Acceptability and preliminary efficacy of a school-based body image intervention in urban India: A pilot randomised controlled trial

Abstract

This pilot study evaluated the acceptability and preliminary efficacy of a culturally adapted school-based body image intervention, *Dove Confident Me*, for use in urban India. Two private schools in New Delhi were randomly assigned at the school level to receive either the five-session intervention facilitated by trained psychologists or lessons-as-usual (control). Participants were Year 7 students (N = 166; M_{age} = 11.9 years). Students, facilitators, and observing teachers, provided acceptability feedback. Fidelity was assessed. Body image and related measures were completed by students in a classroom setting at pre-intervention, post-intervention, and two-month follow-up. Most students enjoyed (73.7%) and understood (84.2%) the intervention. Facilitators (90%) and observing teachers (70%) reported that the learning objectives were achieved. Adherence and facilitator competence were rated as very good**.** Body esteem improved significantly among intervention students at post-intervention and follow-up (Cohen's *d*s = .45-.46), relative to control students. Positive affect also improved at post-intervention (*d* =.58). No significant effects on internalisation, life engagement, eating pathology, self-esteem, or negative affect emerged. This study provides evidence for the acceptability and preliminary efficacy of *Dove Confident Me* in urban India. Intervention refinements to increase acceptability and efficacy are recommended.

Keywords: schools, intervention, body dissatisfaction, India, pilot trial, acceptability.

Body image research in India has flourished in recent years. As such, body image is now firmly recognised as a concern for many people in India, particularly girls and young women (Ganesan et al., 2018; Gupta et al., 2001; Singh Mannat et al., 2016; Stigler et al., 2011; Swami et al., 2010). A recent cross-sectional study by Ganesan et al. (2018) found over three quarters of Indian adolescent girls are dissatisfied with their weight and shape, and this was related to both depression and weight control behaviours. Research also highlights the prevalence of skin shade dissatisfaction among adolescent girls and young women in India, and relatedly, the prevalent use of potentially harmful skin lightening products among this population (Craddock et al., 2018; redacted). Research into Indian adolescent boys' body image concerns is sparse, but body dissatisfaction and weight control behaviours have also been identified in this population (Singh Mannat et al., 2016), albeit to a lesser extent than girls (Vijayalakshmi et al., 2018). Due to the prevalence of body image dissatisfaction and concomitant adverse consequences for health in this population, acceptable and feasible interventions to alleviate these concerns are vital. To the best of our knowledge, only one body image intervention has been evaluated in an Indian context (redacted). This study evaluated a four-module media-literacy school-based intervention among girls aged 12-14 years. The results were encouraging; the study found immediate improvements in body satisfaction in the intervention group compared to a control group. Any longer-term impact was not assessed, nor was an assessment of acceptability. Moreover, there is no evidence to suggest this programme has been disseminated at scale.

Schools are an ideal environment to deliver community-based mental health interventions (Yager et al., 2013). Indeed, they offer community-wide reach, have infrastructure and staff to support intervention delivery, are deemed credible institutions, and have the trust of parents (Patel et al., 2008). A recent qualitative study conducted in India highlighted the demand from teachers, parents, and students, for the provision of mental

health education via schools (Parikh et al., 2019); a plea which has also been echoed in Indian government policies (Ministry of Health and Family Welfare, 2014). In response to this, the delivery of mental health education is growing in Indian schools, particularly in urban hubs (Hossain & Purohit, 2019), with evaluations taking place (Michelson et al., 2020; Shinde et al., 2018; Wasil et al., 2020). However, these resources neglect to include content addressing body image concerns.

Secondary school-based universal interventions have shown promising results in improving adolescent body image. A systematic review found that interventions focusing on media literacy, self-esteem, and peer relationships are among the most effective (Yager et al., 2013). Building on this, *Dove Confident Me: Five-Session Workshop Series for Body Confidence* (hereafter referred to as *Confident Me*) was developed; a mixed-gender classroom-based intervention targeting core risk factors for negative body image. The risk factors selected have been identified in previous literature as important targets for intervention, and include internalisation of appearance ideals (Rodgers et al., 2015), media literacy (McLean et al., 2017), and appearance-related comparisons and conversations (Rodgers et al., 2014). *Confident Me* has demonstrated acceptability and effectiveness in improving adolescent body image among universal samples when delivered by teachers up to six months later in the United Kingdom (UK; redacted; redacted). Similar results have been found in Portugal (Torres et al., 2018), however, only immediate improvements in body image were assessed.

Many of the risk factors targeted by *Confident Me* are prevalent among Indian adolescents, such as internalisation of appearance ideals (Shroff & Thompson, 2004), appearance-based teasing (Shroff & Thompson, 2004), and appearance pressures from the media (Singh Mannat et al., 2016). Additionally, a recent qualitative study across two urban sites in India examined school stakeholder (i.e., teachers, students, parents) preferences

regarding content and delivery formats of school mental health programmes (Parikh et al., 2019). Specifically, the study found students preferred face-to-face, interactive content they could practically apply to everyday life stressors, such as peer pressure and interpersonal relationships. Additionally, all stakeholders endorsed a mix of psychoeducation and problem-solving strategies as important intervention elements. The findings of this study suggested that the curricula and pedagogy of *Confident Me* would be acceptable in urban Indian schools. Consequently, the current study aimed to assess the acceptability and preliminary efficacy of a culturally adapted version of *Confident Me* in urban secondary schools in North-West India. It was hypothesised that *Confident Me* would be an acceptable intervention for teachers, students, and facilitators, and it would result in improvements in body image and related psychosocial outcomes at post-intervention and two-month follow-up relative to a lessons-as-usual control condition. The findings from this study will inform further development of *Confident Me* for use in India and provide evidence as to whether a larger randomised controlled trial is warranted.

Methods

Trial design

A parallel two-arm randomised controlled pilot trial was conducted. Two schools were recruited in September 2018 and were randomly assigned electronically in a 1:1 ratio to the two conditions by a blind researcher external to the project. The primary outcome was body esteem, with secondary outcomes comprising risk factors for body image concerns and broader psychosocial outcomes associated with body image concerns. Students completed assessments at baseline, post-intervention, and two-month follow-up throughout November and December 2018. Intervention facilitators and observing teachers completed short

evaluation forms to assess intervention acceptability following each session. Facilitator adherence and competence were also assessed.

Participants

Students. Participants were Year 7 students (termed 'Class 7' in India) from two private schools in New Delhi. Schools were eligible if they were co-educational. Schools were recruited via established contacts of the sixth author via opportunistic sampling. Only two schools were approached, both of which agreed to participate. A total of 166 students took part in the study (40.4% girls; M_{age} = 11.9 years; SD = 0.6), which consisted of two classes (termed 'section' in India) in the intervention condition and three classes in the control condition. Most students (98.8%) were born in India and were Hindu (77.7%). A minority identified as Muslim (9%), Sikh (6%), Christian (3.6%), other (2.4%), or did not disclose their religion (1.2%). Students were from a relatively high socioeconomic status, given that they were attending private school and most of their parents (71.7% mothers, 72.3% fathers) had undergraduate degrees.

Facilitators. Three female psychologists from a counselling centre in New Delhi facilitated the sessions, each trained to at least MSc/MPhil level and with extensive counselling and clinical experience. The facilitators attended a two-day face-to-face training workshop on the intervention content and delivery provided by the second and last author, who have extensive experience in the design and delivery of *Confident Me*.

Observing teachers. Three schoolteachers observed the sessions, including a counselling teacher (five sessions), a special education teacher (four sessions), and a teacher who did not disclose their specialism (one session).

Intervention

Confident Me consists of five 45-minute interactive sessions. It targets risk factors for adolescent body dissatisfaction, including media literacy, internalisation of appearance ideals, and appearance comparisons and conversations. A detailed description of the original content and intervention development can be found in (redacted). Cultural adaptations to *Confident Me* were made in consultation with Indian body image researchers (fourth and fifth author). These included: removal of references to intimate body parts; addressing body image concerns (e.g., skin colour dissatisfaction); cultural references (e.g., Bollywood); family structures prominent in India (e.g., the importance of extended family); and simplifying language to increase student comprehension. Intervention materials (i.e., facilitator session plans, PowerPoint presentation slides, and student worksheets) were translated into Hindi by the third, fourth and fifth authors, and English-language videos were subtitled. Images in the presentation slides were replaced with images of Indian adolescents and relevant Indian media examples.

Measures

Student acceptability. Six statements modelled from a previous trial of *Confident Me* (redacted) were developed to assess student acceptability (see Table 1). Students indicated agreement with each statement using a five-point Likert scale (1 = *strongly disagree* to 5 = *strongly agree)*. Students were also asked three open-ended questions: what they liked, what they did not like, and to list three things they learnt from the intervention.

Facilitator acceptability. Facilitators indicated their level of agreement with eight statements using a five-point Likert scale (1 = *strongly disagree* to 5 = *strongly agree*; see Table 1). Space was provided for facilitators to write additional comments.

Observing teacher acceptability. Observing teachers were presented with similar statements to those presented to the facilitators, which were adapted for intervention observation rather than delivery (Table 1). Space was also provided for additional comments.

Outcomes measures. The primary outcome of interest was body esteem. Secondary outcomes included internalisation of appearance ideals and appearance-related teasing. In addition, a number of broader factors were measured; negative affect, positive affect, self-esteem, eating pathology, and appearance-related life disengagement. Descriptions and psychometrics of the self-report measures used to assess these outcomes are displayed in Table 2.

Fidelity. Eight of the ten sessions were audio recorded and assessed for fidelity by a trained research assistant. Fidelity assessment was modelled on previous school-based studies (redacted), which included ratings on perceived facilitator competency, the extent to which the learning outcomes were achieved, and overall adherence. These ratings were assessed using Likert scales; see Supplementary Table S1. Timings for each lesson were also noted.

Procedure

After gaining consent from school principals, obtaining parental consent was at the principals' discretion, surpassing the ethical guidelines for conducting anonymous public health research in India (Indian Council of Medical Research, 2018). The first author's university ethics committee approved the study (redacted). The intervention school's principal opted to seek parental consent, whereas the control school's principal did not. In both conditions, students provided informed assent and completed baseline assessments under standardised conditions supervised by a trained researcher. Prior to providing assent, students in the intervention arm of the trial were made aware that participation in the research project would require them to take part in a series of sessions related to their health and well-

being led by an external provider during usual school hours. Measures were completed in English or Hindi, at the discretion of individual students. The intervention school received the intervention at a rate of one session per week for five weeks during usual school hours (i.e., during timetabled lesson times). There was one facilitator per approximately 30 students. The intention was to deliver the intervention in Hindi. However, the facilitators found it necessary to deliver the intervention using Hindi and English interchangeably (sometimes referred to as 'Hinglish') in order to engage all students in the session. This bilingual strategy is commonly employed across Indian schools (Meganathan, 2011). Facilitators and observing teachers completed acceptability feedback forms following each lesson. Students in both conditions completed post-intervention (one week after the intervention condition had completed all five sessions) and follow-up (two months later) assessments. Intervention condition students completed acceptability questions during post-intervention assessment.

Data analysis

Acceptability analyses. Acceptability analyses were conducted separately for students, teachers, and facilitators. For students, the five response options to the statements assessing intervention acceptability were collapsed into three categories. Specifically, 'agree' and 'strongly agree' responses to statements (e.g., 'I enjoyed the lessons') were collapsed into one category to indicate agreement. Likewise, 'disagree' or 'strongly disagree' responses were collapsed into another category to indicate disagreement. For teachers and facilitators (who each completed feedback up to five times, once for every session), responses were collapsed across the sessions due to a lack of variability between sessions, using the same categories used for students (i.e., agree vs. disagree).

Employing quantitative content analysis (White & Marsh, 2006), two researchers simultaneously coded qualitative feedback from students. Where discrepancies arose, the coders engaged in discussion until agreement was achieved. Qualitative feedback from the

three facilitators and three observing teachers were analysed using qualitative codebook thematic analysis, informed by the work of Fereday and Muir-Cochrane (2006).

Intervention effects. Intervention effects were analysed using linear mixed models (LMM) using SPSS version 24. LMM is an intention-to-treat analysis using all available data for each outcome measure with restricted maximum likelihood used to estimate model parameters. The modelling for each outcome variable followed the approach taken by Van Breukelen and Van Dijk (2007). The model comprised a two-level between-subjects fixed factor for randomised arm (Arm: intervention vs. control), a two-level repeated measures fixed factor for time point (Time: T2 post-intervention vs. T3 follow-up), and an Arm by Time interaction effect. The model also comprised a commensurate baseline covariate (i.e., for a given outcome measure, the baseline measure of the outcome at T1 was used as a covariate) and a Time by baseline Covariate interaction effect. Post hoc analyses at T2 and T3 comprised an LMM, which compared randomised arms after controlling for baseline covariate. To assess gender effects, the basic model was extended to include a main effect for Gender, two-way interactions between Gender and Arm, Gender and Time, Gender and Covariate, and a three-way Gender by Arm by Time interaction effect. There were no Arm by Gender interaction effects; for parsimony, gender was dropped from the models. Due to the single item, ordinal level nature of the teasing measure, an ordinal logistic regression model was used to assess intervention effects at T2 and T3 controlling for baseline teasing scores. Effect sizes under the basic model were quantified using partial eta-squared and converted to Cohen's *d* for ease of interpretation (small effect $d = .20$; medium effect $d = .50$; large effect $d = .80$).

Data screening and preparation. The underpinning assumptions for a valid parametric analysis are for the residuals under the fitted model (i.e., the unexplained variance) to not markedly differ from normality. For sample sizes under 200 it is generally

accepted that parametric tests may be problematic when the absolute skew of residuals exceeds 2 or when kurtosis of residuals exceeds 10 (i.e., when excess kurtosis of residuals is greater than 7; Tabachnick et al., 2007). With the exception of the Body Image Life Engagement Questionnaire (BILEQ), the maximum absolute skew of standardised residuals in this study was 1.8 (< 2), and the maximum excess kurtosis of standardised residuals in this study was 6.75 (< 7). BILEQ showed skewed residuals (skew = 3.5) and large excess kurtosis (kurtosis = 15.03) compatible with the presence of outliers, which may affect conclusions. For these reasons, inference on the BILEQ was undertaken using the bootstrap rather than relying on an assumption of approximate normality.

Analyses were conducted on an ITT basis using all available cases and per protocol using multiple imputation (M1). All statistical conclusions were the same for both analyses except for Internalisation and PANAS Negative at T2, which showed significant improvements in the hypothesised direction under MI but not ITT. Specifically, Internalisation at T2 had a p-value = 0.03 under MI, and a p-value = 0.079 under ITT. PANAS Negative at T2 had a p-value = 0.015 under MI, and a p-value = 0.065 under ITT. To prevent over extended conclusions we therefore presented results without imputation.

Results

Sample characteristics

See Table 3 for descriptive statistics for each measure at baseline, post-intervention, and follow-up, by condition. Any differences between conditions at baseline were controlled for in subsequent analyses. Attrition due to student absence from class on data collection days was 30% at post-intervention and 24% at follow-up (see Figure 1).

Intervention acceptability

Student acceptability. Quantitative findings are displayed in Table 1, which indicate the intervention was highly acceptable to students. In terms of the qualitative findings, 57 students reported what they liked most about the intervention. The most popular response was enjoyment of the lessons (n = 16; 28%). A number of students stated that they liked that the lessons were helpful and made them feel confident (n = 8; 14%). Some students mentioned the likeability of the facilitators (n = 9; 16%). Other popular responses included watching videos (n = 9; 16%) and taking part in group discussion (n = 6; 11%). When asked what they did not like about the intervention, 48 students responded, with the most common answer being 'nothing' (n = 19; 40%). Some students found the lessons boring (n = 8; 17%), repetitive (n = 5; 10%), or that they involved too much writing (n = 5; 10%). When asked to list things they had learnt, 55 students provided three responses each, totalling 165 responses. All responses were aligned to the intervention's key objectives. In total, 89 (54%) responses directly referred to at least one of the key learnings from the five sessions. In addition, some responses reflected broader messaging evident across the intervention, such as embracing uniqueness and being yourself (11 responses, 7%), body confidence (8 responses, 5%), and general confidence and self-esteem (8 responses, 5%). Quotes to illustrate each theme are listed in Supplementary Table S2.

Facilitator acceptability. Quantitative findings are presented in Table 1 and indicate high facilitator acceptability. When asked what they liked about the intervention, facilitators mentioned the positive reactions they received, the relevance of the topic, and the workshop delivery formats (specifically the videos, role plays, and advocacy examples). When asked if anything did not go well, facilitators reported that there was too much content to cover and they wanted more time for discussion and explaining key concepts. Relatedly, facilitators felt the workshops were repetitive. Facilitators noted that some videos were not culturally appropriate.

Observing teacher acceptability. Table 1 displays the quantitative feedback from teachers, which was largely positive. Qualitatively, teachers reported liking the intervention formats, the topic relevance, and the facilitator delivery. When asked whether they would change anything, teachers requested more interactive formats, reduced repetition, and a timely workshop finish. Teachers recommended the use of Hindi and English interchangeably throughout the lessons to increase student comfort and mimic a conversational style.

Intervention effects on outcome measures

Table 4 displays the marginal adjusted means for each condition at post-intervention and follow-up, along with planned comparisons with significance testing (adjusted for baseline scores) and associated effect sizes. In sum, intervention students showed significantly higher body esteem at post-intervention compared to controls (d = .45), with effects maintained at follow-up (d = .46). Significant improvements were also seen in positive affect at post-intervention (d =.58), but this was not maintained at follow-up (d = .24). There were no significant intervention effects on internalisation, life engagement, eating pathology, self-esteem, or negative affect. However, effect sizes suggest small effects (ds > 0.20) in the desired direction for internalisation (post-intervention), eating pathology (post-intervention), negative self-esteem (follow-up), and negative affect (post-intervention). There were no significant differences with regards to teasing. In the intervention arm, 59% reported no appearance-related teasing at baseline, with 67% and 63% reporting similar at post-intervention and follow-up. The corresponding percentages in the control arm were 49%, 63%, and 68%.

Fidelity

Overall facilitator competence was rated as very good (out of 10, M = 8.38; SD = 0.52), as was facilitator adherence (out of 10, M = 8.13; SD = 0.99). The facilitators were

consistently rated highly across a number of competency questions and perceived to have adequately addressed the learning outcomes (See supplementary Table S1). The duration of each lesson ranged from 40 to 68 minutes, with an average of 52 minutes (N.B. Lessons are designed to be 45 minutes long).

Discussion

Confident Me is an acceptable and effective school-based intervention in improving body image among British and Portuguese adolescents (redacted; Torres et al., 2018). This study aimed to investigate the acceptability and preliminary efficacy of *Confident Me* in an Indian context. As hypothesised, *Confident Me* was acceptable to students, facilitators, and teachers. All parties indicated that the intervention was well delivered and the key messages were clearly understood. Fidelity assessments also supported these findings. Both adherence to the session plans and facilitator competence were rated very high, which is similar to findings across all *Confident Me* evaluations, regardless of the background or expertise of the facilitator (redacted; redacted). The majority of students reported enjoying the sessions, and facilitator perceptions corroborated this view. Yet, teachers largely reported a neutral response (a score of three on a five-point Likert scale, with higher scores indicating greater acceptability) in relation to their perception of student enjoyment. A similar pattern emerged regarding student engagement, with observing teachers reporting more conservative responses than facilitators. Reasons for such discrepancies in perceived student enjoyment and engagement could relate to response bias on the part of facilitators and students (i.e., wanting to report that the session was enjoyable and engaging, due to their direct involvement), or the possibility that the observing teachers were unable to accurately judge these factors as an unparticipating bystander. Alternatively, observing teachers could have framed their responses in comparison to sessions they have delivered to students, which may have skewed their responses.

Acceptability feedback provided valuable insights on how *Confident Me* could be improved for an Indian context. Facilitators reported that it was difficult to cover the full content of each session in the allocated time (45 minutes). This was also evident in the UK-based trial of *Confident Me* (redacted), although streamlining of the intervention has since occurred in order to reduce this from happening. Given that mental health is rarely discussed in Indian schools (Patel et al., 2008), and students are seldom requested to engage with high-order thinking or critical reasoning (Muralidharan, 2013), this finding is perhaps unsurprising. Modifications to simplify or streamline the content may be beneficial. Relatedly, facilitators requested refinements to the session plans with recommendations to make the text bigger and delete superfluous text. Valuable insights were also gained regarding improvements in cultural appropriateness, including more bilingual delivery and replacing videos with more culturally-appropriate alternatives. The feedback received during this trial has been valuable in informing an updated iteration of *Confident Me*, prior to the undertaking of a full scale randomised controlled trial.

The intervention produced improvements in body esteem, relative to a control group, which were maintained at two-month follow-up. Significant post-intervention improvements were also observed for positive affect. The intervention showed positive improvements to body esteem and positive affect irrespective of gender. There is minimal evidence on the nature of body image concerns among boys in India, therefore during intervention development there was limited information from which to draw culturally specific examples deemed relevant for boys. Thus, the fact that change was seen among boys as well as girls was a particularly promising finding. The non-gender specific results are largely in line with previous *Confident Me* trials (redacted). Effect sizes were small-to-moderate and larger than many universal school-based body image interventions and previous trials of *Confident Me* (Yager et al., 2013; redacted). Larger effect sizes may be due to the expertise of the

facilitators in this trial, as prior research shows body image interventions delivered by mental health specialists are more effective than other community providers (Becker & Stice, 2017). The facilitators were specialists in clinical and counselling psychology, with experience in child psychology, and had received two days training in *Confident Me*. In contrast, previous evaluations of *Confident Me* (redacted; redacted) used school teachers with brief training. Another reason may be the cultural context. Indian schools rarely address emotional well-being (Ministry of Health and Family Welfare, 2014); therefore, students may have been more receptive to the novelty of the intervention, unlike in other contexts, such as the UK, where mental health and well-being topics are frequently taught in schools.

The intervention did not produce significant improvements in appearance-based teasing, internalisation, life engagement, eating pathology, self-esteem, or negative affect. While this did not support our hypotheses, it is somewhat consistent with previous *Confident Me* trials (redacted; redacted). Despite a lack of change in internalisation and appearance-based teasing, the intervention could have improved alternative risk factors for poor body image, such as media literacy or appearance-related comparisons, which were not assessed in this study. Theoretically, these constructs may constitute effective mechanisms of change, and thus warrant further investigation. That said, the observed effect sizes in the desired direction suggest that the intervention may have a positive impact in reducing internalisation, eating pathology, self-esteem, and mood. A fully powered randomised controlled trial is necessary to further investigate these findings.

Limitations

This pilot study was the first step in evaluating *Confident Me* in Indian schools. The study benefited from a control condition, acceptability feedback from all participating stakeholders, and an assessment of fidelity, all important considerations for the evaluation of complex interventions (Moore et al., 2015). Nevertheless, the study has its limitations. First,

the trial was conducted with two private schools in New Delhi; consequently, the results cannot be generalised. That said, a one-size-fits-all approach to intervention development is unlikely to be successful in India, due to the country's rich linguistic, cultural, regional, religious, socioeconomic, and ethnic diversity (Sen, 2005). Similarly, the study only involved Year 7 students, yet *Confident Me* was designed for adolescents aged 11-14 years. Therefore, it would be informative to investigate the efficacy of the programme with a slightly older year group in future, to ensure the programme is acceptable and effective with slightly older adolescents, too. Second, measures validated among Indian adolescents were utilised wherever possible. However, for some outcome measures (i.e., affect and self-esteem), scales validated in other adolescent populations were employed in the absence of culturally-specific measures. Additionally, some scales (e.g., Body Image Life Disengagement Questionnaire) demonstrated low internal reliability among girls. Developing reliable and valid measures for use in varied cultural contexts, particularly low- and middle-income countries, is an ongoing priority in body image research (Swami & Barron, 2019). Third, *Confident Me* has shown effects at up to six months follow-up in other contexts (redacted); accordingly, this study would have benefitted from a longer follow-up assessment to consider the potential longer term impact of the programme. Finally, the sample size was small, although similar to other pilot studies in the field (Damiano et al., 2018; Rohde et al., 2014). As such, we lacked statistical power to detect small effects.

Conclusion

This is the first study to consider the acceptability and preliminary efficacy of a body image intervention for use in Indian schools. The results indicate that *Confident Me* was enjoyed, understood, and met with enthusiasm by both teachers and students. There is preliminary evidence that *Confident Me* is efficacious in improving body image among Indian adolescents. Based on these results, further adaptations to the intervention have been

made and an adequately powered randomised controlled trial is underway to further establish the efficacy of *Confident Me* in India.

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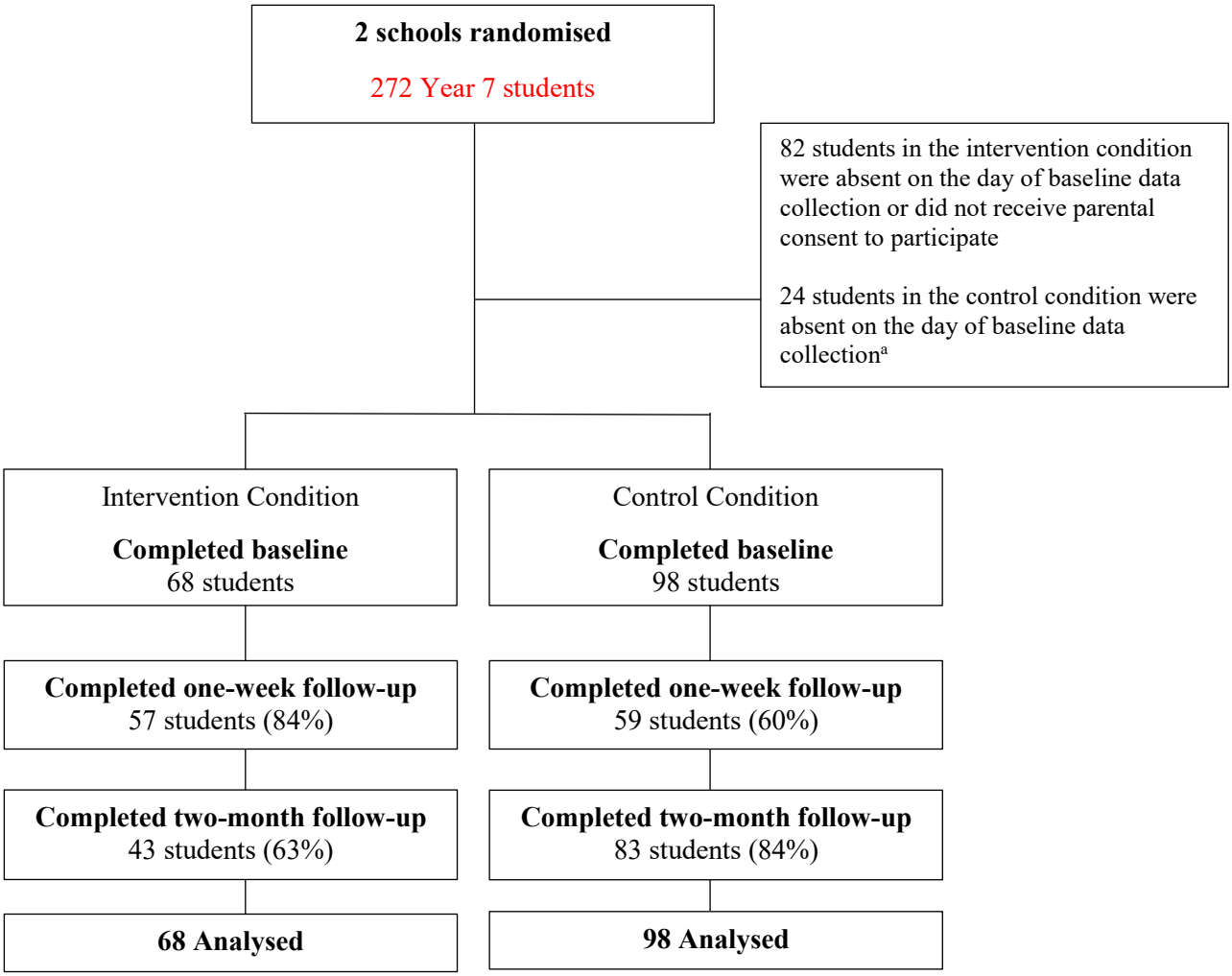

Note: [a] = Parent consent was not sought for control condition students, at the discretion of the school principal.

Fig 1. CONSORT diagram of participant recruitment and flow.

Table 1 Quantitative findings relating to student, facilitator and teacher acceptability of the intervention.

Student Question	Percentage of participants (%) N = 57			
	Agree	Neutral	Disagree	Did not respond
I enjoyed the lessons	73.7	19.3	7.0	0.0
The lessons helped me feel better about myself	77.2	17.5	5.3	0.0
I understood what was being taught in the lessons	84.2	10.5	5.3	0.0
I felt comfortable taking part in the lessons	84.2	10.5	5.3	0.0
The lessons were taught well by the facilitator	84.2	8.8	3.5	3.5
It is important for young people to take part in lessons like these	84.2	10.5	3.5	1.8

Facilitator Question/Teacher Question	Facilitator response (N = 10)			Teacher response (N = 10)		
	Yes	Neutral	No	Yes	Neutral	No
Did you enjoy delivering this lesson? / If provided with the key resources, would you enjoy delivering this lesson?	7 (70%)	3 (30%)	0	7 (70%)	3 (30%)	0
Did students appear to enjoy this lesson?	8 (80%)	2 (20%)	0	2 (20%)	6 (60%)	2 (20%)

How confident did you feel in delivering this lesson? / Would you feel confident delivering this lesson?	10 (100%)	0	0	8 (80%)	2 (20%)	0
Did students display understanding of the key messages of this lesson?	9 (90%)	1 (10%)	0	7 (70%)	3 (30%)	0
Did students appear engaged in the topic and activities?	8 (80%)	2 (20%)	0	2 (20%)	6 (60%)	2 (20%)
Do you feel you achieved the learning objectives of the lesson? / Do you feel the learning objectives of the lesson were achieved?	7 (70%)	3 (30%)	0	5 (62%)	2 (25%)	1 (12%)
Was the facilitator guide clear?	6 (60%)	2 (20%)	2 (20%)	-	-	-
How useful did you find the resources for this lesson?	7 (70%)	3 (30%)	0	9 (90%)	1 (10%)	0

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

Outcome	Scale Description	α Girls	α Boys
Primary Outcome			
Body esteem	Body Esteem Scale for Adolescents & Adults (Mendelson et al. 2001). This scale has been validated among Indian adolescents (redacted). Gender-invariant version used, appearance-positive and appearance-negative subscales combined, seven items, mean score range 1-5. Example item: *'I think I have a good-looking body' (1 = never – 5 = always).*	.66	.73
Risk Factors			
Internalisation	Internalisation-General subscale of the Sociocultural Attitudes Towards Appearance Questionnaire-3 (Thompson et al. 2004). This scale has been validated among Indian adolescents (redacted). Gender-invariant version used, five items, mean score range 1-5. Example item: *'I would like my body to look like the people in movies' (1 = totally disagree – 5 = totally agree).*	.96	.91
Teasing	Single-item measure: '*How often have you been teased about the way you look?' (1 = never – 5 = always)*, score 1-5.	N/A	N/A
Broader outcome measures			
Negative affect	Positive and Negative Affect Schedule for Children (Ebesutani et al. 2012). Negative affect subscale, five items,	.83	.85

	mean score range 1-5. Example item: '*How often have you felt SAD over the past two weeks?' (1 = not at all – 5 = very much*).		
Positive affect	Positive and Negative Affect Schedule for Children (Ebesutani et al. 2012). Negative affect subscale, five items, mean score range 1-5. Example item: '*How often have you felt HAPPY over the past two weeks?' (1 = not at all – 5 = very much*).	.74	.87
Self-esteem	Rosenberg Self-Esteem Scale – Short Form (Neumark-Sztainer et al. 2007; Rosenberg 1965). Six items, mean score range 1-4. Example item: *'I feel I have a number of good qualities' (1 = strongly disagree – 5 = strongly agree).* Factor analyses for the current sample identified two subscales; positively-worded items (labelled 'self-esteem positive', three items) and negatively-worded items (labelled 'self-esteem negative', three items).	.62/.82	.78/.76
Eating pathology	Eating-Disorder Examination Questionnaire (Fairburn and Beglin 1994). This scale has been validated among Indian adolescents (redacted). Gender-invariant version used, 12 items. Example item: *'How unhappy have you been with your weight?' (1 = not at all – 5 = very much so).*	.84	.93
Life engagement	Body Image Life Engagement Questionnaire (redacted). This scale has been validated among Indian adolescents (redacted). Four items, mean score range 1-4. Example item: *'In the past two weeks, have you stopped yourself from going to the doctor because you felt worried about the way you looked?' (1 = hasn't stopped me at all – 4 = stopped me all the time).*	.48	.81

Table 3 Means and standard deviations of outcome measures at each time point by condition.

		Intervention Condition			Control Condition		
		N	Mean	SD	N	Mean	SD
Body esteem	T1	68	3.74	0.71	96	3.87	0.73
	T2	55	4.12	0.58	55	3.86	0.78
	T3	39	4.20	0.71	81	3.91	0.85
Internalisation	T1	68	2.09	1.18	98	2.11	1.24
	T2	57	1.64	1.00	58	1.91	1.28
	T3	42	1.91	1.19	82	1.69	1.06
Appearance teasing	T1	68	1.74	1.05	98	1.98	1.19
	T2	57	1.42	0.68	57	1.67	1.09
	T3	43	1.56	0.88	81	1.58	1.02
Life engagement	T1	68	1.26	0.39	98	1.30	0.53
	T2	57	1.14	0.27	59	1.20	0.40
	T3	42	1.19	0.59	79	1.27	0.59
Eating pathology	T1	66	0.73	0.74	94	0.91	1.03
	T2	57	0.40	0.54	58	0.61	0.84
	T3	43	0.48	0.89	80	0.60	0.81
Self-esteem (positive)	T1	67	3.29	0.59	95	3.08	0.85
	T2	56	3.20	0.73	58	3.18	0.78
	T3	42	3.36	0.95	80	3.11	0.96
Self-esteem (negative)	T1	68	1.91	0.86	98	2.10	0.98
	T2	57	1.84	0.80	59	2.00	0.95
	T3	42	1.68	0.95	81	1.98	1.15
Positive affect	T1	68	3.97	0.86	98	3.99	0.96

	T2	57	4.49	0.68	58	3.96	1.17
	T3	43	4.23	1.15	82	3.93	1.17
Negative affect	T1	68	2.02	0.90	98	2.28	1.05
	T2	57	1.53	0.66	58	1.89	0.99
	T3	43	1.64	0.88	82	1.79	0.91

Note: T1 = baseline, T2 = post-intervention, T3 = 2-month follow-up.

Table 4 Adjusted means and standard errors for each outcome by condition at post-intervention and 2-month follow-up, with between-group and pairwise comparisons (controlling for baseline differences in each outcome variable) and associated Cohen's d effect sizes.

Outcome	Intervention (n=68) M (SE)	Control (n=98) M (SE)	p	*d* [95% CI]
Body esteem				
T2	4.13 (0.08)	3.88 (0.08)	**0.022**	0.45 [0.07, 0.84]
T3	4.22 (0.12)	3.87 (0.08)	**0.014**	0.46 [0.08, 0.85]
Internalisation				
T2	1.62 (0.12)	1.93 (0.12)	0.079	0.34 [-0.03, 0.70]
T3	1.87 (0.16)	1.71 (0.12)	0.400	0.15 [-0.22, 0.53]
Life engagement				
T2	1.14 (0.05)	1.20 (0.04)	0.385	0.16 [-0.21, 0.52]
T3	1.19 (0.09)	1.27 (0.07)	0.463	0.14 [-0.21, 0.51]
Eating pathology				
T2	0.44 (0.11)	0.57 (0.11)	0.247	0.22 [-0.14, 0.60]
T3	0.48 (0.14)	0.57 (0.11)	0.535	0.11 [-0.26, 0.50]
Self-esteem (positive)				
T2	3.19 (0.7)	3.26 (0.7)	0.630	0.09 [-0.28, 0.47]
T3	3.3 (0.14)	3.19 (0.1)	0.504	0.12 [-0.25, 0.50]
Self-esteem (negative)				
T2	1.85 (0.63)	1.98 (0.63)	0.444	0.14 [-0.22, 0.51]
T3	1.71 (0.17)	1.97 (0.12)	0.221	0.22 [-0.14, 0.60]
Positive affect				

T2	4.49 (0.26)	3.96 (0.26)	**0.003**	0.58 [0.20, 0.95]
T3	4.22 (0.18)	3.93 (0.13)	0.189	0.24 [-0.13, 0.61]
Negative affect				
T2	1.58 (0.09)	1.81 (0.09)	0.065	0.35 [-0.02, 0.72]
T3	1.72 (0.13)	1.76 (0.1)	0.811	0.04 [-0.33, 0.41]

Note: T2 = post-intervention, T3 = 2-month follow-up. *p*-values below .05 indicate a statistically significant effect and is marked by bold text.