine whether parents with psychopathology might be better served with a therapist-mediated intervention that incorporates mindfulness or whether they would need a longer or different intervention to dismantle automatic negative thoughts related to their child's behavior.

This is the first study involving an online MBSR program to measure effects on child behavior in addition to parent stress, so there are no studies for direct results comparison. However, findings from this study align with the FAAR model (Patterson, 1988; 2002) which would suggest that increasing parents' capabilities to handle the demands of life both within and beyond the parent-child relationship would promote better adaptation and lowered perceived stress, and the findings of the present study align with this hypothesized outcome even within the context of the additional demands and reduced capabilities brought on by the COVID-19 pandemic. It is possible that positive changes to both the demands and capabilities sides of the FAAR model occurred such that real or perceived demands decreased and capabilities increased, and more research is needed to better understand these mechanisms of action. Moreover, findings are consistent with previous studies including Burgdorf and colleagues' (2019) meta-analysis which showed that mindfulness interventions led to a small, but significant positive changes in children's externalizing behaviors and Lewallen and Neece's (2015) and Neece's (2014) studies that found that MBSR helped to reduce both parent stress and child behavior problems.

The current results suggest that even though Be Mindful did not target parenting skills directly, increasing parents' psychological capabilities and reducing their perceived stress may have had a transactional effect on child behavior. Mediation analyses were not possible, but potential mechanisms of action include decreased reactivity to negative child behaviors and reduction in negative parenting practices that lead to cycles of negative interactions (Webster-Stratton, 1990). Additionally, findings from a recent study suggest that parents of children presenting with oppositional behaviors who reported greater mindfulness in their parenting demonstrated more stable use of limit setting with their children across time during the pandemic (Menter et al., 2021).

Behavioral parent training programs have been shown to effectively reduce negative child behaviors, increase positive parenting strategies, and strengthen the parent-child relationship (e.g., Eyberg et al., 2008; Kaminski et al., 2008). Parent-Child Interaction Therapy (PCIT; Eyberg, 1988) is one specific, highly effective and efficacious mastery-oriented BPT program (e.g., Cooley et al., 2014; Ward et al., 2016) whose hallmark feature is real-time parent coaching. There are some promising findings for reductions in parent stress resulting from PCIT, but unlike the solid evidence base for improving child behavior and parenting skills, effect sizes for reducing parent stress are inconsistent (Cooley et al., 2014). Moreover, PCIT seems to effect greater change for child-related stress than for stress arising from other aspects of parents' lives (Thomas et al., 2017), thus leaving many parents with unresolved personal feelings of stress.

Another evidence-based BPT intervention is Incredible Years which has group-based parent training modules for parents of children from birth to age 12 (Webster-Stratton, 2005). Leijten and colleagues (2018) conducted a meta-analysis using individual participant data (N = 1799) from 14 of the 15 randomized-controlled trials of the Incredible Years program conducted

in Europe, and while their results showed improvements in positive parenting and children's externalizing behavior problems, they did not find significant effects for reductions in parent stress.

While some individual studies of BPT programs do indeed show significant effects for reducing parent stress (e.g., Thijssen et al.'s 2017 examination of Parent Management Training - Oregon Model in the Netherlands or Ciesielski et al.'s 2020 study of an outpatient BPT program for children with ADHD at Cincinnati Children's Hospital), it seems that there is variability in parent stress outcomes both within and between BPT programs, so adjunctive parent-focused intervention may be warranted. Further, as discussed, there are often long waiting times and other financial or logistical barriers to seeking BPT.

In the present study, direct effects on parent stress were robust, and exploratory effects related to child behavior were promising, suggesting that an integration or sequencing of MBSR and evidence-based BPT may be warranted. Broadly, there are multiple avenues for addressing parent stress and continued research is needed to better understand benefits and drawbacks to different approaches.

Intervention Acceptability

Because this study aligns with Curran and colleagues' (2012) type 1 hybrid effectiveness-implementation design, it was important to simultaneously examine the effectiveness of the intervention for a particular population and to collect descriptive information related to implementation factors to begin to understand the context for implementation. Specifically, feasibility and acceptability, and barriers and facilitators to participation were examined. As hypothesized, Be Mindful was acceptable to parents, based on the CSQ-I (Hypothesis 2a) and the embedded satisfaction questions in Be Mindful (Hypothesis 2b). Additionally, as expected,

answers to the open-ended questions aligned with the other satisfaction measures in that they showed many strengths of the program and provided a more nuanced understanding of what was helpful and what could have been improved (Hypothesis 2c). Although previous studies of Be Mindful Online did not specifically include acceptability/satisfaction results, researchers concluded that the program was acceptable due to positive outcomes and high rates of completion for a general, adult sample (e.g., Krusche et al., 2012; Krusche et al., 2013), and this current study added to the literature by collecting more detailed satisfaction and acceptability data. An examination of both the mean and modal scores for items on the CSQ-I reveals that most participants found the program to be of good quality and at least moderately helpful. Individual modules were on average rated somewhere between neutrally helpful and helpful.

Open-ended responses pointed to both strengths and shortcomings of Be Mindful. In general, parents cited many helpful things they learned from the program, such as learning new ways to deal with stress, learning breathing and relaxation techniques, and developing more self-compassion. Many also reported enjoying the videos and activities and liking the gentle, compassionate approach, which may be considered facilitators of uptake. Additionally, several parents noted how they are incorporating mindfulness into their daily lives now, which is a positive indicator of intervention acceptability.

It is also important to examine downsides or barriers to the experience. For example, many parents also reported finding the presenters awkward and struggling with finding the time to engage in the practices, some of which they considered too long. It is possible that participants who found the presenters awkward may have experienced a cultural clash with some aspect of the communication style, and more information on what they specifically did not like would be helpful. Additionally, it is important to consider that many parents noted that it was difficult to

find the time to engage in the intervention *and* were still able to do so which points to the feasibility of an intervention of this type and also highlights the importance of considering perceived lack of time as a possible barrier to entry in real life applications of online MBSR programs for parents. Many participants also desired changes in the format, for example that it was more audio-based and that it would be available in an app format. These recommendations are important to consider for program updates or development of other interventions. Some participants also reported hoping to receive more guidance related to parenting or other specific issues in their lives. This suggests that while a general MBSR program like Be Mindful is helpful for many, some people may have different needs and goals.

Engagement with the Intervention (Feasibility)

The hypothesis (3a) that parents would report practicing the MBSR techniques a moderate amount (i.e., every day/most days or sometimes) during the active MBSR phase of treatment was supported: a majority of participants practiced at or above the 2 to 3 days per week range. This finding aligns with Krusche and colleagues' study (2013) in which 52% reported practicing "sometimes" and indicates that a parent sample can also engage at a rate similar to a general sample. It is important to consider that there was also attrition from the study, but the amount of parent participants who completed the program was certainly greater than the number of non-completers. Of the final group of included participants ($N = 38$), two did not complete the entire intervention, but all 38 completed post-test data. Attrition for individuals not included in the final sample can be seen in the recruitment flowchart (Figure 2).

Hypothesis 3b, that parents would report practicing the MBSR techniques less frequently after the active phase of MBSR was complete but that they would still use the strategies to some extent (i.e., sometimes), was also supported. Decreased frequency of practice after the active

intervention phase has been shown in studies of other MBSR interventions as well (e.g., Ribeiro et al., 2018). Jenssen and colleagues (2019) suggest that leveraging social forces including providing simple social comparison messaging and encouraging social support systems can be helpful in supporting behavior change for parents. In this case, methods could look like encouraging parents to work through the program at the same time as a peer or friend or incorporating messages into the program about how it has been helpful for other people to continue to practice. However, more research is needed to identify best practices for increasing and maintaining practice over time. Opportunities for parents to track their positive new habits in an app after the intervention is over and encouragement to build in rewards for oneself for practicing regularly could also be helpful additions.

Time-to-completion was also measured in the present study, and the average of approximately 6 week-duration for parents in the study was similar to or shorter to prior studies of Be Mindful. For example, mean time to completion Querstret et al. (2018) was around 6 weeks and in Krusche et al. (2013) was around 7 weeks. Interestingly, Krusche and colleagues (2013) found that participants who took longer to complete the program showed lesser reductions in stress. It was outside of the scope of the current study to examine a possible relationship between magnitude of effect and time-to-completion, but this phenomenon should be investigated in future studies.

COVID-19 Context

The uniqueness of the study and the importance of its positive findings are underscored by the fact that the study took place entirely during COVID-19. Because this study occurred within the unique additional and ever-changing stressors of the COVID-19 pandemic, it is even possible that a waitlist control group may have shown increased stress across time. It is notable

that the present study that took place during a time of extraordinary stress, and robust reductions in stress were observed following the intervention. As discussed, it is especially vital to support parents' self-compassion and psychological flexibility during the COVID-19 pandemic, and mindfulness training is one way to do so (Coyne et al., 2020). As the pandemic continues, more research is emerging that demonstrates the importance of targeting perceived stress given the numerous unprecedented extra and continuously changing demands that parents face during this time. Based on the FAAR model (Patterson, 1988; 2002), parents' adaptation processes were likely unbalanced due to a combination of extra demands including childcare issues, school closures, economic stressors, illness, uncertainty (e.g., Russell et al., 2022), and for some families, increased child behavior difficulties (Eshraghi et al., 2022) and fewer capabilities such as social supports related to isolation. It is important to consider the temporal aspect of when the study took place, as there is limited US-based research specifically examining parent and family experiences during this particular phase of the pandemic (May 2021 through November 2021) where restrictions began to lift in the early part of the period and new virus variants began to emerge near the end of the period.

Recent research findings highlight the need for interventions that may buffer both parents and children from the negative effects of stress, over-reactivity, and rumination and highlight the timeliness and utility of the present study. For instance, in their Dutch sample, Achterberg and colleagues (2021) found that during the lockdown period of COVID-19 in the Netherlands, perceived parent stress mediated changes in both parental negative emotion and child externalizing behavior, and that greater parent stress and child stress were related to negative coping strategies. Additionally, Menter and colleagues (2021) found that parent mindfulness moderated fluctuation in limit setting for oppositional children across time, with parents who

reported greater mindfulness engaging in more stable limit setting, thus reducing the likelihood of cycles of coercive interactions. The authors suggest that parent mindfulness may be a protective factor worth promoting by school psychologists.

Limitations

While results from this study were meaningful and promising, several limitations must also be considered within the areas of research design, measurement, and participants.

Research Design Limitations

Several aspects of the research design present limitations. This study employed a non-randomized, single group pre-test, post-test, follow-up design rather than a gold-standard, randomized-controlled design. The study focused on effectiveness and preliminary implementation factors, and there are benefits to effectiveness studies which include greater feasibility within the constraints of a dissertation timeline, demonstration of intervention utility in the real world under often less-than-ideal conditions, and potentially higher levels of external validity than randomized efficacy studies. However, drawbacks include sacrifices to internal validity due to less highly-controlled conditions and no control group (Singal et al., 2014). The lack of a control group limits the internal validity of findings in that one cannot make strong inferences or statements suggesting that the effects are truly due to the intervention and not due to other variables. Additional threats to internal validity in the present study include potential history effects, or events that participants experienced over the course of the study that were external to study variables (Flannelly et al., 2018). For example, temporal changes in the state of the COVID-19 pandemic such as the loosening of restrictions that occurred in 2021 during the study may have influenced results. Maturation, testing effects, or statistical regression to the mean (Campbell, 1957; Flannelly et al., 2018) may have also come into play. For example,

maturation may have looked like children growing and developing naturally over the course of the study and thus exhibiting different levels of behavior problems over time unrelated to the intervention, and testing effects may have looked like parents being more attuned to the constructs measured after repeated exposure to the questionnaires and thus influencing their answers or if participants altered their responses at later time points to appear more socially desirable. Moreover, an important threat to external validity to consider is that individuals who choose to participate in studies may not have the same characteristics as and may not respond to the intervention in the same way as those who do not choose to volunteer for research studies.

Additionally, the sample size that could be recruited within the timeline and financial and human-power resources of a dissertation study was not large enough to provide adequate statistical power to include covariates in the analysis models (i.e., ANCOVA). To address this limitation, exploratory post-hoc tests were conducted for background characteristics to examine whether excluding these variables in the model likely affected results. Non-significant findings on these post-hoc tests indicated that while the baseline characteristics were likely influential, they are not likely to have nullified positive effects of the intervention. Finally, there were other interesting nuances that were not examined, such as the possible impact of time in intervention or the amount of skill practice on outcomes.

Moreover, the implementation aspects of the design were preliminary given the dissertation timeline and resources of the study. Longer-term sustainability potential was not able to be addressed, and a lack of interviews limited the richness of information related to acceptability, feasibility, and barriers and facilitators to participation. Importantly, participants did not pay for access to the Be Mindful program, so it is difficult to fully extrapolate the real-world uptake potential. However, it was still beneficial to examine basic implementation

components including acceptability, feasibility, and barriers and facilitators to participation in addition to effectiveness data to more comprehensively understand the application of this type of intervention with a new population (Curran et al., 2012).

Measurement Limitations

Measurement-related issues also present limitations to this study. First, the PSS and PSI-4, the stress measures used as primary outcomes for this study, have not been psychometrically validated within the context of a novel global pandemic. Additionally, all stress measures were self-report and perception-based, rather than objective measures such as cortisol levels. Similarly, child behavior was only reported upon by parents, and there was no observational measure used to corroborate child behavior problems.

There were also limitations related to the acceptability measures. One such limitation was the accidental omission of an item from the CSQ-I on the Qualtrics survey, so the total score used in this study has not been psychometrically validated. Furthermore, the researcher did not conduct post-intervention interviews with participants. While the open-ended acceptability and satisfaction questions help to provide some qualitative context for participants' experiences, richer data could have been gleaned through interviews. Interviews were not included in the study design for purposes of feasibility within a dissertation timeline.

There were also miscellaneous limitations related to measurement. For instance, it is possible that respondents answered questions in ways that they considered socially desirable rather than based on their true feelings, perceptions, or experiences. Additionally, two limitations exist based on the researcher's inability to view certain backend data within the Be Mindful management portal, including how participants rated specific modules in terms of helpfulness and how many times they logged in and how much time they spent on activities in the program.

The researcher contacted the company to inquire about these concerns and was informed that these data were unfortunately not available to view.

Sample Limitations

Several limitations related to the sample exist for this study. To begin, while many demographic characteristics were fairly evenly distributed, the sample was primarily White (79%) and female (89.5%), which is not representative of American parents as a whole and limits generalizability of statements regarding for whom this intervention works. Further, for feasibility of recruitment, entry criteria were loosened especially around severity of child behavior from clinically significant to at-risk, which increased heterogeneity of participants' baseline parent stress and child behavior scores. Future replication studies could narrow the entry criteria to determine whether similar results emerge within parents of children only in the at-risk range or only in the clinically significant range. Heterogeneity of participants also existed related to education level, marital/partnered status, and employment status and should also be considered as these factors relate to differential availability of resources. Additionally, two of the 38 participants did not finish all modules of Be Mindful (one completed two of four modules and the other completed three of four modules), which differentiates them from the other 36 participants. However, heterogeneity can also be considered a strength: while background variability presents more possible influential factors that may account for change in outcomes, it also provides an opportunity to examine for whom an intervention works when sample size allows. Finally, the individuals who chose to participate in and follow through with participation in a research study are a self-selecting sample and may not be representative of the general population in terms of adherence to an intervention, acceptability of the intervention, and/or treatment outcomes.

Directions for Future Research

In light of the limitations discussed above and based on the findings of the study, directions for future research with Be Mindful abound. First, to address the underrepresentation of certain demographic groups, future studies could attempt to recruit in community clinics with diverse clientele. It will be important to examine the utility of such an intervention with a more racially and ethnically diverse sample because structural inequities have been found to disproportionately predispose people from low income and racial and ethnic minority backgrounds to adverse mental and physical health effects (Tai et al., 2020). Efforts to bolster protective factors for vulnerable parents, children, and families are needed, and understanding both acceptability and effectiveness within a diverse sample is also vital. Additionally, future studies could employ a randomized-controlled design to enable more robust inferences to be made with a waitlist design, and even more robust studies could compare active treatments to assess for superiority or non-inferiority. For example, comparisons could be made between different types of online MBSR programs and/or acceptance and commitment therapy (ACT) programs, which both emphasize the importance of mindful awareness of ones' internal thoughts and external stimuli and decreased judgment of situations and self.

Moreover, a future study should include a larger sample size that would allow for sufficient statistical power to include covariates and investigate possible mediators and/or moderators of effects. Possible mechanisms of change discussed in the mindfulness literature include psychological flexibility, non-judgmental awareness (Shapiro et al., 2006; Van Dam et al., 2014), or decreased physiological arousal (Gu et al., 2015). Moreover, distal follow-up data collection points (e.g., 3, 6, and 12 months) could be added to measure how long effects are maintained and address long-term sustainability potential. Changes in parental anxiety and

depression could also be examined by analyzing changes in the anxiety and stress measures included in the Be Mindful platform to see if there are reductions to anxiety and depression that are similar to reductions in parent stress and similar to findings in previous studies (Krusche et al., 2012; Krusche et al., 2013; Querstret et al., 2018).

Additionally, future studies could also examine Be Mindful as an add-on intervention to behavioral parent training (BPT) programs such as Parent-Child Interaction Therapy (PCIT) or for parents on waitlists to receive other evidence-based treatments. PCIT shows robust effects for decreasing negative child behaviors and increasing positive parenting skills (e.g., Cooley et al., 2014; Thomas et al., 2017; Ward et al., 2016) but its effects on parent stress are quite variable based on the current literature (Cooley et al., 2014). Moreover, PCIT seems to effect greater change for child-related stress than for stress arising from other aspects of parents' lives (Thomas et al., 2017), thus leaving many parents with unresolved personal feelings of stress. Research suggests that high levels of pre-treatment parent stress often act as a risk factor for attrition from PCIT (Werba et al., 2006). Other risk factors, such as low socioeconomic status have been indicated as related to greater rates of attrition (e.g., Lyon & Budd, 2010). Generally, however, research addressing parent stress reduction in PCIT is limited, especially regarding the parent stress existing beyond or adjacent to the parent-child relationship. Therefore, extra intervention to reduce parent stress is needed to help bolster better engagement and outcomes in PCIT and to promote further well-being of parents engaging in the intervention. Thus, a future study could assign Be Mindful to some parents participating in PCIT to see if there are additive benefits for stress reduction, decreasing child externalizing behavior, and increasing positive parenting practices when compared to treatment as usual.

Finally, future studies should continue to evaluate parents' receptiveness, buy-in, and motivation to engage in online mental health interventions to better understand the real-life applicability of such programs. To begin, it would be helpful to ask participants why they are choosing to participate in the study and intervention to better evaluate the proposed mechanisms of change related to the FAAR model. Specifically, this information could increase knowledge about whether parents' motivation to engage emerged from a desire to reduce demands, increase capabilities, or a combination of both. This information could inform future implementation work such that advertising methods and messaging could be most effectively targeted. Moreover, few studies specifically measuring parents' interest in and follow-through with using digital mental health interventions exist. Linardon and colleagues (2021) recently examined Australian parents' receptiveness to digital mental health interventions within the context of COVID-19. Results indicated that that across all time points, about one third of parents reported being very likely to utilize an online intervention, and interest tended to change across time in the pandemic. In general, preferences for therapist-guided programs were stronger than for self-guided, and higher levels of current mindful parenting, a history of mental health diagnosis, and greater stress at baseline predicted interest in online interventions targeting the parent's own mental health.

Implications for Practice

The results of this study present implications for practice within both school and clinical psychology contexts.

Applications to School Psychology

As demonstrated in the NASP professional standards and practice model, school psychologists are trained and positioned to "use evidence-based strategies to design, implement, and evaluate effective policies and practices that promote family, school, and community

partnerships to enhance learning and mental and behavioral health outcomes for children and youth" (2020, p. 8; Domain 7: Family, School, and Community Collaboration). Thus, the emerging research about the utility of adult MBSR to increase parent and child wellbeing, including the results from the present study, support it as a possible recommendation that school psychologists could make to families as part of assessment reports and in meetings that involve families (e.g., individualized education program meetings, student assistance team processes, etc.) or more informally when talking with families at other times.

Furthermore, Felver and colleagues (2013) suggest that mindfulness-based interventions may have a place in school psychology, for example in the consultative domain with teachers due to the potential for these programs to enhance well-being and reduce stress. Indeed, online-delivered stress reduction interventions incorporating mindfulness training show promise in decreasing burnout and stress and increasing wellbeing and teaching efficacy among teachers based on new research (Ansley et al., 2021). Additionally, a study involving a mindfulness professional development training for early childhood teachers demonstrated that these professionals found learning about mindfulness to be valuable and that they planned to incorporate learnings into their teaching (Hatton-Bowers et al., 2020).

Applications to Clinical Psychology

Be Mindful should be considered as a low-cost way to help work towards alleviation of mental healthcare access disparities that can help bolster protective factors during stressful times. Increasing parents' capabilities and thus reducing perceived stress and enhancing adaptation and wellbeing is recommended to help parents and their children. For example, Be Mindful may be harnessed as a relatively low-cost and high impact option for clinicians to recommend to parents on a treatment waitlist for evidence-based BPT. Such a recommendation could help parents to

manage stress and possibly even have positive effects on their ability to provide stable limit setting and less negative interactions, in light of Menter and colleagues' (2021) findings that parent mindfulness was associated with more stable use of limit setting with oppositional children. Moreover, mindfulness practice could potentially help increase openness to experience (e.g., Shapiro et al., 2006; Van Dam et al., 2014), which could be beneficial when beginning a new treatment such as a BPT. While online MBSR for parents during treatment waitlist time has not been studied specifically, recent research by Levin and colleagues (2020) lends preliminary support to the use of an online, app-based MBSR program for college students waiting for university counseling center services related to reductions in anxiety, depression, and distress compared to a no-treatment control group. While the study (n = 23) was significantly underpowered, results showed high satisfaction with the treatment, moderate use of the app, and preliminary large effect sizes favoring the active intervention group for general distress, anxiety, depression, and hostility.

In general, uptake of online or digital mental health interventions among adults has been low (Linardon & Fuller-Tyszkiewicz, 2020), so it is important to examine factors that may make people more likely to engage with programs such as online MBSR outside of the context of a research study. In their sample of 2365 Australian parents, Linardon and colleagues (2021) asked about parents' likelihood to use a web or smartphone intervention to support their own mental health, their child's mental health, and for support with parenting on a scale from 1 to 5 within the context of the stressors of the pandemic across nine time points. They also differentiated between interest in self-guided and therapist-led online programs. Findings revealed that across all time points, about one third of parents reported being very likely to utilize an online intervention for one of the reasons listed, and interest tended to change across time in the

pandemic. In general, preferences for therapist-guided programs were stronger than for self-guided. Future adaptations and applications of Be Mindful might consider this finding and add a therapist component, or at least a check-in aspect. Interestingly, in Linardon and colleagues' study, interest in online interventions targeting the parent's own mental health was predicted by higher levels of current mindful parenting, a history of mental health diagnosis, and greater stress at baseline. This information can help to inform future efforts to promote supports like Be Mindful or other online MBSR interventions most effectively and can also inform future research. In sum, findings from the present dissertation study are relevant to researchers and practitioners across domains of psychology and provide ample opportunities for application and expansion within diverse settings.

APPENDICES

Appendix A: Parent Participant Demographic/Background Form

[Collected via Qualtrics]

How did you find out about this study?
[ ] ResearchMatch
[ ] Listserv email
[ ] Email from child's school
[ ] Word-of-mouth
[ ] Saw it shared on an acquaintance's social media
[ ] Social Media Advertisement
[ ] Other ____

How do you currently describe your gender identity?
[ ] Male (including transgender men)
[ ] Female (including transgender women)
[ ] Other ____

What is your date of birth?

_____

In which US state do you live?

_____

Which categories describe you? Select all that apply to you:
[ ] American Indian or Alaska Native—For example, Navajo Nation, Blackfeet Tribe, Mayan, Aztec, Nome Eskimo Community
[ ] Asian—For example, Chinese, Filipino, Asian Indian, Vietnamese, Korean, Japanese
[ ] Black or African American—For example, Jamaican, Haitian, Nigerian, Ethiopian, Somalian
[ ] Hispanic, Latino or Spanish Origin—For example, Mexican or Mexican American, Puerto Rican, Cuban, Salvadoran, Dominican, Columbian
[ ] Middle Eastern or North African—For example, Lebanese, Iranian, Egyptian, Syrian, Moroccan, Algerian, Chaldean
[ ] Native Hawaiian or Other Pacific Islander—For example, Native Hawaiian, Samoan, Chamorro, Tongan, Fijian, Marshallese
[ ] White—For example, German, Irish, English, Italian, Polish, French
[ ] Some other race, ethnicity, or origin, please specify: _____
[ ] I prefer not to answer

Select the highest level of education that you have completed.
[ ] Some high school
[ ] High school diploma or equivalent
[ ] Vocational training
[ ] Some college
[ ] Associate's degree (e.g., AA, AE, AFA, AS, ASN)
[ ] Bachelor's degree (e.g., BA, BFA, BS)

[ ] Some post undergraduate work
[ ] Master's degree (e.g., MA, MBA, MFA, MS, MSW)
[ ] Specialist degree (e.g., EdS)
[ ] Doctorate degree (e.g., MD, DDC, DDS, JD, PharmD, EdD, PhD)
[ ] Other, please specify: _____

What is your current employment status? (select all that apply)
[ ] Employed full time (35 or more hours per week)
[ ] Employed part time (up to 34 hours per week)
[ ] Unemployed and currently looking for work
[ ] Unemployed and not currently looking for work
[ ] Student
[ ] Retired
[ ] Stay-at-home parent
[ ] Unable to work

Select the category that describes your yearly total household income.
[ ] Less than $20,000
[ ] $20,000 to $34,999
[ ] $35,000 to $49,999
[ ] $50,000 to $74,999
[ ] $75,000 to $99,999
[ ] $100,000 to $199,999
[ ] $200,000 or more

What is your current marital status?
[ ] Single (never married or in a domestic partnership)
[ ] Married, or in a domestic partnership
[ ] Widowed
[ ] Divorced
[ ] Separated

Have you <u>ever</u> been diagnosed with one or more mental health disorders?
[ ] Yes (please list) ____
[ ] No

Are you <u>currently</u> diagnosed with one or more mental health disorders?
[ ] Yes (please list) ____
[ ] No

Have you <u>ever</u> received mental health treatment (such as therapy, medication, etc.)?
[ ] Yes (please describe reason and modality and include approximate dates) ____
[ ] No

Are you <u>currently</u> receiving mental health treatment (such as therapy, medication, etc.)?
[ ] Yes (please describe reason and modality and include approximate dates) ____

[ ] No

How many children do you have in total?

_____

How many children do you have who currently live in your home with you at least 50% of the time?

_____

For the following questions, please think about only one child between ages 2 and 10 for whom you have concerns about their behavior.

A co-parent is any adult with whom you share responsibility for the care of one or more children, no matter that adult's emotional, biological or legal relationship to you or to the child. Thinking about the child between ages 2 and 10 for whom you have concerns about their behavior, is there a co-parent involved in their life?

[ ] Yes
[ ] No

If yes, what is this co-parent's relationship to the child?

[ ] Parent
[ ] Step-parent
[ ] Grandparent
[ ] Foster parent
[ ] Other (please describe) _____

Which describes your living situation regarding this co-parent?
[ ] Living together full-time
[ ] Living together sometimes
[ ] Living apart full-time

The following questions concern the child between ages 2 and 10 for whom you have concerns about their behavior.

What is your child's date of birth?

_____

What is your child's current gender identity?
[ ] Male (including transgender boy)
[ ] Female (including transgender girl)
[ ] Other _____

Which categories describe your child? Select all that apply to your child:
[ ] American Indian or Alaska Native—For example, Navajo Nation, Blackfeet Tribe, Mayan, Aztec, Nome Eskimo Community
[ ] Asian—For example, Chinese, Filipino, Asian Indian, Vietnamese, Korean, Japanese
[ ] Black or African American—For example, Jamaican, Haitian, Nigerian, Ethiopian, Somalian
[ ] Hispanic, Latino or Spanish Origin—For example, Mexican or Mexican American, Puerto Rican, Cuban, Salvadoran, Dominican, Columbian
[ ] Middle Eastern or North African—For example, Lebanese, Iranian, Egyptian, Syrian, Moroccan, Algerian
[ ] Native Hawaiian or Other Pacific Islander—For example, Native Hawaiian, Samoan, Chamorro, Tongan, Fijian, Marshallese
[ ] White—For example, German, Irish, English, Italian, Polish, French
[ ] Some other race, ethnicity, or origin, please specify: _____
[ ] I prefer not to answer

What is your child's current educational status?
[ ] Does not attend school
[ ] Attends preschool part-time
[ ] Attends preschool full-time
[ ] Attends elementary school part-time
[ ] Attends elementary school full-time
[ ] Is homeschooled
[ ] Other _____

Does your child currently receive special education services at school (e.g., speech-language services, occupational therapy, physical therapy, learning support, emotional support, life skills, autistic support)?
[ ] Yes
[ ] No

[DISPLAY IF YES ABOVE]
Please select all special education services that your child currently receives at school.

[ ] Speech-language services
[ ] Occupational therapy
[ ] Physical therapy
[ ] Learning support
[ ] Emotional support
[ ] Life skills
[ ] Autistic support
[ ] Counseling, therapy, or social work
[ ] Other _____

If no, has your child received special education services at school in the past?
[ ] Yes
[ ] No

[DISPLAY IF YES ABOVE] **Please select all special education services that your child received at school in the past.**

[ ] Speech-language services
[ ] Occupational therapy
[ ] Physical therapy
[ ] Learning support
[ ] Emotional support
[ ] Life skills
[ ] Autistic support
[ ] Counseling, therapy, or social work
[ ] Other _____

Which of the following mental health conditions has your child been diagnosed with (or none)? (select all that apply)
[ ] Autism Spectrum Disorder (ASD)
[ ] Attention Deficit Hyperactivity Disorder (ADHD)
[ ] Oppositional Defiant Disorder (ODD)
[ ] Conduct Disorder
[ ] Cognitive Impairment/ Intellectual Disability
[ ] Anxiety
[ ] Depression
[ ] Other (please describe) _____
[ ] None

Is your child *currently* receiving any mental health or behavioral health services?
[ ] Yes (please describe type of services, approximate date and length of treatment, and location – e.g., school, outpatient clinic, in-patient hospitalization, etc.) An example would be: Parent-Child Interaction Therapy, 2018, 3 months, outpatient clinic ____
[ ] No

Has your child *ever* received any mental health or behavioral health services?
[ ] Yes (please describe type of services, approximate date and length of treatment for all instances along with location – e.g., school, outpatient clinic, in-patient hospitalization, etc.) An example would be: Parent-Child Interaction Therapy, 2018, 3 months, outpatient clinic ____
[ ] No

Appendix B: Perceived Stress Scale, 10-item (PSS)

0 = Never, 1 = Almost Never, 2 = Sometimes, 3 = Fairly Often, 4 = Very Often

1. In the last month, how often have you been upset because of something that happened unexpectedly?
2. In the last month, how often have you felt that you were unable to control the important things in your life?
3. In the last month, how often have you felt nervous and stressed?
4. In the last month, how often have you felt confident about your ability to handle your personal problems?
5. In the last month, how often have you felt that things were going your way?
6. In the last month, how often have you found that you could not cope with all the things that you had to do?
7. In the last month, how often have you been able to control irritations in your life?
8. In the last month, how often have you felt that you were on top of things?
9. In the last month, how often have you been angered because of things that happened that were outside of your control?
10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?

Appendix C: Satisfaction Questionnaires

Client Satisfaction Questionnaire Adapted to Internet-based interventions (CSQ-I)

1=Disagree; 2=Somewhat disagree; 3=Somewhat agree; 4=Agree

1. The Be Mindful program was of high quality.
2. I received the kind of help I wanted.
3. Be Mindful has met my needs.
4. I would recommend Be Mindful to a friend, if he or she were in need of similar help.
5. I am satisfied with the amount of help I received through Be Mindful.
6. Be Mindful helped me deal with my problems more effectively.
7. In an overall, general sense, I am satisfied with Be Mindful.
8. I would come back to such a program if I were to seek help again.

Open-Ended Feedback Questions

1. What was most helpful about Be Mindful?
2. What would have made Be Mindful better?
3. What was difficult in participating in Be Mindful?
4. Please share any other comments that you have about your experience participating in Be Mindful.

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