

# Evaluating a body image school-based intervention in India: A randomized controlled trial



Helena Lewis-Smith<sup>a,\*</sup>, Kirsty May Garbett<sup>a</sup>, Anshula Chaudhry<sup>b</sup>, Megha Dhillon<sup>b</sup>, Hemal Shroff<sup>c</sup>, Paul White<sup>d</sup>, Philippa Claire Diedrichs<sup>a</sup>

<sup>a</sup> Centre for Appearance Research, University of the West of England, UK

<sup>b</sup> Department of Psychology, Lady Shri Ram College, Delhi, India

<sup>c</sup> Toronto District School Board, Ontario, Canada

<sup>d</sup> Applied Statistics Group, University of the West of England, UK

## ARTICLE INFO

### Article history:

Received 9 August 2022

Received in revised form 14 December 2022

Accepted 14 December 2022

Available online xxxx

### Keywords:

Body Image

India

Adolescents

School

Intervention

Randomized controlled trial

## ABSTRACT

Body dissatisfaction is highly prevalent among adolescents in low- and middle- income countries, including in India. However, evidence-based interventions are lacking. This study evaluated the efficacy of a school-based mixed-gender body image intervention among adolescents in India. A randomized controlled trial was conducted among 568 (43 % girls) Year 7 students (aged 11–14; 94 % aged 12–13) in six schools in Delhi. Each school was randomly allocated to receive five 45-minute intervention sessions delivered by trained psychologists or a wait-list control condition. The primary outcome of body image and related secondary outcomes were assessed at pre-intervention, post-intervention, and 3-month follow-up. Intention-to-treat linear mixed models analyses showed improvements in body image relative to the control group at post-intervention and 3-month follow-up. Significant improvements were identified at post-intervention for internalization, life disengagement, disordered eating, self-esteem, and negative affect, with effects maintained in nearly all outcomes (girls only - internalization, boys only - life disengagement) at 3-month follow-up. This study presents the first mixed-gender school-based body image intervention in India, which was efficacious in improving urban adolescents' body image, disordered eating, and related outcomes.

© 2022 The Author(s). Published by Elsevier Ltd. This is an open access article under the CC BY license (<http://creativecommons.org/licenses/by/4.0/>).

## 1. Introduction

Body dissatisfaction is a pressing public health issue affecting adolescents globally (e.g., Frederick et al., 2022; Moehlecke et al., 2020; Shagar et al., 2019; Swami et al., 2010), predictive of the onset of eating disorders, unhealthy weight control practices, low self-esteem, depression, self-harm, smoking, high-risk drinking, and drug use (Bornioli et al., 2019). Classroom-based interventions have demonstrated efficacy in improving body image among adolescents in Europe, North America, and Australia (Yager et al., 2013). However, the availability and dissemination of evidence-based body image interventions is lacking in other continents, including in the world's largest low-middle- income country, India, where body dissatisfaction is experienced by approximately three quarters of girls and two thirds of boys (Ganesan et al., 2018; Mondal et al., 2021; Singh et al., 2016).

Whilst some body image concerns of Indian adolescents, such as weight and height, are relevant to those in high-income countries (Deshmukh & Kulkarni, 2017; Johnson et al., 2015; Singh et al., 2016), others are unique to this group, including skin colour and body hair dissatisfaction (Peltzer et al., 2016; Phadke, 2017). The latter is particularly salient to Indian girls, who are concerned with hair covering different parts of the body (e.g., underarms, arms, legs; Phadke, 2017). In addition to the adverse effects on physical and mental health previously discussed (e.g., depression; Ganesan et al., 2018), body image concerns in India are also associated with the use of harmful skin lightening products (Craddock et al., 2018). Not only does this have dangerous physical side effects, but it also perpetuates established social inequalities, due to skin shade being considered a currency of cultural capital in the country (Shroff et al., 2018). Indeed, deepened by historical colonial rule, there are strong connections between skin colour and caste, class, occupation status, and marital prospects (Shankar & Subish, 2007). This highlights body dissatisfaction as a public health and social justice issue for Indian adolescents. Further, late adolescence is a peak time for the emergence of mental health difficulties (Deb et al., 2017; Patel et al., 2007), including threshold eating disorders and their clinical

\* Correspondence to: Centre for Appearance Research, University of the West of England, Bristol BS16 1QY, UK.

E-mail address: [Helena.lewis-smith@uwe.ac.uk](mailto:Helena.lewis-smith@uwe.ac.uk) (H. Lewis-Smith).

symptoms (Mammen et al., 2007; Mishra & Mukhopadhyay, 2011; Sagar et al., 2020; Vaidyanathan et al., 2019). Indeed, research indicates that approximately a third of Indian adolescents are at risk of developing an eating disorder (e.g., Singh et al., 2016). Overall, this reinforces the need to develop preventative interventions for mental health issues, and particularly in relation to body dissatisfaction. Finally, there have been calls from the Indian government, teachers, school counsellors, parents, and students, for the provision of mental health education via schools (Parikh et al., 2019). This constitutes a promising avenue for intervention delivery, given that less than 1 % of the healthcare budget is assigned to mental health (Math et al., 2019). Collectively, this suggests schools as a promising platform through which to deliver body image interventions in India.

A school-based mixed-gender intervention which was tested in a United Kingdom (UK)-based randomized controlled trial (RCT) among nearly 1500 students and was found to improve body image up to six months later ( $d = .15$ ) is the five-session, mixed-gender, *Dove Confident Me: Five-Session Workshop Series for Body Confidence* (hereafter referred to as *Confident Me*; Diedrichs et al., 2021). *Confident Me* targets key risk factors for body dissatisfaction, such as media literacy (McLean et al., 2017), internalization of appearance ideals (Rodgers et al., 2015), and appearance-based comparisons and conversations (Rodgers et al., 2014). These relate to components of the Tripartite Influence Model of Body Image (Keery et al., 2004, Shroff & Thompson, 2006, van den Berg et al., 2002), which argues that appearance ideals are transmitted by the media, parents, and peers, which influence body image via internalization of appearance ideals and appearance comparisons. The Tripartite Influence Model has been supported among adolescents in Western high-income countries (e.g., Papp et al., 2013; Rodgers et al., 2015); with its components increasingly explored and supported among Indian adolescents (e.g., internalization of appearance ideals; Singh et al., 2016). Based on this, it could be speculated that *Confident Me* might be appropriate for the Indian context, where only one body image intervention has been evaluated among adolescents to date (Dhillon & Deepak, 2017). This school-based intervention was tested among girls, and whilst there were improvements in body satisfaction, improvements beyond post-intervention were not assessed. Therefore, we adapted *Confident Me* for the Indian context in consultation with Indian body image and mental health experts (fourth and fifth authors). This involved including more relevant body image concerns (e.g., body hair dissatisfaction examples among girls), addressing cultural references (e.g., Bollywood), and targeting more prominent sociocultural pressures (e.g., family; Dhillon & Dhawan, 2011). Next, we evaluated the intervention's acceptability and preliminary efficacy among 166 school students in a pilot study in Delhi, India (Garbett et al., 2021a). The intervention was delivered by psychologists, as opposed to schoolteachers. As this was the first mixed-gender body image intervention to be evaluated in India, it was considered important to test *Confident Me* in a more controlled manner before task shifting to community providers. The psychologist-delivered intervention was deemed acceptable to students and observing teachers. Body image was significantly improved among students in the intervention condition relative to the control condition ( $d = .45$ ), and this was maintained two months later ( $d = .46$ ; Garbett et al., 2021a). Further, qualitative feedback from the students, observing teachers, and psychologists, was used to optimize *Confident Me*.

The present study aimed to evaluate this school-based body image intervention for adolescents in India in a large-scale full-powered RCT. It was hypothesised that students who received the intervention would report greater improvements in body image and related psychosocial outcomes compared to the lessons as-usual control condition, and that these improvements would be maintained at "3-month" follow-up.

**Table 1**  
Baseline participant characteristics.

	Intervention <i>n</i> = 263	Control <i>n</i> = 305
<i>Demographics</i>		
Age at baseline ( <i>M, SD</i> )*	12.44 (0.51)	12.61 (0.65)
Gender (Girls, <i>n, %</i> )	125 (47.5)	119 (39.0)
Born in India ( <i>n, %</i> )	263 (100)	304 (99.7)
Language other than Hindi spoken at home*		
Yes	263 (100)	304 (99.7)
English	182 (69.2)	88 (28.9)
Religion ( <i>n, %</i> )*		
Hinduism	211 (80.2)	272 (89.2)
Islam	7 (2.7)	14 (4.6)
Sikhism	14 (5.3)	11 (3.6)
Christianity	2 (0.8)	0 (0.0)
Other	15 (5.7)	6 (2.0)
Father's Highest Qualification ( <i>n, %</i> )*		
University degree: Master's	141 (53.6)	61 (20.0)
University degree: Bachelor's	36 (13.7)	118 (38.7)
Secondary school	6 (2.3)	78 (25.6)
Primary school	0 (0.0)	13 (4.3)
Mother's Highest Qualification ( <i>n, %</i> )*		
University degree: Master's	127 (48.3)	61 (20.0)
University degree: Bachelor's	54 (20.5)	92 (30.2)
Secondary school	6 (2.3)	103 (33.8)
Primary school	0 (0.0)	19 (6.2)
<i>Outcomes</i>		
Body Esteem ( <i>M, SD</i> )	3.86 (0.83)	3.91 (0.67)
Internalization of Appearance Ideals ( <i>M, SD</i> )	2.02 (1.08)	2.53 (1.20)
Eating Pathology ( <i>M, SD</i> )	0.93 (0.97)	0.82 (0.85)
Body Image Related Life Disengagement ( <i>M, SD</i> )	1.20 (0.35)	1.52 (0.61)
Self-Esteem ( <i>M, SD</i> )	3.11 (0.65)	3.00 (0.54)
Negative Affect ( <i>M, SD</i> )	2.06 (0.83)	1.92 (0.77)
Positive Affect ( <i>M, SD</i> )	4.06 (0.93)	4.10 (0.90)

\*Percentages do not add up to 100 % as a minority of participants did not report an answer.

## 2. Methods

All methods were conducted in line with the CONSORT guidelines.

### 2.1. Study design

A parallel two-arm RCT was conducted with schools in Delhi, India. In order to examine how *Confident Me* would work in a "real-world scenario", a pragmatic approach was adopted (Gamerman et al., 2019). This involved having the intervention delivered during school classes and compared with lessons-as-usual; imposing no exclusion criteria for students (i.e., the sample was heterogeneous); and adapting lesson delivery and data collection time-points to fit school academic calendars. Six schools were randomly allocated to either the intervention (three schools) or lessons-as-usual control (three schools) condition. Participants completed assessments at three timepoints: baseline, post-intervention (within one week following the final intervention session), and at 3-month follow-up (see Table 1) for participant recruitment and retention. Following the last assessment, schools in the control condition received the intervention. Before recruitment commenced, the trial was approved by the first author's university ethical committee (HAS.18.01.074) and registered (NCT04289272).

### 2.2. Participants

Schools were invited to take part via email, with the third and fourth authors meeting with the school principal following expressions of interest. Six schools confirmed participation and were randomized by an external blinded researcher via computer-generated

randomization. Participants were 568 (43 % girls) Year 7 (termed 'Class 7' in India) students (aged 11–14; 94 % aged 12–13) from six secondary schools in Delhi, India. Although the World Health Organization defines 'adolescence' as the period between 10 and 19 years of age, research indicates that nearly 78 % of 11–14-year-old Indians experience body dissatisfaction (Mondal et al., 2021); thus, informing the decision to target this age group. Further, this aligned with *Confident Me* demonstrating effectiveness among UK adolescents of the same age (Diedrichs et al., 2021).

Inclusion criteria for schools included being co-educational, teaching in English, and able to include all Year 7 classes (prior to parental/student consent). Exclusion criteria included single-sex schools and schools that did not teach in English. Most participants were born in India (97.7 %), identified as Hindu (85 %), and their parents' highest educational qualification was at a Bachelor's university degree or higher (father: 62.7 %; mother: 58.8 %; see Table 1 for demographic characteristics at baseline). Parental or headmaster consent was sought at the school's discretion, complying with the ethical guidelines for conducting anonymous public health research in India (Indian Council of Medical Research, 2018). Students were provided with thorough information about the study and what their participation would involve. They were advised that their responses would remain confidential and that they did not have to answer any questions that brought up discomfort. Students were also informed that they could opt out of the intervention at any point, and during any session, without any consequences. Participants were provided with the opportunity to ask any questions, prior to providing written assent.

### 2.3. The intervention

*Confident Me* consists of five 45-minute interactive sessions, which target risk factors for body dissatisfaction, including internalization of appearance ideals, appearance-based comparisons, appearance-based conversations, appearance-based teasing, and media literacy (including social media). A detailed description of the intervention and its original development can be found elsewhere (Diedrichs et al., 2021), and the cultural adaptations made in consultation with Indian body image researchers and tested for acceptability among Indian adolescents have been reported previously in a pilot study (Garbett et al., 2021). Intervention materials included a detailed teacher guide (outlining key content to share, actions, and students' desired responses), PowerPoint slides, videos, and student activity sheets. The intervention materials were written in English, however, a mixture of English and Hindi language was spoken in the sessions, as is common parlance in India.

The *Confident Me* sessions were added onto the existing schools' academic curriculum, which had not considered body image until the present trial. The sessions were delivered by four clinical and counselling psychologists, who possessed a Master's degree in psychology, and had prior experience of delivering therapy and group programs to adults and young people. Two of these psychologists had already delivered the intervention in the pilot study (Garbett et al., 2021). All received a two-day training session from the first and second authors one week prior to delivering the first session. Most classes had the same psychologist deliver each session throughout, with the exception of one or two sessions for a class which were delivered by a second psychologist. The usual class teacher observed every session. Each school received a monetary donation to be used towards school equipment to thank them for their participation.

### 2.4. Procedure

Once students in both conditions provided written assent, they completed the baseline questionnaire under standardized conditions

and supervised by their teachers and research staff. Paper questionnaires were administered in classes ( $\leq 30$  students) and took 20–30 min to complete. Approximately one week later, intervention schools received their first *Confident Me* session. Regarding delivery rate, two of the three schools received each session weekly apart from a two-week vacation break in between two of the sessions. The third school received the five sessions across five weeks (with two sessions in one week in some cases), with a two-week break in between the second and third session for vacation. Whilst a rate of one session per week would have been preferred, in line with the pragmatic nature of the trial (Gamerman et al., 2019), sessions were delivered as would be the case in real-life implementation of the intervention; whereby the schools' academic calendars were accommodated. All students completed the follow-up questionnaire at post-intervention (within one week of the final session), and at 3-month follow-up. All questionnaire responses were inputted by an external data entry company. Blinding of students, psychologists, and researchers, was not possible due to the psychosocial nature of the intervention. However, risk of contagion was reduced by having randomization at the school level. Schools received Rupees 13,500 towards school equipment to thank them for their participation.

### 2.5. Measures

The primary outcome was body esteem, with secondary outcomes including factors related to appearance, disordered eating, and broader mental health. Aside from a one-item measure, all outcome measures had been validated among adolescents in India using a rigorous process comprising several steps. First, the scales were adapted for the Indian context by Indian body image and mental health experts. This involved modifying items in line with the Indian culture. Next, backward and forward translation of the measures were conducted to ensure consistency in both languages. Acceptability interviews were subsequently conducted with Indian adolescents to explore their understanding of the modified scales. Once the scales were finalised, these were completed by a large group of Indian adolescents. This data was then used to examine the factor structure, reliability, and construct validity of all the measures. All measures used in the present study are displayed in Table 2.

Demographic information collected included self-reported gender, age, country of birth, language other than English spoken at home, religion, and parents' highest educational qualification. Only 45.1 % of girls and 54.9 % of boys self-reported both their weight and height, and thus body mass index (BMI) was excluded from analyses.

Intervention fidelity was assessed. Trained research assistants sat in, observed, and audio-recorded, 20 of the 55 sessions (36.3 %) across the schools. These were evenly split across the five sessions, the three schools, and the four psychologists. The research assistant assessed the delivery of each session using a standardised checklist developed and tested previously (Diedrichs et al., 2021; Garbett et al., 2021a), which considered facilitator competency, adherence to the teaching guide, and achievement of the session's three learning outcomes. Facilitator competency was assessed via 12-items (e.g., involvement of the whole class, skillful handling of problems, clearly expressed ideas) on a 5-point Likert scale (1 = not at all; 5 = very much). Adherence to the teaching guide was assessed by calculation of the percentage to which the facilitator asked key questions, completed outlined actions, and elicited desired student responses, as outlined in the teacher guide. Finally, the extent to which each session's three learning outcomes were achieved was assessed using a 10-point Likert scale (1 = not at all; 10 = very much). A selection of the 20 observed sessions (45 %; 9 sessions) were used to assess inter- and intra-rater reliability via intra-class coefficients (ICC).

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

Outcome	Scale Description	$\alpha$ Girls <i>n</i> = 244	$\alpha$ Boys <i>n</i> = 324
<i>Primary Outcome</i>			
Body esteem	Body Esteem Scale for Adolescents & Adults, validated among Indian adolescents (Garbett et al., 2021b). Gender-invariant version used, with Appearance-Positive and Appearance-Negative subscales combined, seven items, mean score range 1–5. Higher scores indicate greater body esteem. Example item: 'I think I have a good-looking body' (1 = never – 5 = always).	.75	.62
<i>Secondary Outcomes</i>			
Internalization of appearance Ideals	Internalization-General subscale of the Sociocultural Attitudes Towards Appearance Questionnaire-3, validated among Indian adolescents (Lewis-Smith et al., 2021a). Gender-invariant version used, four items, mean score range 1–5. Higher scores indicate greater internalization of appearance ideals. Example item: 'I would like my body to look like the people in movies' (1 = totally disagree – 5 = totally agree).	.85	.86
Teasing	Single-item measure (Garbett et al., 2021a): 'How often have you been teased about the way you look?' (1 = never – 5 = always), score 1–5.	N/A	N/A
Negative affect	Positive and Negative Affect Schedule for Children (Ebesutani et al., 2012). This scale has been validated among Indian adolescents (manuscript being prepared). Negative affect subscale, five items, mean score range 1–5. Higher scores indicate greater negative affect. Example item: 'How often have you felt sad over the past two weeks?' (1 = not at all – 5 = very much).	.71	.65
Positive affect	Positive and Negative Affect Schedule for Children (Ebesutani et al., 2012). This scale has been validated among Indian adolescents (manuscript being prepared). Positive affect subscale, five items, mean score range 1–5. Higher scores indicate greater positive affect. Example item: 'How often have you felt happy over the past two weeks?' (1 = not at all – 5 = very much).	.79	.79
Self-esteem	Rosenberg Self-Esteem Scale – Short Form (Neumark-Sztainer et al., 2007; Rosenberg, 1965). This scale has been validated among Indian adolescents (manuscript being prepared). Six items, mean score range 1–4. Higher scores indicate greater self-esteem. Example item: 'I feel I have a number of good qualities' (1 = strongly disagree – 5 = strongly agree).	.75	.76
Eating pathology	Eating-Disorder Examination Questionnaire, validated among Indian adolescents (Lewis-Smith et al., 2021b). Gender-invariant version used, twelve items. Example item: 'How unhappy have you been with your weight?' (1 = not at all – 5 = very much so).	.88	.87
Body image related life disengagement	Body Image Life Disengagement Questionnaire (Atkinson & Diedrichs, 2021). This scale has been validated among Indian adolescents (manuscript being prepared). 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).	.61	.65

## 2.6. Statistical analysis

The pilot study employed the same methodological structure and statistical analysis plan as the present study, thus providing some estimated parameters to help determine the present sample size (Garbett et al., 2021a). The pilot study indicated a range of effect sizes for outcome measures, with standardized effects in the small to medium range (observed range  $d = 0.4$ – $0.45$ ). We cautiously powered on Cohen's  $d = 0.25$  (partial eta squared = 0.015); conservatively assuming the correlation between baseline and measures post-intervention to be at least 0.6. For these estimated parameters, a sample size of at least  $n = 216$  per arm would be needed to have 90 % power ( $N = 432$  minimum). However, due to risk of attrition, the target sample size was inflated to  $n = 300$ , which if achieved, would have more than 95 % power under the same assumptions.

Intervention effects were assessed using linear mixed models (LMM) in SPSS version 26. The model included a two-level between-participants fixed factor for randomized arm (Arm: intervention versus control), a two-level repeated-measure fixed factor for time point (Time: T2 post-intervention vs. T3 follow-up), and an Arm by Time interaction effect. The model also included the baseline measure (T1) of the outcome as a covariate, in addition to a Time by baseline Covariate interaction effect. Post-hoc analyses at T2 and T3 comprised an LMM, which compared randomized arms after controlling for baseline covariates. 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 (whereby .01 is

considered a 'small' effect size, .06 is considered a 'medium' effect size, and .14 is considered a 'large' effect size; Cohen, 1988) and Cohen's  $d$  (whereby .2 is considered a 'small' effect size, .5 is considered a 'medium' effect size, and .8 is considered a 'large' effect size; Cohen, 1988).

## 3. Results

Five hundred and sixty-eight students (intervention  $n = 263$ ; control  $n = 305$ ) were recruited between 10 August 2018 and 5 February 2019. All 568 participants were included in the analysis (see Fig. 1).

The primary analysis tool was an analysis of variance conducted using an LMM. Residuals under the model were assessed for gross departures from normality. Except for the Body Image Life Disengagement Questionnaire (BILD-Q), the maximum absolute skew of standardised residuals was 1.53 ( $< 2$ ) and the maximum excess kurtosis was 5.97 ( $< 7$ ). These values did not indicate concern in relation to validity of inferences (Tabachnick et al. (2007)). The model for BILD-Q showed skewed residuals (skew = 2.36) and a high degree of kurtosis (kurtosis = 8.14), indicating outliers to the extent that a normal probability model could not be relied upon. Therefore, nonparametric bootstrapping was used to investigate intervention effects for the BILD-Q. The statistical conclusions from 1000 bootstrap samples provided precisely the same conclusions as obtained by not having recourse to the bootstrap. Missing data ranged from 0.9 % to 6.0 % across outcomes at baseline, 31.0–34.7 % at post-intervention, and 11.6–16.5 % at follow-up, due to missed items, student absences, and one school being unable to accommodate data collection at post-intervention. Little's MCAR test was consistent with data missing completely at random ( $p = 1.00$ ). Multiple imputation of missing data did not alter the results. Sensitivity of statistical inferences to missing data was undertaken using multiple imputation via Multiple Imputed Chained Equations (MICE) for each

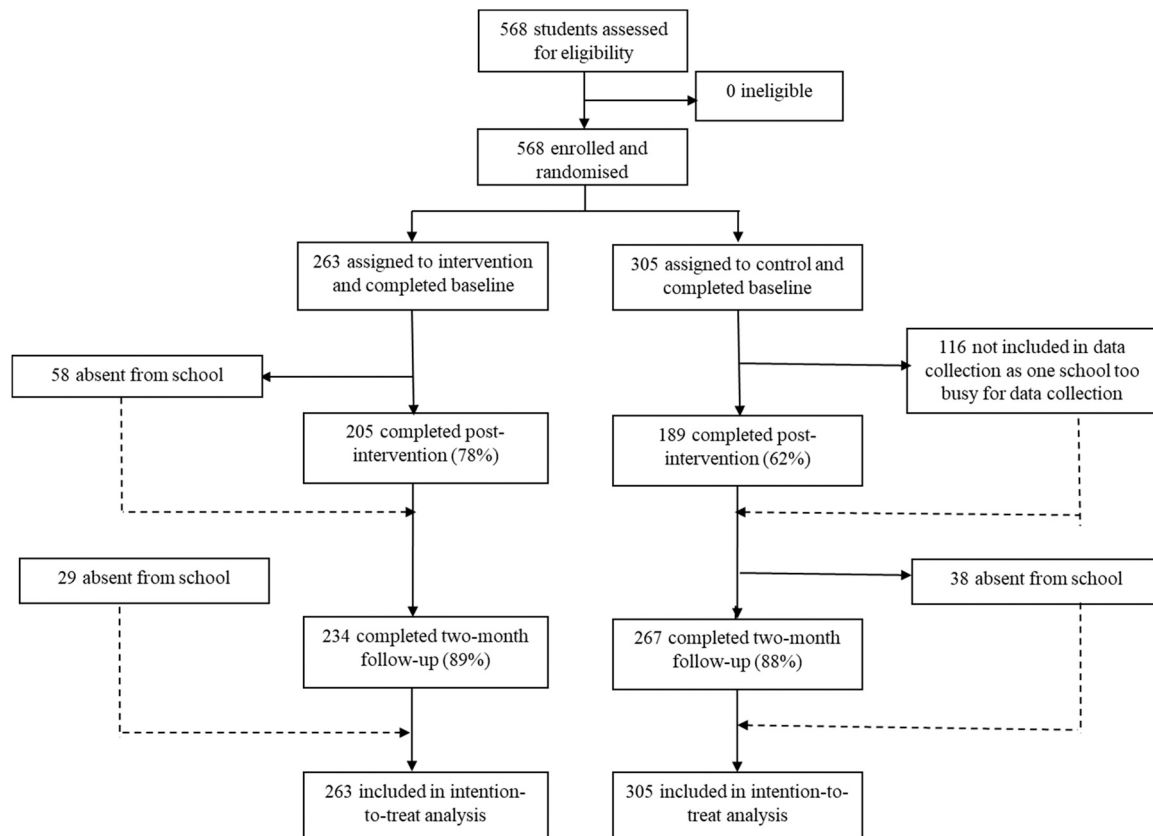


Fig. 1. CONSORT study flow chart of participants.

outcome measure. Baseline comparisons were conducted on demographic and outcome measures using chi-square goodness of fit tests and *t*-tests. See Table 1 for each outcome measure at baseline.

Table 3 displays the means for outcome measures at post-intervention and follow-up, for each condition. It also includes the results of planned comparisons using significance testing and the estimation of effect sizes. Findings revealed that students who received the

intervention experienced significant increases in body esteem at post-intervention in comparison with control students ( $\eta_p^2 = .021$ ,  $d = .294$ ), with effects maintained at follow-up ( $\eta_p^2 = .040$ ,  $d = .409$ ). Regarding the secondary outcomes, significant reductions were identified in disordered eating and internalization among intervention students at both post-intervention (disordered eating,  $\eta_p^2 = .019$ ,  $d = .274$ ; internalization,  $\eta_p^2 = .033$ ,  $d = .367$ ) and follow-up (disordered

Table 3

Unadjusted means and standard deviations for each outcome by condition at T2 and T3, with between-group comparisons (controlling for baseline differences in each outcome variable) and associated partial eta-squared and Cohen's *d* effect sizes.

Outcome	Intervention <i>M</i> ( <i>SD</i> )	Control <i>M</i> ( <i>SD</i> )	<i>p</i>	Partial eta-squared ( $\eta_p^2$ ) [95 % CI]	Cohen's <i>d</i> [95 % CI]
Body esteem					
T2	4.08 (0.75)	3.95 (0.78)	<b>.005</b>	.021 [.002,.057]	.295 [.107,.481]
T3	4.03 (0.85)	3.80 (0.71)	<b>.001</b>	.040 [.013,.586]	.409 [.232,.586]
Internalization					
T2	1.62 (0.94)	2.25 (1.31)	<b>.001</b>	.033 [.007,.075]	.367 [.167,.567]
T3	1.70 (1.01)	2.33 (1.25)	<b>.001<sup>a</sup></b>	.037 [.011,.569]	.442 [.241,.643]
Life disengagement					
T2	1.17 (0.42)	1.41 (0.59)	<b>.027</b>	.013 [.001,.044]	.216 [.017,.415]
T3	1.19 (0.46)	1.54 (0.73)	<b>.001<sup>b</sup></b>	.030 [.008,.529]	.348 [.171,.525]
Eating pathology					
T2	0.56 (0.82)	0.69 (0.86)	<b>.007</b>	.019 [.002,.054]	.274 [.134,.414]
T3	0.64 (0.93)	0.74 (0.84)	<b>.011</b>	.013 [.001,.406]	.230 [.054,.406]
Self-esteem					
T2	3.19 (0.67)	3.00 (0.54)	<b>.001</b>	.031 [.006,.072]	.351 [.149,.553]
T3	3.19 (0.67)	2.99 (0.58)	<b>.001</b>	.050 [.019,.637]	.444 [.265,.623]
Positive affect					
T2	4.06 (1.12)	4.21 (0.95)	.121	.007 [.000,.033]	.160 [-.042,.362]
T3	3.99 (1.16)	3.96 (1.07)	.668	.000 [.000,.007]	.039 [-.141,.219]
Negative affect					
T2	1.80 (0.86)	1.91 (0.76)	<b>.009</b>	.019 [.002,.053]	.139 [-.047,.325]
T3	2.00 (0.98)	2.01 (0.84)	.188	.004 [.000,.022]	.063 [-.123,.249]

Note: Significance threshold set at  $p < .05$ , indicated in bold. <sup>a</sup> Significant differences were identified for girls only, with no significant differences identified between boys. <sup>b</sup> Significant differences were identified for boys only, with no significant differences identified between girls.

eating,  $\eta_p^2 = .013$ ,  $d = .230$ ; internalization; among girls only,  $\eta_p^2 = .037$ ,  $d = .422$ ). There were significant increases in self-esteem among intervention students at both post-intervention ( $\eta_p^2 = .031$ ,  $d = .351$ ) and follow-up ( $\eta_p^2 = .050$ ,  $d = .444$ ). Regarding life disengagement, significant reductions were identified among intervention students relative to control students ( $\eta_p^2 = .013$ ,  $d = .348$ ), and this was maintained at follow-up for boys only ( $\eta_p^2 = .030$ ,  $d = .348$ ). Intervention students showed significant reductions in negative affect compared with control students at post-intervention ( $\eta_p^2 = .019$ ,  $d = .139$ ), but this effect was not maintained at follow-up ( $p = .188$ ). There were no significant differences between groups in relation to positive affect at either post-intervention ( $p = .121$ ) or follow-up ( $p = .668$ ). Regarding appearance-based teasing, there were no significant differences between the intervention and control at either post-intervention ( $p = .473$ ) or follow-up ( $p = .951$ ). In the intervention condition, 54.6 % reported no appearance-related teasing at baseline, with 67.2 % and 62.1 % reporting similar at post-intervention and follow-up. The corresponding percentages in the control condition were 53.0 %, 63.5 %, and 60.3 %. All significant intervention effect sizes were small ( $\eta_p^2$  ranged from .013 to .050,  $d = .216$  to  $d = .444$ ). No adverse events were reported in either group.

Regarding intervention fidelity, good inter-rater reliability (ICC values  $> .7$ ) was achieved for most of the items comprising the three domains (facilitator competency, adherence to teacher guide, delivery of key learning outcomes). The facilitators were consistently marked as very good ( $\geq 4$  out of 5) on every item assessing facilitator competency, with an overall excellent score ( $M = 4.72$ ). Adherence to the teacher guide ranged between 75 % and 100 % across sessions, with a very good overall mean of 90 % adherence. Every learning outcome was delivered by facilitators to an acceptable level ( $\geq 6$ ), with an excellent overall mean score ( $M = 8.70$ ). Each session lasted between 38 and 57 min, with a mean duration of 46 min.

#### 4. Discussion

The present study aimed to evaluate a school-based body image intervention for adolescents in India. As hypothesised, girls and boys in the intervention condition improved in body image relative to the control condition, with effects maintained at three months. To the authors' knowledge, this represents the first mixed-gender body image intervention to have been culturally adapted and tested in India, and the sustained improvements identified in body image among adolescents are promising. This trial confirms preliminary efficacy findings from the pilot study (Garbett et al., 2021a) and reflects effectiveness findings in a UK-based RCT evaluating the original *Confident Me* (Diedrichs et al., 2021). Further, relative to the control group, immediate and maintained improvements were observed in disordered eating and self-esteem, with maintained effects also observed in internalization of appearance ideals (among girls) and life disengagement (among boys). There were immediate improvements in negative affect, which were not maintained at follow-up. Finally, there were no significant improvements in positive affect nor appearance-based teasing at either post-intervention or follow-up.

The effect size of improvements in body image were small, which mirrors those from the original evaluation in the UK, in addition to other trials evaluating universal school-based body image interventions (e.g., Buerger et al., 2019; Diedrichs et al., 2021). This is not surprising, as effect sizes associated with universal approaches tend to be smaller than those observed in selective body image and eating disorder prevention interventions (Watson et al., 2016). Nonetheless, small effect sizes of such interventions when delivered at scale can still lead to significant public mental health benefits. The improvements to most of the secondary outcomes were also promising, particularly given the inconsistency in effects for body image risk

factors, disordered eating, and broader psychosocial outcomes in previous school-based programme evaluations (Yager et al., 2013). While these maintained improvements support the promising effect sizes of the prior pilot study (Garbett et al., 2021a), they contrast with those of the original evaluation in the UK (Diedrichs et al., 2021), which reported minimal significant improvements in secondary outcomes.

This discrepancy may be due to various reasons, including having had psychologists (who had received a two-day training session) deliver the sessions in India, as opposed to teachers, who delivered *Confident Me* originally in the UK (Diedrichs et al., 2021). Research indicates that body image programmes are more effective when delivered by health professionals compared with teachers (Stewart et al., 2022). This is further supported by the excellent intervention fidelity scores in the present study, such as the psychologists having delivered 90 % of the intervention on average, compared with 75 % among teachers in the original trial (Diedrichs et al., 2021). The present findings may also relate to the novelty of the topic of body image for adolescents in the Indian context. Addressing mental health related issues in schools is not common, and thus, students may have been particularly engaged and amenable to change. Further, this may be coupled with the culture's implicit, yet significant, value placed on appearance. Indeed, appearance ideals (e.g., thinness, fair skin) are perceived as desirable due to their strong and historical association with marital and career prospects, economic class, and caste (Shroff et al., 2018), reinforced by the Bollywood and advertising industries (Dixit et al., 2011). Further, unlike in high-income countries where national mental health awareness campaigns are common and mental health is discussed in schools (e.g., Evans-Lacko et al., 2014), India lacks such country-wide media campaigns and there is limited mental health education. Consequently, mental illness tends to be associated with stigma, stifling help-seeking behaviours (Kudva et al., 2020). Thus, it may have been the first time this group of students had been explicitly encouraged to consider body image (and mental health more generally), leading the intervention to obtain a greater number of significant effects among outcomes. This may be further supported by the findings regarding maintained improvements to self-esteem among intervention students, relative to the control group. This finding contrasts with many previous evaluations of school-based body image programmes, which have not obtained maintained effects on self-esteem (Yager et al., 2013). Given the cultural importance and value attributed to appearance in India (Shroff et al., 2018), body image may constitute a significant proportion of adolescents' self-esteem. Thus, *Confident Me* may have improved self-esteem among students as a consequential impact of improving body image. Future evaluative studies among this group would benefit from assessing impacts on appearance investment.

Moving on to discuss secondary outcomes for which there were either no maintained improvements or none at any timepoint, the absence of significant improvements to appearance-related teasing may be due to several reasons. First, half of the sample reported never having experienced any form of appearance-based teasing, thus suggesting there was limited scope for reduction in teasing because of the intervention. Further, it is common in India for family members to comment on a relative's appearance and encourage them to go on a diet (Dhillon & Dhawan, 2011). Therefore, whilst the students may have reduced their appearance-based teasing of one another, they could still be experiencing negative comments and teasing at home. Finally, only one item was used to assess teasing, and thus may not have been sensitive enough to capture their experiences in relation to teasing. Nonetheless, this replicates previous intervention evaluations, which also failed to identify improvements in appearance-related teasing (Diedrichs et al., 2021; Yager et al., 2013). Regarding affect, the absence of improvements to positive affect is not surprising, given that negative affect is more often

explored and associated with body image concerns, and thus targeted by interventions, compared with positive affect (e.g., Walker et al., 2018; Yager et al., 2013). Further, whilst negative affect may have improved initially due to intervention effects (supporting prospective findings that body dissatisfaction predicts negative affect among adolescents; Lewis-Smith et al., 2020), it is a broad construct which is likely to have returned to pre-intervention levels due to reasons unrelated to body image. Nonetheless, this mirrors the original evaluation of *Confident Me* and other intervention evaluations which did not improve affect either (Diedrichs et al., 2021; Yager et al., 2013).

Whilst constituting the first RCT to evaluate a school-based body image intervention in India, the study is not without limitations. First, one of the schools was unable to accommodate data collection at post-intervention due to student exams. Nonetheless, this reflects a real-world scenario and aligns with the pragmatic approach pursued (Gamerman et al., 2019). Second, it was not possible to control for BMI, as only half of students reported their height and weight. Whilst higher BMI is associated with greater body dissatisfaction and thus should be acknowledged (Weinberger et al., 2016), it was not deemed appropriate for the research team to measure and weigh students in the school, as this increases the salience of weight as an “issue” and can encourage teasing (Grimmett et al., 2008). Third, *Confident Me* revealed improvements at 6-month follow-up in the UK (Diedrichs et al., 2021), and given the promising findings in nearly all outcomes at 3-month follow-up in the present study, a longer follow-up assessment would have allowed a longer-term assessment of the programme’s impacts. Fourth, our primary outcome of body esteem did not encapsulate more contemporary aspects of body image, such as body appreciation. This was due to such measures not having been validated, nor explored, among Indian adolescents, and highlights the importance of future research exploring body image form a more holistic perspective among this group. Fifth, the single-item teasing frequency measure was limited by the absence of a timeframe for consideration. Consequently, this may not have detected intervention-specific effects, as participants could have answered the question in relation to their general experience of teasing beyond the timeframe of the trial. Further, the item did not specify the source of teasing (e.g., peers, family), suggesting this it may have lacked the ability to assess any intervention-induced changes in students’ (i.e., peers’) frequency of teasing. A final limitation pertains to the intervention being delivered to English-speaking students in higher socio-economic schools in an urban part of India. Given that India is diverse in relation to culture, language, literacy, and socio-economy, the findings may not be generalisable to other geographic, lower socio-economic, rural areas, with students who do not speak English. These concerns also relate to the suitability of *Confident Me* for these settings. Many government schools in rural parts of India teach primarily in Hindi and do not have the resources to deliver power-point based teaching or interventions, nor are the human and financial resources likely to be available to have psychologists deliver such interventions. This highlights the importance of future research developing and evaluating body image interventions in Hindi, which do not rely on electricity or costly teaching resources, and that can be delivered effectively by schoolteachers. This is an important next step in facilitating dissemination and scalability of these interventions in India.

Nonetheless, the strengths of the study warrant consideration. First, this constitutes the first mixed-gender body image intervention to have been developed for, and evaluated in, India, despite research indicating the prevalence of body image concerns among adolescents (Singh et al., 2016). A rigorous approach was employed to ensure that *Confident Me* was culturally relevant for the Indian context, with time spent by a multidisciplinary team adapting the original programme and exploring its acceptability among students and teachers (Garbett et al., 2021a). Second, unlike previous research

exploring body image among Indian adolescents, the present study assessed outcomes using measures which have been validated among Indian adolescents (e.g., Garbett et al., 2021b; Lewis-Smith et al., 2021a). Finally, unlike previous evaluations of school-based body image programme (e.g., Buerger et al., 2019; Dhillon & Deepak, 2017), a rigorous fidelity assessment was employed; thus, providing further context within which to interpret the findings.

## 5. Conclusions

This is the first study to evaluate a culturally relevant school-based body image intervention for adolescents in India. The maintained improvements for the primary outcome of body image, and secondary outcomes of internalization of appearance ideals (among girls), body image related life disengagement (among boys), eating pathology, and self-esteem are promising. The critical next step for this area involves testing the task-shifting of *Confident Me*’s delivery to schoolteachers and counsellors in India, as well as developing and evaluating an intervention in Hindi language that requires minimal resources. This would be better suited to more rural areas, where body image concerns, as well as harmful gender stereotypes, are also an issue (Dixit et al., 2011; Johnson et al., 2015; Waghchavare et al., 2014). Indeed, we are in the process of evaluating a comics-based intervention we have developed to address body image concerns among adolescents in semi-rural schools (Ahuja et al., 2022; Lewis-Smith et al., 2022). This task-shifting will enhance scalability of body image interventions for adolescents across India.

## Funding

The study is funded by a research grant from the Dove Self-Esteem Project (DSEP; Unilever). The funders have no role in data analysis, decision to publish, or manuscript preparation. The DSEP were permitted to review the manuscript and suggest changes, but the authors exclusively retained the final decision on content. The views expressed are those of the authors and not necessarily those of Unilever.

## CRedit authorship contribution statement

**Helena Lewis-Smith:** Conceptualization, Methodology, Writing – original draft, Writing – review & editing, Visualization, Supervision, Project administration, Funding acquisition. **Kirsty May Garbett:** Conceptualization, Methodology, Writing – review & editing, Visualization, Project administration. **Anshula Chaudhry:** Methodology, Writing – review & editing, Project administration. **Megha Dhillon:** Methodology, Writing – review & editing, Visualization, Project administration. **Hemal Shroff:** Methodology, Writing – review & editing, Visualization, Project administration. **Paul White:** Methodology, Formal analysis, Writing – original draft, Writing – review & editing. **Phillippa Claire Diedrichs:** Conceptualization, Methodology, Writing – review & editing, Visualization, Supervision, Project administration, Funding acquisition.

## Data Availability

Data will be made available on request.

## Declarations of Interest

HLS and PD are independent consultants to the Dove Self-Esteem Project, and PD was on the Dove Self-Esteem Project Global Advisory Board from 2013 to 2016. The authors declare that they have no competing interests.

## Acknowledgments

The authors wish to thank the schools and students who took part in this research. They would also like to thank Manavi Khurana, Megha Saklani, Ruchika Kanwal, Rhea Gayatri Abrol, and Aishani Sood, from the Karma Center for Counselling and Wellbeing in Delhi, India, for delivering the intervention. Finally, they wish to thank Rhea Kochhar and Mahira Budhara from the same center for assisting with data collection.

## References

- Ahuja, L., Hasan, F., Diedrichs, P. C., & Lewis-Smith, H. (2022). Comics as a body image intervention among adolescents in Indian Hindi medium schools: insights from an acceptability study. *Global Mental Health*, 9, 460–469. <https://doi.org/10.1017/gmh.2022.50>
- Atkinson, M. J., & Diedrichs, P. C. (2021). Assessing the impact of body image concerns on functioning across life domains: Development and validation of the Body Image Life Disengagement Questionnaire (BILD-Q) among British adolescents. *Body Image*, 37, 63–73. <https://doi.org/10.1016/j.bodyim.2021.01.009>
- Bornioi, A., Lewis-Smith, H., Smith, A., Slater, A., & Bray, I. (2019). Adolescent body dissatisfaction and disordered eating: Predictors of later risky health behaviours. *Social Science & Medicine*, 238, Article 112458. <https://doi.org/10.1016/j.socscimed.2019.112458>
- Buerger, A., Ernst, V., Wolter, V., Huss, M., Kaess, M., & Hammerle, F. (2019). Treating eating disorders in the real world—MaiStep: A skill-based universal prevention for schools. *Preventive Medicine*, 123, 324–332. <https://doi.org/10.1016/j.ypmed.2019.04.008>
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (Second ed.). NJ: Erlbaum.
- Craddock, N., Dlova, N., & Diedrichs, P. C. (2018). Colourism: A global adolescent health concern. *Current Opinion in Pediatrics*, 30(4), 472–477. <https://doi.org/10.1097/MOP.0000000000000638>
- Deb, S., Sathyanarayanan, P., Machiraju, R., Thomas, S., & McGirr, K. (2017). Are there differences in the mental health status of adolescents in Puducherry. *Asian Journal of Psychiatry*, 27, 32–39. <https://doi.org/10.1016/j.ajp.2017.02.011>
- Deshmukh, V. R., & Kulkarni, A. A. (2017). Body image and its relation with body mass index among Indian adolescents. *Indian Pediatrics*, 54(12), 1025–1028.
- Dhillon, M., & Deepak, S. (2017). A body-image based media literacy intervention for Indian adolescent females. *Journal of Indian Association for Child & Adolescent Mental Health*, 13(1), 48–73. <https://doi.org/10.1177/2F0973134220170104>
- Dhillon, M., & Dhawan, P. (2011). “But I am fat”: The experiences of weight dissatisfaction in Indian adolescent girls and young women. *Women's Studies International Forum*, 34(6), 539–549. <https://doi.org/10.1016/j.wsif.2011.08.005>
- Diedrichs, P. C., Atkinson, M. J., Garbett, K. M., & Leckie, G. (2021). Evaluating the “Dove Confident Me” five-session body image intervention delivered by teachers in schools: A cluster randomized controlled effectiveness trial. *Journal of Adolescent Health*, 68(2), 331–341. <https://doi.org/10.1016/j.jadohealth.2020.10.001>
- Dixit, S., Agarwal, G., Singh, J., Kant, S., & Singh, N. (2011). A study on consciousness of adolescent girls about their body image. *Indian Journal of Community Medicine*, 36(3), 197–202. <https://doi.org/10.4103/0970-0218.86520>
- Ebesutani, C., Regan, J., Smith, A., Reise, S., Higa-McMillan, C., & Chorpita, B. F. (2012). The 10-item positive and negative affect schedule for children, child and parent shortened versions: application of item response theory for more efficient assessment. *Journal of Psychopathology and Behavioral Assessment*, 34(2), 191–203. <https://doi.org/10.1007/s10862-011-9273-2>
- Evans-Lacko, S., Corker, E., Williams, P., Henderson, C., & Thornicroft, G. (2014). Effect of the Time to Change anti-stigma campaign on trends in mental-illness-related public stigma among the English population in 2003–13: An analysis of survey data. *The Lancet Psychiatry*, 1(2), 121–128. [https://doi.org/10.1016/S2215-0366\(14\)70243-3](https://doi.org/10.1016/S2215-0366(14)70243-3)
- Frederick, D. A., Crerand, C. E., Brown, T. A., Perez, M., Best, C. R., Cook-Cottone, C. P., Compton, E. J., Conventino, L., Gordon, A. R., & Malcarne, V. L. (2022). Demographic predictors of body image satisfaction: The US Body Project I. *Body Image*, 41, 17–31. <https://doi.org/10.1016/j.bodyim.2022.01.011>
- Gamerman, V., Cai, T., & Elsäßer, A. (2019). Pragmatic randomized clinical trials: best practices and statistical guidance. *Health Services and Outcomes Research Methodology*, 19(1), 23–35. [https://doi.org/10.4103/ijcm.IJCM.62\\_18](https://doi.org/10.4103/ijcm.IJCM.62_18)
- Ganesan, S., Ravishanker, S., & Ramalingam, S. (2018). Are body image issues affecting our adolescents? A cross-sectional study among college going adolescent girls. *Indian Journal of Community Medicine*, 43(Suppl 1), S42. [https://doi.org/10.4103/ijcm.IJCM.62\\_18](https://doi.org/10.4103/ijcm.IJCM.62_18)
- Garbett, K. M., Lewis-Smith, H., Chaudhry, A., Shroff, H., Dhillon, M., White, P., & Diedrichs, P. C. (2021a). Acceptability and preliminary efficacy of a school-based body image intervention in urban India: A pilot randomised controlled trial. *Body Image*, 37, 282–290. <https://doi.org/10.1016/j.bodyim.2021.02.011>
- Garbett, K. M., Lewis-Smith, H., Chaudhry, A., Uglik-Marucha, N., Vitoratou, S., Shroff, H., Dhillon, M., & Diedrichs, P. C. (2021b). Cultural adaptation and validation of the Body Esteem Scale for Adults and Adolescents for use in English among adolescents in urban India. *Body Image*, 37, 246–254. <https://doi.org/10.1016/j.bodyim.2021.02.012>
- Grimmett, C., Croker, H., Carnell, S., & Wardle, J. (2008). Telling parents their child's weight status: Psychological impact of a weight-screening program. *Pediatrics*, 122(3), e682–e688. <https://doi.org/10.1542/peds.2007-3526>
- Indian Council of Medical Research (2018). *Handbook on national ethical guidelines for biomedical and health research involving human participants 2017*. New Delhi: ICMR. <https://www.icmr.nic.in/sites/default/files/guidelines/ICMREthicalGuidelines2017.pdf>
- Johnson, A. R., Balasubramanya, B., & Britto, R. D. (2015). Body image perception and nutritional status of adolescents in a school in rural South India. *Journal of Indian Association for Child & Adolescent Mental Health*, 11(4), 260–278.
- Keery, H., van den Berg, P., & Thompson, J. K. (2004). An evaluation of the tripartite influence model of body dissatisfaction and eating disturbance with adolescent girls. *Body Image*, 1(3), 237–251. <https://doi.org/10.1016/j.bodyim.2004.03.001>
- Kudva, K. G., El Hayek, S., Gupta, A. K., Kurokawa, S., Bangshan, L., Armas-Villavicencio, M. V. C., Oishi, K., Mishra, S., Tiensuntsook, S., & Sartorius, N. (2020). Stigma in mental illness: Perspective from eight Asian nations. *Asia-Pacific Psychiatry*, 12(2), Article e12380. <https://doi.org/10.1111/appy.12380>
- Lewis-Smith, H., Bray, I., Salmon, D., & Slater, A. (2020). Prospective pathways to depressive symptoms and disordered eating in adolescence: A 7-year longitudinal cohort study. *Journal of Youth and Adolescence*, 49(10), 2060–2074. <https://doi.org/10.1007/s10964-020-01291-1>
- Lewis-Smith, H., Garbett, K., Chaudhry, A., Uglik-Marucha, N., Vitoratou, S., Dhillon, M., Shroff, H., & Diedrichs, P. (2021a). Adaptation and validation of the Internalisation-General subscale of the Sociocultural Attitudes Towards Appearance Questionnaire (SATAQ-3) in English among urban Indian adolescents. *Body Image*, 36, 254–262. <https://doi.org/10.1016/j.bodyim.2020.12.004>
- Lewis-Smith, H., Garbett, K. M., Chaudhry, A., Uglik-Marucha, N., Vitoratou, S., Dhillon, M., Shroff, H., & Diedrichs, P. C. (2021b). Adaptation and validation of the Eating Disorder Examination-Questionnaire in English among urban Indian adolescents. *International Journal of Eating Disorders*, 54(2), 187–202. <https://doi.org/10.1002/eat.23431>
- Lewis-Smith, H., Hasan, F., Ahuja, L., White, P., & Diedrichs, P. C. (2022). A comic-based body image intervention for adolescents in semi-rural Indian schools: Study protocol for a randomized controlled trial. *Body Image*, 42, 183–196. <https://doi.org/10.1016/j.bodyim.2022.05.013>
- Mammen, P., Russell, S., & Russell, P. S. (2007). Prevalence of eating disorders and psychiatric co-morbidity among children and adolescents. *Indian Pediatrics*, 44(5), 357.
- Math, S. B., Gowda, G. S., Basavaraju, V., Manjunatha, N., Kumar, C. N., Enara, A., Gowda, M., & Thirthalli, J. (2019). Cost estimation for the implementation of the Mental Healthcare Act 2017. *Indian Journal of Psychiatry*, 61(Suppl 4), S650.
- McLean, S. A., Wertheim, E. H., Masters, J., & Paxton, S. J. (2017). A pilot evaluation of a social media literacy intervention to reduce risk factors for eating disorders. *International Journal of Eating Disorders*, 50(7), 847–851. <https://doi.org/10.1002/eat.22708>
- Mishra, S. K., & Mukhopadhyay, S. (2011). Eating and weight concerns among Sikkimese adolescent girls and their biocultural correlates: an exploratory study. *Public Health Nutrition*, 14(5), 853–859. <https://doi.org/10.1017/S1368898010002478>
- Moehlecke, M., Blume, C. A., Cureau, F. V., Kielsing, C., & Schaan, B. D. (2020). Self-perceived body image, dissatisfaction with body weight and nutritional status of Brazilian adolescents: a nationwide study. *Jornal Delelôtt Pediatría*, 96, 76–83. <https://doi.org/10.1016/j.jpdp.2018.11.009>
- Mondal, T., Ghosh, R., Maji, S., & Ray, T. G. (2021). Correlates of body image perception and dietary practices among urban adolescents—experience from Government Schools in Kolkata City. *Annals of Community Health*, 9(1), 278–285.
- Neumark-Sztainer, D. R., Wall, M. M., Haines, J. I., Story, M. T., Sherwood, N. E., & van den Berg, P. A. (2007). Shared risk and protective factors for overweight and disordered eating in adolescents. *American Journal of Preventive Medicine*, 33(5), 359–369. <https://doi.org/10.1016/j.amepre.2007.07.031> e353.
- Papp, I., Urbán, R., Czeglédi, E., Babusa, B., & Türy, F. (2013). Testing the tripartite influence model of body image and eating disturbance among hungarian adolescents. *Body Image*, 10(2), 232–242. <https://doi.org/10.1016/j.bodyim.2012.12.006>
- Parikh, R., Michelson, D., Sapru, M., Sahu, R., Singh, A., Cuijpers, P., & Patel, V. (2019). Priorities and preferences for school-based mental health services in India: a multi-stakeholder study with adolescents, parents, school staff, and mental health providers. *Global Mental Health*, 6. <https://doi.org/10.1017/gmh.2019.16>
- Patel, V., Flisher, A. J., Hetrick, S., & McGorry, P. (2007). Mental health of young people: A global public-health challenge. *The Lancet*, 369(9569), 1302–1313. [https://doi.org/10.1016/S0140-6736\(07\)60368-7](https://doi.org/10.1016/S0140-6736(07)60368-7)
- Peltzer, K., Pengpid, S., & James, C. (2016). The globalization of whitening: Prevalence of skin lighteners (or bleachers) use and its social correlates among university students in 26 countries. *International Journal of Dermatology*, 55(2), 165–172. <https://doi.org/10.1111/ijd.12860>
- Phadke, S. (2017). *How to Do Feminist Mothering in Urban India? Some Reflections on the Politics of Beauty and Body Shapes. Aesthetic Labour*. Springer:247–261.
- Rodgers, R. F., McLean, S. A., & Paxton, S. J. (2015). Longitudinal relationships among internalization of the media ideal, peer social comparison, and body dissatisfaction: implications for the tripartite influence model. *Developmental Psychology*, 51(5), 706–713. <https://doi.org/10.1037/dev0000013>
- Rodgers, R. F., Paxton, S. J., & McLean, S. A. (2014). A biopsychosocial model of body image concerns and disordered eating in early adolescent girls. *Journal of Youth and Adolescence*, 43(5), 814–823. <https://doi.org/10.1007/s10964-013-0013-7>
- Rosenberg, M. (1965). Rosenberg self-esteem scale (RSE). *Acceptance and commitment therapy. Measures Package*, 61(52), 18.



- Sagar, R., Dandona, R., Gururaj, G., Dhaliwal, R., Singh, A., Ferrari, A., & Chakma, J. K. (2020). The burden of mental disorders across the states of India: The Global Burden of Disease Study 1990–2017. *The Lancet Psychiatry*, 7(2), 148–161. [https://doi.org/10.1016/S2215-0366\(19\)30475-4](https://doi.org/10.1016/S2215-0366(19)30475-4)
- Shagar, P. S., Donovan, C. L., Loxton, N., Boddy, J., & Harris, N. (2019). Is thin in everywhere?: A cross-cultural comparison of a subsection of Tripartite Influence Model in Australia and Malaysia. *Appetite*, 134, 59–68. <https://doi.org/10.1016/j.appet.2018.12.025>
- Shankar, P. R., & Subish, P. (2007). Fair skin in South Asia: An obsession? *Journal of Pakistan Association of Dermatologists*, 17(2), 100–104.
- Shroff, H., Diedrichs, P. C., & Craddock, N. (2018). Skin color, cultural capital, and beauty products: An investigation of the use of skin fairness products in Mumbai, India. *Frontiers in Public Health*, 5, 365–373. <https://doi.org/10.3389/fpubh.2017.00365>
- Shroff, H., & Thompson, J. K. (2006). The tripartite influence model of body image and eating disturbance: A replication with adolescent girls. *Body Image*, 3(1), 17–23. <https://doi.org/10.1016/j.bodyim.2005.10.004>
- Singh, M. M., Parsekar, S. S., & Bhumika, T. V. (2016). Body image, eating disorders and role of media among Indian adolescents. *Journal of Indian Association for Child and Adolescent Mental Health*, 12(1), 9–35.
- Stewart, C., Goddard, E., Cakir, Z., Hall, R., & Allen, G. (2022). Can more people be “Happy Being Me”? Testing the delivery of a universal body satisfaction program by clinicians and school staff. *Eating Disorders*, 30(2), 182–209. <https://doi.org/10.1080/10640266.2020.1771165>
- Swami, V., Frederick, D. A., Aavik, T., Alcalay, L., Allik, J., Anderson, D., Andrianto, S., Arora, A., Brännström, Å., & Cunningham, J. (2010). The attractive female body weight and female body dissatisfaction in 26 countries across 10 world regions: Results of the International Body Project I. *Personality and Social Psychology Bulletin*, 36(3), 309–325. <https://doi.org/10.1177/0146167209359702>
- Tabachnick, B. G., Fidell, L. S., & Ullman, J. B. (2007). *Using multivariate statistics* (Fifth ed.). New York, NY: Allyn and Bacon.
- Vaidyanathan, S., Kuppli, P. P., & Menon, V. (2019). Eating disorders: An overview of Indian research. *Indian Journal of Psychological Medicine*, 41(4), 311–317. [https://doi.org/10.4103/IJPSYM.IJPSYM\\_461\\_18](https://doi.org/10.4103/IJPSYM.IJPSYM_461_18)
- van den Berg, P., Thompson, J. K., Obremski-Brandon, K., & Coovert, M. (2002). The tripartite influence model of body image and eating disturbance: A covariance structure modeling investigation testing the mediational role of appearance comparison. *Journal of Psychosomatic Research*, 53(5), 1007–1020. [https://doi.org/10.1016/S0022-3999\(02\)00499-3](https://doi.org/10.1016/S0022-3999(02)00499-3)
- Waghachavare, V. B., Quraishi, S. R., Dhumale, G. B., & Gore, A. D. (2014). A cross-sectional study of correlation of body image anxiety with social phobia and their association with depression in the adolescents from a rural area of Sangli District in India. *International Journal of Preventive Medicine*, 5(12), 1626–1629.
- Walker, D. C., White, E. K., & Srinivasan, V. J. (2018). A meta-analysis of the relationships between body checking, body image avoidance, body image dissatisfaction, mood, and disordered eating. *International Journal of Eating Disorders*, 51(8), 745–770. <https://doi.org/10.1002/eat.22867>
- Watson, H. J., Joyce, T., French, E., Willan, V., Kane, R. T., Tanner-Smith, E. E., McCormack, J., Dawkins, H., Hoiles, K. J., & Egan, S. J. (2016). Prevention of eating disorders: A systematic review of randomized, controlled trials. *International Journal of Eating Disorders*, 49(9), 833–862. <https://doi.org/10.1002/eat.22577>
- Weinberger, N.-A., Kersting, A., Riedel-Heller, S. G., & Luck-Sikorski, C. (2016). Body dissatisfaction in individuals with obesity compared to normal-weight individuals: A systematic review and meta-analysis. *Obesity Facts*, 9(6), 424–441. <https://doi.org/10.1159/000454837>
- Yager, Z., Diedrichs, P. C., Ricciardelli, L. A., & Halliwell, E. (2013). What works in secondary schools? A systematic review of classroom-based body image programs. *Body Image*, 10(3), 271–281. <https://doi.org/10.1016/j.bodyim.2013.04.001>