



## Effectiveness of a brief school-based body image intervention ‘Dove Confident Me: Single Session’ when delivered by teachers and researchers: Results from a cluster randomised controlled trial



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### ABSTRACT

This study evaluated a 90-min single session school-based body image intervention (*Dove Confident Me: Single Session*), and investigated if delivery could be task-shifted to teachers. British adolescents ( $N = 1707$ ; 11–13 years; 50.83% girls) participated in a cluster randomised controlled trial [lessons as usual control; intervention teacher-led (TL); intervention researcher-led (RL)]. Body image, risk factors, and psychosocial and disordered eating outcomes were assessed 1-week pre-intervention, immediate post-intervention, and 4–9.5 weeks follow-up. Multilevel mixed-models showed post-intervention improvements for intervention students relative to control in body esteem (TL; girls only), negative affect (TL), dietary restraint (TL; girls only), eating disorder symptoms (TL), and life engagement (TL; RL). Awareness of sociocultural pressures increased at post-intervention (TL). Effects were small-medium in size ( $ds$  0.19–0.76) and were not maintained at follow-up. There were no significant differences between conditions at post or follow-up on body satisfaction, appearance comparisons, teasing, appearance conversations and self-esteem. The intervention had short-term benefits for girls' body image and dietary restraint, and for eating disorder symptoms and some psychosocial outcomes among girls and boys. A multi-session version of the intervention is likely to be necessary for sustained improvements. Teachers can deliver this intervention effectively with minimal training, indicating broader scale dissemination is feasible.

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Poor body image is common in Westernised countries and is not benign. An estimated 25–61% of adolescent girls and boys are dissatisfied with their appearance (Al Sabbah et al., 2009). Poor body image is prospectively associated with higher rates of depression, unhealthy weight control practices, and reduced academic performance (Halliwell, Diedrichs, & Orbach, 2014; Neumark-Sztainer, Paxton, Hannan, Haines, & Story, 2006; Stice & Bearman, 2001). Body dissatisfaction is also the most potent modifiable risk factor for the development of eating disorders (Jacobi & Fittig, 2010). Consequently, governments, health professionals and the public are calling for the dissemination of evidence-based body image interventions, in an effort to reduce body image concerns and prevent eating disorders (Puhl, Neumark-

Sztainer, Austin, Luedicke, & King, 2014).

Significant strides have been made in the development of effective body image interventions, particularly among selected samples of high-risk adolescent girls and young adult women (e.g., Stice, Shaw, Becker, & Rohde, 2008). However, very few have been disseminated at scale (Stice, Becker, & Yokum, 2013). The global shortage of skilled human resources to deliver these interventions is a key barrier to dissemination (Patel, Kieling, Maulik, & Divan, 2013). Task-shifting from expert (e.g., psychologists) to less expensive providers (e.g., school teachers) and embedding interventions within existing infrastructures (e.g., schools) are two solutions to reducing the cost and increasing the availability and dissemination of interventions (Kilpela et al., 2014). Accordingly, evidence-based interventions delivered by school staff are an important strategy for addressing child and adolescent mental health issues in a sustainable and cost-efficient manner (Graeff-Martins et al., 2008; Patel et al., 2013).

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A recent systematic review of controlled studies identified three multi-session classroom-based body image interventions that significantly improved body image among early adolescents at follow-up (Yager, Diedrichs, Ricciardelli, & Halliwell, 2013). Interventions included *Happy Being Me* delivered to girls only (3 sessions, improved girls' body image at 3-month follow-up; Richardson & Paxton, 2010), *Media Smart* delivered to girls and boys (8 sessions, improved boys' body image at 6-month follow-up, prevented body image concerns among girls at 30-month follow-up; Wilksch & Wade, 2009), and *Dove BodyThink* delivered to girls and boys (4 sessions, improved boys' body image at 3-month follow-up; Richardson, Paxton, & Thomson, 2009). *Happy Being Me* and *Media Smart* targeted empirically established risk factors for poor body image and *Dove BodyThink* focused on self-esteem. Although promising, these interventions have been evaluated predominantly in efficacy trials involving external expert providers (e.g., psychologists, postgraduate students, researchers). Of these interventions, to date only *Media Smart* has been piloted with teacher-led delivery (Wilksch, 2015). The sample size in this study was small ( $n = 51$ ) and there were no significant benefits for body image, perhaps due to lack of statistical power. Currently there is limited evidence to suggest that these interventions can be delivered sustainably at scale by less expert providers.

Since the Yager et al. (2013) systematic review, Sharpe, Schober, Treasure, and Schmidt (2013) evaluated a 6-session body image intervention (*Me, You & Us*) delivered to classes of early adolescent girls by their usual teachers. The intervention produced sustained improvements in girls' body image relative to control at 3-months follow-up, suggesting that body image interventions can potentially be task-shifted to teachers. Because most schools are co-educational, however, the uptake and scalability of classroom-based interventions developed specifically for girls, such as this, may be restricted as it can be difficult for schools with limited time and classroom space to segregate classes by gender.

Good progress has been made in the development of effective classroom-based body image interventions for early adolescents. To date, however, only *Happy Being Me* has been evaluated by an independent research team, albeit in a small efficacy trial with a co-educational adaptation of the intervention among girls and boys in their final year of primary school (Bird, Halliwell, Diedrichs, & Harcourt, 2013). Further, the acceptability of multi-session programs in schools is problematic due to over-crowded curriculums and heavy staff workloads, consequently limiting uptake and scalability (Patel et al., 2013). Encouragingly, there is some evidence to suggest that single session interventions can produce body image improvements. For example, Matussek, Wendt, and Wiseman (2004) observed improvements in body image among undergraduate university women four weeks after a 2-hour single session intervention. Additionally, a meta-analysis of eating disorder prevention programs by Stice, Shaw, and Marti (2007) found that although multi-session programs produced stronger effects in relation to dieting outcomes, there was little evidence to suggest that single session programs produced weaker effects on body dissatisfaction-related outcomes. Consequently, in order to better address the needs of schools and reduce barriers to the dissemination of evidence-based body image interventions, further investigation of single session body image interventions is warranted.

The first aim of this study was to investigate whether the delivery of a brief single session evidence-informed body image intervention could improve early adolescents' body image and related outcomes. The second aim was to establish if the intervention could be successfully task-shifted to teachers. Specifically, we evaluated the effectiveness of the *Dove Confident Me: Single Session* workshop for body confidence when delivered by external expert providers or by trained teachers. Workshop content was

derived from the key concepts and activities covered in *Happy Being Me* (Richardson & Paxton, 2010; Bird et al., 2013). We hypothesised that relative to the control group, adolescents receiving the intervention would report significantly improved body image, reduced severity of risk factors associated with poor body image, and improvements on related psychosocial and disordered eating outcomes. Consistent with previous research (Stice et al., 2007), we also hypothesised that intervention effects would be stronger when delivered by external expert providers.

## 1. Methods

### 1.1. Trial design

We conducted a parallel 3-arm cluster randomised controlled trial at six school sites with two schools in each condition (lessons as usual assessment only control; intervention researcher-led; intervention teacher-led). The trial was approved by the university ethics review board and was registered (ISRCTN16782819).

### 1.2. Participants

Schools in southwest England were invited via email and teacher training events to participate in a body image study. We used a computer generated block randomization list to sequentially allocate eligible schools that expressed interest in blocks of six and three into one of the three conditions. Blinding was not possible due to the nature of the intervention. Eligible schools were (a) co-educational; (b)  $\geq 5$  classes of enrolled students per year level, (c) available to include all year 7 and 8 classes in the study; and (d) had an average or below national average proportion of students with special educational needs.

Recruitment concluded when two schools had consented to take part in each condition. Assuming a small effect size of Cohen's  $d = 0.2$ , a correlation between repeated measures of 0.5, and setting power at 0.80, 294 participants were required in each condition (Twisk, 2006). Participating schools received a £600 honorarium.

### 1.3. Intervention

*Dove Confident Me: Single Session* consisted of a 90-min interactive classroom-based body image lesson with one provider for approximately 25–30 students. The lesson took an etiological approach targeting risk factors for poor body image. It addressed the nature and source of societal appearance ideals, media literacy, appearance-related social comparisons, and body activism. Skills-based learning was facilitated through class discussion, small group activities, and video stimuli. Materials included a detailed lesson plan for the provider, PowerPoint slides, two video clips, and student activity sheets.

Intervention content was derived from a selection of the key concepts and activities in *Happy Being Me* (Bird et al., 2013; Richardson & Paxton, 2010). Through collaboration between the original *Happy Being Me* authors, education and teaching experts, the *Dove Self-Esteem Project* (the social impact agenda for the multinational brand *Dove*), and the authors of this study, core content from *Happy Being Me* was selected for adaptation. In order to fit the content within a single 90-min session, the current intervention focused specifically on addressing the unrealistic nature of societal appearance ideals, media literacy and appearance comparisons; while *Happy Being Me* additionally addresses the topics of appearance conversations and appearance-related teasing. The topics covered in the current intervention were selected as they formed a cohesive session, and the program creators' prior experience suggested that adolescents find media literacy-based

activities particularly engaging. This content was abbreviated, further adapted and refined for a co-educational audience, and updated to reflect contemporary media consumption and usage of adolescents including traditional, mobile and social media platforms. See Table 1 for an overview of the intervention content.

Intervention pilot testing occurred in April 2014 with the authors (PD, MA, RS, KG) delivering the lesson to year 7 and 8 students across 4 classes at a school external to the current trial. To increase the acceptability and appeal of the intervention, students ( $n = 102$ ) and teachers ( $n = 4$ ) made the following recommendations via questionnaires and interviews: reduce the amount of content; streamline the lesson plan design; simplify language; and increase interactive elements. These recommendations were incorporated into the final intervention tested here.

In the external expert researcher-led condition, the lesson was delivered by one of three authors (MA, RS, KG) who had Masters or PhD qualifications in psychology. In the teacher-led condition, the usual class teacher delivered each lesson. Teachers received 2-hours of group training, covering body image, the lesson's key concepts, and tips for addressing body image in the classroom. The training was delivered within each school by the authors (PD, MA), and consisted of a PowerPoint presentation followed by brief group discussion.

#### 1.4. Outcome measures

See Table 2 for outcome measure scales and internal consistencies.

Aside from two measures constructed specifically for this study, all measures were validated and widely used with adolescents.

##### 1.4.1. Participant characteristics

Self-reported gender, age, country of birth, language other than English spoken at home, ethnicity, height and weight were collected at baseline. Body mass index was not used in our analyses as only 8.1% girls and 10.6% boys self-reported both their weight and height (48.8% of boys and 60.0% of girls reported 'don't know' for their height, a further 23.8% of boys and 14.7% of girls had missing values on this item; 46.6% of boys and 57.3% of girls reported 'don't know' for their weight, a further 36.7% of boys and 25.9% of girls had missing values on this item).

##### 1.4.2. Body image outcome measures

To comprehensively assess body image, we assessed global body esteem and dissatisfaction with specific body parts (e.g., stomach, thighs, height, weight, muscles, body build).

##### 1.4.3. Risk factor outcome measures

We assessed five key risk factors for negative body image: internalisation of appearance ideals; perceived appearance-related sociocultural pressures from peers, family and media; tendency to make appearance-related social comparisons; frequency of, and upset due to, appearance-related teasing; and frequency of appearance-related conversations with friends.

**Table 1**  
Dove Confident Me: Single Session workshop outline.

Section	Aims	Content	Processes
Introduction (5 min)	Introduce workshop and set ground rules	Explain ground rules (e.g., everyone is encouraged to contribute, importance of respecting diverse opinions) and learning outcomes.	Didactic PowerPoint presentation
Appearance ideals (20 min)	Reduce internalisation of societal appearance ideals	Define current societal appearance ideals, and identify them as unrealistic and narrowly constructed. Problems (e.g., emotional, financial, time disadvantages) associated with trying to achieve these ideals. Sources of ideals, including media, advertising, friends and family.	Small group work with student activity sheet Facilitated class discussion
Media (30 min)	Increase media literacy. Develop skills to resist unhelpful appearance pressures from the media and create positive body image content on own social media networks.	Media, including professional media (e.g., advertising, cinema) and personal media (e.g., social networking sites), often promotes appearance ideals. Prevalence and nature of airbrushing. Why and how media and advertisers manipulate images and messages, in order to influence consumers and sell products, and why this is a problem. Practice responding to appearance pressures in professional and personal media.	Facilitated class discussion with interactive PowerPoint presentation <i>Dove Evolution</i> film Brainstorm activity to deconstruct example advertisements Small group work with student activity sheet
Optional break (5 min) Comparisons (25 min)	Increase understanding of appearance comparisons and how they can negatively impact body image and self-esteem. Develop skills to identify, avoid and challenge appearance comparisons.	People often make comparisons to get a sense of their own standing in relation to others. Cognitive biases towards upward comparisons can lead to a downward spiral of making comparisons and experiencing negative body image. Learning to identify comparisons and challenging them can improve body image and self-esteem. Practice strategies to avoid and challenge comparisons.	<i>Dove Change One Thing</i> film Facilitated class discussion with interactive PowerPoint presentation Role play
Summary and commitment (5 min)	Review key workshop messages. Commit to engaging in positive body image behaviours and activism in future.	Identify key messages. Written commitment to take future action to promote positive body image among self and others.	Class discussion Individual written activity sheet

**Table 2**  
Outcome measures and internal consistencies (Cronbach's alphas for the current sample).

Outcome	Scale	$\alpha$ girls	$\alpha$ boys
Body image			
Body esteem	Body Esteem Scale for adolescents & adults (Mendelson, Mendelson, & White, 2001) Weight and appearance subscales combined, 18 items, mean score range 1–5.	0.94	0.90
Body satisfaction	Project-EAT III Body Areas Satisfaction Scale (Neumark-Sztainer et al., 2007), 13 items, mean score range 1–5.	0.93	0.94
Risk factors			
Internalisation of appearance ideals	Sociocultural Attitudes Towards Appearance Questionnaire-3 (Thompson, van den Berg, Roehrig, Guarda, & Heinberg, 2004), General internalisation subscale, 8 items, mean score range 1–5.	0.95	0.94
Sociocultural pressures	Purpose-built measure derived from existing scales of sociocultural pressures (Stice & Bearman, 2001; Thompson et al., 2004) assessing "I've felt pressure to lose weight/change my body shape or build/have bigger muscles/change my appearance" from family/friends/media, 12 items, mean score range 1–5. Test-retest reliability for the current sample boys: $r_t = 0.67$ , girls $r_t = 0.66$ .	0.89	0.91
Social comparisons	Social Comparison to Models and Peers Scale (Jones, 2001) adapted to measure comparisons regarding 'weight, body shape/build, face, and fashion/style' to 'celebrities and people in the media', and 'other people my age', 8 items, mean score range 1–5.	0.90	0.88
Appearance teasing	Project EAT-III Teasing Scale (Neumark-Sztainer et al., 2007) adapted to assess frequency of teasing about appearance (frequency; 2 items), and feelings of upset about teasing about 'weight & shape' and 'the way you look' (impact; 2 items), mean score range 1–5.	0.77 0.80	0.69 0.79
Appearance conversations	Appearance conversations with friends subscale of the culture among friends (Jones, Vigfusdottir, & Lee, 2004), 5 items, mean score range 1–5.	0.87	0.81
Psychosocial & disordered eating			
Negative affect	10-item positive and negative affect schedule for children (Ebesutani et al., 2012) Negative affect subscale, 5 items, mean score range 1–5.	0.88	0.83
Self-esteem	Rosenberg Self-esteem Scale shortened (Neumark-Sztainer et al., 2007; Rosenberg, 1965), 6 items, mean score range 1–4.	0.82	0.75
Dietary restraint	Dutch Eating Behaviour Questionnaire, (van Strien, Frijters, Bergers, & Defares, 1986), Restraint subscale, 10 items, mean score range 1–5.	0.94	0.91
Eating disorder symptoms	SCOFF (Morgan, Reid, & Lacey, 1999), 5 yes/no items. Note, we used the SCOFF as a continuous measure ('yes' response scored as 1) as we were interested in symptom severity rather than screening for eating disorders, mean score range 0–5.	0.61	0.52
Life engagement	Purpose-built measure assessing the extent that worries or feeling bad about the way you look has stopped you, or are likely to stop you, from engaging in life activities (e.g., going to a social event, doing physical activity, giving an opinion, going to school), 10 items, mean score range 1–4. Test-retest reliability for the current sample: boys $r_t = 0.8$ , girls $r_t = 0.61$ .	0.93	0.96

#### 1.4.4. Psychosocial and disordered eating-related outcome measures

We assessed the broader impact of the intervention by measuring negative affect, self-esteem, dietary restraint and eating disorder symptoms. We also included a novel outcome, life engagement, assessing the extent to which appearance-related worries held participants back from engaging, or intending to engage, in various life activities.

#### 1.4.5. Fidelity measures

To assess provider adherence, provider competence, and proportion of the intervention delivered, 70% of lessons in the teacher-led condition and 62% of lessons in the researcher-led condition were audio-recorded and observed in person by trained research assistants using a standardised checklist. The checklist was modelled on Stice, Rohde, Gau, and Shaw (2009)'s fidelity assessment procedure. For adherence, each section of the intervention was rated on how closely the provider adhered to the lesson plan instructions using a 10-point Likert scale (1 = no adherence, section was skipped entirely; 10 = perfect, absolutely all material was presented as written). For competence, the quality of the provider's delivery of each section was rated using a 10-point Likert scale (e.g., 1 = very poor; 10 = superior). For proportion of the intervention delivered, raters recorded whether or not providers delivered each question prompt and activity within each section, as per the lesson plan instructions. Independent research assistants subsequently rated the audio-recordings using the same checklist. Inter-rater reliability was good (ICCs = 0.69–0.87), suggesting that adherence, competence, and proportion of intervention content delivered were assessed consistently across lessons and observers.

#### 1.5. Procedure

As per the schools' usual protocols, informed active consent was obtained from school senior management and individual students, and informed passive consent was obtained from parents. Students completed baseline, post-intervention, and follow-up questionnaires under standardised conditions supervised by their teachers and trained research staff. One week after baseline, students in the teacher- and researcher-led conditions received the intervention followed immediately by the post-intervention questionnaire. Students in the control condition received their usual scheduled lessons and completed the post-questionnaire one-week after baseline. All students completed a follow-up questionnaire 4–9.5 weeks later, with the average follow-up time across schools within each condition being consistent (control = 7 weeks; teacher-led = 7.5 weeks; researcher-led = 7 weeks).

#### 1.6. Statistical analyses

Data preparation and assessment of baseline equivalence was undertaken using SPSS 20.0. Data were screened for outliers and normality. Significantly skewed variables were transformed to improve normality. Intervention analyses were conducted with transformed data, however, there were no substantive changes in the overall pattern of results. Therefore, for ease of interpretation we report the untransformed data and analyses.

Missing data ranged from 0.1 to 12.5% across outcomes and timepoints, due to both student absences and missed items. Missing data was designated missing at random (MAR), based on Little's MCAR test and subsequent t-tests of missingness. Therefore, multiple imputation was employed to estimate missing values based on the observable data, in order to reduce potential biases

and allow for intent-to-treat analyses. Twenty data sets were imputed, separately for gender, using the Markov Chain Monte Carlo method under the fully conditional specification in SPSS. All structural (school, year level), demographic and outcome variables were included in the imputation model. Results presented reflect analyses conducted on each dataset and combined to produce pooled estimates. We assessed the baseline demographic and outcome equivalence of conditions using chi-square goodness of fit tests and univariate analysis of variance with Bonferroni-adjusted pairwise comparisons, for categorical and continuous variables respectively.

Intervention effects were analysed using multilevel mixed models in Stata version 14, in order to account for the nested nature of the data (i.e., repeated measures from students clustered within classes within schools). Due to students inconsistently reporting their class details, we could not account for nesting at the class level. Unconditional (intercept-only) models were first fitted to assess the contribution of higher-order levels of nesting (individual and school) to the variance, in order to assess the need to take clustering into account. ICCs for school were very small ( $<0.01$ ), and their inclusion did not improve model fit; thus, random effects for school were removed and subsequent analyses were conducted using 2-level models with repeated measures modelled at level 1, and student at level 2.

Initial models tested whether gender was a significant moderator on intervention effects for each outcome, and included fixed effects for baseline scores, demographic covariates (age, ethnicity, country of birth), condition (represented by two dummy coded variables), time, gender, and all 2 and 3-way interactions between condition, time and gender. If interactions involving gender were not significant predictors in the model (i.e., no moderation present), they were removed and models were re-run with gender entered as a covariate only. All significant interactions were followed up with *a priori* planned pairwise comparisons between conditions (teacher-led versus control, researcher-led versus control, researcher-led versus teacher-led) at each post-intervention time-point. Where significant 3-way (gender  $\times$  condition  $\times$  time) or 2-way (gender  $\times$  condition) interactions indicated moderation, pairwise comparisons were conducted separately for girls and boys. Criterion for statistical significance was set at  $p < .01$ , in order to reduce the chance of Type 1 errors due to multiple comparisons.

Effect sizes (Cohen's  $d$ ) for between-group pairwise comparisons were calculated by dividing the difference in adjusted means (corrected for baseline differences) between conditions at post-intervention and follow-up, by the pooled standard deviation of all groups at baseline (small effect  $d = 0.20$ ; medium effect  $d = 0.50$ , large effect  $d = 0.80$ ; also known as Hedges'  $g$ ). Using baseline pooled standard deviations is an accepted estimate of the population variance when the sample standard deviation might be expected to change differentially among groups as a result of an intervention or experimental manipulation (Cumming, 2012; Field, 2013). Independent samples  $t$ -tests compared provider fidelity and competence ratings between the researcher-led and teacher-led lessons.

## 2. Results

### 2.1. Participant recruitment and flow

Schools were invited to participate in February–April 2014, with six eligible schools available to participate in May–July 2014. Intervention schools had 5–10 classes per year level, with an average or below national average proportion of students claiming

free school meals.<sup>1</sup> Control schools had 6 classes per year level, with an average or above national average proportion of students claiming free school meals. All schools were publically funded academies.

Fig. 1 outlines participant recruitment and retention. Attrition due to student absences was 10.8% at post-intervention, and 17.9% at follow-up. The final sample comprised 1707 adolescents aged 11–13 years (50.38% girls). See Table 3 for demographic information.

### 2.2. Baseline demographic and outcome differences

There were no significant differences across the conditions for girls in relation to age ( $p = .636$ ,  $ds = 0$  to 0.07), country of birth ( $p = .145$ , Cramer's  $\phi_c = 0.07$ ), proportion who spoke a language other than English at home ( $p = .414$ , Cramer's  $\phi_c = 0.05$ ), and ethnicity ( $p = .089$ , Cramer's  $\phi_c = 0.09$ ). For boys, there were significant differences across conditions with respect to age ( $p = .001$ ,  $ds = 0.02$  to 0.27), country of birth ( $p = .011$ , Cramer's  $\phi_c = 0.10$ ), and ethnicity ( $p = .016$ , Cramer's  $\phi_c = 0.11$ ), but not the proportion of boys who spoke a language other than English at home ( $p = .063$ , Cramer's  $\phi_c = 0.08$ ). Specifically, boys in the teacher-led condition were significantly older than boys in the control and researcher-led conditions. Boys in the researcher-led condition were significantly more likely than those in the other conditions to report that they were born in the UK, and to identify as Asian. Demographic differences were accounted for by including age, country of birth, and ethnicity as covariates in analysis models.

Participants in the teacher-led schools demonstrated greater severity at baseline than those in the researcher-led schools on internalisation, appearance comparisons (boys only), self-esteem (boys only), social comparisons (girls only) and life engagement ( $ps < 0.05$ ,  $ds = 0.19$  to 0.62). Participants in control schools demonstrated greater frequency of teasing and dietary restraint at baseline in girls only ( $ps < 0.05$ ,  $ds = 0.23$ –0.33). These differences were accounted for by including baseline scores as covariates in analysis models.

### 2.3. Intervention effects

See Table 4 for means and standard errors at each timepoint. See Table 5 for differences in means between conditions adjusted for baseline scores (pairwise comparisons), and associated effect sizes, at post-intervention and follow-up. Note, in Table 5 we report results collapsed across gender for outcomes where gender was not a significant moderator, and separately for girls and boys when gender was a significant moderator.

#### 2.3.1. Body image outcomes

Intervention effects on body esteem were moderated by gender, demonstrated by significant gender  $\times$  condition (teacher-led versus control:  $t = 3.46$ ,  $p = .001$ ) and gender  $\times$  condition  $\times$  time (teacher-led versus control:  $t = -2.56$ ,  $p = .012$ ) interactions. Planned comparisons showed that girls receiving the teacher-led intervention reported significantly higher body esteem than the control and researcher-led interventions at post-intervention (small effect sizes), in contrast to boys who demonstrated no significant differences. There were no differences for either girls or boys at follow-up. There were no significant effects for body satisfaction at post-intervention or follow-up.

#### 2.3.2. Risk factor outcomes

Gender did not significantly moderate intervention effects for any of the risk factor outcomes. There were significant effects of condition on perceived sociocultural pressures, such that students

<sup>1</sup> Free school meal status provides a proxy for workless families and families with one part-time worker only.

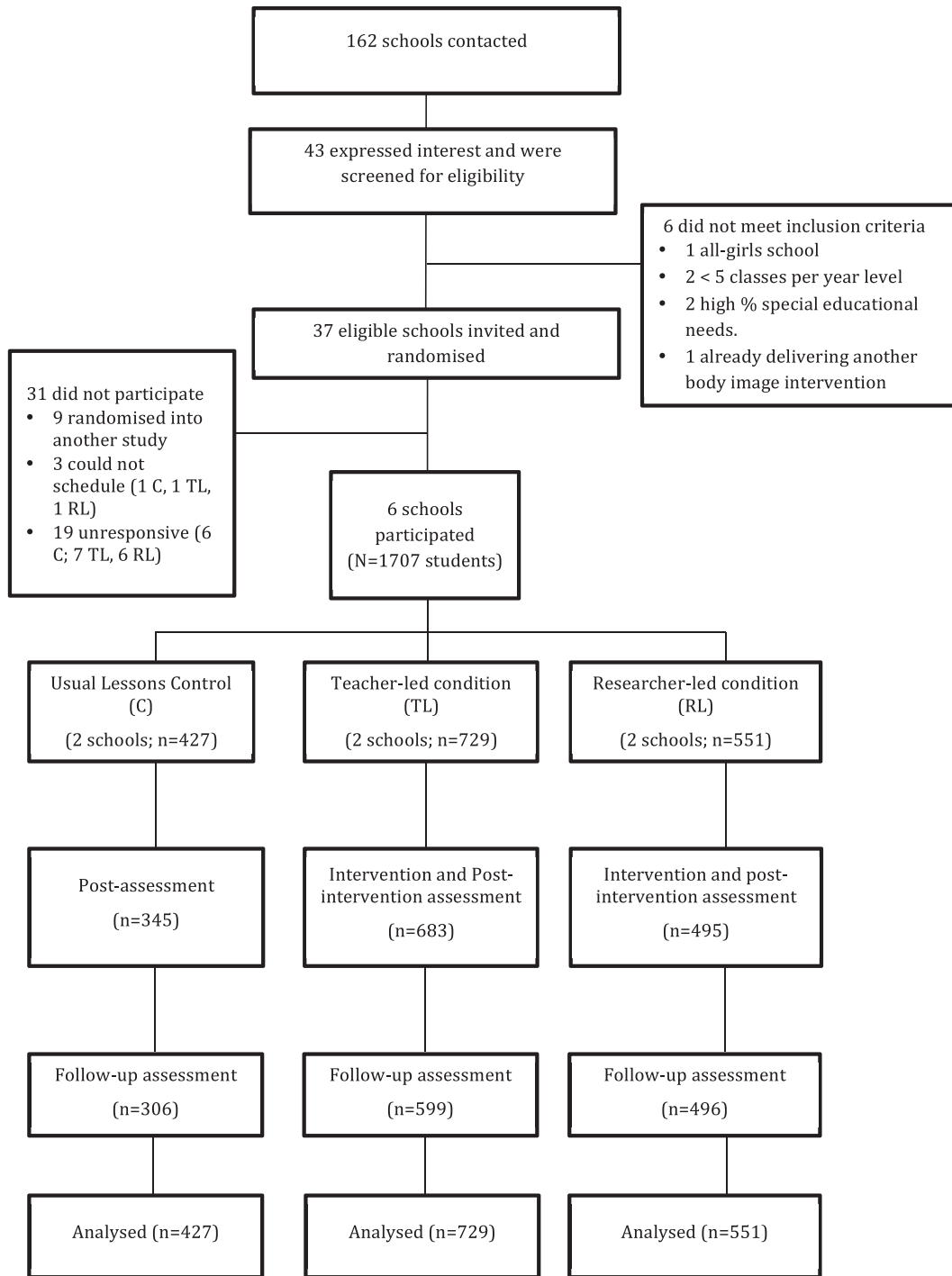


Fig. 1. CONSORT diagram of participant recruitment and flow.

receiving the teacher-led intervention scored significantly higher than control students at post-intervention (small effect size); however, this was not maintained at follow-up. There were no significant effects on internalisation, appearance comparisons, teasing or conversations between conditions at post-intervention or follow-up.

### 2.3.3. Psychosocial and disordered eating outcomes

Intervention effects for dietary restraint were moderated by gender, demonstrated by a significant gender  $\times$  condition

interaction (teacher-led versus control:  $t = -2.27, p = .024$ ). Planned comparisons revealed that girls receiving the teacher-led intervention demonstrated significantly lower dietary restraint than control girls at post-intervention (small effect size); however, this was not maintained at follow-up. There were no differences observed among boys on dietary restraint at post-intervention or follow-up. No significant effects were observed on self-esteem for girls and boys at post-intervention or follow-up.

There were also significant intervention effects on negative affect and eating disorder symptoms, which were not moderated

**Table 3**  
Baseline participant characteristics. Values are (n, %) unless stated otherwise.

	Boys (N = 847)			Girls (N = 860)		
	Control n = 202	Teacher-led n = 371	Researcher-led n = 274	Control n = 225	Teacher-led n = 358	Researcher-led n = 277
Age (M, SD)	12.11 (0.71)	12.30 (0.69)	12.12 (0.71)	12.11 (0.64)	12.16 (0.70)	12.16 (0.70)
Born in the UK	170 (83.74)	319 (86.22)	252 (92.31)	195 (87.05)	318 (89.33)	255 (92.39)
Language other than English spoken at home	45 (22.73)	54 (15.00)	45 (16.92)	34 (15.45)	44 (12.64)	44 (16.24)
Ethnicity						
White	149 (76.41)	291 (81.28)	211 (79.62)	173 (79.36)	293 (84.2)	216 (79.12)
Black	15 (7.69)	14 (3.91)	13 (4.91)	11 (5.05)	13 (3.74)	9 (3.3)
Asian	5 (2.56)	11 (3.07)	19 (7.17)	10 (4.59)	7 (2.01)	21 (7.69)
Mixed	11 (5.64)	27 (7.54)	10 (3.77)	10 (4.59)	16 (4.6)	15 (5.49)

by gender. At post-intervention, girls and boys receiving the teacher-led intervention scored significantly lower on negative affect and eating disorder symptoms than the control condition (small effect size). At follow-up, these effects relative to the control were not maintained, however, girls and boys in the researcher-led condition were significantly lower on negative affect and eating disorder symptoms than those in the teacher-led condition (small effect size).

Intervention effects for life engagement were moderated by gender, demonstrated by significant gender  $\times$  condition interactions (teacher-led versus control:  $t = 2.02$ ,  $p = .044$ ; researcher-led versus control  $t = 2.43$ ,  $p = .016$ ). Boys and girls receiving either the teacher-led or researcher-led intervention experienced improvements in life engagement compared to control at post-intervention (small-medium effect sizes), with larger effects present for boys. By follow-up, there were no differences compared to control, however, girls and boys in the researcher-led group showed improved life engagement compared to those in the teacher-led group (small effect sizes).

#### 2.4. Fidelity

Mean intervention duration across the researcher- and teacher-led conditions was 83 min ( $SD = 11.02$ ; range 77–96 min; *ns* difference between mean researcher-led and teacher-led lesson lengths,  $p = .583$ ). On average, the adherence of researchers ( $M = 8.04$ ;  $SD = 0.82$ ) and teachers ( $M = 6.20$ ;  $SD = 1.15$ ) was rated 'good' to 'very good'. Provider competence was also rated highly in both conditions, with researchers ( $M = 8.41$ ;  $SD = 0.79$ ) and teachers ( $M = 6.86$ ;  $SD = 1.02$ ) rated 'good' to 'excellent' on average. Researchers delivered 86.06% of the content, while teachers delivered 67.69%. Researchers were rated as having significantly greater adherence, competence, and percentage of lesson completed than teachers ( $ps < 0.001$ ). Adherence and competence declined during the lesson in both conditions, with the final sections on appearance comparisons and body activism allocated the least amount of time, adhered to the least, and rated as least competent. Observers noted that providers ran short of time to deliver this content within the 90-min session.

### 3. Discussion

Our first aim was to evaluate the effectiveness of the *Dove Confident Me: Single Session* workshop on body image and related health outcomes. Looking across the intervention conditions, students reported immediate post-intervention improvements on body esteem (girls only), negative affect, dietary restraint (girls only), eating disorder symptoms, and life engagement relative to the control group, as hypothesised. Consistent with other body image interventions for early adolescents conducted in the school

classroom, effects sizes were small to medium (e.g., Sharpe et al., 2013). The positive effect on eating disorder symptoms is particularly novel for an intervention of this length. However, further research is needed to understand how this effect could be strengthened so that it is maintained at follow-up. Overall, these results are promising and suggest that a single session school-based body image intervention can have some short-term benefits under real-world conditions.

The lack of significant improvements on body satisfaction, internalisation, appearance comparisons, teasing, appearance conversations and self-esteem, however, were inconsistent with our hypotheses and evaluations of multi-session *Happy Being Me* (Bird et al., 2013; Richardson & Paxton, 2010). This could be because this brief intervention did not specifically address appearance-based teasing and conversations. Further, our fidelity assessments showed that content on comparisons was adhered to less, due to providers running out of time at the end of the lesson. Consequently, the content of the *Dove Confident Me: Single Session* workshop has been streamlined and further refined to ensure sufficient time to deliver all key concepts.

Notably, the effects of this single-session intervention were not maintained at follow-up, unlike the results of some multi-session school-based body image interventions (Yager et al., 2013). Specifically, multi-session classroom-based interventions delivered by expert providers in co-educational settings (e.g., *Happy Being Me*, *Media Smart*) have been shown to produce sustained improvements and/or preventive effects in relation to body image at three- and 30-month follow-up (Richardson & Paxton, 2010; Wilksch & Wade, 2009). Furthermore, Sharpe et al. (2013) observed sustained improvements in body image at three-month follow-up after teacher-led delivery of a multi-session intervention for classes of early adolescent girls. A single session 90-min intervention, while providing a more acceptable and feasible intervention option for schools, appears to be an insufficient dose for sustained benefits. These findings indicate that further research is needed to improve single session interventions, and to investigate alternative strategies for overcoming practical barriers to the implementation of multi-session interventions in schools.

For example, future intervention research is likely to benefit from further consultation with teachers and students during intervention development and testing. Additionally, greater focus on conducting and publishing mixed-method process evaluation research assessing the acceptability and feasibility of body image interventions in schools would be advantageous. Such research could inform the refinement of single session and multi-session interventions to make them more effective and feasible for schools to deliver, and inform strategies designed to strongly encourage the uptake of multi-session interventions where school time and resource allows. Also of note, a controlled evaluation of a multi-session version of *Dove Confident Me* is currently in progress,

**Table 4**

Means and standard errors for all outcome variables by gender, group, and time. Values reflect combined estimates from imputed datasets.

	Boys (N = 847)			Girls (N = 860)		
	Control	Teacher-led	Researcher-led	Control	Teacher-led	Researcher-led
	M (SE)	M (SE)	M (SE)	M (SE)	M (SE)	M (SE)
<b>Body image outcomes</b>						
Body esteem						
Baseline	3.72 (0.04)	3.71 (0.03)	3.85 (0.03)	3.22 (0.04)	3.14 (0.03)	3.25 (0.04)
Post	3.87 (0.06)	3.76 (0.04)	3.89 (0.05)	3.28 (0.07)	3.35 (0.05)	3.32 (0.06)
Follow-up	3.84 (0.06)	3.80 (0.04)	3.97 (0.04)	3.37 (0.06)	3.31 (0.05)	3.38 (0.06)
Body satisfaction						
Baseline	3.67 (0.04)	3.63 (0.03)	3.76 (0.03)	3.23 (0.04)	3.27 (0.03)	3.27 (0.04)
Post	3.77 (0.07)	3.70 (0.05)	3.84 (0.06)	3.27 (0.07)	3.38 (0.05)	3.30 (0.05)
Follow-up	3.75 (0.07)	3.73 (0.05)	3.93 (0.05)	3.36 (0.07)	3.31 (0.05)	3.34 (0.05)
<b>Risk factor outcomes</b>						
Internalisation						
Baseline	1.92 (0.05)	2.00 (0.03)	1.74 (0.04)	2.35 (0.05)	2.59 (0.04)	2.28 (0.04)
Post	1.66 (0.07)	1.76 (0.05)	1.58 (0.05)	2.15 (0.07)	2.21 (0.06)	2.14 (0.07)
Follow-up	1.71 (0.09)	1.77 (0.05)	1.51 (0.05)	1.92 (0.08)	2.19 (0.06)	2.04 (0.06)
Sociocultural pressures						
Baseline	1.55 (0.04)	1.47 (0.03)	1.42 (0.03)	1.58 (0.04)	1.57 (0.03)	1.52 (0.03)
Post	1.45 (0.05)	1.46 (0.04)	1.39 (0.04)	1.47 (0.05)	1.62 (0.04)	1.57 (0.04)
Follow-up	1.56 (0.07)	1.45 (0.04)	1.33 (0.04)	1.47 (0.05)	1.55 (0.04)	1.45 (0.04)
Social comparisons						
Baseline	1.55 (0.04)	1.64 (0.03)	1.58 (0.03)	2.18 (0.05)	2.61 (0.05)	2.28 (0.05)
Post	1.50 (0.06)	1.63 (0.04)	1.54 (0.05)	2.11 (0.08)	2.43 (0.07)	2.32 (0.07)
Follow-up	1.47 (0.06)	1.49 (0.04)	1.42 (0.05)	1.96 (0.07)	2.31 (0.06)	2.08 (0.06)
Teasing (frequency)						
Baseline	1.91 (0.06)	1.76 (0.03)	1.73 (0.04)	2.04 (0.06)	1.84 (0.04)	1.78 (0.04)
Post	1.76 (0.07)	1.55 (0.04)	1.62 (0.06)	2.06 (0.08)	1.84 (0.05)	1.79 (0.06)
1-month	1.69 (0.08)	1.63 (0.05)	1.60 (0.06)	1.97 (0.08)	1.86 (0.06)	1.76 (0.06)
Teasing (impact)						
Baseline	3.47 (0.1)	3.09 (0.08)	3.29 (0.11)	3.69 (0.08)	3.42 (0.07)	3.63 (0.08)
Post	3.21 (0.2)	3.11 (0.14)	3.16 (0.18)	3.53 (0.15)	3.38 (0.09)	3.44 (0.11)
Follow-up	3.48 (0.2)	3.03 (0.12)	3.00 (0.17)	3.43 (0.13)	3.41 (0.11)	3.47 (0.14)
Appearance conversations						
Baseline	1.57 (0.04)	1.57 (0.03)	1.44 (0.03)	2.18 (0.05)	2.24 (0.04)	2.13 (0.05)
Post	1.59 (0.07)	1.59 (0.04)	1.50 (0.05)	2.12 (0.07)	2.22 (0.06)	2.16 (0.07)
Follow-up	1.55 (0.07)	1.58 (0.05)	1.43 (0.05)	2.09 (0.07)	2.22 (0.06)	2.05 (0.06)
<b>Psychosocial &amp; disordered eating outcomes</b>						
Negative affect						
Baseline	1.59 (0.05)	1.58 (0.03)	1.56 (0.03)	1.95 (0.05)	2.04 (0.04)	1.99 (0.04)
Post	1.64 (0.08)	1.53 (0.04)	1.53 (0.05)	1.97 (0.07)	1.85 (0.05)	1.85 (0.06)
Follow-up	1.59 (0.08)	1.68 (0.05)	1.50 (0.05)	1.96 (0.08)	2.06 (0.06)	1.92 (0.06)
Self-esteem						
Baseline	2.97 (0.04)	2.95 (0.02)	3.09 (0.02)	2.71 (0.03)	2.62 (0.03)	2.73 (0.03)
Post	3.04 (0.06)	3.02 (0.04)	3.17 (0.04)	2.74 (0.05)	2.73 (0.04)	2.78 (0.04)
Follow-up	3.04 (0.06)	3.02 (0.03)	3.17 (0.04)	2.78 (0.05)	2.75 (0.04)	2.84 (0.04)
Dietary restraint						
Baseline	2.03 (0.06)	1.88 (0.03)	1.80 (0.03)	2.39 (0.06)	2.23 (0.04)	2.05 (0.04)
Post	1.88 (0.08)	1.78 (0.05)	1.59 (0.06)	2.32 (0.08)	2.00 (0.05)	1.91 (0.06)
Follow-up	1.77 (0.08)	1.82 (0.05)	1.64 (0.05)	2.13 (0.08)	1.99 (0.06)	1.80 (0.06)
Eating disorder symptoms						
Baseline	0.65 (0.05)	0.58 (0.04)	0.55 (0.04)	1.05 (0.06)	1.06 (0.05)	0.87 (0.05)
Post	0.57 (0.07)	0.41 (0.05)	0.47 (0.06)	1.09 (0.09)	0.83 (0.06)	0.76 (0.07)
Follow-up	0.57 (0.09)	0.65 (0.06)	0.48 (0.06)	0.99 (0.09)	0.93 (0.07)	0.68 (0.06)
Life engagement						
Baseline	1.75 (0.06)	1.31 (0.02)	1.53 (0.03)	1.70 (0.04)	1.50 (0.02)	1.55 (0.03)
Post	1.76 (0.07)	1.26 (0.03)	1.23 (0.04)	1.65 (0.06)	1.40 (0.03)	1.35 (0.03)
Follow-up	1.39 (0.06)	1.25 (0.03)	1.16 (0.03)	1.42 (0.05)	1.42 (0.03)	1.25 (0.03)

Note. Teasing was not imputed due to large numbers of participants reporting that they had not experienced appearance-related teasing, resulting in lower sample sizes for this variable.

with this intervention utilising the lessons learnt in the current study, and further consultation and input from teachers, students, and education experts, in an effort to enhance intervention effectiveness, acceptability, and feasibility.

We also observed an unexpected finding in the current study. Perceived sociocultural appearance pressures increased among students at immediate post-intervention. This is potentially concerning as they are a risk factor for poor body image (Rodgers, Paxton, & McLean, 2014). Importantly, this effect was not maintained. Furthermore, we assessed *awareness* of pressures, rather

than resulting upset or concern. The short-term increase in awareness is likely due to a substantial proportion of the content focussing on identifying and challenging appearance-related pressures from media and friends. To better understand this effect, replication and measurement of the perceived consequence of these pressures is recommended.

Our second aim was to investigate if this intervention could be successfully task-shifted to teachers. The pattern of improvements differed between the researcher- and teacher-led conditions and, contrary to our hypotheses, suggests that teachers performed



**Table 5**  
Differences in adjusted marginal means (pairwise comparisons) for outcome variables by time and group, and by gender for outcomes where gender was a significant moderator of intervention effects. Values reflect combined estimates from imputed datasets.

	Post-intervention			Follow-up		
	Teacher-led versus control	Research-led versus control	Research-led versus teacher-led	Teacher-led versus control	Research-led versus control	Research-led versus teacher-led
	$M_{diff}$ [95%CI] $p$ ( $d$ )	$M_{diff}$ [95%CI] $p$ ( $d$ )	$M_{diff}$ [95%CI] $p$ ( $d$ )	$M_{diff}$ [95%CI] $p$ ( $d$ )	$M_{diff}$ [95%CI] $p$ ( $d$ )	$M_{diff}$ [95%CI] $p$ ( $d$ )
<b>Body image outcomes</b>						
Body esteem						
Boys	−0.09 [−0.19 to 0.01] 0.063 (−0.19)	−0.09 [−0.2 to 0.01] 0.087 (−0.18)	0.00 [−0.08 to 0.09] 0.969 (0.00)	−0.02 [−0.14 to 0.09] 0.692 (−0.05)	0.03 [−0.08 to 0.13] 0.644 (0.05)	0.05 [−0.04 to 0.14] 0.278 (0.1)
Girls	<b>0.14 [0.04 to 0.24]</b> <b>0.005 (0.22)</b>	0.02 [−0.08 to 0.12] 0.712 (0.03)	<b>−0.12 [−0.2 to 0.04]</b> <b>0.005 (−0.19)</b>	0.01 [−0.09 to 0.11] 0.855 (0.01)	0.00 [−0.11 to 0.10] 0.959 (0.00)	−0.01 [−0.1 to 0.08] 0.799 (−0.02)
Body satisfaction	0.03 [−0.06 to 0.11] 0.490 (0.05)	0.01 [−0.08 to 0.09] 0.874 (0.01)	−0.02 [−0.1 to 0.05] 0.548 (−0.04)	−0.02 [−0.11 to 0.07] 0.697 (−0.03)	0.03 [−0.06 to 0.13] 0.474 (0.06)	0.05 [−0.02 to 0.13] 0.175 (0.09)
<b>Risk factor outcomes</b>						
Internalisation						
	−0.04 [−0.14 to 0.05] 0.393 (−0.06)	0.02 [−0.08 to 0.13] 0.660 (0.03)	0.07 [−0.02 to 0.15] 0.137 (0.09)	0.06 [−0.05 to 0.17] 0.313 (0.08)	0.04 [−0.08 to 0.16] 0.520 (0.05)	−0.02 [−0.11 to 0.07] 0.678 (−0.03)
Sociocultural pressures	<b>0.11 [0.03 to 0.18]</b> <b>0.005 (0.20)</b>	0.08 [0.00 to 0.16] 0.040 (0.16)	−0.02 [−0.09 to 0.04] 0.483 (−0.05)	0.02 [−0.06 to 0.10] 0.643 (0.04)	−0.06 [−0.14 to 0.03] 0.173 (−0.11)	−0.08 [−0.14 to 0.01] 0.024 (−0.15)
Social comparisons	0.04 [−0.05 to 0.13] 0.369 (0.06)	0.07 [−0.02 to 0.16] 0.147 (0.09)	0.03 [−0.06 to 0.11] 0.508 (0.04)	0.01 [−0.09 to 0.11] 0.876 (0.01)	−0.01 [−0.11 to 0.09] 0.798 (−0.02)	−0.02 [−0.10 to 0.06] 0.625 (−0.03)
Teasing (frequency)	−0.11 [−0.21 to 0.01] 0.027 (−0.15)	−0.07 [−0.18 to 0.03] 0.175 (−0.10)	0.04 [−0.05 to 0.12] 0.393 (0.05)	0.02 [−0.09 to 0.13] 0.727 (0.03)	0.04 [−0.13 to 0.10] 0.755 (−0.03)	−0.04 [−0.13 to 0.05] 0.404 (−0.05)
Teasing (impact)	−0.04 [−0.31 to 0.23] 0.781 (−0.06)	−0.09 [−0.38 to 0.19] 0.520 (−0.14)	−0.06 [−0.32 to 0.20] 0.672 (−0.08)	0.14 [−0.14 to 0.43] 0.330 (0.21)	0.04 [−0.26 to 0.34] 0.790 (0.06)	−0.10 [−0.38 to 0.18] 0.476 (−0.15)
Appearance conversations	0.02 [−0.08 to 0.12] 0.679 (0.03)	0.03 [−0.06 to 0.13] 0.495 (0.05)	0.01 [−0.07 to 0.10] 0.729 (0.02)	0.05 [−0.06 to 0.15] 0.374 (0.07)	−0.02 [−0.13 to 0.08] 0.633 (−0.04)	−0.07 [−0.15 to 0.01] 0.089 (−0.11)
<b>Psychosocial &amp; disordered eating outcomes</b>						
Negative affect						
	<b>−0.15 [−0.25 to 0.06]</b> <b>0.002 (−0.24)</b>	−0.12 [−0.23 to 0.02] 0.022 (−0.19)	0.03 [−0.06 to 0.12] 0.511 (0.05)	0.05 [−0.07 to 0.18] 0.409 (0.08)	−0.08 [−0.20 to 0.05] 0.227 (−0.11)	<b>−0.13 [−0.22 to 0.04]</b> <b>0.004 (−0.19)</b>
Self-esteem	0.03 [−0.03 to 0.1] 0.316 (0.07)	0.04 [−0.03 to 0.11] 0.264 (0.08)	0.01 [−0.05 to 0.07] 0.793 (0.02)	0.02 [−0.06 to 0.1] 0.568 (0.05)	0.05 [−0.02 to 0.12] 0.193 (0.10)	0.02 [−0.04 to 0.09] 0.436 (0.05)
Dietary restraint						
Boys	0.01 [−0.14 to 0.16] 0.887 (0.02)	−0.12 [−0.29 to 0.04] 0.135 (−0.19)	−0.14 [−0.26 to 0.01] 0.034 (−0.20)	0.15 [−0.01 to 0.31] 0.071 (0.22)	0.03 [−0.14 to 0.19] 0.732 (0.04)	−0.12 [−0.24 to 0] 0.045 (−0.18)
Girls	<b>−0.20 [−0.33 to 0.07]</b> <b>0.002 (−0.27)</b>	−0.17 [−0.30 to 0.04] 0.012 (−0.22)	0.03 [−0.08 to 0.15] 0.559 (0.04)	−0.02 [−0.17 to 0.12] 0.759 (−0.03)	−0.08 [−0.23 to 0.06] 0.262 (−0.11)	−0.06 [−0.18 to 0.06] 0.305 (−0.08)
Eating disorder symptoms	<b>−0.20 [−0.32 to 0.08]</b> <b>0.001 (−0.25)</b>	−0.15 [−0.28 to 0.02] 0.021 (−0.19)	0.05 [−0.06 to 0.15] 0.354 (0.06)	0.03 [−0.10 to 0.16] 0.674 (0.04)	−0.13 [−0.27 to 0.01] 0.067 (−0.16)	<b>−0.16 [−0.27 to 0.05]</b> <b>0.006 (−0.20)</b>
Life engagement						
Boys	<b>−0.31 [−0.42 to 0.21]</b> <b>&lt;0.001 (−0.56)</b>	<b>−0.42 [−0.54 to 0.31]</b> <b>&lt;0.001 (−0.76)</b>	−0.11 [−0.2 to 0.02] 0.017 (−0.2)	0.04 [−0.07 to 0.15] 0.457 (0.08)	−0.13 [−0.24 to 0.02] 0.025 (−0.23)	<b>−0.17 [−0.26 to 0.08]</b> <b>&lt;0.001 (−0.30)</b>
Girls	<b>−0.17 [−0.27 to 0.06]</b> <b>0.002 (−0.36)</b>	<b>−0.24 [−0.34 to 0.14]</b> <b>&lt;0.001 (−0.52)</b>	−0.07 [−0.16 to 0.01] 0.095 (−0.16)	0.09 [−0.01 to 0.19] 0.077 (0.19)	−0.1 [−0.2 to 0] 0.052 (−0.22)	<b>−0.19 [−0.28 to 0.1]</b> <b>&lt;0.001 (−0.41)</b>

Note. Results control for age, ethnicity, country of birth; bolded items indicate significant effects at  $p < .01$ ;  $M_{diff} = M_2 - M_1$ .

better than external providers in delivering this intervention in the short-term. Specifically, aside from life engagement, which improved in both the teacher- and research-led conditions, all of the significant improvements at post-intervention were observed in the teacher-led condition relative to the control. This was despite researchers being rated as significantly more adherent and competent than teachers. This may be explained by teachers possibly having greater rapport and influence among students, more extensive expertise in behaviour management, and being better equipped to meet the specific learning needs of their classes than external providers. With regard to follow-up effects, however, researchers performed better than teachers on negative affect, eating disorder symptoms, and life engagement. Although, it is important to note that neither the researcher- or teacher-led conditions were significantly different from the control condition at follow-up. It is possible that the change in effects for teachers and researchers over time may be due to chance, however, an inspection of the means at each timepoint and observed trends in intervention differences between the researcher-led and control conditions at post-intervention (whereby researchers performed better than control;  $p = .022$ ;  $d = 0.19$ ) suggests otherwise. Rather, it could be that although teachers were superior at immediate post-intervention, researchers may have been better at maintaining, or facilitating further, improvements over time, potentially because they adhered more to the intervention than teachers. Consequently, improved training with an increased focus on techniques to facilitate greater adherence among teachers may increase the likelihood of maintained intervention benefits for this intervention and others.

The findings regarding teacher-led delivery have important practical implications, as they suggest that with improved teacher training the dissemination of evidence-based body image interventions in schools could be successfully task-shifted to trained teachers. As a result, the feasibility of disseminating these interventions at scale, in a cost-efficient and sustainable manner, is promising. Indeed, the development of effective interventions that have potential to be delivered at scale by less expensive local providers (e.g., teachers) has been highlighted as a priority for mental health interventions globally (Fairburn & Patel, 2014; Fairburn & Wilson, 2013). Furthermore, although the observed effect sizes were small in the current trial, for both teachers and researchers, when interventions with small effects are delivered at scale they have the potential to confer population benefits (Rose, 1985).

There are a number of limitations to this study that should be noted. Importantly, the effects for eating disorder symptoms should be interpreted with caution, as the scale reliability for this measure was sub-optimal. Furthermore, our follow-up was short-term and spanned 4–9.5 weeks due to scheduling difficulties. While this again reflects the issue of crowded timetables in schools, further research into the longer-term benefits and potential preventative effects of this intervention is required. We also did not objectively measure height and weight due to school timetable constraints for data collection. Because most students did not self-report their height or weight, we were not able to take body mass index into account in our analyses. We included two novel measures, which although their psychometric properties were acceptable in the current study, had not been previously validated. Furthermore, the sample sizes across conditions were unequal, as we did not account for school size during condition allocation due to practical constraints. Finally, despite concerted efforts, we were not able to ascertain why some eligible schools declined to participate as they became unresponsive. However, these schools were evenly distributed across the conditions (see Fig. 1), and as a result unresponsiveness did not appear to be related to a particular condition.

Despite these limitations, this study has a number of strengths

that address some important gaps in the existing research. A major innovation of the study was the evaluation of both researcher- and teacher-led delivery within the same study design. Consequently, this study makes a strong contribution to the growing evidence-base for the feasibility and benefits of task-shifting to teachers, in order to increase the dissemination of evidence-based body image interventions at scale. The large sample size and fidelity assessments also address important methodological limitations of the smaller scale efficacy studies that are common in this area of research due to the difficulties associated with applied research and a lack of funding (Schober, Sharpe, & Schmidt, 2013).

#### 4. Conclusion

The *Dove Confident Me: Single Session* workshop has short-term benefits for body image and disordered eating among girls, and for some psychosocial outcomes among girls and boys. While this single session body image intervention provides a helpful introduction to improving body image among adolescents in school classrooms and meets the needs of schools with limited time and resource, the short-term nature of its benefits also suggests an ongoing need for the development, and strong encouragement of the uptake, of acceptable multi-session body image interventions in schools. Importantly, our results indicate that task-shifting evidence-based school body image interventions to trained teachers may be a feasible strategy to overcome the shortage of skilled human resource that has prevented the broader scale dissemination of these and other child and adolescent mental health interventions to date.

#### Conflict of interest statement

PD is an independent advisor on the Dove Self-Esteem Project Global Advisory Board. The authors declare no other conflicts of interest in relation to this work.

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