



# A randomized controlled evaluation of a secondary school mindfulness program for early adolescents: Do we have the recipe right yet?



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## ABSTRACT

**Objective:** Mindfulness is being promoted in schools as a prevention program despite a current small evidence base. The aim of this research was to conduct a rigorous evaluation of the .b (“Dot be”) mindfulness curriculum, with or without parental involvement, compared to a control condition.

**Method:** In a randomized controlled design, students ( $M_{age}$  13.44,  $SD$  0.33; 45.4% female) across a broad range of socioeconomic indicators received the nine lesson curriculum delivered by an external facilitator with ( $N = 191$ ) or without ( $N = 186$ ) parental involvement, or were allocated to a usual curriculum control group ( $N = 178$ ). Self-report outcome measures were anxiety, depression, weight/shape concerns, wellbeing and mindfulness.

**Results:** There were no differences in outcomes between any of the three groups at post-intervention, six or twelve month follow-up. Between-group effect sizes (Cohen's  $d$ ) across the variables ranged from 0.002 to 0.37. A wide range of moderators were examined but none impacted outcome.

**Conclusions:** Further research is required to identify the optimal age, content and length of mindfulness programs for adolescents in universal prevention settings.

**Trial registration:** ACTRN12615001052527.

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## 1. Introduction

Mindfulness presents as a promising transdiagnostic approach for mental health disorders, given its potential to counteract a number of shared risk factors for anxiety, depression and eating disorders (Johnson, Burke, Brinkman, & Wade, 2016a). Robust evidence exists in adults for the benefits of mindfulness-based interventions (MBIs) across this group of pathologies (Khoury et al., 2013). More recently, MBIs have been enthusiastically embraced in schools and are widely disseminated (Semple, Drouman, & Reid, 2017), but there are insufficient methodologically robust studies to make definitive conclusions about efficacy.

In mainstream secondary schools, only three large randomized controlled trials (RCTs) of MBIs have been conducted. Raes, Griffith,

Van der Gucht, and Williams (2014) tested an 8-week MBCT-informed curriculum ( $N = 408$ ,  $M_{age}$  15.4 years; mixed sex; external facilitator) finding improvements in depression at post intervention and 6-month follow-up (Cohen's  $d \geq 0.25$ ). Atkinson and Wade (2015) investigated a 3-session mindfulness intervention with a body image focus ( $N = 347$ ,  $M_{age}$  15.7 years; female; external facilitator), with improvements across a range of eating disorder risk factors at 6 months ( $d \geq 0.47$ ), but no improvements in negative affect. A third study evaluated the manualized .b (“Dot be”) Mindfulness in Schools curriculum, which had previously shown promising results in a controlled study (Kuyken et al., 2013;  $N = 522$ ,  $M_{age}$  14.8 years, mixed sex, class teacher delivery), demonstrating reductions at 3 months for depression, stress and wellbeing ( $d \geq 0.25$ ). The replication RCT (Johnson et al., 2016a;  $N = 308$ ,  $M_{age}$  13.6 years, mixed sex, external facilitator) showed no improvements across a wide range of outcomes at post-intervention or 3-month follow-up ( $d < 0.28$ ).

Several hypotheses for the lack of replication of the .b

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curriculum exist. First, that the ideal dosage or active ingredients necessary to successfully translate adult MBIs for youth remain unknown. Second, although an early adolescent group was deliberately targeted, prior to the escalating stressors of mid-late adolescence (Kuyken et al., 2013), it may be that older adolescents respond better. Third, inadequate program adherence in the replication trial may have impacted results i.e., the curriculum was shortened by one lesson, students were not supplied with a user friendly version of the home practice manual, and an external facilitator was used (Johnson et al., 2016a). Therefore, the main aim of the current study was to conduct a tighter replication of the .b curriculum. A secondary aim was to test whether increased “dose” might be achieved by inviting parents to take part in the intervention, to stimulate discussion of mindfulness at home together and remind students to do home practice. Three small controlled trials of MBIs (Bögels, Hoogstad, van Dun, de Schutter, & Restifo, 2008; Semple, Lee, Rosa, & Miller, 2010; van der Oord, Bögels, & Peijnenburg, 2012) have included parents in MBIs for children, evidencing medium to large effect size improvements in attention, behavior problems and anxiety in these clinical samples. However, there have been no experimental comparisons that isolate the effect of parental involvement, nor has this been tested in community samples. We predicted that our outcome measures would show improvement at 12 month follow-up (the longest to date in a youth MBI study) in the mindfulness group with parental involvement compared to the mindfulness group without, due to higher levels of home practice compliance, and that both of these groups would show improvement compared to the control group.

## 2. Method

### 2.1. Participants

Four urban coeducational secondary schools (one private, three public) participated. The mean age of the 555 students who participated was 13.44 ( $SD = 0.33$ ); 45.4% were female. Power analysis showed that to detect a Cohen's  $d$  effect size of 0.25 (Kuyken et al., 2013; Raes et al., 2014), with a power level of 0.80, 127 participants per group were required (Hedeker, Gibbons, & Waternaux, 1999).

### 2.2. Design

A cluster (class based) randomized controlled design was used, with assignment to mindfulness, mindfulness with parental involvement, or control using the randomization function in Excel 2010, and performed by the principal investigator prior to any contact with participating teachers. Clustering at the class level within schools allowed for matching of demographic variables, with the risk of contamination within schools considered low due to class and home-based activities involving experiential practice. Outcome measures were administered on four occasions: 3–4 weeks pre-intervention, post-intervention and 6- and 12-month follow-up.

### 2.3. Procedure

Research approval was granted by each School Principal, the South Australian Department for Education and Child Development, and the Social and Behavioural Research Ethics Committee of Flinders University. Opt-out consent was approved. Testing was performed in a classroom setting with the principal investigator and teacher present. It was not possible for students or the researcher to be blind to the allocated treatment group.

### 2.4. Intervention

**Mindfulness curriculum.** The .b (“Dot be”) Mindfulness in Schools curriculum, based on adult mindfulness programs but modified for 11–16 year olds (Kuyken et al., 2013), was used. The tightly manualized program consists of nine weekly lessons (40–60 min in our study). Throughout the course, a range of mindfulness practices were taught to students: short unguided practices (breath counting, “.b”: *stop, feel your feet, feel your breathing, and be present*, mindfulness of routine daily activities including walking, and watching thought traffic) and two 9 min guided audio files (“FOFBOC: *Feet on floor and bum on chair*”, a seated body scan and breath awareness; and “Beditation”, a lying down body scan and relaxation practice). Guided by a homework manual, and with access to the two guided audiofiles, students were encouraged to practice at home daily.

All mindfulness lessons were conducted by the first author (CJ), a mindfulness practitioner with ten years of personal practice, who in addition to .b certification had undergone adult facilitator training, and had taught the .b curriculum 8 times previously. The control group undertook normal lessons (i.e., Pastoral care, Community projects, English, Science or History).

Greater adherence to the curriculum was promoted as follows. The introductory lesson was delivered in full, and each student received a color, hard copy of the homework manual. A “team teaching” approach was adopted (van de Weijer-Bergsma, Lanzenberg, Brandsma, Oort, & Bögels, 2014), where classroom teachers were asked to take an active part in the lessons and remind students about their mindfulness home practice. Further, teachers were given a script for a short practice (.b) to run at the start of every lesson they had with this group of students, together with a choice of two meditation audiofiles to play once a week between formal mindfulness lessons.

The standard curriculum was also strengthened to maximize potency of the ideas, including a greater focus on motivation in the introductory lesson: emphasising the unique window to “immunize” their brain on the cusp of adolescence and its challenges; recording their individual motivations for retraining their brain on a home practice chart, and brainstorming obstacles and helpful ideas for remembering to do each week's exercises at home. Second, we added the .b practice at the start of every formal mindfulness lesson in order to facilitate its use as a very familiar “anchoring” technique in stormy situations. Third, we added a quiz at the start of each lesson reviewing the previous lesson's key points (with small candy rewards). Fourth, we added more pages to the homework manual so that each week's activity could be easily recorded. Fifth, we gave each classroom two colorful A3 posters summarizing the four steps of the .b practice and illustrating a series of key mindfulness ideas. Sixth, at the final lesson, students received a laminated color copy of key ideas, and teachers received a handout describing how to reinforce mindfulness with their class into the future.

**Parental involvement.** For those students allocated to the *Mindfulness with parental involvement* arm of the trial, parents were also invited to be involved. The parental component was designed predominately in e-format to minimise the time burden and be easily accessible. Parents were invited to a 1 h evening information session at their child's school before the program commenced, with a presentation explaining mindfulness, the research, and the .b program, followed by opportunity for questions. For those parents that could not attend, a link to a recording of this session was sent via email. Once a week, parents received a further email with a link to a 10 min private YouTube clip which summarised the key points of the current lesson, took parents through an experiential exercise, explained the child's home practices for that week, and invited

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