



Mindfulness and Imagery Enhanced Behavioral Parenting: Effectiveness Pilot of the Confident Carers Cooperative Kids Program

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Abstract

Mindfulness is increasingly offered to parents of children presenting with behavioral problems, either as a stand-alone intervention, or integrated within existing behavioral parenting interventions. There is relatively modest support for mindful parenting, with small to medium effect size improvements demonstrated across child and parent outcome measures. Here we introduce a mindfulness and imagery enhanced behavioral parenting program. We argue blending mindfulness, imagery and behavioral skills could produce improved parenting engagement and perseverance, leading to stronger outcomes. Pilot data is presented from two contrasting real world clinical settings. Parents attending the 8-week Confident Carers Cooperative Kids (CCCK) group program in a university clinic setting were invited to be included in the study ($n = 20$). Permission was also gained to use archival data from a community organisation offering CCCK groups to parents who were at risk of child welfare involvement ($n = 14$). Pre- and post-intervention measures were completed across both groups on parent-reported child behavior, parent wellbeing, adaptive parenting, and mindful parenting. Parents from both groups achieved significant pre- to post-intervention improvements in child behavior problems, parent wellbeing, adaptive parenting, and mindful parenting, with large effect sizes. Larger improvements in child behavior problems were reported by parents from the community group compared with the university group. The CCCK intervention appears beneficial across child and parent outcomes, including for families most in need. A larger sample is required to replicate and extend these promising findings.

Keywords Parenting · Mindfulness · Imagery · Child behavior · Real-world effectiveness

Highlights

- Mindfulness and imagery have potential to improve behavioral parent training outcomes.
- Mindfulness and imagery enhanced behavioral parenting group found large effect size pre-post intervention improvements.
- Improvements in child behavior greater for higher need community participants compared with university clinic participants.
- Improvements in parent wellbeing, adaptive and mindful parenting similar across community and university participants.

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Untreated child behavioral problems are associated with long term adverse social and economic consequences (Fergusson 2005; Romeo et al., 2006; Simonoff et al., 2004). Behavioral problems also account for over half of the referrals to child mental health services, highlighting the scope of the issue, and underlining the need to find effective interventions (Sawyer et al., 2001; Scott et al., 2001). Behavioral parent training (BPT) emerged amidst the 1950s paradigm shift away from using individual psychodynamic approaches to treat child behavioral difficulties and is widely regarded as the “gold standard” intervention for such

problems (Buchanan-Pascall et al., 2018; Kaminski & Claussen, 2017; Turner et al., 2020). BPT is based on social learning theory, helping parents to adjust social contingencies in response to children's behaviors. Undesirable behaviors are discouraged through use of planned-ignoring and consequences, and desired behaviors are positively reinforced through attention, praise, and rewards (Shaffer et al., 2001). BPT also focuses on strengthening the parent-child relationship through play and theorises that problem behaviors tend to escalate through coercive parent-child transactions (Patterson 1982; Webster-Stratton & Reid, 2018).

A plethora of BPT programs have generated substantial evidence, with medium to large effect sizes shown for BPT over control groups for sustained improvements in child behavior, adaptive parenting, and parental wellbeing (Buchanan-Pascall et al., 2018; Kaminski & Claussen, 2017; Kazdin 2008; Sanders et al., 2014; van Aar et al., 2017). Generalisability of benefits beyond tightly controlled efficacy trials has also been demonstrated through real-world effectiveness studies, leading to wide dissemination (Gardner et al., 2010). Balanced against this support, a recent systematic review of 20 BPT studies ($N=2097$) found considerable variability in outcomes, with between-group effect sizes ranging from $d=0$ to 1.26 (Buchanan-Pascall et al., 2018). Similarly, a recent evidentiary review of 64 BPT studies ($N=6537$) found effect sizes ranged from $d=0.02$ to 1.41 for pre- to post-intervention (Kaminski & Claussen, 2017). In practical terms, this indicates some programs produce very large effects while others have no measurable benefit for troubled families.

Poorer effects from traditional BPT programs have often been linked to parents' difficulties in engaging and persevering with behavioral strategies, or difficulties implementing these strategies within a challenging environment (Chacko et al., 2016; Lundahl et al., 2006). A review of over 250 BPT studies found that at least twenty-five percent of families dropped-out prior to starting the program, and a further twenty-five percent failed to complete a minimum number of sessions, with attrition rates being higher for families of lower socio-economic status (Chacko et al., 2016). Reviews of BPT programs have identified medium effect size impacts on treatment outcome for families with low-income status, low education level, low occupation status, maternal depression, more severe child behavior problems, harsh discipline, and negative parental attributions towards the child (Orrell-Valente et al., 1999; Reid et al., 2003; Reyno & McGrath, 2006). It appears that there is capacity for BPT programs to evolve to meet the needs of vulnerable families.

Many BPT programs have developed additional modules to ameliorate known parent-related factors which reduce effectiveness. For example, Triple P offers "enhanced" and

"pathways" programs which include modules such as partner relationships and communication, personal coping strategies, problem-solving, and anger management (Sanders et al., 2014; Sanders et al., 2004). The Incredible Years program has similar modules that extend the program from 14 to 30 sessions (Webster-Stratton & Reid, 2018). However, there is mixed evidence on the effectiveness of such additional modules on parent and child outcomes (Reid et al., 2003; Sanders et al., 2000). Furthermore, concerns have been raised about lengthy treatments creating burden, limited depth and breadth from one-off modules, and the effectiveness of implementing additional modules after the core behavioral components have been covered (Kazdin 2008). Taken together, it appears that additional modules may not represent the most parsimonious solution for improving BPT outcomes.

Alongside the development of enhanced BPT programs, mindful parenting has emerged over the past 20 years to help parents manage their emotional and attributional processes while parenting their child (Townshend et al., 2016). Mindful parenting programs (MPPs) encourage the use of non-judgemental, conscious, and fully accepting presence in parenting (Kabat-Zinn & Kabat-Zinn, 1997). Some MPPs rely solely on delivering mindfulness training, whereas others adapt mindfulness concepts to parenting, or integrate mindfulness with behavioral skills components. Empirical research has demonstrated support for all three types of MPPs in reducing child behavior problems and improving adaptive parenting, parent mindfulness, and parent wellbeing (Bögels et al., 2014; Burgdorf et al., 2019). That said, recent systematic reviews on MPPs have found only small to medium effect size improvements across parent and child outcomes, compared with medium to large effect size improvements for BPT programs (Burgdorf et al., 2019; Kaminski & Claussen, 2017). Similar to BPT, demographic factors such as low parent education level and younger child age have been shown to moderate attendance and outcomes in MPPs (e.g., Potharst et al., 2021). Factors such as parental stress, over-reactivity, experiential avoidance, psychological flexibility, and mindfulness have been found to inconsistently mediate improvements in adaptive parenting or child behavior or both (Brassell et al., 2016; Emerson et al., 2021; Ferraioli & Harris, 2013). Thus, the mechanisms of change in MPPs remain unclear. There are also questions about which children benefit most from MPP and BPT interventions, with the bulk of evidence supporting greater improvement among children presenting with more severe behavioral problems (Gardner et al., 2010; Leijten et al., 2013).

Some studies have compared MPP against BPT to help understand the key effective and active ingredients in both types of programs. For example, an 8-week randomised pilot study by Ferraioli & Harris (2013) found significant

pre- to post-intervention improvements in parent wellbeing and mindfulness for parents of children with autism spectrum disorder (ASD) within their MPP condition, but not their BPT condition. Benefits of MPP over BPT have been demonstrated in other studies with children with ASD and developmental disabilities (Whittingham et al., 2019). However such findings need to be considered in the context of underlying aetiological mechanisms. Parents of children with disabilities may need to find flexible ways of responding to their child's life-long difficulties, well-suited to mindfulness intervention. Conversely, parents of children with oppositional or conduct presentations may need to step back from coercive cycles that inadvertently reinforce child behavior problems. In keeping with this suggestion, Ferraioli & Harris (2013) found that parents from their BPT condition showed significant improvements on an applied behavioral analysis measure, and no significant changes on a dispositional mindfulness measure. Similarly, only parents from the mindfulness condition showed significant improvements on the dispositional mindfulness measure. The importance of face validity was also highlighted by this pilot study, with a parent randomised to the mindfulness group withdrawing because they wanted to "actually learn something" (p.97). The authors concluded that both conditions demonstrated medium to large effect size improvements from pre- to post-intervention, suggesting they each had useful active ingredients, and proposed an integration of components as a way forward. Many researchers have likewise called for mindfulness to be routinely integrated into BPT programs, rather than pitting BPT and MPP against each other (Brassell et al., 2016; Coatsworth et al., 2015; Dumas 2005; Emerson et al., 2021; Harnett & Dawe, 2012; Maliken & Katz, 2013).

In a study aligned with the aims of the current paper, Lengua et al., (2021) integrated mindfulness with parenting skills in their 6-week SEACAP program for 50 parents from socially disadvantaged backgrounds with children aged 2 to 6 years. Pre-to post-intervention improvements were found on parent-reported measures of consistent limit-setting ($d = 1.28$), rejection ($d = 0.35$), self-regulation ($d = 0.36$), and small improvements in observed parental scaffolding ($d = 0.20$) and negativity ($d = 0.16$). There was no change in mindfulness, however the measure used captures dispositional rather than interpersonal mindfulness and may therefore be less sensitive to changes in mindful parenting (Meppelink et al., 2016). No improvements were found for observational measures of parental warmth, responsiveness, and consistent limit-setting. Satisfaction ratings by parents were generally high, and additional parent feedback alluded to the benefits of self-regulation, increased attention towards their children, and feeling more effective as a parent. While conclusions about effectiveness are limited by the absence of a control group and the small sample size, the authors

emphasised the importance of the results in terms of benefits demonstrated by a brief real-world program with disadvantaged families.

To date, mindful parenting is yet to deliver on the earlier promise of improving upon BPT outcomes. Reviews have shown small to medium effect size benefits in terms of child behavior, adaptive parenting, and parental wellbeing. An opportunity only implicitly addressed in existing parenting programs is the potential of visual imagery and metaphors to improve engagement with intervention components, and to amplify intervention effects. As coined by the common phrase "a picture is worth a thousand words" (Dansereau & Simpson, 2009), imagery has proven to be a more powerful change agent than verbal-linguistic activity (Baddeley 2012; Holmes et al., 2007; Holmes & Mathews, 2010). Parents are exposed to various imagery during BPT and MPP interventions, including video material and images such as the parenting triangle in the Incredible Years program. Such images have the capacity to consolidate relevant learnings as well as provide a visual prompt or metaphor for use in future high-risk parenting situations (Harvey et al., 2014). The importance of visual imagery has also been recognised within promotional material for parenting programs (Charrest et al., 2019). Mindfulness programs employ guided mental imagery exercises, however opportunities to anchor these imaginal experiences via repeated use of key visual images is not routinely practiced. Multiple treatment exercises and components can be quickly forgotten by parents unless tied to personally meaningful concepts or symbols (Baddeley 2012; Harvey et al., 2014). Imagery also permits communication with parents' right cerebral hemisphere, in contrast to left hemisphere dominant language-based communications that may trigger increased defensiveness and possible dissociation (Schore 2019). For example, providing verbal advice on how to manage a child's behavior can inadvertently invite parents into therapy-interfering defensive justifications, rationalisations, or self-criticism such as, "it's not my fault, my child is bad" or "I'm a bad parent, nothing will work". The current paper explores the effectiveness of a parenting program, Confident Carers Cooperative Kids (CCCK), that combines the benefits of BPT and MPP and introduces visual imagery enhancement as a point of difference in trying to help families who are most in need.

The aim of the current study was to establish the effectiveness of CCCK for parents of children aged 3–12 years with behavioral problems, using a quasi-experimental real-world design comparing outcomes for parents from a university clinic versus a community organisation. Parents from the community organisation were experiencing a range of complex problems including domestic violence, drug and alcohol misuse, and mental health problems, and their children were at-risk of entering the child welfare system.

Thus, the comparison between the University and Community groups examined whether CCCK was able to meet the needs of parents who were arguably in more need of the psychological benefits of mindfulness, and who typically have poorer outcomes from standard BPTs. We hypothesised that attendance at the CCCK program would reduce parent-reported child behavior problems and improve parental wellbeing, adaptive parenting, and mindful parenting across both groups. We also predicted that parents from the Community group would report greater improvements in child behavior than parents from the University group, due to more severe ratings for child behavior at baseline.

Methods

Participants

Twenty-seven mothers (79.4%) and seven fathers (20.6%) (all birth parents) attended CCCK groups conducted over a 15-month period in regional Australia. Inclusion criteria were: (a) parenting at least one child aged 3 to 12 years who met the diagnosis of oppositional defiant disorder, (b) commitment to attend at least six of the eight weeks of the intervention, (c) at least one day of contact with their child/ren each week, (d) absence of untreated severe mental health difficulties, and (e) ability to communicate in English. The real-world nature of the study for both groups led to a lack of data regarding parents who were offered but declined to attend CCCK, and so only data from parents who enrolled in CCCK were included in the analyses.

University Group

The University group ($n = 20$) had either self-referred or been referred by a health professional to a university psychology clinic for support in parenting a child with behavior problems. Following approval from the University Human Research Ethics Committee (HE12/029), parents were recruited over a 15-month period via emailed information regarding the study and one follow-up telephone call (by KBH). Attendance in the intervention was not contingent upon consent to be included in the research. From 45 parents attending CCCK across five separate groups at the university clinic, 20 parents consented in writing to have their data included in the study.

To determine if there were differences between parents who consented to be included in the study versus other parents who attended the same CCCK groups, ethical consent was gained to access de-identified archival data from all parents who had attended CCCK at the university clinic (Human Research Ethics Committee 2020/010). Independent *t*-tests (two-tailed) and Fisher's exact tests

revealed that parents who consented to be in the study were significantly older than non-consenting parents ($M = 39.8$ versus $M = 35.5$ years; $t(43) = 2.48$, $p = 0.018$) and attended more sessions ($M = 7.5$, $SD = 0.7$ versus $M = 5.8$, $SD = 2.7$; $t(43) = 3.02$, $p = 0.004$). All other group differences in demographic variables were non-significant, including child age, family composition, family income, parent education level, marital status, and employment status. There were also no significant differences between parents included within the study for ratings of frequency and intensity of problem behaviors, overall adaptive parenting, and parental mindfulness. However, consenting parents were found at baseline to be more stressed ($M = 15.0$, $SD = 10.6$ versus $M = 8.5$, $SD = 10.4$; $t(43) = 2.07$, $p = 0.044$), anxious ($M = 4.7$, $SD = 5.6$ versus $M = 1.7$, $SD = 3.4$; $t(43) = 2.23$, $p = 0.031$), and wordy in their parenting style ($M = 29.2$, $SD = 6.1$ versus $M = 26.1$, $SD = 4.1$; $t(43) = 2.07$, $p = 0.044$) than non-consenting parents.

Community Group

The Community group ($n = 14$) were clients of a local not-for-profit community organisation who had been identified as at-risk due to difficulties in parenting a child with challenging behaviors, and who voluntarily chose to attend the program. Archival de-identified data was gained following consent and permission from the University Human Research Ethics Committee (HE12/029) and the Chief Executive Officer of the community organisation. Data was included for 14 parents who had commenced one of three CCCK groups at the community organisation. The community organisation offered childcare, transport to and from the group, and assistance in completing pre- and post-intervention measures, if needed.

Procedures

CCCK is a manualised 8-week mindfulness and imagery enhanced behavioral parenting group program, with parent workbooks, therapist manuals and accompanying video materials (Donovan & Konza, 2021, unpublished treatment manuals). CCCK had been co-developed and refined through a university clinic and child mental health service partnership for seven years prior to the current community pilot. Table 1 provides a summary of CCCK weekly components. CCCK introduces key images, metaphors, and mindfulness exercises throughout the program, embedding core concepts through the power of visual imagery, memory consolidation (Baddeley 2012; Harvey et al., 2014; Holmes et al., 2007), and right-hemisphere processing (Schore 2019). CCCK thereby targets parents' emotional and attributional factors, indicated as barriers to engagement, perseverance, and implementation

Table 1 CCCK Weekly Behavioral Skills, Mindfulness and ACT^a Components

Week	Title / Goal for Week	CCCK Components	
		Behavioral Skills	Mindfulness/ACT ^a
1	Understanding and preventing problem behaviors	Recognition of shared experiences, formulation of problem behaviors, problem list	Bushfire metaphor, power struggles (defusion), mind struggles (creative hopelessness, defusion)
2	Becoming aware of your parenting values	Emotion coaching	Parenting compass (guided mindfulness, values-identification), doing what matters (choice point, committed action), wheel of noticing (observing self)
3	Strengthening relationships	Attuned care-giving, balance between love and limits, play tips and traps	Mindful play, mindful describing, doing what matters
4	Encouraging positive behaviors	Learned behavior, praise & rewards, grounding exercise	Mindfulness of skittle, mindful praise, ‘feeding tiger cub’ (defusion), doing what matters
5	Preventing misbehavior	Setting limits, household rules, clear instructions, planned ignoring	Mindfulness of breath, mindful limits, ‘drop the rope’ (defusion), doing what matters
6	Managing misbehavior	Fight/flight/freeze, natural consequences, loss of privileges, time-out	Breathing space, mindful consequences, doing what matters
7	Managing difficult situations	Behavior action plan, consolidation	Self-compassion break, doing what matters
8	Being the parent	Behavior action plan, consolidation, relapse prevention	Sweet-spot guided mindfulness, doing what matters

^aACT Acceptance and Commitment Therapy

within traditional BPT programs (Chacko et al., 2016; Maliken & Katz, 2013).

In terms of theoretical underpinnings, like many existing parenting programs CCCK acknowledges the importance of operant conditioning reinforcement schedules (Shaffer et al., 2001). The role of parental attention is particularly emphasised as a powerful reinforcer of children’s behavior. CCCK also incorporates the neurobiology of attachment, humans under stress, and embodies a foundation of compassion towards self and others (Davis et al., 2017; Gilbert 2013; Schore 2019; Siegel & Hartzell, 2013). CCCK is centred around parents’ deeply held values about *the parent they want to be* and uses further Acceptance and Commitment Therapy (ACT)-based acceptance, defusion, and mindfulness techniques in helping parents to parent more consistently with these values (Coyne & Murrell, 2009). CCCK also maps onto the mindfulness model proposed by Shapiro et al., (2006), with targeted exercises to address (a) self-regulation, (b) values-identification, (c) cognitive-behavioral flexibility, and (d) exposure tasks.

For the University group, CCCK was facilitated by provisionally registered psychologists undertaking postgraduate clinical psychology training who had been trained in program delivery. For the Community group, CCCK was delivered by child health professionals who had also undertaken program delivery training. Training for both groups was provided by the program creators (MD and GK) via a two-day workshop, including demonstration and practice of key CCCK components. To ensure program fidelity, weekly supervision was provided throughout the intervention by one

of the program creators. This included review, and if necessary, role-play of each CCCK component.

Parents attended a weekly two-hour group comprising three to 11 parents and two facilitators. Pre-intervention interviews were completed prior to participation across both groups to gather relevant clinical and demographic information, to confirm a diagnosis of oppositional defiant disorder, and to ensure CCCK met the family’s needs. Pre- and post-intervention questionnaires were routinely completed immediately prior and following the intervention, regardless of involvement in the study.

Outcome Measures

Eyberg Child Behavior Inventory (Child Behavior)

The Eyberg Child Behavior Inventory (ECBI; Robinson et al., 1980) is a parent-report measure of conduct behavior problems in children aged 2 to 16 years. The ECBI describes 36 items of common behavioral problems, for example “Dawdles in getting dressed”, “Argues with parents about rules”, “Is easily distracted”. Parents respond yes or no to indicate presence of the behavioral problem for their child (ECBI-P) and the intensity at which these problems occur (ECBI-I), ranging from 1 to 7, “never” to “always”. Total scores are generated for the ECBI-P and ECBI-I. There are established cut-offs of ECBI-P (>15) and ECBI-I (>131) that indicate clinical significance. The ECBI has good internal reliability and adequate external validity (Boggs et al., 1990;

Robinson et al., 1980). Results for both ECBI-P and ECBI-I are reported here.

Strengths and Difficulties Questionnaire (Child Behavior)

The Strengths and Difficulties Questionnaire (SDQ; Goodman 1997) is a parent-report measure designed to assess the extent of emotional and behavioral problems in children aged 4–17 years. The questionnaire has 25 items divided across five subscales: emotional (“Many worries or often seems worried”), conduct (“Often loses temper”), hyperactivity (“Thinks things out before acting”), peer problems (“Has at least one good friend”), and the prosocial subscale (“Considerate of other people’s feelings”). Parents rate their child’s behavior over the past six months (0 = *not true*, 1 = *somewhat true*, 2 = *certainly true*). The scale includes items that are reversed scored. Subscale ranges have been linked to categories for clinical use. Each of the five subscales was divided by the number of items to create average scores, ranging from zero to two. The SDQ is a commonly used measure of child mental health problems and has been shown to have adequate internal consistency ($\alpha = 0.73$) and good test-retest reliability (Goodman 1997). All subscales are reported in Supplementary Table 4, with the conduct subscale (SDQ-C) included within the mixed linear analyses in consideration of our aims and sample.

Depression Anxiety and Stress Scale (Parental Wellbeing)

The Depression Anxiety and Stress Scale 21 (DASS-21; Lovibond & Lovibond, 1995) contains 21 self-report items to measure negative emotional states of depression, anxiety and stress, and was used in this study to capture parental wellbeing. Scores are generated across three subscales: depression (“I felt down-hearted and blue”), anxiety (“I felt I was close to panic”), and stress (“I tended to over-react to situations”), with higher scores indicating greater distress. The DASS-21 has demonstrated high levels of internal consistency for depression ($\alpha = 0.88$), anxiety ($\alpha = 0.82$), stress ($\alpha = 0.90$), and total score ($\alpha = 0.93$), and possesses sufficient convergent and discriminant validity (Henry & Crawford, 2005; Lovibond & Lovibond, 1995). Subscale ranges have been linked to categories for clinical use. All subscales are reported here.

Parenting Scale (Adaptive Parenting)

The Parenting Scale (PS; Arnold et al., 1993) is a self-report questionnaire consisting of 30-items of discipline styles providing a total score which comprises three subscales: over-reactivity (authoritarian discipline, irritability), laxness (permissive discipline), and verbosity (over-wordy instructions or reliance on talking). Parents are asked to rate the

probability of using a specific discipline strategy along a 7-point likert scale, with higher scores indicating less adaptive parenting. For example, in response to the statement “When my child misbehaves (over-reactivity and verbosity subscale), parents rate along a 7-point scale from “I usually get into a long argument with my child” (7), to “I don’t get into an argument” (1). The scale includes items that are reversed scored. The scale has good internal consistency ($\alpha = 0.84$), good test-retest reliability, and good discriminant validity (Arnold et al., 1993; Rhoades & O’Leary, 2007). Clinically significant cut-offs have been established for the subscales: laxness >4.0 , over-reactivity >3.2 , and verbosity >3.1 (Arnold et al., 1993; Salari et al., 2012). All three subscales were included in the current analyses, in consideration of the aims of the current study, and with awareness of concerns about the psychometric qualities of the verbosity subscale (Salari et al., 2012).

Interpersonal Mindfulness in Parenting Scale (Mindful Parenting)

The Interpersonal Mindfulness in Parenting Scale (IM-P; Duncan 2007) was used as a measure of mindful parenting. The revised version of the IM-P has been validated within Australia and uses 29 of the original 31-items, assessing mindful parenting across six dimensions: listening with full attention (LFA, five items; “I spend close attention to my child when we are spending time together”), emotional awareness of child (EAC, three items; “I can tell what my child is feeling even if he/she does not say anything”), emotional awareness of self (EAS, four items; “When I’m upset with my child, I notice how I am feeling before I take action”), emotional non-reactivity in parenting (ENRP, five items; “I often react too quickly to what my child says or does”), non-judgmental acceptance of parent functioning (NJAPF, six items; “When I do something as a parent that I regret, I try to give myself a break”), and compassion for child (CC, six items; “I am kind to my child when he/she is upset”) (Burgdorf & Szabó, 2021). Higher scores indicate greater levels of mindful parenting, with scores ranging from one to five in each of the subscales. The scale includes items that are reversed scored. The scale has good internal consistency ($\alpha = 0.89$ for total, and $\alpha = 0.77$ to 0.87 for subscales) and construct validity (Burgdorf & Szabó, 2021; de Bruin et al., 2014). All six subscales are reported and included in the analyses.

Data Analysis

All statistical analyses were conducted using SPSS version 25.0 (IBM Corp. 2017). Independent sample *t*-tests (two-tailed) and Fisher’s exact tests were used to compare baseline differences between University and Community groups for

continuous and categorical variables, respectively. Fisher's exact tests were preferred over chi-square due to cells with a minimum count of $n < 10$. Following inspection of the data via descriptive statistics, Mauchly's, Box's, and Levene's test statistics were used to test the assumptions of normality, sphericity, and homogeneity of covariance and error covariance. The assumptions for a mixed model ANOVA were met for most variables, using commonly accepted kurtosis and skewness for small samples $< |1.96|$ (Kim 2013). Variables outside of this range met normality assumptions following log transformation, except the pre-test Verbosity subscale of the Parenting Scale (kurtosis = 3.39). Parametric tests were preferred over non-parametric due to the lack of a repeated measures non-parametric test, as well as to maintain sensitivity of data within two real-world samples. Likewise, mixed ANOVA repeated measures analysis was preferred over MANOVA so participants could act as their own control, and thereby maintain statistical power. Separate mixed ANOVAs examined differences following intervention for dependent variables aligned to the study's aims and hypotheses, with Time and Variable Subscale as within-subject factors, and Group as the between-subjects factor. Where possible, subscales for each outcome variable were included within the same mixed ANOVA analysis to maintain power and reduce type II error. For Behavior, scores from ECBI-I, ECBI-P and SDQ-C were analysed separately due to scale measurement differences. Bonferroni adjustments were applied to minimise possibility of type 1 error. Greenhouse-Geisser adjustments were made to the degrees of freedom as needed. Transformed variables were used within the mixed ANOVA to calculate F and p values for all measures except the IM-P. Partial eta squared effect sizes were generated from the mixed ANOVA, with accepted values of small $\eta^2 = 0.01$, medium $\eta^2 = 0.06$, and large $\eta^2 = 0.14$. Additional t -tests (two-tailed) were used to determine magnitude of change for differences between variables, and are reported where relevant. Cohen's d effect sizes were reported from t -tests, with accepted values of small $d = 0.2$, medium $d = 0.5$, and large $d = 0.8$. An a priori power analysis, using $\alpha = 0.05$, power = 80% and assuming a conservative effect size $d = 0.5$, found a sample size of 34 was required.

Results

Baseline Demographic and Outcome Measures across Groups

Table 2 shows the demographic characteristics of the two intervention groups. As expected, there were several statistically significant demographic differences between the two groups. The parents in the Community group had lower household incomes (Fisher's Exact Test = 18.62,

$p < 0.001$), lower levels of education (Fisher's Exact Test = 11.18, $p = 0.035$), higher unemployment (Fisher's Exact Test = 16.17, $p < 0.001$), younger parental age ($t(29) = 5.68$, $p < 0.001$), and younger aged children ($t(31) = 2.99$, $p = 0.005$). Independent sample t -tests showed that University and Community groups did not differ at baseline across child and parent measures, except for higher scores in the Community group for parental depression ($t(32) = -2.92$, $p = 0.006$) and parental laxness ($t(32) = -2.46$, $p = 0.020$). Parents' ratings for frequency and intensity of problem behaviors on the ECBI were above the clinically significant cut-off at baseline across both the University and Community groups, consistent with the oppositional behavior inclusion criteria (Boggs et al., 1990). Parents from both groups also rated themselves as above the clinically significant cut-off on measures of adaptive parenting.

The baseline differences between the University and Community groups comprise important parent variations of interest. Given our small sample, exploratory secondary correlational analyses were preferred over covariate analyses that would diminish the effect of these differences as well as reduce power from loss of degrees of freedom. These correlations are reported in the Secondary Analyses section below.

Intervention Effects

The main aim of the study was to establish the effectiveness for CCK by comparing the intervention across time and between the University and Community groups. All measures and subscales demonstrated adequate reliability, with many in the good to excellent ranges, despite the small number of items on many subscales (George & Mallery, 2019). Table 3 presents mixed model ANOVA findings for the main effects and interactions, across dependent variables relevant to the study aims and hypotheses. Untransformed estimated marginal means and standard errors relevant to the analyses performed are reported in Table 4 to allow comparison with other studies. Pre- and post-intervention means, standard deviations and effect sizes for all dependent variables are available in Supplementary Table 1 for consideration.

Parent-reported Child Behavior

To consider the effects of the intervention for the measures of child behavior, we used separate repeated measures ANOVAs for each measure (ECBI-I, ECBI-P, SDQ-C), using a within-subject variable of Time (2 Levels: Pre and Post) and between-subjects variable of Group (2 Levels: University or Community).

The mixed ANOVA found a significant main effect of Time for all three behavior scales, with large effect sizes (see Table 3). There was however no main effect of Group.

Table 2 Demographic Characteristics of the Intervention Groups and Session Attendance

		University (<i>n</i> = 20)	Community (<i>n</i> = 14)	Statistical values ^d	
				<i>t</i>	<i>p</i>
Role of Parent-Mother		16 (80%)	11 (79%)	–	0.611
Sex of Child - Male		14 (70%)	10 (71%)	–	0.618
Age of Child (Mean / SD)		7.55 (1.79)	5.43 (2.34)	2.99	0.005**
Age of Parent (Mean / SD)		39.63 (4.31)	29.67 (5.42)	5.68	0.000***
Identify as	Australian	14 (70%)	11 (79%)	–	0.016*
	Aust.+Other ^e	6 (30%)	–		
	Indigenous Aust.	– ^c	3 (21%) ^b		
Family Income ^f	Low	3 (18%) ^c	11 (92%) ^b	–	0.000***
	Middle	4 (24%)	1 (8%)		
	High	10 (59%)	–		
Education Level ^g	Low	1 (5%) ^a	6 (50%) ^b	–	0.025*
	Middle	11 (58%)	4 (33%)		
	High	7 (37%)	2 (17%)		
Employ. Status	Not employed	5 (26%) ^a	12 (100%) ^b	–	0.000***
	Part or full time	14 (74%)	–		
Family Type	Two Parent	11 (58%) ^a	3 (25%) ^b	–	0.065
	Single Parent	5 (26%)	7 (58%)		
	Step/Blended	3 (16%)	2 (17%)		
Sessions Attended	Total = 8 sessions	7.55 (0.686)	7.07 (0.829)	1.84	0.075

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

^a1 missing response

^b2 missing responses

^c3 missing responses

^dFisher's exact test used for categorical and two-tailed *t*-tests for nominal data ($df = 1,32$)

^eOther included Italy, England, Malta, Canada, New Zealand

^fdefined by Australian Bureau of Statistics (2013), Low = <\$800 per week, Middle = \$800–1500, High = > \$1500 (AUD)

^gLow = primary/school certificate, Middle = high school certificate/diploma qualifications, High = university graduate

There was a significant interaction between Time and Group for ECBI-I and for ECBI-P, however not for SDQ-C. Further analysis using independent sample *t*-tests (two-tailed) with change scores revealed that the Community group improved significantly more than the University group on both the ECBI-I ($t(32) = 3.36$, $p = 0.002$, $d = 1.17$), and the ECBI-P ($t(19) = 2.88$, $p = 0.007$, $d = 1.00$).

Parental Wellbeing

The repeated measures ANOVA for parental wellbeing included two within-subject variables of Time (2 Levels: Pre and Post) and DASS Subscale (3 Levels: Depression, Anxiety, and Stress), and between-subjects variable of treatment Group (2 Levels: University or Community).

The mixed ANOVA found a significant main effect of Time, with large effect size. Consideration of the estimated marginal means revealed that pre-intervention DASS scores were significantly higher than post intervention scores.

There was also a significant main effect of DASS Subscale, with participants overall endorsing more stress than depression and anxiety and more depression than anxiety. Post hoc comparisons were all significant at $p < 0.01$. There was no main effect of Group.

There was a significant interaction between Group and DASS, and no significant interactions between Time and Group, and Time and DASS. Further analysis with independent sample *t*-tests (two-sided) were conducted using average of pre and post DASS Subscales, with Group as the independent variable. The Community group showed significantly higher ratings of depression than the University group ($t(32) = 2.29$, $p = 0.029$, $d = 0.80$). There were no significant differences between Community and University groups in ratings of anxiety ($t(32) = 0.77$, $p = 0.449$, $d = 0.27$), and stress ($t(32) = 0.41$, $p = 0.686$, $d = 0.14$). The three-way interaction of Time and DASS Subscale and Group was non-significant.

Table 3 Results from Mixed ANOVA with Effect Sizes^a (Time by Group^b by Variable Subscale^c)

Outcome Variable	Group Betw. subjects		Time Within subjects		Variable Subscale Within subjects		Time x Variable Subscale		Time x Group		Variable Subscale x Group		Time x Group x Variable Subscale				
	F(df)	<i>p</i> (η^2)	F(df)	<i>p</i> (η^2)	F(df)	<i>p</i> (η^2)	F(df)	<i>p</i> (η^2)	F(df)	<i>p</i> (η^2)	F(df)	<i>p</i> (η^2)	F(df)	<i>p</i> (η^2)			
Child Behavior																	
ECBI-Intensity	0.45 (1,32)	0.509 (0.01)	50.53 (1,32)	<0.001***	—	—	—	—	12.20 (1,32)	0.001***	—	—	—	—			
ECBI-Problem	0.18 (1,32)	0.677 (0.01)	27.71 (1,32)	<0.001***	—	—	—	—	7.29 (1,32)	0.010**	—	—	—	—			
SDQ-C	0.10 (1,32)	0.919 (0.00)	10.24 (1,32)	0.003**	—	—	—	—	2.15 (1,32)	0.152 (0.06)	—	—	—	—			
Parent Wellbeing	1.98 (1,32)	0.169 (0.06)	8.53 (1,32)	0.006**	0.21	41.32 (1,48,50,66)	<0.001***	0.56	2.66 (1,84, 58,89)	0.082 (0.08)	3.38 (1,58, 50,66)	0.053*	0.10	2.36 (1,84, 58,89)	0.107 (0.07)		
Adaptive Parenting	0.60 (1,32)	0.445 (0.02)	74.83 (1,32)	<0.001***	0.70	13.34 (2,64)	<0.001***	0.29	2.13 (2,64)	0.154 (0.06)	0.44 (1,32)	0.836 (0.01)	0.28 (2,64)	0.644 (0.01)	0.29 (2,64)	0.596 (0.10)	
Mindful Parent	0.01 (1,32)	0.915 (0.00)	47.81 (1,32)	<0.001***	0.60	47.27 (2,64)	<0.001***	0.60	2.97 (4,36, 139,40)	0.019*	0.09	2.12 (1,32)	0.155 (0.06)	0.61 (3,57, 114,16)	0.640 (0.02)	1.39 (4,36, 139,40)	0.238 (0.04)

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

^aPartial eta squared effect size coefficients using the commonly accepted criteria of small ($\eta^2 = 0.01$), medium ($\eta^2 = 0.06$) and large ($\eta^2 = 0.14$)

^bGroup split between university clinic and community organisation

^cOutcome Variable subscales, not relevant to child behavior as analysed separately on each child behavior measure

Adaptive Parenting

The repeated measures ANOVA for adaptive parenting included two within-subject variables of Time (2 Levels: Pre and Post) and Parenting Scale Subscale (PS, 3 Levels: Over-reactivity, Laxness, Verbosity), and a between-subjects variable of treatment Group (2 Levels: University or Community).

The mixed ANOVA revealed that pre-intervention PS scores were significantly higher than post-intervention scores, with large effect size. There was a main effect of PS. Consideration of the estimated marginal means revealed that Over-reactivity and Verbosity were similar, and both were higher than Laxness, with post hoc comparisons significant at $p < 0.01$. There was no main effect of Group.

There were no significant interactions between Group and Time, Time and PS, and PS and Group. The three-way interaction of Time and Parenting Scale and Group was also non-significant.

Mindful Parenting

Finally, the repeated measures ANOVA for mindful parenting included two within-subject variables of Time (2 Levels: Pre and Post) and IM-P Subscale (6 Levels: LFA, EAS, EAC, ENRP, NJAPF, CC), and between-subjects variable of treatment Group (2 Levels: University or Community).

The mixed ANOVA found a significant main effect of Time, with large effect size. Post-intervention IM-P scores were significantly higher than pre-intervention scores. There was also a significant main effect of IM-P. There was no main effect of Group.

There was a significant interaction between Time and IM-P, but not between Time and Group, or IM-P and Group. Independent sample *t*-tests (two-tailed) using changes scores found significant differences between EAS and EAC ($t(33) = 2.50, p = 0.017, d = 0.43$), EAS and CC ($t(33) = 3.79, p < 0.001, d = 0.65$), and ENRP and CC ($t(33) = 3.27, p = 0.0037, d = 0.56$). The three-way interaction of Time and IM-P and Group was non-significant.

Secondary Analyses

Correlations were conducted for seven factors that demonstrated baseline differences between University and Community groups (DASS-Depression, PS-Lax, child age, parent age, employment status, education level, family income), and two change scores that showed between group differences (Δ ECBI-Intensity, Δ ECBI-Problem). These analyses explored how these baseline factors may have influenced the outcomes, with awareness that using correlations on a small sample could lead to spurious findings and should therefore be interpreted with caution (Hung et al. 2017).

Table 4 Estimated Marginal Means (M) and Standard Errors (SE) from Mixed ANOVA and Reliability Coefficients

Outcome Variable	α^b	Variable		Group /x Variable Subscale ^a		Time /x Variable Subscale ^a		Time x Group /x Variable Subscale ^a		Comm. ^c
		Subscale M (SE)	Uni. ^c M (SE)	Comm. ^c M (SE)	Pre M (SE)	Post M (SE)	Pre M (SE)	Post M (SE)	Uni. ^c	
<i>Child Behaviour^d</i>										
ECBL_I	0.93	145.50 (5.31)	147.68 (6.81)	143.32 (8.14)	161.30 (5.32)	129.69 (6.22)	155.75 (6.83)	166.86 (8.16)	139.60 (7.98)	119.79 (9.54)
ECBL_P	0.94	16.16 (1.46)	16.08 (1.87)	16.25 (2.24)	20.12 (1.49)	12.20 (1.72)	18.10 (1.90)	22.14 (2.28)	14.05 (2.21)	10.36 (2.64)
SDQ_C	0.53	0.78 (0.05)	0.78 (0.07)	0.79 (0.08)	0.89 (0.07)	0.67 (0.06)	0.84 (0.09)	0.94 (0.10)	0.71 (0.08)	0.63 (0.10)
<i>Parent Wellbeing^e</i>										
DASS_D	0.91	4.94 (0.71)	3.13 (0.91)	6.07 (0.82)	6.17 (0.63)	4.01 (0.58)	4.63 (0.81)	7.71 (0.97)	3.60 (0.75)	4.43 (0.89)
DASS_A	0.78	2.88 (0.52)	2.23 (0.66)	3.54 (0.79)	6.21 (0.86)	3.69 (0.73)	3.70 (1.10)	8.71 (1.31)	2.55 (0.94)	4.79 (1.13)
DASS_S	0.87	7.46 (0.67)	7.00 (0.86)	7.93 (1.02)	3.31 (0.69)	2.45 (0.49)	2.55 (0.882)	4.07 (1.05)	1.90 (0.62)	3.00 (0.74)
<i>Adaptive Parenting^f</i>										
Over-reactivity	0.63	3.51 (0.12)	3.28 (0.012)	3.42 (0.14)	3.85 (0.10)	2.84 (0.11)	3.78 (0.13)	3.92 (0.16)	2.77 (0.14)	2.91 (0.16)
Laxness	0.82	2.93 (0.13)	2.61 (0.16)	3.42 (0.18)	3.98 (0.14)	3.05 (0.13)	4.06 (0.18)	3.89 (0.22)	3.15 (0.16)	2.95 (0.19)
Verbosity	0.54	3.60 (0.12)	3.61 (0.16)	3.24 (0.19)	3.39 (0.16)	2.47 (0.13)	3.01 (0.20)	3.77 (0.24)	2.23 (0.17)	2.73 (0.20)
<i>Mindful Parenting^g</i>										
LFA	0.84	3.44 (0.09)	3.44 (0.09)	3.45 (0.10)	3.20 (0.07)	3.69 (0.08)	3.25 (0.10)	3.16 (0.11)	3.63 (0.10)	3.75 (0.12)
EAS	0.74	3.32 (0.10)	3.34 (0.12)	3.30 (0.15)	3.18 (0.11)	3.70 (0.09)	3.33 (0.15)	3.03 (0.15)	3.55 (0.11)	3.84 (0.16)
EAC	0.64	3.75 (0.09)	3.68 (0.12)	3.83 (0.14)	2.99 (0.12)	3.65 (0.11)	3.05 (0.16)	2.93 (0.17)	3.64 (0.14)	3.66 (0.16)
ENRP	0.73	3.29 (0.10)	3.25 (0.13)	3.33 (0.15)	3.58 (0.11)	3.65 (0.11)	3.52 (0.12)	3.64 (0.19)	3.83 (0.12)	4.02 (0.19)
NJAPF	0.80	2.76 (0.10)	2.74 (0.13)	2.78 (0.15)	2.99 (0.12)	3.59 (0.10)	3.00 (0.14)	2.97 (0.19)	3.49 (0.14)	3.69 (0.13)
CC	0.75	4.12 (0.07)	4.19 (0.09)	4.05 (0.11)	2.51 (0.12)	3.01 (0.12)	2.52 (0.16)	2.51 (0.16)	2.97 (0.17)	3.05 (0.16)

^aM and SE for interactions with Variable Subscales also listed within column

^bReliability coefficient for subscale, where >0.9 = excellent, 0.8–0.9 = good, 0.7–0.8 = acceptable, 0.6–0.7 = questionable, 0.5–0.6 = poor, <0.5 = unacceptable (George and Mallery 2019)

^cUni. = University Group, Comm. = Community Group

^dECBL_I = Eyberg Child Behavior Inventory – Intensity, ECBL_P = Eyberg Child Behavior Inventory – Problem, SDQ_C = Strengths & Difficulties Questionnaire – Conduct

^eDASS_D/A/S = Depression Anxiety Stress Scale – Depression/Anxiety/Stress

^fParenting Scale

^gInterpersonal Mindfulness in Parenting, LFA Listening with Full Attention, EAS Emotional Awareness of Self, EAC Emotional Awareness of Child, ENRP Emotional Non-Reactivity in Parenting, NJAPF Non-Judgmental Acceptance of Parenting Function, CC Compassion for Child

Results revealed non-significant correlations between baseline parental depression and Δ ECBI-Intensity ($r(34) = -0.117$, $p = 0.510$), and Δ ECBI-Problem ($r(34) = -0.286$, $p = 0.101$), baseline lax parenting and Δ ECBI-Intensity ($r(34) = -0.261$, $p = 0.136$) and Δ ECBI-Problem ($r(34) = -0.110$, $p = 0.535$). Correlations between Δ ECBI-Intensity/ Δ ECBI-Problem and employment status, child age and parent age were also non-significant (employment, $r(31) = 0.299/0.301$, $p = 0.103/0.100$; child age, $r(34) = 0.122/-0.056$, $p = 0.493/0.754$; parent age, $r(34) = -0.184/0.110$, $p = 0.322/0.556$, respectively). Therefore, baseline parent ratings of depression, lax parenting style, and child and parent age, were not associated with improvements in child behavior intensity and problems. There were significant negative correlations between Δ ECBI-Intensity and family income ($r(29) = -0.386$, $p = 0.039$), and parent education level ($r(31) = -0.369$, $p = 0.041$). For our sample, parents with lower education and family income rated larger improvements in child behavior intensity. Correlations were non-significant between Δ ECBI-Problem and family income ($r(29) = 0.196$, $p = 0.309$), and parent education level ($r(31) = 0.237$, $p = 0.200$).

Discussion

The current study aimed to establish the real-world effectiveness of a mindfulness and imagery enhanced behavioral parenting program, and to compare outcomes for parents from a university clinic versus parents at-risk of entering the child welfare system. We expected that attendance at the CCK program would lead to reductions in parent-reported child behavior problems and improvements in parental wellbeing, adaptive parenting, and mindful parenting across both groups. We also predicted that parents from the Community group would experience greater improvements across child behavior measures than parents from the University group due to more severe problems at baseline. The results offered support for both hypotheses. First, following completion of the CCK program, parents from both the University and Community groups rated their children's behavior as less problematic, their wellbeing as improved, and their parenting approach as more adaptive and mindful. Effect size improvements were large across all measures, and were consistent with previous research (Burgdorf et al., 2019). Second, parents from the Community group showed significantly larger improvements in parent-rated child behavior than parents from the University group. Improvement was similar across groups for parent wellbeing, adaptive parenting, mindful parenting, and parent-rated child conduct problems. There were some between subscale differences in improvement on measures of

parenting style and mindful parenting, however these may not be meaningful given the small sample.

Baseline differences between University and Community groups were explored using secondary correlational analyses with key outcomes. There were no associations found between baseline group differences and improvements in child behavior problems within our sample. However, lower family income and parent education were found to be associated with larger improvement in parent ratings of child behavior intensity. The ECBI distinguishes between parent ratings of problem frequency (ECBI-Intensity) and whether parents experience this as a problem (ECBI-Problem). Parents with sociodemographic disadvantage appeared to notice greater reductions in the frequency of child behavioural issues following intervention. Previous research has found greater baseline problem severity predicts larger improvements, which was consistent with our study findings (Leijten et al., 2018). In our study, parents from Community and University groups rated their children's behavior as similarly problematic at baseline. The greater improvements in ECBI-Intensity may therefore relate to other factors that impact parents based on sociodemographic differences when undertaking a parenting intervention. These correlational findings should be interpreted with caution due to the small sample, although highlight the need for future larger MPP studies to examine sociodemographic predictors of outcome.

At baseline, parents from both groups rated their children as showing behavioral problems at a clinically significant level, and their own parenting style as problematic. These ratings had moved below the clinically significant cut-off for parents from the Community group at post-intervention, and below the cut-off for parents from the University group on three of four subscales. Parents from the Community group showed significantly higher levels of social disadvantage as well as parental depression and permissive discipline than parents in the University group. Thus, the results also support the main aim of the current study, in establishing that mindfulness and imagery enhanced parenting programs can lead to positive outcomes for families most in need.

Attendance for the CCK intervention was high, with nearly ninety percent session attendance for parents from the Community group, and over ninety percent for the University group. The additional support offered to Community parents, such as childcare and transport, likely overcame many of the usual barriers, and thereby improved attendance and engagement (Chacko et al., 2016). The visual nature of the materials and the repetition of key images may have been an active element in increasing engagement and retention. This proposition is supported by previous literature on benefits of imagery on learning and retention (Harvey et al., 2014; Holmes et al.,

2007), however this requires further empirical investigation.

In terms of mechanisms of change, parents rated improvements to both mindfulness and adaptive parenting, and so it is likely that both mechanisms contributed to improvements in child behavior and parental wellbeing. These results may have been achieved through different means: parents may have benefited from different elements of CCCK. Some parents may have responded to components that emphasised emotional awareness and listening with full attention (mindfulness); whereas others may have benefited more from being less reactive and more consistent in their parenting (behavioral skills). It is also possible that increased parental mindfulness potentiated the positive effects of the behavioral skills components, by helping parents to be more consistent and impactful. Likewise decreased reactivity and increased consistency may have brought intentionality and awareness to parenting, in a way that amplified mindful parenting.

There were several strengths of the current study. The sample was representative of families with children with significant behavioral problems, including those from disadvantaged backgrounds. Attendance was high and so parents received an adequate “dose” of the CCCK intervention. The study also checked for baseline confounding factors and ensured that parents who provided consent for the study were similar to the group of parents who attended the intervention. The measures used were found to be reliable and are widely used in other published studies. By relying on archival data for the Community group, reporting bias may have been reduced, although at a cost to overall study design. In terms of generalisability of findings, both family workers without psychology training and relatively inexperienced first year post-graduate provisional psychologists were able to deliver a parenting program that demonstrated large effect size improvements across all outcome variables.

Limitations and Future Research

There were several limitations, most associated with the real-world nature of this research. The study relied on a naturally occurring division of parents into intervention groups and was limited to pre- and post-intervention self-report measures from a small sample of parents. The lack of a control group means that reported changes could be attributable to demand effects or other factors. Social desirability may have been stronger for the Community group due to the at-risk status of their children. Additional fidelity checks for session content, homework compliance and co-interventions were not undertaken, and it was not possible to measure pre-intervention drop-out. It is also possible that group processes contributed to the positive outcomes, and that the advanced experience of facilitators

in the Community group contributed to larger reductions in child behavior problems in this setting. While most measures demonstrated good internal consistency, the verbosity subscale from the Parenting Scale was rated poor. This is consistent with previous studies and supports the need to revise this subscale (Salari et al., 2012).

The current study has provided provisional support for the benefits of blending mindfulness, behavioral skills, and imagery-enhancement within a parenting intervention. A larger sample is needed to replicate these findings, to better understand mechanisms of change, and to contribute to the literature regarding differential MPP outcomes across parents from varying sociodemographic groups (e.g., low income, one-parent families, fathers). If the large effect sizes are reproduced, a randomised trial is recommended to establish efficacy under controlled conditions, and preferably across a range of treatment settings with comparison to an active control group. Qualitative interviews at 6–12 months post-intervention could provide rich information about the parents’ experience of CCCK components, and the extent to which CCCK imagery and metaphors enhanced parents’ understanding, recall, and continued use of parenting strategies, including in moments of high stress. Qualitative data could also helpfully reveal mechanisms of change. The recent shift to online provision of services in response to COVID-19 provides an opportunity to test the effectiveness of online CCCK (Cluver et al., 2020).

Troubled families need accessible, engaging, and effective interventions. CCCK represents a new parenting intervention that benefits from the potent blend of mindfulness, behavioral skills, and imagery-enhancement.

Data availability

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

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Author Contributions M.D. co-created the intervention, co-designed the study, analyzed the data, wrote the first version of the manuscript, and revised subsequent versions. K.B.H. co-designed the study, collected the data, and reviewed the final manuscript. E.B., J.H., L.M. and J.P. reviewed and revised the design, statistical analyses, and each version of the manuscript. G.K. co-created the intervention and reviewed and revised the final manuscript. All authors approved the submitted version.

Compliance with ethical standards

Conflict of interest The authors declare no competing interests.

Ethical approval This study was performed in line with the principles of the Declaration of Helsinki. Approval was granted by University of Wollongong Human Research Ethics Committee, and the Chief Executive Officer of the community organisation.

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