

ORIGINAL ARTICLE

Task shifting eating disorders prevention: A pilot study of selective interventions adapted for teacher-led universal delivery in secondary schools

Melissa J. Atkinson PhD^{1,2}  | Jade Parnell PhD²  | Philippa C. Diedrichs PhD² 

¹Department of Psychology, University of Bath, Bath, UK

²Centre for Appearance Research, University of the West of England, Bristol, UK

Correspondence

Melissa J. Atkinson, Department of Psychology, University of Bath, Claverton Downs, Bath, BA27AY, UK.
Email: m.j.atkinson@bath.ac.uk

Funding information

University of the West of England

Action Editor: Tracey Wade

Abstract

Objective: Increasing effectiveness and sustainability of universal school-based eating disorder prevention is needed. This study adapted two existing selective prevention programmes for universal delivery, investigating feasibility, acceptability, and preliminary effects when delivered by trained teachers to classes of mixed-gender adolescents.

Method: A three-arm controlled pilot study with Year 9 students ($N = 288$; $M_{\text{age}} = 13.61$ $SD_{\text{age}} = .50$). Three schools in south Wales and south-west England were allocated to mindfulness-based intervention (MBI), dissonance-based intervention (DBI), or classes-as-usual (CAU) control. Self-reported eating disorder risk factors were collected at baseline, 6-week post-intervention, and 2-month follow-up. Focus groups were conducted post-intervention.

Results: Delivery and evaluation were feasible, allowing for flexibility in scheduling, with good retention. Student and teacher ratings indicated moderate acceptability of both interventions, with recommendations for refinement. Mixed model analyses, controlling for baseline, showed significant effects of condition across post-intervention and follow-up for body esteem (DBI > CAU; Cohen's $d = .34$) and positive affect (MBI > CAU, $d = .58$). For girls only, both MBI and DBI improved body satisfaction and internalization, and the MBI additionally resulted in improved weight and shape concerns, negative affect, and life disengagement (d 's = .39–1.12), across post-intervention and follow-up.

Discussion: Selective eating disorder prevention programmes based on cognitive dissonance and mindfulness can be delivered universally in schools, by teachers, allowing for appropriate flexibility necessary for real world implementation. Moderate acceptability indicates areas for improving content and delivery; positive effects on key outcomes are encouraging. These findings provide support for further robust evaluation.

Public Significance: Existing universal eating disorder prevention is limited by small effects and reliance on highly trained facilitators. This study is the first to adapt mindfulness- and dissonance-based interventions for delivery by teachers, to adolescents of all genders in a classroom setting. Delivery was largely feasible and acceptable, and both interventions showed significant effects across key risk factors for eating disorders, with larger effect sizes than found previously. This underpins further robust evaluation.

KEYWORDS

adolescents, cognitive dissonance, eating disorders, mindfulness, prevention, school intervention, task-shifting, universal

Eating disorders peak in mid-late adolescence (Allen et al., 2013). Given significant barriers for physical and mental health, recovery, and help-seeking (Arcelus et al., 2011; Eisenberg et al., 2011; Khalsa et al., 2017), effective prevention is crucial for reducing the burden of disease. Universal prevention—delivered to whole populations irrespective of risk (e.g., all students in a class/school, mass media campaigns)—is often delivered in schools as they provide access to a diverse range of adolescents. Most target body image (e.g., body dissatisfaction, weight/shape concerns) as a robust risk factor in the development of eating disorders (Jacobi & Fittig, 2010). Although previous reviews have shown interventions are more effective when delivered by highly trained facilitators (e.g., psychologists; Yager et al., 2013), this limits sustainability and reach (Kazdin, 2017). Task-shifting to community facilitators (e.g., teachers) is therefore an important goal for disseminating interventions at scale (Diedrichs & Halliwell, 2012; Fairburn & Patel, 2014). Recent trials have supported teacher delivery of interventions targeting body image in schools (Diedrichs et al., 2021; Sharpe et al., 2013), however the limited impact compared to highly trained facilitators and selective intervention approaches (delivered to those evidencing one or more risk factors through targeted recruitment, e.g., young women with body image concerns) provides impetus for refining universal interventions.

Adapting selective interventions for universal delivery is a potentially promising approach to identify more successful universal approaches, given the established efficacy of selective programmes for eating disorder prevention. Systematic reviews and meta-analyses of eating disorder prevention programmes (Le et al., 2017; Watson et al., 2016) have consistently identified induction of cognitive dissonance as the most effective selective prevention approach. Dissonance-based interventions (DBIs) encourage a voluntary counter-attitudinal stance against socially prescribed standards for appearance, to produce a conflict with, and therefore reduce, internalization of ideals and subsequent body dissatisfaction (Stice et al., 2008). Robust intervention effects are evident when delivered in small groups of girls and young women with body image concerns, including reductions in key risk factors and onset of eating disorders (Stice et al., 2019). There is mixed evidence for classroom adaptation, with positive effects among early adolescent girls (Halliwell & Diedrichs, 2013), but limited success with older adolescent girls

(Atkinson & Wade, 2015). In addition, despite a growing evidence-base and global dissemination of DBIs, no studies have evaluated this approach with adolescent boys and task-shifted delivery to teachers, which pose barriers to dissemination.

Mindfulness is also emerging as a useful approach to reducing eating disorder risk. Mindfulness-based interventions (MBIs) aim to increase capacity to refrain from unhelpful emotional and behavioral automatic responses when confronted with appearance ideals and related sociocultural pressures, and reduce the intensity and impact when they do occur (Atkinson, 2015). MBIs for body image and disordered eating have received preliminary support when delivered as a selective intervention to small groups of young adult women (Atkinson & Wade, 2016), and in the classroom with older adolescent girls (Atkinson & Wade, 2015; Beccia et al., 2018). A general MBI (no specific content related to body image) had no effect on weight and shape concerns when delivered universally in mixed-gender classrooms with highly trained facilitators (Johnson et al., 2016, 2017; Johnson & Wade, 2019), likely indicating the need for explicit targeting of content within the programme. Furthermore, as with DBIs, MBIs have not been evaluated when delivery is task-shifted to class teachers.

This study adapted existing DBIs and MBIs for universal teacher-led delivery in secondary schools, and assessed feasibility, acceptability and preliminary effects on eating disorder risk factors within a pilot randomized controlled trial (RCT). This pilot study was intended to inform a subsequent cluster RCT to robustly evaluate both the MBI and DBI against classes as usual. We expected both interventions to be feasible to deliver and evaluate, acceptable to students and teachers, and show positive intervention effects compared to classes-as-usual (CAU) control across outcomes.

1 | METHOD

1.1 | Design and procedure

We adopted a three-arm pilot randomized controlled trial design (see Figure 1). Co-educational secondary schools who had previously expressed interest in research conducted by our team were invited

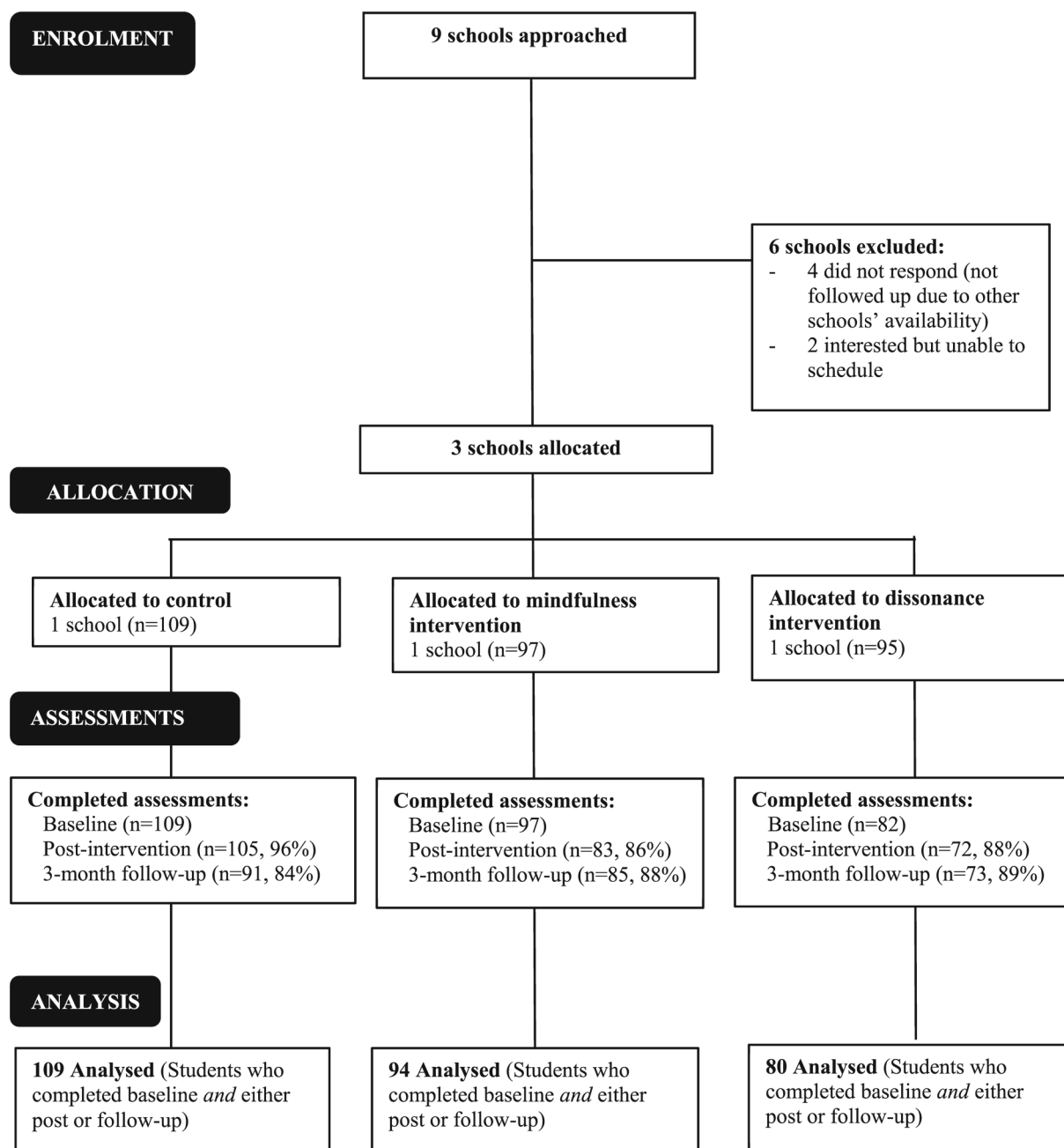


FIGURE 1 Participant flow.

via email to participate in the study. Schools expressing an interest were provided with further information, and if willing and able to continue, randomized using a computerized sequence into one of three conditions: MBI, DBI, or CAU control. As a pilot study, we did not conduct a power analysis, instead aiming to recruit one school per condition to evaluate our method. Parents and caregivers gave opt-out informed consent following provision of an information sheet, and students read an information sheet and provided informed assent prior to baseline assessment. All students were also verbally informed of their right to withdraw prior to data collection. Students completed self-report measures at baseline, post-intervention and 2-month follow-up via paper questionnaires,

supervised by class teachers and trained research assistants under exam-like conditions.

Intervention schools delivered their allocated programme at a rate of one lesson per week for 5 consecutive weeks, while the control school delivered their standard curricular lessons. Class teachers delivered the interventions after participating in 2 h training. Student and teachers' acceptability of the programmes were assessed at post-intervention via questionnaire and focus group interviews. It was not possible to blind students or teachers to condition. Ethical approval was obtained from the Faculty Research Ethics Committee. All schools received a £200 honorarium for participation, and the control school was offered a training workshop in the interventions for staff

following study completion. A prize draw for students (£10 voucher) was provided, one per class, at each assessment.

1.2 | Participants

A total of 288 students (50.69% boys, 48.96% girls, .35% other gender) aged 13–15 years ($M = 13.61$, $SD = .50$) took part. The majority were born in the UK (96.2%), identified as White (89.4%), and did not speak a language other than English at home (90.9%). Six teachers from the two intervention schools also participated. Two teachers (both women) who usually taught subjects Personal Social Health Economic (PSHE) education, Citizenship, History, and Religious Education, delivered the MBI. Four teachers (three women, one man) who usually taught subjects Maths and Science, delivered the DBI. This was determined due to the lessons selected by the school to deliver the intervention.

1.3 | Interventions

Both interventions comprised 5 weekly lessons, designed for content to be delivered over 45 min, and included full lesson plans, visual slides (PowerPoint), and student workbooks. Interventions were interactive, including class discussion, activities, and role-plays; and encouraged tasks for completing between lessons. Adaptations from source material to be appropriate for inclusion of boys across both programmes included broadening discussion of body image and appearance ideals, as well as examples presented (e.g., sociocultural pressures, body talk) and task stimuli, to include boys and their concerns (e.g., muscularity, V-shape, height). Specific content is described below.

1.3.1 | Mindfulness

An existing MBI (*The Mindfulness Mode*) previously evaluated among adolescent girls (Atkinson & Wade, 2015), was adapted for mixed-gender classes and delivery by teachers. The MBI included concepts and activities that help students to apply mindfulness and acceptance-based practices specifically to body image, with some exercises adapted from Mindfulness-Based Cognitive Therapy (MBCT) for depression. The lessons introduced mindfulness as an alternative way of managing negative experiences related to body image (Lesson 1); and taught present-moment awareness and attention through a number of guided experiential exercises, including the 'raisin exercise' (practicing awareness and connection to all senses as you eat a raisin) and mindfulness of the breath (Lesson 2); viewing thoughts and feelings about the body as simply mental events and not necessarily right, wrong, or true (Lesson 3); practicing nonjudgment and acceptance with respect to body-related thoughts and feelings (Lesson 4), and identifying guiding values and future threats to body image (Lesson 5). Two brief exercises were

outlined for homework for each lesson, including practice of mindfulness in a range of scenarios. Mindfulness exercises during and between lessons focused on body-related stimuli (e.g., idealized magazine images, visualizing mirror reflections, verbal or visual appearance pressures, engaging in bodily activities).

1.3.2 | Dissonance

The DBI was adapted using dissonance-induction elements from existing programmes including *The Body Project* (Stice & Presnell, 2007), previous adaptations of this programme for girls in schools (Atkinson & Wade, 2015; Halliwell & Diedrichs, 2013); and the *Succeed Body Image Programme* (Becker & Stice, 2011). The lessons involved engaging participants voluntarily in challenging cultural appearance ideals through facilitated discussions, role-plays, interactive activities and written tasks related to defining appearance ideals and their source (Lesson 1); the cost of pursuing appearance ideals (Lesson 2); challenging appearance ideals with ourselves and others (Lesson 3 and 4), reducing body talk and encouraging body activism (Lesson 5). Homework involved brief tasks to practice further (e.g., writing a letter to advertising standards, constructing a direct message ("DM") to a friend, brainstorming body activism 'Top 10' and picking one to complete).

1.4 | Measures

At baseline, participants were asked their age, gender, ethnicity, language spoken at home. Gender was assessed with options of 'male', 'female', or 'other'. As only one student identified as 'other' (allocated to the MBI) they were excluded from analyses involving gender. Males and females are referred to as 'boys' and 'girls' throughout in keeping with previous universal school-based prevention trials. See Table 1 for description of outcome measures.

1.4.1 | Feasibility

This was assessed via consideration of recruitment method and uptake, willingness to be randomized, consent processes, retention of participants, suitability of teacher training, delivery of intervention according to schedule, and fidelity to programme materials (see below).

1.4.2 | Acceptability

Students

At post-intervention, intervention students rated the programme they received using separate 5-point scales (*not at all* to *very much*), related to perceived improvement in body image, enjoyment, amount of attention paid, extent of homework completed, facilitator confidence, understanding of concepts, ease of use, effectiveness, and likelihood

TABLE 1 Outcome measures and internal consistencies (Cronbach's alphas for the current sample).

Outcome	Measure	α girls	α boys
Primary outcomes			
Body esteem	Appearance and Weight subscales of the Body Esteem Scale for Adolescents & Adults (Mendelson et al., 2001), 18 items, mean score range 1–5, higher scores reflect greater global body esteem.	.96	.93
Body satisfaction	Body Areas Satisfaction Subscale from the Multidimensional Body-Self Relations Questionnaire (MBSRQ; Cash, 2000), 9 items, mean score range 1–5, higher scores reflect greater body satisfaction.	.87	.87
Weight and shape concerns	Weight and Shape concern subscales of the Eating Disorder Examination Questionnaire (EDE-Q; Fairburn & Beglin, 1994), 12 items, mean range 0–6, higher scores reflect greater concern.	.96	.95
Positive and negative affect	The Positive and Negative Affect Scale-Children (PANAS-C; Ebessutani et al., 2012), 5 items for negative affect and 5 items for positive affect, mean score range 1–5, higher scores reflect greater frequency of affective states.	.86	.77
Secondary outcomes			
Emotion regulation difficulty	Difficulties with Emotion Regulation Scale-Short Form (DERS-SF; Kaufman et al., 2015), 18 items, mean score range 1–5, higher scores reflect greater difficulty. Item-total correlations were poor ($r < .3$) for the three reverse scored items, indicating potential difficulty or inattention.	.92	.87
Well-being	Warwick-Edinburgh Mental Well-Being Scale (WEMBS; Tennant et al., 2007), 14 items, mean score range 1–5, greater scores reflect greater general well-being.	.88	.86
Life disengagement	Body Image Life Disengagement Questionnaire (BILD-Q; Atkinson & Diedrichs, 2021), 9 items, mean score range 1–4, greater scores reflect greater disengagement from life activities due to appearance concerns.	.84	.78
Intervention validity			
Mindfulness	Child and Adolescent Mindfulness Measure (CAMM; Greco et al., 2011), 10 items, mean score range 1–5, reverse scored so that higher scores reflect greater mindfulness.	.89	.83
Internalization of appearance ideals	General Internalization and Athletic subscales of the Sociocultural Attitudes Towards Appearance Questionnaire-3 (Thompson et al., 2004), 14 items combined, mean score range 1–5, higher scores indicate greater internalization of appearance ideals.	.96	.95

of continued use. Students also gave open-ended responses regarding programme aspects they liked and disliked. At follow-up, intervention students were asked to indicate how much time they had spent using the techniques on a 5-point scale (*not at all to a lot*) and describe any reasons for not using the techniques. Further qualitative assessment of acceptability was undertaken via separate gender focus groups of five to six participants at each intervention school, selected by the teachers with the aim of diverse groups. These were conducted post-intervention, using a semi-structured interview schedule (see Appendix S1). The second author facilitated all focus groups and conducted the analysis.

Teachers

School teachers who delivered the intervention were asked to complete a brief written feedback form for each lesson. The form included rating (1–5) their enjoyment and confidence in delivering the lesson, clarity and usefulness of the lesson guide and resource materials, as well as perceived student enjoyment, understanding, and engagement. Two open-ended questions asked for aspects liked and/or recommended changes, and any further comments. Focus groups were also conducted with teachers together at post-intervention, separately by school, also facilitated by the second author.

1.4.3 | Fidelity

Teachers were requested to audio-record all lessons. A trained research assistant used a standardized fidelity schedule to assess adherence (percentage of key teacher actions completed) and competence (12 delivery characteristics rated from 1 = *not at all* to 5 = *very much*; e.g., ideas expressed clearly, kept students on topic, appeared confident with delivering content), for one lesson from each week of both interventions ($n = 10$), ensuring all teachers were represented.

1.5 | Statistical analysis

Quantitative data were assessed for normal distribution, univariate and multivariate outliers, and missing data. To assess our aim regarding acceptability, we first assessed self-reported acceptability rating scores. We conducted a 2 (condition) $\times$ 2 (gender) ANOVA to compare differences between the mindfulness and dissonance conditions, by gender, with post-hoc tests. Partial eta squared provides effect sizes, with rules of thumb indicating values around .01 considered small, .06 considered medium, and 1.14 and over considered large. Qualitative data was designed to augment feasibility and quantitative

outcomes, where the second author conducted content analysis to (1) identify themes and associated frequency of responses to open-ended short answer questions regarding top three things learned, and liked/disliked aspects of the programme from all students completing the post-intervention questionnaire; and (2) identify themes organized by key interview topics (e.g., content, recommendations, relevance) from the transcribed focus groups. Given the second author's familiarity with the intervention and data, intention to complement aims, and to aid rapid translation into intervention refinements for a follow-on trial, we did not assess inter-rater reliability.

Regarding preliminary efficacy, we estimated effects using multi-level models to account for the clustered nature of the data (individuals within classes within schools). For each outcome, fixed effects included condition (0 = Control, 1 = MBI, 2 = DBI), time (0 = post-intervention, 1 = follow-up), gender (0 = boys, 1 = girls) and their interactions. Baseline scores were included as fixed covariates to increase precision. A random intercept was modeled to account for individual variation at baseline. Given the small number of classes and schools, it was not possible to model random effects at higher levels. Planned comparisons assessed group differences at post-intervention and follow-up. Cohen's *d* effect sizes were calculated by dividing the difference in adjusted means by the pooled standard deviation.

Indication of clinically significant change was provided for weight and shape concerns – as a primary outcome where the measure (EDE-Q) has accepted thresholds for clinical severity (>4; Mond et al., 2006)—and assessed via the number of participants who moved from at or above the cut-off at baseline to below the cut-off at post-intervention and/or follow-up. A second perspective was provided by assessing reliable change for all outcomes through the reliable change index (RCI), a standardized assessment of whether change from baseline to post-treatment/follow-up is significantly greater than measurement error (Jacobson & Truax, 1991). The RCI was calculated according to Jacobson and Truax using the formula $RCI = (X_2 - X_1) / \sqrt{2(S_E)^2}$, where X_2 represents the post-intervention or follow-up score, X_1 represents the baseline score, and S_E represents the standard error of the measurement ($S_E = SD\sqrt{1 - r}$), using the standard deviation of test scores at baseline and the test-retest reliability, *r*, in the control group. RCI values greater than 1.96 are statistically significant.

2 | RESULTS

2.1 | Feasibility

2.1.1 | Recruitment and retention

Five schools (56% of those invited) indicated interest, with three schools (33%) able to participate within the timeline and scheduling requirements. Schools reflected similar demographic characteristics according to publicly available Office for Standards in Education (OFSTED) inspection reports. Soon after random allocation, circumstances changed at one of the intervention schools meaning they could no longer accommodate the lessons, but were still willing to

facilitate questionnaires. Given that the school had not yet received information about the nature of the intervention, and considering time constraints, we opted to switch allocation with the control school rather than recruit a new school. Our consent process was acceptable, with no parents or students opting out. A group of students from the dissonance-based intervention school were on a field trip on the day of assent and baseline assessment and were excluded. A total of 301 students were in attendance and therefore completed assent and baseline, with good retention to 2-month follow-up (86.5%).

2.1.2 | Teacher training, intervention delivery, and fidelity

The required 2 h of teacher training was provided for both intervention schools. Training for the MBI was conducted in 1 × 2-h session, led by the first author who has significant experience in designing and facilitating MBIs. Training for the DBI required delivery in 2 × 1-h sessions to fit with teacher commitments, led by the second author and a research associate who had both completed DBI training and were experienced in delivery. Teachers indicated the training was adequate, however additional time would be ideal to enable practice of tasks and role-plays in-session. Delivery over two sessions was preferable, enabling opportunity to reflect on content and complete tasks between sessions.

Both interventions were delivered to four classes of Year 9 students each week for 5 weeks. The MBI was delivered in 1-h lessons, with two teachers delivering all lessons. Due to timetabling restraints, each lesson of the DBI was delivered across 2 × 30-min lessons on two consecutive days during the week. Four teachers delivered all lessons, with each delivering both parts. Lesson duration in both schools was sufficient to accommodate the 45-min lesson plans, allowing for settling in and packing up.

Audio-recording compliance was excellent (100% mindfulness, 97.5% dissonance). Adherence to teacher actions ranged from 67% to 92% for delivery of MBI lessons, and 38% to 67% for DBI lessons. However, the majority of missed actions for both programmes were observed to be at the beginning (e.g., reviewing previous lesson and homework) and ending of lessons (e.g., summarizing and outlining homework tasks), with the range of adherence to core content sections higher (MBI: 78–100%; DBI: 58–100%). Competence was rated highly for delivery of both MBI ($M = 4.78$, $SD = .20$) and DBI ($M = 4.90$, $SD = .15$).

2.2 | Acceptability

2.2.1 | Students

Questionnaire feedback

Means and standard deviations for self-rated acceptability items are displayed in Table 2, all with a possible range of 1–5. Overall, scores across both programmes reflected moderate acceptability. There was

TABLE 2 Ratings of acceptability by gender and intervention condition.

Variable	Boys		Girls		Total	
	MBI	DBI	MBI	DBI	MBI	DBI
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>
How much did you enjoy the lessons?	2.98 (.89)	2.63 (.91)	2.74 (.95)	2.92 (.74)	2.86 (.92)	2.79 (.83)
How much did the lessons help you feel better about yourself?	2.79 (1.02)	2.50 (1.05)	2.37 (1.20)	2.69 (1.00)	2.59 (1.12)	2.61 (1.02)
How much did you understand what was being taught? ^a	3.42 (1.05)	3.44 (1.22)	3.95 (1.03)	4.18 (.76)	3.66 (1.07)	3.85 (1.05)
How well were the lessons taught by your teacher? ^a	3.93 (1.05)	3.90 (.98)	4.20 (.72)	4.27 (.77)	4.05 (.92)	4.10 (.88)
How much of the homework tasks did you complete between lessons? ^{a,b}	2.52 (1.25)	3.84 (1.30)	3.05 (1.10)	4.37 (.94)	2.77 (1.21)	4.13 (1.14)
How much would you recommend the lessons to a friend?	2.84 (1.07)	2.81 (1.12)	2.70 (1.20)	3.21 (1.00)	2.78 (1.12)	3.03 (1.07)
How likely are you to continue to use what you have learnt in the future?	2.51 (1.18)	2.56 (1.11)	2.25 (1.08)	3.00 (.89)	2.39 (1.14)	2.80 (1.01)

Note: Possible range for all variables was 1–5.

Abbreviations: DBI, dissonance-based intervention; MBI, mindfulness-based intervention.

^aSignificant main effect of gender.

^bSignificant main effect of condition.

good endorsement of teacher delivery. Main effects of gender indicated that, compared to boys, girls reported higher understanding of content (girls: $M = 4.06$, $SE = .12$; boys: $M = 3.43$, $SE = .12$; $F = 14.54$, $p < .001$, $\eta_p^2 = .09$), endorsement of teacher delivery (girls: $M = 4.24$, $SE = .11$; boys: $M = 3.92$, $SE = .11$; $F = 4.58$, $p = .034$, $\eta_p^2 = .03$), and amount of homework completed (girls: $M = 3.71$, $SE = .13$; boys: $M = 3.18$, $SE = .14$; $F = 7.70$, $p = .006$, $\eta_p^2 = .05$). A main effect of condition ($F = 47.99$, $p < .001$, $\eta_p^2 = .25$) also showed greater self-reported completion of homework among students receiving the DBI ($M = 4.11$, $SE = .14$) compared to MBI ($M = 2.79$, $SE = .13$).

Among students receiving the mindfulness lessons, the top three things learned related to staying calm and in control of negative thoughts and emotions (22.2%), being mindful and how to meditate (15.3%), and accepting yourself and being confident (12.3%). Aspects that students liked included the practical exercises, for example, raisin exercise, breathing, pink elephant (25%), class discussion (15.8%), and learning mindfulness to cope with negative thoughts (9.2%). Disliked aspects included the practice (homework) tasks (21.3%), thinking about negative aspects of the self and/or the presumption that everyone has negative thoughts about their body (14.7%), lessons being boring or not relevant to them (5.3%). Some students (5%) reported there was nothing that they disliked.

Students receiving the dissonance-based lessons reported the top things learned as embracing and accepting yourself and not needing to change (16.2%), everyone is different and unique (9.1%), and trying to attain the appearance ideal is costly and dangerous (8.3%). The top aspects that students liked included group work and class discussions (38.4%), learning to be more positive/not worry about appearance (12.8%), and hearing other people's opinions and not feeling alone (9.3%). Top disliked aspects included the homework tasks (29.6%), repetitiveness of the lessons (14.8%), and lessons being boring (7.4%).

Focus groups

Separate focus groups by school and gender were conducted in the week after post-intervention questionnaire. Twenty-three students ($n = 11$ boys, $n = 12$ girls) were selected by teachers to reflect a range of abilities and backgrounds, with five to six students in each group. Duration ranged from 22 to 28 min. Across both programmes, students reflected the relevance of the topic and felt that it was appropriate for Year 9 (age 14–15). Overall, students valued the opportunity for talking, discussion and sharing; felt comfortable taking part; enjoyed watching videos and practical tasks; felt their teacher was an appropriate facilitator and were happy to learn in mixed gender classes (e.g., valued opportunity to hear other gender opinions); and felt the workbook instructions were clear. Students generally disliked writing-based tasks (in class and homework). MBI students reflected a desire for more positive framing in places, and DBI students reflected there was some repetition. Across both programmes, suggested areas for improvement included more discussions, videos and practical tasks; including more personal stories and tasks; including greater emphasis on social media; and streamlining homework. No differences between boys and girls were noted.

2.3 | Teachers

2.3.1 | Written feedback

For the MBI, 15 written feedback forms were completed across the two teachers. Mean scores for the rated acceptability items for each lesson ranged from 3.13 ($SD = .92$) to 3.53 ($SD = .64$), reflecting moderate acceptability. Responses to the open-ended questions indicated appreciation for some aspects (e.g., variety,

TABLE 3 Descriptive statistics, along with numbers of students who reported clinically significant change from baseline based on reliable change indices.

	CAU				MBI				DBI			
	<i>n</i>	<i>M (SD)</i>	<i>n</i> ↑	<i>n</i> ↓	<i>n</i>	<i>M (SD)</i>	<i>n</i> ↑	<i>n</i> ↓	<i>n</i>	<i>M (SD)</i>	<i>n</i> ↑	<i>n</i> ↓
Primary outcomes												
Body esteem												
Baseline	108	3.37 (.95)			94	3.53 (.79)			81	3.29 (.71)		
Post-intervention	104	3.49 (.85)	6	3	81	3.57 (.80)	1	2	72	3.50 (.72)	4	1
Follow-up	91	3.49 (.88)	3	3	84	3.59 (.75)	2	4	73	3.56 (.71)	2	2
Body satisfaction												
Baseline	109	3.50 (.82)			96	3.50 (.78)			81	3.33 (.63)		
Post-intervention	104	3.42 (.88)	2	5	83	3.59 (.85)	3	1	71	3.42 (.68)	1	0
Follow-up	90	3.40 (.95)	2	4	85	3.60 (.84)	4	4	73	3.54 (.65)	2	0
Weight/shape concerns												
Baseline	109	3.13 (1.78)			94	2.61 (1.64)			79	2.91 (1.56)		
Post-intervention	90	2.76 (1.72)	0	4	82	2.39 (1.50)	3	3	70	2.62 (1.56)	0	2
Follow-up	88	2.78 (1.63)	2	4	84	2.25 (1.44)	1	6	71	2.55 (1.36)	1	3
Negative affect												
Baseline	108	2.08 (.95)			97	1.99 (.85)			78	2.08 (.88)		
Post-intervention	89	1.86 (.80)	1	2	82	1.97 (.92)	5	2	72	2.06 (.93)	0	2
Follow-up	89	2.05 (.99)	4	1	82	1.97 (.79)	3	3	73	2.05 (.78)	0	2
Positive affect												
Baseline	108	3.59 (.99)			97	3.6 (.93)			80	3.63 (.87)		
Post-intervention	89	3.61 (1.03)	1	1	81	3.78 (.88)	3	0	71	3.56 (.88)	1	1
Follow-up	89	3.57 (1.12)	1	6	81	3.80 (.88)	5	1	72	3.69 (.87)	1	3
Secondary outcomes												
Emotion regulation difficulty												
Baseline	108	2.29 (.85)			96	2.20 (.69)			66	2.36 (.74)		
Post-intervention	90	2.12 (.70)	1	4	79	2.18 (.66)	2	4	71	2.33 (.81)	1	2
Follow-up	91	2.21 (.80)	5	4	82	2.15 (.60)	3	6	72	2.16 (.69)	3	2
Well-being												
Baseline	108	3.50 (.64)			92	3.56 (.57)			79	3.40 (.51)		
Post-intervention	104	3.51 (.64)	5	6	82	3.54 (.67)	7	5	71	3.44 (.65)	5	0
Follow-up	90	3.51 (.75)	3	2	84	3.63 (.71)	10	3	73	3.49 (.63)	2	3
Life engagement												
Baseline	108	1.33 (.42)			96	1.36 (.51)			80	1.44 (.50)		
Post-intervention	104	1.26 (.43)	3	4	80	1.23 (.42)	2	6	72	1.30 (.47)	1	7
Follow-up	91	1.23 (.41)	4	3	84	1.16 (.33)	0	5	73	1.22 (.44)	1	6
Intervention validity												
Mindfulness												
Baseline	109	3.44 (.87)			96	3.50 (.82)			80	3.36 (.86)		
Post-intervention	101	3.64 (.94)	5	2	83	3.63 (.72)	6	3	72	3.56 (.86)	2	1
Follow-up	90	3.77 (.95)	8	0	83	3.64 (.76)	6	2	73	3.72 (.77)	6	0
Appearance-ideal internalization												
Baseline	108	2.38 (1.06)			96	2.05 (.85)			81	2.44 (.91)		
Post-intervention	102	2.25 (1.19)	4	7	81	2.02 (.93)	2	4	72	2.08 (.97)	0	10
Follow-up	90	2.31 (1.18)	6	5	82	1.97 (.88)	4	3	73	2.06 (.92)	2	6

Note: *d*, Cohen's *d* for paired samples, calculated by dividing the mean difference by the standard deviation of the difference; ↑, clinically significant increase in scores from baseline based on reliable change index; ↓, clinically significant decrease in scores from baseline based on reliable change index.

TABLE 4 Fixed effects results from multilevel mixed models.

	Condition	Time	Condition × time	Gender	Cond × gender	Time × gender	Cond × time × gender
	β (p)	β (p)	β (p)	β (p)	β (p)	β (p)	β (p)
Primary outcomes							
Body esteem	6.17 (.046)	.00 (.982)	.74 (.691)	.90 (.344)	.28 (.869)	.00 (.985)	1.71 (.425)
Body satisfaction	10.29 (.006)	.00 (.981)	1.52 (.469)	1.74 (.187)	8.44 (.015)	.03 (.857)	2.35 (.309)
Weight/shape concerns	1.64 (.440)	.00 (.961)	1.21 (.545)	7.39 (.007)	7.87 (.020)	.02 (.902)	2.71 (.258)
Negative affect	.41 (.813)	3.17 (.075)	1.78 (.411)	.19 (.660)	10.48 (.005)	1.11 (.293)	.35 (.840)
Positive affect	8.04 (.018)	.10 (.751)	.45 (.798)	.10 (.758)	3.67 (.160)	.05 (.817)	2.35 (.309)
Secondary outcomes							
Emotion dysregulation	.16 (.922)	.23 (.629)	5.31 (.070)	1.62 (.204)	4.57 (.102)	.03 (.859)	.46 (.797)
Well-being	1.76 (.415)	.16 (.688)	2.23 (.328)	.22 (.636)	5.27 (.072)	.20 (.658)	1.42 (.493)
Life disengagement	4.72 (.095)	3.49 (.062)	.38 (.826)	.00 (.948)	5.23 (.073)	.05 (.819)	1.40 (.496)
Intervention validity							
Mindfulness	2.13 (.345)	1.34 (.247)	.96 (.619)	.12 (.730)	5.04 (.080)	.85 (.355)	.52 (.772)
Internalization	9.51 (.009)	.43 (.512)	4.84 (.089)	1.11 (.291)	6.23 (.045)	.31 (.580)	2.97 (.227)

Note: Bolded items represented significant fixed effects at $p < .05$. Number of participants included in analysis across outcomes ranged from 255 to 280 out of 288.

useful prompts) as well as areas for improvement (e.g., pacing, less teacher-led content for some lessons, more interesting visual slides, streamlining lesson guides).

For the DBI, 20 written feedback forms were completed across the four teachers. Mean scores for the rated acceptability items for each lesson ranged from 3.10 ($SD = .79$) to 4.40 ($SD = .82$), reflecting moderate to good acceptability. Responses to the open-ended questions reflected liked aspects (e.g., engaged students in discussion, tasks linked well with learning objectives) as well as areas for improvement both similar to MBI (e.g., pacing, streamlining lesson guides) and unique (e.g., some scenarios not reflecting reality, repetitiveness across lessons).

2.3.2 | Focus groups

Following completion of the lessons, two separate focus groups were conducted with teachers who delivered the lessons at each intervention school (MBI: $n = 2$, 24 min; DBI: $n = 4$, 42 min). Teachers of both interventions reflected on the relevance and value of the topic, that the lessons were appropriate for Year 9 students (could be taught at younger year levels but not older as it would interfere with exams), that it was useful to have curriculum for a topic (body image) that they had little experience in teaching, and that they would be happy to teach the lessons again. Teachers reiterated points related to streamlining lesson guides (e.g., shifting some to visual slides) and reducing time where the teacher talked. MBI teachers suggested it could be applied more broadly to mental health, and that more positive reframing would be useful. DBI teachers highlighted the importance of practicing role plays in the teacher training and reducing repetitiveness in later lessons.

2.4 | Outcome data

2.4.1 | Descriptive information

Means and standard deviations for all outcomes are displayed in Table 3. Across individual outcomes, missing data ranged from .7% to 6.3% at baseline, 10.4% to 16.7% at post-intervention, and 13.9% to 16.0% at 3-month follow-up. Inspection of patterns showed that missing data appeared to be mostly related to placement of measures at the end of the questionnaire, indicating time constraints, and student absence at post-intervention and follow-up. Little's MCAR test was non-significant ($p = .663$). Separate t-tests indicated that missingness was related to observable data, that is, students reporting poorer outcomes at baseline were more likely to be missing at later timepoints. Given that missing data could be predicted, we concluded enough evidence to assume data as missing at random (MAR).

At baseline, students in the school receiving the MBI reported lower appearance-ideal internalization than both CAU control ($p = .014$) and DBI ($p = .007$) students. Significant baseline differences between gender indicated girls reported poorer body esteem, body satisfaction, weight/shape concerns, negative affect, internalization, mindfulness, life engagement, and general well-being (all $ps < .003$) than boys, across all schools.

2.4.2 | Change in outcomes

Results from the multilevel models are displayed in Table 4, with between-group differences in adjusted means and associated effect sizes, at each timepoint by gender, displayed in Table 5. There were no significant three-way interactions between condition, gender and

TABLE 5 Between-group pairwise comparisons with associated Cohen's *d* effect sizes and 95% confidence intervals.

Variable	Post-intervention				Follow-up			
	MBI vs. CAU		DBI vs. CAU		MBI vs. CAU		DBI vs. CAU	
	<i>M_{diff}</i> (SE)	<i>d</i> (95% CI)	<i>M_{diff}</i> (SE)	<i>d</i> (95% CI)	<i>M_{diff}</i> (SE)	<i>d</i> (95% CI)	<i>M_{diff}</i> (SE)	<i>d</i> (95% CI)
Girls								
Body esteem	.05 (.10)	.11 [−.29, .51]	.10 (.09)	.21 [−.2, .61]	.04 (.10)	.09 [−.31, .49]	.20 (.10)	.43 [.02, .84]*
Body satisfaction	.37 (.14)	.78 [.37, 1.19]**	.23 (.14)	.50 [.09, .91]*	.54 (.14)	1.12 [.69, 1.55]**	.52 (.15)	1.12 [.69, 1.56]**
Weight/shape concerns	−.44 (.20)	−.93 [−1.35, −.51]*	−.19 (.20)	−.42 [−.82, −.01]	−.50 (.20)	−1.04 [−1.46, −.62]*	−.35 (.20)	−.74 [−1.16, −.33]
Negative affect	−.20 (.15)	−.41 [−.82, −.01]	.14 (.15)	.30 [−.11, .70]	−.32 (.14)	−.65 [−1.06, −.24]*	−.01 (.15)	−.02 [−.42, .39]
Positive affect	.37 (.17)	.79 [.38, 1.20]*	.17 (.17)	.38 [−.03, .78]	.26 (.17)	.53 [.13, .94]	.27 (.17)	.59 [.18, 1.00]
Emotion dysregulation	−.02 (.11)	−.04 [−.43, .36]	.18 (.11)	.38 [−.02, .79]	−.06 (.11)	−.11 [−.51, .28]	−.01 (.11)	−.03 [−.43, .37]
Well-being	.19 (.10)	.40 [.00, .80]	.09 (.10)	.19 [−.22, .59]	.23 (.10)	.47 [.06, .87]*	.14 (.11)	.30 [−.10, .71]
Life disengagement	−.17 (.07)	−.37 [−.77, .03]**	−.05 (.07)	−.12 [−.52, .28]	−.15 (.07)	−.32 [−.72, .08]*	−.06 (.07)	−.12 [−.53, .28]
Mindfulness	.12 (.12)	.26 [−.14, .66]	.03 (.12)	.07 [−.33, .47]	.04 (.13)	.09 [−.31, .48]	.12 (.13)	.27 [−.14, .67]
Internalization	−.18 (.15)	−.38 [−.78, .02]	−.34 (.15)	−.73 [−1.15, −.32]*	−.52 (.15)	−1.08 [−1.50, −.65]**	−.49 (.15)	−1.04 [−1.47, −.62]**
Boys								
Body esteem	−.04 (.09)	−.09 [−.47, .29]	.14 (.10)	.29 [−.12, .70]	.02 (.09)	.04 [−.34, .42]	.14 (.10)	.30 [−.11, .71]
Body satisfaction	.01 (.13)	.02 [−.36, .40]	.12 (.15)	.26 [−.15, .67]	−.05 (.14)	−.11 [−.49, .27]	.10 (.14)	.21 [−.20, .62]
Weight/shape concerns	.29 (.18)	.61 [.22, 1.00]	−.08 (.20)	−.17 [−.58, .24]	.11 (.19)	.23 [−.15, .61]	.08 (.20)	.18 [−.23, .59]
Negative affect	.24 (.13)	.51 [.12, .89]	−.03 (.15)	−.07 [−.48, .34]	.08 (.14)	.18 [−.20, .56]	−.08 (.15)	−.18 [−.59, .23]
Positive affect	.06 (.15)	.12 [−.26, .50]	−.18 (.17)	−.39 [−.80, .02]	.30 (.16)	.63 [.24, 1.02]	−.10 (.17)	−.22 [−.63, .19]
Emotion dysregulation	.11 (.1)	.24 [−.14, .62]	−.02 (.12)	−.05 [−.46, .36]	−.02 (.1)	−.05 [−.43, .33]	−.23 (.11)	−.49 [−.91, −.08]*
Well-being	−.15 (.10)	−.33 [−.71, .06]	.02 (.10)	.04 [−.36, .45]	.01 (.10)	.03 [−.35, .41]	.04 (.10)	.08 [−.33, .49]
Life disengagement	.03 (.06)	.06 [−.32, .44]	−.07 (.07)	−.15 [−.56, .26]	−.04 (.06)	−.08 [−.46, .3]	−.09 (.07)	−.2 [−.61, .21]
Mindfulness	−.21 (.12)	−.45 [−.83, −.06]	.00 (.13)	−.01 [−.42, .40]	−.25 (.12)	−.53 [−.92, −.14]*	−.02 (.13)	−.04 [−.45, .37]
Internalization	−.11 (.15)	−.24 [−.65, .17]	.08 (.14)	.17 [−.21, .55]	−.24 (.15)	−.51 [−.92, .09]	−.11 (.15)	−.24 [−.65, .17]

Note: Bolded items met adjusted threshold for significance ($p < .0125$). d = Cohen's d . M_{diff} /pooled S.* $p < .05$. ** $p < .01$. *** $p < .001$.

time. Significant main effects of condition overall, indicating a sustained effect over post-intervention and follow-up, and across gender, were observed for body esteem and positive affect. Students receiving dissonance reported higher body esteem than control ($d = .34$ [95% CI .30, .86]), and students receiving mindfulness reported higher positive affect than control ($d = .58$ [95% CI .30, .86]).

In addition, there were significant interactions between condition and gender for body satisfaction, weight/shape concerns, internalization, positive and negative affect, and life disengagement. Specifically, girls receiving either intervention reported higher body satisfaction (mindfulness: $d = 1.07$ [95% CI .65, 1.50]; dissonance: $d = .90$ [95% CI .47, 1.32]) and lower internalization (mindfulness: $d = .82$ [95% CI .41, 1.23]; dissonance: $d = .98$ [95% CI .56, 1.41]) compared to control, sustained across post-intervention and follow-up. Girls receiving mindfulness additionally reported lower weight and shape concerns ($d = 1.12$ [95% CI .69, 1.54], lower negative affect ($d = .61$ [95% CI .20, 1.01], and less life disengagement ($d = .39$ [95% CI .01, .79]) compared to control. There were no significant differences among boys for these outcomes. ICCs for individual level variation ranged from .34 to .65 across models.

Regarding clinical significance, at baseline, 33 students from the control school (30.3%), 20 students (21.3%) from the MBI school and 21 students (26.6%) from the DBI school reported clinical level of weight and shape concerns (>4). By follow-up, this was reduced to 15 students (13.8%) from control, 8 students from MBI (8.3%) and 8 students from DBI (9.8%). Minor numbers of students reflected a magnitude of change that would be considered significantly greater than measurement reliability and practice effects, based on reliable change indices (see Table 3).

3 | DISCUSSION

Delivering and evaluating complex interventions in schools presents significant logistical challenges. Our pilot largely indicated feasibility of delivering mindfulness- and dissonance-based teacher-led interventions. Recruitment and uptake were promising, with multiple schools indicating interest in participating and initially amenable to random allocation. Consent processes were acceptable; retention of students was good; and all lessons were delivered in both intervention schools. Fidelity to the lesson plans was acceptable, with key areas identified for improvement (i.e., streamlining content, highlighting importance of starting and finishing well). Adherence was generally higher for the teachers delivering the MBI, which may reflect the closer alignment of the lesson content with subject area expertise.

However, not all schools were able to accommodate requirements as intended (both excluded and included schools) due to existing well-being curriculums, or not having suitable lessons for delivery. While tightly controlled evaluation trials remain ideal, some flexibility is required to ensure reach and inclusivity of schools, and aid generalizability, where this does not compromise research integrity. We made pragmatic decisions to reallocate schools prior to information about the interventions (minimizing bias), and to deliver lessons in two parts

for one intervention school. These are limitations but represent the reality for implementation. For future, we recommend earlier recruitment of schools; suitable procedures for matching schools across arms and guiding replacement for drop-outs (e.g., minimization randomization based on key school characteristics); and increasing teacher training to a minimum of 3 h.

Regarding acceptability, students were generally favorable of teacher delivery and endorsed body image as an important topic. However, most other rated aspects (e.g., enjoyment, effectiveness, likelihood of continued use, would recommend) reflected moderate endorsement. While perhaps typical of any class of adolescents rating school lessons, it does underscore need for continued refinement, and particularly for boys. Guided also by student suggestions from our qualitative data, priorities for increasing acceptability include increasing interactivity and reducing writing (e.g., further discussions, practical tasks), personalized stories and examples, greater consideration of social media, reconsidering inclusion and/or nature of homework tasks (particularly for MBI), streamlining repetition (DBI), and more positive reframing (MBI). However, given the observed intervention effects, high acceptability may not be required to confer benefit (akin to students being able to still learn and use disliked school subjects) and should not be a barrier for implementation. Moderate acceptability also likely reflects heterogeneity of the universal sample regarding risk and relevance. Future evaluation should consider assessing moderation of baseline characteristics, which was not possible in the current study due to the small sample. Teachers also indicated general support for the topic and need for lessons. Feedback indicated a continued challenge of balancing teacher desire for less detailed and prescriptive guidance with researcher desire to provide enough clarity to maximize evidence-based delivery. Future work should consider further emphasizing overall objectives and key content, while increasing flexibility to allow teachers to draw on their expertise.

Both interventions demonstrated promising results, including positive effects across primary outcomes (body image and affect risk factors for eating disorders), with effect sizes ranging from small to large. The magnitude of effects for some outcomes (body satisfaction, weight/shape concerns, positive affect) was considerably larger than for previous universal prevention (Chua et al., 2020; Yager et al., 2013) and is particularly encouraging given teacher delivery. However, it is important to consider confidence intervals, and the need to substantiate within large-scale evaluation. There were no significant interactions including Time, indicating maintenance of effects across post-intervention and follow-up, although it is possible that we lacked power to detect significance.

No significant effects were observed for secondary outcomes of emotion regulation difficulty or mental well-being, which may be due to short follow-up and greater reliance on time and practice for these interventions to confer broader benefits. Surprisingly, we also found no effects of the MBI on self-reported mindfulness, leaving the mechanism of change uncertain. We did observe significant effects of condition on internalization, proposed to be a key target for DBIs, but which were evident for both DBI and MBI to a similar degree. This provides support for the theoretical basis of mindfulness in reducing

responses to sociocultural pressures as well as negative experience itself (e.g., Atkinson, 2015). With increased recognition of the importance of positive body image, future work may also include positive body image measures for more comprehensive evaluation (Atkinson et al., 2020). In addition, examination of clinical significance indicated minimal differences between intervention and control, which highlights the importance of using an appropriate control group in future trials.

As is common in body image and eating disorder prevention research, greater effects were found for girls than boys. We maintain that it remains essential to provide content to mixed-gender classes given increasing numbers of boys and men exhibit body image and eating concerns, and that a lack of significant effects may not represent a lack of benefit so much as limited scope for change within a short follow-up period. We cannot be presumptive about when intervention learning may be activated to benefit the student. Future research will require longer follow-up, which has already been noted as vitally important for universal eating disorder prevention research (Wilksch, 2014). It may also be useful to consider providing schools with guidance for incorporating content in ongoing ways following discrete interventions, to consolidate foundations and enable application through adolescence.

Although testing differences between the two intervention conditions was not an aim in this pilot due to the limited sample, it is worth noting where differences may lie. The DBI showed impacts on body image and internalization outcomes, whereas MBI showed additional effects on broader emotional experience. Rather than deciding whether one should be delivered in preference to the other, both could be used to maximize benefits, for example, delivering DBI in early adolescence, and MBIs to build on this during mid-late adolescence. However, we also note that teachers delivering the interventions differed in usual taught subjects which may have impacted differences. It will therefore be important to robustly evaluate both interventions further in a more rigorous RCT.

Conducting pilot studies is important for testing procedures and guiding adjustments for evaluation trials prior to outlay of significant resource, and is a key phase in the development and evaluation of complex interventions (Skivington et al., 2021). In addition, task-shifting delivery is an important undertaking for the sustainability and scalability of interventions. Nevertheless, when interpreting current findings, limitations should be acknowledged. These first include the short follow-up and homogeneity of school characteristics: while practical for a small pilot study, efforts should be made to address these in a future trial. The decision was also made to randomize at the level of school to minimize cross-contamination within school, but which introduced a confound of between-school differences in this small sample. This impact will be accounted for with additional schools in a larger trial, and modeling random effects at the school level. Needing to break randomization to accommodate changing school availability also limits our feasibility findings, however as this took place prior to information being provided about interventions. We maintain confidence that the majority of schools will be amenable to this in future and reemphasise that minimization randomization should be employed in school trials to guide replacements in a way that ensures continued balancing of trial arms.

One further accommodation was needing to deliver the DBI lessons in two parts. While these were provided on consecutive days to maximize continuity, it may have contributed to the lower fidelity for the DBI, including those aspects perhaps prioritized lower (e.g., homework assignment and review). This did not however appear to feature in either teacher or student acceptability data. As noted above, teacher specialist areas also differed between the two schools, and the DBI was delivered by more teachers, and included a gender mix. This may have influenced findings through differences in motivation, experience gained over the intervention period, and gender interactions. Efforts to explore and account for these differences in future work should be considered. Finally, conducting live observations of lessons, rather than relying on audio recordings, will enable more comprehensive fidelity assessment in future.

This study provides proof-of-concept for teacher-led universal eating disorder prevention based on mindfulness and dissonance-induction, respectively. In particular, it provides support for our aim to assess suitability for a larger efficacy trial of both interventions against usual care in a school setting. It also shows the potential usefulness of adapting existing selective interventions for universal delivery, where theory and practical considerations allow, which may aid efforts in broadening reach of evidence-based prevention strategies. Further refinement and robust evaluation is now required to validate efficacy, including additional comparison to existing universal programmes. Aspects of our feasibility findings highlight particular areas for aiding success, and indicate a pragmatic trial will be necessary.

AUTHOR CONTRIBUTIONS

Melissa J. Atkinson: Conceptualization; formal analysis; funding acquisition; methodology; project administration; writing – original draft. **Jade Parnell:** Investigation; writing – original draft. **Phillippa C. Diedrichs:** Conceptualization; funding acquisition; methodology; writing – review and editing.

ACKNOWLEDGMENTS

We would like to thank Hannah Jarman for assistance with teacher training (DBI); Georgia Treneman-Evans, Bruna Costa, Ella Guest, Emily Bedworth and Carly Sandercombe for assistance with data collection; and Faiza Abdul Aziz for completing fidelity assessments.

FUNDING INFORMATION

This project was funded through the University of the West of England Quality-related (QR) research funding scheme. Phillippa C. Diedrichs has received consultancy fees for training community and charitable organizations in the delivery of The Body Project, a dissonance-based intervention.

CONFLICT OF INTEREST STATEMENT

The authors have no other conflicts of interests to disclose.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

ORCID

Melissa J. Atkinson  <https://orcid.org/0000-0002-7699-2398>

Jade Parnell  <https://orcid.org/0000-0003-0399-8569>

Philippa C. Diedrichs  <https://orcid.org/0000-0001-5028-4134>

REFERENCES

- Allen, K. L., Byrne, S. M., Oddy, W. H., & Crosby, R. D. (2013). DSM-IV-TR and DSM-5 eating disorders in adolescents: Prevalence, stability, and psychosocial correlates in a population-based sample of male and female adolescents. *Journal of Abnormal Psychology*, 122(3), 720–732. <https://doi.org/10.1037/a0034004>
- Arcelus, J., Mitchell, A. J., Wales, J. A., & Nielsen, S. (2011). Mortality rates in patients with anorexia nervosa and other eating disorders. *Archives of General Psychiatry*, 68(7), 724–731.
- Atkinson, M. J. (2015). Mindfulness and acceptance-based prevention of eating disorders. In T. Wade (Ed.), *Encyclopedia of feeding and eating disorders* (pp. 1–5). Springer Singapore. https://doi.org/10.1007/978-981-287-087-2_131-1
- Atkinson, M. J., & Diedrichs, P. C. (2021). Assessing the impact of body image concerns on functioning across life domains: Development and validation of the body image life disengagement questionnaire (BILD-Q) among British adolescents. *Body Image*, 37, 63–73. <https://doi.org/10.1016/j.bodyim.2021.01.009>
- Atkinson, M. J., Stock, N. M., Alleva, J. M., Jankowski, G. S., Piran, N., Riley, S., Calogero, R., Clarke, A., Rumsey, N., Slater, A., Diedrichs, P. C., & Williamson, H. (2020). Looking to the future: Priorities for translating research to impact in the field of appearance and body image. *Body Image*, 32, 53–61. <https://doi.org/10.1016/j.bodyim.2019.10.006>
- Atkinson, M. J., & Wade, T. D. (2015). Mindfulness-based prevention for eating disorders: A school-based cluster randomized controlled study. *The International Journal of Eating Disorders*, 48(7), 1024–1037. <https://doi.org/10.1002/eat.22416>
- Atkinson, M. J., & Wade, T. D. (2016). Does mindfulness have potential in eating disorders prevention? A preliminary controlled trial with young adult women. *Early Intervention in Psychiatry*, 10(3), 234–245. <https://doi.org/10.1111/eip.12160>
- Beccia, A. L., Dunlap, C., Hanes, D. A., Courneene, B. J., & Zwick, H. L. (2018). Mindfulness-based eating disorder prevention programs: A systematic review and meta-analysis. *Mental Health & Prevention*, 9, 1–12. <https://doi.org/10.1016/j.mhp.2017.11.001>
- Becker, C. B., & Stice, E. (2011). *Succeed: Body image programme manual*. Oxford University Press.
- Cash, T. F. (2000). The multidimensional body-self relations questionnaire. *Unpublished Test Manual*, 2, 1–12.
- Chua, J. Y. X., Tam, W., & Shorey, S. (2020). Research review: Effectiveness of universal eating disorder prevention interventions in improving body image among children: A systematic review and meta-analysis. *Journal of Child Psychology and Psychiatry*, 61(5), 522–535.
- Diedrichs, P. C., Atkinson, M. J., Garbett, K. M., & Leckie, G. (2021). Evaluating the “dove confident me” five-session body image intervention delivered by teachers in schools: A cluster randomized controlled effectiveness trial. *The Journal of Adolescent Health*, 68(2), 331–341. <https://doi.org/10.1016/j.jadohealth.2020.10.001>
- Diedrichs, P. C., & Halliwell, E. (2012). School-based interventions to promote positive body image and the acceptance of diversity in appearance. In N. Rumsey & D. Harcourt (Eds.), *Oxford handbook of the psychology of appearance* (pp. 531–550). Oxford University Press. <https://doi.org/10.1093/oxfordhb/9780199580521.013.0038>
- Ebesutani, C., Regan, J., Smith, A., Reise, S., Higa-McMillan, C., & Chorpita, B. F. (2012). The 10-item positive and negative affect schedule for children, child and parent shortened versions: Application of item response theory for more efficient assessment. *Journal of Psychopathology and Behavioral Assessment*, 34, 191–203.
- Eisenberg, D., Nicklett, E. J., Roeder, K., & Kirz, N. E. (2011). Eating disorder symptoms among college students: Prevalence, persistence, correlates, and treatment-seeking. *Journal of American College Health*, 59(8), 700–707. <https://doi.org/10.1080/07448481.2010.546461>
- Fairburn, C. G., & Beglin, S. J. (1994). Assessment of eating disorders: Interview or self-report questionnaire? *International Journal of Eating Disorders*, 16(4), 363–370.
- Fairburn, C. G., & Patel, V. (2014). The global dissemination of psychological treatments: A road map for research and practice. *American Journal of Psychiatry*, 171(5), 495–498.
- Greco, L. A., Baer, R. A., & Smith, G. T. (2011). Assessing mindfulness in children and adolescents: Development and validation of the child and adolescent mindfulness measure (CAMP). *Psychological Assessment*, 23(3), 606–614. <https://doi.org/10.1037/a0022819.suppl>
- Halliwell, E., & Diedrichs, P. C. (2013). Testing a dissonance body image intervention among young girls. *Health Psychology*, 33(2), 201–204. <https://doi.org/10.1037/a0032585>
- Jacobi, C., & Fittig, E. (2010). Psychosocial risk factors for eating disorders. In W. S. Agras (Ed.), *The Oxford handbook of eating disorders*. Oxford University Press.
- Jacobson, N. S., & Truax, P. (1991). Clinical significance: A statistical approach to defining meaningful change in psychotherapy research. *Journal of Consulting and Clinical Psychology*, 59(1), 12–19. <https://doi.org/10.1037/0022-006x.59.1.12>
- Johnson, C., Burke, C., Brinkman, S., & Wade, T. (2016). Effectiveness of a school-based mindfulness program for transdiagnostic prevention in young adolescents. *Behaviour Research and Therapy*, 81, 1–11. <https://doi.org/10.1016/j.brat.2016.03.002>
- Johnson, C., Burke, C., Brinkman, S., & Wade, T. (2017). A randomized controlled evaluation of a secondary school mindfulness program for early adolescents: Do we have the recipe right yet? *Behaviour Research and Therapy*, 99, 37–46. <https://doi.org/10.1016/j.brat.2017.09.001>
- Johnson, C., & Wade, T. (2019). Piloting a more intensive 8-week mindfulness programme in early- and mid-adolescent school students. *Early Intervention in Psychiatry*, 13(6), 1495–1502. <https://doi.org/10.1111/eip.12801>
- Kaufman, E. A., Xia, M., Fosco, G., Yaptangco, M., Skidmore, C. R., & Crowell, S. E. (2015). The difficulties in emotion regulation scale short form (DERS-SF): Validation and replication in adolescent and adult samples. *Journal of Psychopathology and Behavioral Assessment*, 38(3), 443–455. <https://doi.org/10.1007/s10862-015-9529-3>
- Kazdin, A. E. (2017). Addressing the treatment gap: A key challenge for extending evidence-based psychosocial interventions. *Behaviour Research and Therapy*, 88, 7–18. <https://doi.org/10.1016/j.brat.2016.06.004>
- Khalsa, S. S., Portnoff, L. C., McCurdy-McKinnon, D., & Feusner, J. D. (2017). What happens after treatment? A systematic review of relapse, remission, and recovery in anorexia nervosa. *Journal of Eating Disorders*, 5, 20. <https://doi.org/10.1186/s40337-017-0145-3>
- Le, L. K., Barendregt, J. J., Hay, P., & Mihalopoulos, C. (2017). Prevention of eating disorders: A systematic review and meta-analysis. *Clinical Psychology Review*, 53, 46–58. <https://doi.org/10.1016/j.cpr.2017.02.001>
- Mendelson, B. K., Mendelson, M. J., & White, D. R. (2001). Body-esteem scale for adolescents and adults. *Journal of Personality Assessment*, 76(1), 90–106. https://doi.org/10.1207/S15327752JPA7601_6
- Mond, J. M., Hay, P. J., Rodgers, B., & Owen, C. (2006). Eating Disorder Examination Questionnaire (EDE-Q): Norms for young adult women. *Behaviour Research and Therapy*, 44(1), 53–62. <https://doi.org/10.1016/j.brat.2004.12.003>
- Sharpe, H., Schober, I., Treasure, J., & Schmidt, U. (2013). Feasibility, acceptability and efficacy of a school-based prevention programme for eating disorders: Cluster randomised controlled trial. *The British Journal of Psychiatry*, 203(6), 428–435. <https://doi.org/10.1192/bjp.bp.113.128199>
- Skivington, K., Matthews, L., Simpson, S. A., Craig, P., Baird, J., Blazeby, J. M., Boyd, K. A., Craig, N., French, D. P., McIntosh, E.,

- Petticrew, M., Rycroft-Malone, J., White, M., & Moore, L. (2021). A new framework for developing and evaluating complex interventions: Update of Medical Research Council guidance. *BMJ*, 374, n2061. <https://doi.org/10.1136/bmj.n2061>
- Stice, E., Marti, C. N., Shaw, H., & Rohde, P. (2019). Meta-analytic review of dissonance-based eating disorder prevention programs: Intervention, participant, and facilitator features that predict larger effects. *Clinical Psychology Review*, 70, 91–107. <https://doi.org/10.1016/j.cpr.2019.04.004>
- Stice, E., & Presnell, K. (2007). *The body project: Promoting body acceptance and preventing eating disorders: Facilitator guide*. Oxford University Press.
- Stice, E., Shaw, H., Becker, C. B., & Rohde, P. (2008). Dissonance-based interventions for the prevention of eating disorders: Using persuasion principles to promote health. *Prevention Science*, 9(2), 114–128.
- Tennant, R., Hiller, L., Fishwick, R., Platt, S., Joseph, S., Weich, S., Parkinson, J., Secker, J., & Stewart-Brown, S. (2007). The Warwick-Edinburgh mental well-being scale (WEMWBS): Development and UK validation. *Health and Quality of Life Outcomes*, 5(1), 1–13.
- Thompson, J. K., van den Berg, P., Roehrig, M., Guarda, A. S., & Heinberg, L. J. (2004). The sociocultural attitudes towards appearance scale-3 (SATAQ-3): Development and validation. *International Journal of Eating Disorders*, 35(3), 293–304. <https://doi.org/10.1002/eat.10257>
- Watson, H. J., Joyce, T., French, E., Willan, V., Kane, R. T., Tanner-Smith, E. E., McCormack, J., Dawkins, H., Hoiles, K. J., & Egan, S. J. (2016). Prevention of eating disorders: A systematic review of randomized, controlled trials. *The International Journal of Eating Disorders*, 49(9), 833–862. <https://doi.org/10.1002/eat.22577>
- Wilksch, S. M. (2014). Where did universal eating disorder prevention go? *Eating Disorders*, 22(2), 184–192. <https://doi.org/10.1080/10640266.2013.864889>
- Yager, Z., Diedrichs, P. C., Ricciardelli, L. A., & Halliwell, E. (2013). What works in secondary schools? A systematic review of classroom-based body image programs. *Body Image*, 10(3), 271–281. <https://doi.org/10.1016/j.bodyim.2013.04.001>

SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

How to cite this article: Atkinson, M. J., Parnell, J., & Diedrichs, P. C. (2024). Task shifting eating disorders prevention: A pilot study of selective interventions adapted for teacher-led universal delivery in secondary schools. *International Journal of Eating Disorders*, 57(2), 327–340. <https://doi.org/10.1002/eat.24100>