Mindfulness and family aggression and violence

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Abstract

Systems theories emphasize that family units are complex social systems in which interactions among members influence each other's behavior. This highlights a necessity for family-based interventions to support families with children who have behavioral and emotional problems or have been exposed to domestic violence. There has been a tendency to focus on dyadic interactions of parents and their children when developing and using interventions for individuals within families who engage in aggression and violence. A number of psychosocial interventions have proven effective in helping parents manage their children with externalizing behavior problems. Mindfulness may offer an alternative approach for understanding and intervening to enhance skillful interactions in family systems which may help family members to self-manage their internalizing and externalizing problems. Current research has pointed to associations between mindfulness and likely variables, such as parents' nonreactivity, which may mediate change processes in family systems. In this chapter, we briefly introduce mindfulness and mindfulness-based interventions for family members with behavioral issues with acknowledgement that research on mindfulness in interpersonal settings, such as in family systems, is at present in its infancy. We present current limitations and suggestions for future research on aggression management in families. Finally, we present an illustrative case study demonstrating how a specific mindfulness-based intervention can be used within family systems, beyond dyadic interactions of parents and their children, to positively influence family systems.

Keywords: Mindfulness; family aggression; violence; family systems; family-based intervention

Family units are complex social systems in which interactions among members influence each other's behavior. Indeed, changes in one member of the family are likely to influence the entire family social system and, over time, may lead to changes in the behavior of other members (Priest, 2021). Families engage in self-regulation (e.g., stabilizing interaction patterns following disruption) and self-reorganization (e.g., in family dynamics) as their circumstances change (Cox & Paley, 2003). Although there has been a tendency to develop and use a variety of interventions for individuals within families who engage in aggression and violence, particularly for children and adolescents, family systems theories suggest that there is good reason for such efforts to be directed at family-based interventions (Carr, 2020).

A number of psychosocial interventions have been developed for families with children who have behavioral and emotional problems or have been exposed to domestic violence. For example, Parent-Child Interaction Therapy (PCIT) is an evidence-based program for families whose children have externalizing behavior problems although PCIT appears to be effective for internalizing problems as well (Phillips & Mychailyszn, 2021). The ACT Raising Safe Kids Program (Silva, 2009), developed by the American Psychological Association, and the Triple P-Positive Parenting Program (Sanders et al., 2014) are universal violence prevention parenting programs that focus on enhancing the quality of parent-child relationships. The Triple P program is an evidence-based program that has been extensively researched (Prinz, 2020) and, although the ACT Program is less well established, a recent systematic review indicated it provides a promising approach to family violence prevention (Pontes et al., 2019). The Incredible Years parenting program is a social learning theory-based program that has been widely evaluated

and found to be effective in reducing conduct problems of children and enhancing positive parenting qualities in their parents (Gardner & Leijten, 2017).

Mindfulness offers an alternative mode for understanding and intervening to ameliorate unskillful interactions in family systems. The classic work in this area by Kabat-Zinn and Kabat-Zinn (1997) on mindful parenting provided the experiential, philosophical, and theoretical foundations, but the first experimental studies (i.e., Singh et al., 2006, 2007) did not appear until almost a decade later. The early experimental studies were based on single-case experimental designs, but later studies used quasi-experimental designs and randomized controlled trials (RCTs) for assessing the effects of mindful parenting on the parents' and their children's behaviors (see Singh & Singh Joy, 2021 for reviews).

In this chapter, we briefly introduce mindfulness and mindfulness-based interventions (MBIs) for family members with aggressive and other externalizing behaviors. We present current limitations and suggestions for future research on aggression management in families. Finally, we present an illustrative case study demonstrating how a specific MBI can be used within family systems, beyond dyadic interactions of parents and their children, to positively influence family systems.

Mindfulness

Mindfulness is somewhat of an elusive concept in the sense that it can be and has been defined in different ways depending on the context in which it is used (Amaro & Singh, 2021). Kabat-Zinn (1994) provided one of the more commonly used definitions, "Paying attention in a particular way: on purpose, in the present moment, and nonjudgmentally" (p. 4). An

operational definition proposed by Bishop et al. (2004) has it as "[A] kind of nonelaborative, nonjudgmental, present-centered awareness in which each thought, feeling, or sensation that arises in the attention field is acknowledged and accepted as it is" (p. 232). While neither provides an objectively measurable set of actions or behaviors, the *effects* of mindfulness can be measured reliably. In essence, because mindfulness is experiential, it can be construed as the art of living in the present moment, on purpose, and without judgment of whatever unfolds in each moment. As noted by Munindra (Knaster, 2010, p. 1), "It is actually an education in how to see, how to hear, how to smell, how to eat, how to drink, how to walk with full awareness." The majority of MBIs offer various ways of integrating mindfulness in one's life through meditation.

Mindfulness meditation as espoused in MBIs is often thought of as two separate modes of meditation, consisting of tranquility and insight, although in early Buddhist discourses they were considered to be complementary qualities of meditation (Anālayo, 2020, p. 115). Tranquility or concentration meditation is known as focused attention (FA) meditation (Lutz et al., 2015) in western mindfulness research. FA requires an exclusive focus on a specific object of meditation, often one's breath, to the exclusion of everything else. This results in stabilizing one's attention in the present moment and, when other objects in the mindfulness practitioner's sensorium intrude, such as thoughts, or when the mind wanders, attention is refocused on the breath. In effect, one monitors or has meta-awareness of the quality of attention on the breath. Insight meditation, also known as open monitoring (OM) meditation, usually follows when stability of attention in the present moment is achieved through FA. In OM meditation, the focus shifts from observing the breath to monitoring awareness itself, with

attention being directed to whatever arises as each moment unfolds, without focusing on anything in particular. In time, OM practice leads to achieving deeper insights into the nature of the mind, such as impermanence, not-self, and dis-ease or suffering (Lutz et al., 2007).

The process of MBIs generally begins with mindfulness meditation. This leads to the establishment of attention and awareness, and acceptance of what unfolds in successive moments. MBIs assist the mindfulness practitioner to develop these skills through a number of specific meditations depending on the context of self-care, such as pain management, stress reduction, anxiety, worry, or challenging family interactions, including aggression and violence. When the meditation practice is well-established, changes in daily life occur which lead to lifestyle changes that are maintained and generalized across contexts and conditions. If the practitioner has aspirations that are in addition to or beyond physical and mental self-care, the focus of the practice shifts to a spiritual realm. Figure 1 presents an explanatory model of this process in cognitive behavioral terms.

<Insert Figure 1 about here>

Family Interventions

Data from correlational studies have pointed to associations between mindfulness and likely variables that may mediate change processes in family systems. For example, research suggests that disagreements and minor conflicts in family interactions could lead to major family disharmony, perhaps resulting in aggression and violence, or alternatively to cohesiveness with mindful compassionate and accepting response. For example, in a sample of parents involving male post-deployed military service members and their female non-deployed partners (Zhang

et al., 2020), parents' nonreactivity was related to their own anger observed in a conflict interaction. That is, fathers and mothers who allowed experiences to occur without reacting to them also had a lower level of observed anger. In addition, mothers' nonreactivity was related to fathers' lower anger, thereby suggesting mother-to-father partner-effects. In another cross-sectional study involving married couples (Wachs & Cordova, 2007), mindful awareness was associated with marital quality. In addition, the relationship was mediated by anger reactivity as well as identification and communication of emotional states. Nonreactivity is a component of mindfulness that has emerged as a major correlate of child maltreatment. For example, a longitudinal study by Calvete et al. (2021) found mindful discipline (e.g., involving greater parenting awareness and nonreactivity) to be a predictor of lower levels of adolescents' aggression, victimization, and depressive symptoms a year later.

Two general formats have been used to deliver MBIs for parent-child interactions during conflictual situations. The first is indirectly, which involves a skilled mindfulness trainer providing training to the mother with the hope that her embodied mindfulness will cascade or spillover (Burgdorf et al., 2019; Singh & Hwang, 2021) to other members of the family. In this kind of intervention, the effects of training one or both parents are measured in terms of parental ratings or the observed behavior of the target child. The second is directly, which involves a parent who has been trained in mindfulness or on a specific intervention program providing the mindfulness-based training to their child.

Indirect Effects of Mindful Parenting

In the first study designed specifically to assess the spillover effects of parent mindfulness training on their children's behavior in the absence of additional training for the children, Singh et al. (2006) provided a 12-week mindful parenting course to mothers of children with autism. The mindful parenting course did not include any reference to how the parents could manage the behavior of their children. Observations of the children's behavior over the course of the 80-week study showed that when compared to baseline observations, the children's aggression, non-compliance, and self-injury decreased substantially to near-zero rates. These behaviors were targeted for observation because they negatively affected the family dynamics. In a systematic replication, Singh et al. (2007) used the 12-week mindful parenting course with mothers of children with developmental disabilities. When compared to baseline observations, the children's aggressive behavior decreased to zero or near-zero levels during the course of the study. In terms of family functioning, the children were observed to substantially increase positive social interactions and decrease negative social interactions with their siblings. Furthermore, the mothers' self-ratings of perceived psychological stress significantly decreased and their satisfaction with their parenting and mother-child interactions increased, suggesting improved family functioning.

In further development of the mindful parenting program used in the above studies, the 12-week course was tested and refined into a Mindfulness-Based Positive Behavior Support (MBPBS) stepped care program that included several training options, with 1-day, 3-day, 5-day, and 7-day courses, depending on the needs of families, caregivers, and teachers (Singh et al., 2020). Singh et al. (2019) assessed spillover effects in a controlled trial using the 3-day MBPBS program with mothers of children with either autism (n = 47) or intellectual disabilities (n = 45).

When compared to baseline levels, both groups of children exhibited significantly less aggressive and disruptive behavior, suggesting that similar levels of behavior change may occur with the 3-day MBPBS program regardless of whether the children are diagnosed with autism or intellectual disabilities. Furthermore, in a three-arm randomized controlled trial, the effects of teaching mothers the 3-day MBPBS program, the mindfulness program alone, and the PBS program alone (n = 65 in each condition) were assessed on the children's behavior (Singh et al., 2021). While it was expected that the MBPBS and PBS conditions would impact the children's behavior because these components included specific instruction on behavior change, the mindfulness alone condition produced spillover effects on the children that was less than the full MBPBS program but more than the PBS alone condition, replicating the findings from earlier studies that did not include any behavioral components.

In another series of studies, parents participated in an 8-week mindful parenting course, which was based on the Mindfulness-Based Stress Reduction (MBSR; Kabat-Zinn, 1990) and Mindfulness-Based Cognitive Therapy (MBCT; Segal et al., 2002) programs, and then self-rated outcomes in terms of parental psychopathology as well as their children's psychopathology (who were not included in the training) at pretest, posttest, and followup. Of interest is the spillover effects of the mindful parenting training on the children's externalizing behavior which typically impacts family functioning. In the first study, Bögels et al. (2014) enrolled parents (n = 86) who were referred for training because of their children's and/or their own psychopathology, or parent-child relationship problems. When compared to pretest ratings, the children's externalizing behavior on the Child Behavior Checklist (CBCL; Achenbach, 1991a) decreased at posttest immediately following the training of their parents and decreased further

following the 8-week followup. The effect size was small but significant. This study was directly replicated in a multicenter study (Meppelink et al., 2016), with parents (n = 70) being referred to the study by their family physician because of their child's psychopathology. The findings were similar to the previous study, with significant reduction in the children's externalizing behavior, and again with a small effect size. In a large study (n = 247) using the same methodology as in previous studies, Potharst et al. (2021) compared outcomes for parents and children from clinical and non-clinical settings. The results were essentially similar for children from non-clinical settings for child behavior problems, but not for those from clinical settings.

Finally, in a two-phase study, Hwang et al. (2015) provided another example of the likely additive effects of parent mindfulness and child mindfulness, with the mother being trained first followed by the mother teaching mindfulness to her child. When the mothers alone were trained in the theory and practice of mindfulness meditation in an 8-week mindfulness program in the first phase, they reported enhanced parental mindfulness, reduced parental stress, and increased quality of family life. The spillover effects on their children included reduced aggressive behaviors and attention problems. In addition, the effects on the children were strengthened when the mothers taught mindfulness meditation to their children in the second phase of the study. In effect, this study presented data on the combined effects of indirect and direct effects of mindful parenting.

In sum, these studies indicated that training parents in mindful parenting produces spillover effects on their children's externalizing behavior, which in turn may improve family functioning. However, not all mindful parenting studies produce spillover effects on the

children (e.g., Jones et al., 2018; Lo et al., 2017) and there is a need to determine which MBIs do so and under what conditions.

Direct Effects of Mindful Parenting

A few studies have reported on the utility of having the children's parents provide the intervention to help their children self-manage their aggression and disruptive behavior. All of these studies used the *Soles of the Feet* (SoF) meditation program (Felver & Singh, 2020; Singh et al., 2011a). The SoF is an evidence-based manualized MBI that has been implemented with participants across the lifespan and neurodiversity and has demonstrated high acceptability and fidelity of implementation across multiple settings and contexts (see Felver et al., 2022, for a meta-analysis). In brief, the SoF meditation requires an individual to (a) recognize the antecedent variables that lead to their aggressive or disruptive behavior, (b) disengage their attention from those precursors, (c) reorient their attention to a neutral point on the body, thereby discontinuing the escalation of the challenging behavior, and (d) return calmly to the ongoing activity. The SoF meditation encourages individuals to practice their newly acquired skills in different contexts, thereby supporting generalization across settings once fluency in using it has been achieved (Felver & Singh, 2020; Singh et al., 2011a).

In the first study to use SoF in the context of family aggression, Singh et al. (2011b) taught the mothers of three adolescents with Asperger syndrome to use the SoF meditation in their own lives for any negative emotionally arousing situation, such as rising anger. Once the mothers achieved fluency in using the SoF meditation, they used verbal instructions and modeling to teach the SoF meditation to their adolescents during 15-min sessions on five

consecutive days. They encouraged their adolescents to use the meditation when they anticipated anger and aggression and provided them with an audiotape of the instructions they could use for self-practice. The adolescents practiced the meditation with their mothers twice a day and whenever an incident occurred that could elicit aggressive behavior. The adolescents continued to use the procedure until they had three consecutive weeks of no aggressive behavior. Thereafter, their aggressive behavior was monitored for four consecutive years. Results showed that the adolescents were able to achieve total control of their aggressive behavior towards their parents and siblings within 25 weeks of training and were able to maintain the behavioral gains during the 4-year followup period.

In a related study, Singh et al. (2011c) systematically replicated the methodology of the above study with three adolescents with autism. The differences between the two studies included the diagnosis of the participants (autism vs. Asperger syndrome), their ability levels (lower ability in the adolescents with autism), the length of training sessions (30-min per session vs 15-min), and the length of the followup (3 years vs. 4 years). In all other respects the methodology was the same. Results were similar, but low levels of aggression were observed during the 3-year followup with adolescents with autism. In a third study, Singh et al. (2017) taught both parents of three adolescents with Prader-Willi syndrome (PWS) to use the SoF meditation who then taught it to their adolescents. Functional assessment indicated that the adolescents' aggression was precipitated when they were denied tangibles (i.e., unlimited access to food). The adolescents engaged in both verbal and physical aggression directed at their parents. Results showed that the adolescents with PWS were able to reduce their physical aggression to zero levels and verbal aggression to zero or near-zero levels. Furthermore, they

were able to maintain their behavioral gains at about the same levels during the 12-month followup.

In the most recent study, Ahemaitijiang et al. (2020) extended the methodology and evidence base of the utility of SoF to Chinese adolescents and evaluated the social validity of the program in a Chinese cultural context. The participants were three adolescents who presented with mild levels of autistic behavior and engaged in verbal aggression, physical aggression, and destructive behaviors. The mothers of the adolescents were first taught a foundational meditation practice (i.e., FA meditation) to ensure that they engaged in personal daily meditation, which they practiced for 20-mins a day for four weeks before they were taught the SoF meditation to fluency. The mothers then taught their adolescents the SoF meditation over a 3-week period for a total of 1.75 hours. Data were collected for 40 weeks with a 1-year followup. Verbal aggression and destructive behavior were substantially reduced across all participants and maintained at low levels during the followup period. Physical aggression was reduced to zero and maintained at this level during the followup. The mothers highly rated the SoF meditation in terms of acceptability, effectiveness, and unintended side effects suggesting the program may be culturally valid for Chinese participants.

These studies are suggestive of the effects of direct training of adolescents in the self-management of aggression towards family members. The long-term followup data are indicative of lasting maintenance effects. The use of parents as instructors of the MBI is a strength because it enables them to redirect the family dynamics on to a more positive pathway.

Parallel Training in Mindfulness

There have been a number of studies that have provided training on MBIs to parents and their children in parallel; that is, mindfulness-based training is provided simultaneously to parents and their children in separate groups (Xie, 2021). While most of these studies investigated the effects of parent-child parallel interventions on general family functioning, parent mental health, and child mental health, a few included indices of aggression in the family arising from the behavior of one of the children.

In the earliest study, Bögels et al. (2008) used an MBI based on MBCT that was adapted for parents and separately for adolescents. Training was provided in parallel groups of 6 parents and 7 children, for 1.5 hours per weekly session over 8 weeks. Among other measures, the parents rated their children's behavior on the CBCL and the adolescents rated their own behavior on the Youth Self Report scale (YSR, Achenbach, 1991b), with both rating scales including measures of delinquency and aggression. Both parent ratings and child self-ratings showed significant improvement in the adolescents' externalizing behaviors following the MBI training and the improvements were maintained during the 8-week followup period, with large effect sizes. Although a limitation of the study was that it lacked an active control condition, it did indicate an adapted MBCT program may be a promising approach for teaching adolescents to self-manage their aggression.

The methodology of this study was replicated and extended by Van der Oord et al. (2012) in a study with children with attention deficit hyperactivity disorder (ADHD) and their parents. The MBI used in the Bögels et al. (2008) study was manualized and training was provided in parallel groups to parents and their 8 to 12-year-old children for 1.5 hours per week

for 8 weeks. Among other measures, parent and teacher ratings of the children's behavior were obtained on the Disruptive Behavior Disorder Rating Scale (Pelham et al., 1992). On the oppositional defiant disorder sub-scale, neither the parent nor the teacher ratings showed significant changes due to the MBI although changes in other indices (e.g., inattention, hyperactivity/inattention) were evident. In a second replication and extension of the Bögels et al. (2008) methodology, van de Weijer-Bergsma et al. (2012) used the same MBI with parents and their 11 to 15-year-old adolescents with ADHD. This was a quasi-experimental study, with a pretest, posttest, and followups at 8 and 16 weeks. Rating scale data for the adolescents' behavioral regulation (i.e., rule breaking behavior and aggressive behavior on CBCL and the Teacher Report Form (Achenbach & Rescorla, 2001) were obtained from fathers, mothers, and tutors. The data were mixed with significant changes due to the MBI on several variables but in terms of family disharmony only the fathers rated the adolescents' problem behaviors as improving at the 8-week followup.

In an independent replication of the above studies, Haydicky et al. (2015) evaluated the effects of the program (now called the "MYmind" program) in terms of an array of variables, including family functioning and the adolescents' externalizing behavior. Adolescents with ADHD (n = 18) and their parents (n = 17) attended parallel training sessions and completed rating scales at four time points. Results showed no effects of the MBI on family functioning in terms of the number or intensity of conflicts as reported by the parents or the adolescents. However, the adolescents' conduct problems decreased post MBI intervention and this decrease was maintained at the 6-week followup. In another parallel training study of parents and their children with ADHD, Lo et al. (2020) reported reductions in the children's aggression

on the CBCL. This study examined the effects of a customized family-based mindfulness intervention for the parents, but used a child mindfulness program by Snell (2014) that was unrelated to the parents' program.

In the most recent study, Bögels et al. (2021) undertook a large (N = 167) pragmatic quasi-experimental waitlist trial with an 8-week and 1-year followup. MYmind was used in parallel training with parents and their 7 to 19-year-old children with ADHD. Among other findings, when compared to the pretest, the children's externalizing behaviors showed a significant reduction following the intervention, with the initial small effect size at posttest progressively increasing with the 8-week and 1-year followup. While pragmatic trials have certain methodological limitations, the accumulated data thus far suggest that parallel training of parents and their children with externalizing problems may lead to significant reductions in the children's behavioral problems which affect family functioning.

In sum, there is emerging evidence that training parents and their children in MBIs in parallel groups offers a unique way of changing the well-being of both parents and children simultaneously. When considered in the broader context beyond family aggression and violence, MBIs used in parallel training show small positive effects on family functioning, parental mental health, and child mental health (Xie, 2021). Further investigations of this methodology appear warranted.

Strengths, Limitations, and Future Research

Current research suggests that MBIs may be useful in changing family dynamics affected by aggression and violence. While the empirical evidence is still emerging, there are positive signs

that the spillover effects of training parents alone have a measurable effect on the externalizing behavior of their children, which in turn affect family dynamics. Stronger evidence for similar positive effects comes from studies of parents teaching their children and adolescents to use SoF to self-manage their aggressive and destructive behaviors. Furthermore, providing training to parents and their children in parallel is also strongly suggestive of positively affecting family dynamics. The data come from studies that include single-case designs, large quasi-experimental studies, and randomized controlled trials. Also, the participants included children and adolescents across a wide range in terms of age, diagnoses, race, and sex.

Given these studies are in an area of research that is relatively new, there are obvious limitations as well. The evidence base is not well established because the effect sizes are small to medium, with some studies showing limited effects. The research studies come from a small group of investigators and have not been replicated by a broad range of researchers with different groups of participants, across cultures, and MBIs. Many MBIs used in this research (e.g., adapted MBCT, MBPBS, MYmind, Mindfulness-Based Well-Being for Parents [MBWB-P], Family-Based Mindfulness Intervention [FBMI]) are modeled after the MBSR 8-week program that is lengthy and demanding of time and effort, which many families in need of mindful parenting do not have. Thus, simpler MBIs may be needed, or at least simpler versions of standard programs may need to be developed to meet the needs of such families. For example, the stepped-care model used in MBPBS program provides one option for individualizing the MBI to meet the differential needs of a variety of families and other caregivers.

An important consideration is the format used in current research to deliver the MBIs. The typical format involves individualized training of the parents as in the SoF program, and

group parent training with or without parallel group training for their children. These training formats have been helpful in enabling researchers to target specific participants needed for the research studies. But can the group training formats be sustained in clinical practice where individual families seek assistance with family aggression? What has been missing are formats that provide individualized training of the entire family because the family system needs to be the unit of care. After all, aggression is often evidenced in all family members in one form or another and not just in the child with externalizing behaviors. The issue is that groups of families may prove to be rather cumbersome to train not only because of the size of the groups needed, but also because the specific needs of individual families may not be able to be met in large groups.

Furthermore, there remains the question of assessment. Most mindful parenting research has relied on the use of rating scales to measure functioning of the parents and their children at pretest, posttest, and followup. While this method taps into the face value of specific dependent variables, such as levels of mindfulness, family functioning, and child behavior, it does not provide actual performance data. That is, rating scales provide data on what families and children say they would do, but is it really what they do in practice? Or put another way, the issue is the congruence between attitude and behavior. This is an old behavioral "say-do" correspondence problem much studied in applied behavior analysis (see Lloyd, 1994) resurfacing in current mindfulness research. Self-ratings of how mindful parents say they would be in a hypothetical situation cannot be generally considered strong evidence of how mindfully they would behave when their child is aggressive in real life. The same would

apply to ratings of their children and self-rating by their children. We present a case study from our on-going research that begins the process of finding a solution to this problem.

Case Study

A family was referred for mindfulness training because of the addition of a new member who disrupted a reasonably well-functioning family unit. The family, which included the parents and a daughter, fostered and then adopted a 9-year-old boy who had been in the social welfare system for five years following a court decision that his drug-addicted parents were incapable of providing adequate care. Referral information showed that the father was 36 years old and an accountant by profession, the mother was 34 and an elementary school teacher, and the daughter was 11 and a middle school student. The boy had experienced three foster care placements that proved to be detrimental to his mental health, leading to explosive outbursts, verbal and physical aggression, and attempting to run away from the third foster home placement. He was placed with the referred family for six months as a foster child before they decided to adopt him being fully aware of his mental and behavioral status. Prior to the current referral, they had received family counseling to help integrate the boy within the family unit.

A comprehensive psychosocial assessment was undertaken to better understand the family dynamics as well as the characteristics and interactions within the family unit prior to and following the adoption. For this case study, we named the daughter Vida and the boy Peter. In brief, the family unit was very cohesive, loving, and well-functioning before Peter was fostered and later adopted. Peter fit in reasonably well within the family system, but his occasional outburst had continued, he was moody at times, and he engaged in verbal and

physical aggression with all family members. Functional assessment indicated mixed motivations for his aggressive behavior, including attention, tangibles, and mainly nonsocial. Interviews indicated that Peter's emotional dysfunction may have been the root cause of his behaviors, including the strong feelings that he was abandoned by his extended biological family, lack of attachment relationships, being bullied in foster care placements, and equivocal trust that his adoptive family is truly loving and accepting of him. It appeared that his explosive outbursts occurred when current interactions were misinterpreted as being reminiscent of past negative experiences in foster care placements. Also, past experiences produced a lack of trust that current positive interactions and assurances that he was a loved member of the family would not end in the same way as before.

The family was offered an opportunity to choose the type of intervention they wished to receive – a mindfulness trainer working directly with Peter, or a family member or members trained to teach an MBI to Peter. They requested to learn an MBI as a family unit without singling out Peter as the recipient of additional services because they perceived the situation as a family issue rather than Peter learning to adjust to the family. We initially considered using an existing MBI for this purpose, but the exigencies of the family dictated a simpler and shorter MBI that made limited demands on their time and was conducive to being used by the children and adults alike. Thus, we devised a new MBI that could be used within a family system to change family interactions.

Intervention. We based the new MBI on basic principles: mindfulness meditation (i.e., FA and OM), a pause to terminate automatic responding, discernment of response thoughts, and socially acceptable responses. For ease of use, we termed this intervention as Mindfulness-

Based Pause, Discernment, and Response (MBPDR). The MB component is the foundational mindfulness-based meditation practice, the P component is the key teaching on patience by Shantideva (Shantideva, 2002), the D is discernment of whether arising thoughts of specific responses are wholesome or unwholesome, and the R is the choice of a socially acceptable response.

Measures. We included two subjective measures (for angst, anger) and two behavioral measures (for verbal aggression, physical aggression). Angst was broadly defined as non-specific anxiety with associated frustration and negativity. Angst was used as a proxy measure of *dukkha* which in Buddhism is often translated as suffering, dis-ease, or unsatisfactoriness of one's present condition. It was rated on a 10-point Likert-type scale with 1 = satisfactory and 10 = totally unsatisfactory. Anger was defined as a strong emotional reaction to interactions with one or more family members. It was also rated on a 10-point scale, with 1 = no anger and 10 = passive non-verbal aggression. Verbal aggression was defined as yelling, screaming, cursing, insulting, or any other verbal expression of anger meant to cause mental harm. Physical aggression was defined as hitting, kicking, punching, pushing, and throwing objects. Both verbal and physical aggression events were counted in real time and recorded by each family member who was present. Data were collected during a 10-week baseline phase and then during implementation for the next 40 weeks.

Training. Training was provided to the whole family on a weekend day, lasting 6 hours. The family received training in the FA and OM meditations, which they periodically repeated throughout the day's training. They recorded the guided meditation instructions provided by the mindfulness instructor during the training and then each member used it for personal

meditation practice. Training was successively provided on the significance of stopping automatic reaction to angst, anger, and verbal and physical aggression. This was followed by instructions on discernment, which are mental factors defined here as the wisdom to know the difference between wholesome and unwholesome responses. Unwholesome responses are mentally unhealthy and produce negative results, such as dis-ease and unsatisfactoriness with the current situation. This teaching was then linked to discerning the quality of the automatic thoughts that arise when one feels angst and anger or is subjected to verbal and physical aggression. The emphasis was on thoughts being transitory and subject to rising, decaying, and passing by simply observing and letting them go. Further, if one engages in discursive thoughts, the teaching was not only that you are not your thoughts but also not to believe everything you think. Finally, the emphasis in the training was to respond mindfully to all situations with wholesome actions. Detailed instructions and discussion of each of these teachings was provided. Each family member was encouraged to develop a personal meditation practice for about 20 minutes daily. Finally, the family was required to practice together each weekend for four weeks, and as needed thereafter. The mindfulness meditation trainer was available for consultation during this period.

Results. Each family member was able to adhere to the daily meditation practice, with the mother, father, Vida, and Peter meditating on average about 25, 19, 20, and 15 minutes, respectively, during the study. Average self-ratings per week for angst and anger on a 10-point scale, with 10 indicating most negative ratings, are shown in Figure 2. Baseline ratings were highest for angst, indicating a general dis-ease with family interactions centered around Peter's negativity. This decreased substantially across all family members following training in MBPDR.

Anger was similarly rated by all family members but at lower levels. No family member rated the occurrence of either of these feelings during the last 16 weeks of the 40-week intervention. Observational records by family members for verbal and physical aggression are shown in Figure 3. During baseline, Peter had the largest average number of verbal aggressions when compared to those of the other three family members. These were reduced to very low levels following family training in MBPDR. Except for Peter, no other family member engaged in physical aggression during baseline. Peter engaged in physical aggression on average about six times per week during baseline, but only one per week following intervention. No family member, including Peter, recorded any occurrence of either verbal or physical aggression during the last 16 weeks of the intervention.

<Insert Figures 2 and 3 about here>

Data were also analyzed statistically because visual analysis and interpretation of the plots in terms of significance may differ depending on the expertise of the analyst (Kratochwill et al., 2014). Therefore, combining visual analyses with single-case statistical analyses contribute to robustness in single-case experimental studies. Descriptive statistics including range and mean occurrence of verbal aggression for each family member and physical aggression for Peter were calculated for the baseline and the MBPDR training (Table 1). The differences between baseline and intervention were tested by applying the novel Tau-U method that examines non-overlap between intervention phases while controlling for trends within each phase (Parker et al., 2011). Table 1 shows that all family members exhibited verbal aggression during the baseline with the overall occurrence rates ranging, on average, from 1.5 (Father) to 16 (Peter) per week. However, during the MBPDR training there was a statistically

significant reduction of verbal aggression observed for all family members with TAU-U coefficients ranging from -0.88 (Father) to -0.97 (Mother) indicating large effect size (all *p*-values <0.001). Similarly, there was a significant reduction of Peter's physical aggression during the MBPDR training to an average of one per week compared to the overall 6.2 occurrences per week at the baseline as reflected by TAU-U of -0.95 (p <0.001).

Table 1. Descriptive statistics, TAU-U coefficients, Z-scores and p-values for aggressive behavior of the family members during the baseline and the MBPDR training.

Participants	Mother	Father	Vida	Peter	
Aggressive Behavior	Verbal	Verbal	Verbal	Verbal	Physical
Baseline mean per week	2.10	1.50	3.30	16.00	6.20
Baseline range	1-4	0-3	1-5	12-20	4-9
MBPDR training mean per week	0.10	0.05	0.48	3.15	0.98
Intervention range	0-1	0-1	0-4	0-15	0-5
TAU-U	-0.97	-0.88	-0.90	-0.96	-0.95
Z-score	-4.71	-4.24	-4.34	-4.63	-4.62
p-value	<0.001	<0.001	<0.001	<0.001	<0.001

Although this was an uncontrolled case study, the data are suggestive of the positive effects of training the whole family in MBPDR. Informal comments by family members indicated that learning about acceptance, a key aspect of mindfulness, and the transitory nature of all things, including one's own thoughts, a key Buddhist teaching, were the critical factors in their behavior change. Furthermore, the pause and discernment components gave the family members a very practical way of engaging with thoughts and responses. The strength of the case study was that it demonstrated how a MBI can be used within family systems that may

impact the behavioral repertoire of all members of the family, produce better understanding of family interactions, and offer alternative ways of responding to negative behaviors.

Conclusions

Research over the last three decades has established MBIs as a major approach for treating a range of health, mental health, and medical conditions. The majority of the evidence-base is derived from RCTs in which the effects of MBIs on participants have been studied in group settings and the data analyzed by experimental conditions. Research on mindfulness in interpersonal settings, such as in family systems, is at present rather limited. However, this is an area of immense importance because the fact that we can learn to be mindful does not imply that such mindfulness will generalize to interpersonal contexts (Iida & Shapiro, 2017; Pratscher et al., 2018). The question is whether enhanced attention and awareness will lead to non-judgmental acceptance of others in the present moment. Interpersonal mindfulness requires not only cognizance of one's own feelings, thoughts, sensations, and perceptions but also an awareness of the subtle reactions of others. These may include paying attention to and being aware of their body posture, facial expressions, emotional tone, and eye gaze and responding to them in a nonjudgmental manner.

Mindful parenting is currently the mainstay of mindfulness research in family systems. Such research has made important contributions in understanding how families and children can be mindful of their own behavior. Studies providing evidence of cascading or spillover effects of parent mindfulness on their children suggest unprogrammed interpersonal effects. Studies of mindfulness-trained parents teaching MBIs to their children suggest that parents can change the trajectory of their own behavior as well as that of their children. Data on direct

training are not extensive but are derived from methodologically sound studies. Finally, providing training in parallel groups for parents and their children has the added advantage of spillover effects from the parents and the direct effects of training the children in the same MBI.

Current research efforts have set the stage for research on interpersonal mindfulness in family systems. However, such an effort cannot be taken lightly given the enormity of the task, not only in terms of the mechanics of exactly how individual families and groups of families can be accommodated in accepted research designs and provided the requisite training, but also how to measure change in family interactions. While behavioral observations and ecological momentary assessment (Russell & Gajos, 2020) may offer reliable and replicable ways of data collection, they could be supplemented with appropriate rating scales even given their drawbacks. For example, the recently developed Interpersonal Mindfulness Scale (Medvedev et al., 2020; Pratscher et al., 2019) may prove to be a viable measure of interpersonal mindfulness in family systems.

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Figure 1. An illustrative example of the flow of a mindfulness-based intervention

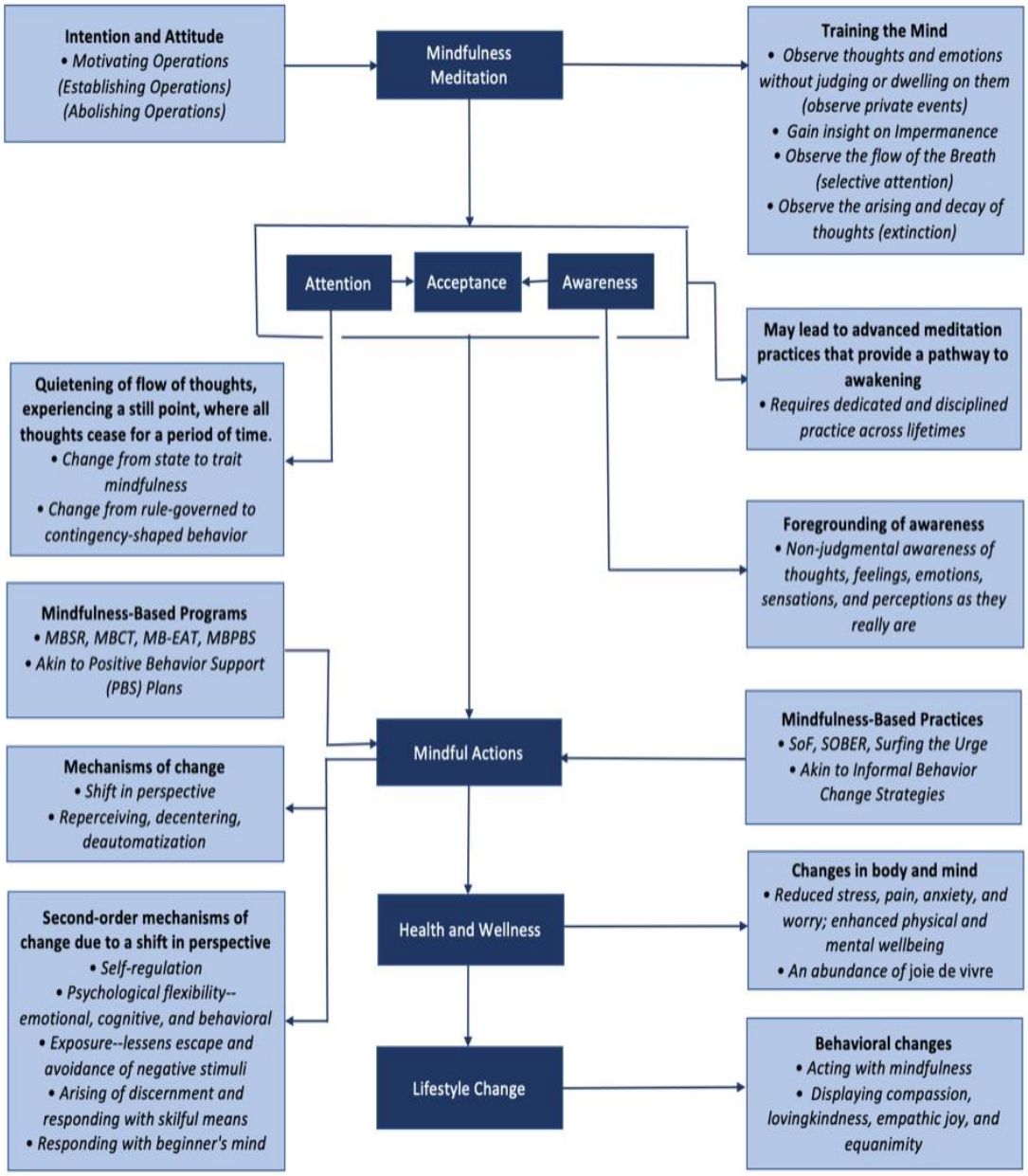

Figure 2. Family ratings for angst and anger during baseline and MBPDR intervention

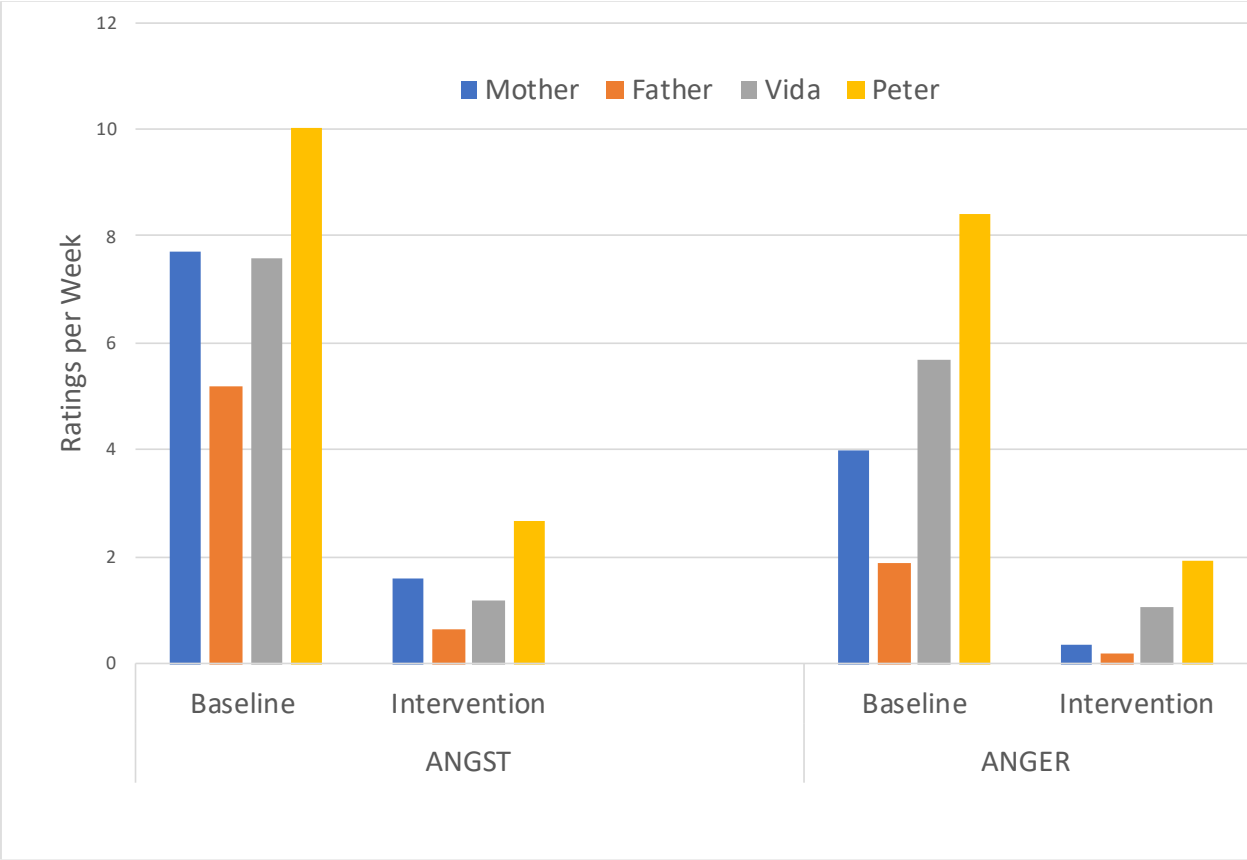

Figure 3. Family ratings for verbal aggression and physical aggression during baseline and MBPDR intervention