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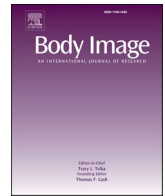
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This is the Published version of the following publication

Mahon, Ciara, Hamburger, Denise, Yager, Zali, Almaraz, Mayra, Mooney, Jan, Tran, Tran, O'Dowd, Orlagh, Bauert, Lia, Smith, KG, Gomez-Trejo, Verenice and Webb, Jennifer B (2023) Pilot feasibility and acceptability trial of BE REAL's BodyKind: A universal school-based body image intervention for adolescents. *Body Image*, 47. ISSN 1740-1445

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Pilot feasibility and acceptability trial of BE REAL's BodyKind: A universal school-based body image intervention for adolescents

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ARTICLE INFO

Keywords:

Body image
Self-compassion
Cognitive dissonance
School-based
Adolescents
Intervention

ABSTRACT

Body dissatisfaction is prevalent among adolescents and a primary risk factor for eating disorders, yet there are few body image interventions for older adolescents that support development of positive body image. Therefore, we assessed the feasibility, acceptability and preliminary effectiveness of BodyKind, a four-lesson, mixed gender, teacher-led, school-based curriculum for older adolescents, that combines principles of self-compassion, compassion for others, cognitive dissonance, and social activism to address contemporary adolescent body image concerns (i.e., appearance bias, comparisons on social media) and strengthen positive body image development. The sample contained 147 adolescents, predominantly racial/ethnic minorities (>95%), 54.8% male, 41.5% female and 4.1% gender-minority students aged 15–18 years ($M=16.24$, $SD=.96$) from a low-income, inner-city high school in the Midwestern US. Two teachers received training and delivered the curriculum to students. This single arm, mixed methods trial assessed student and teacher acceptability, teacher fidelity and student intervention outcomes. Despite reasonable teacher fidelity, recruitment/attendance rates, post-intervention data loss (35% attrition) limited evaluations of program effectiveness and study feasibility. Important learnings regarding study feasibility will inform optimisation for future school-based trials. Findings demonstrate high acceptability of BodyKind among teachers and adolescents in a lower socioeconomic school setting, and further randomized controlled effectiveness trials are required.

1. Introduction

Adolescence is a particularly vulnerable time for body image, given the rapid physical, cognitive and psychosocial changes adolescents undergo during this developmental period (e.g., puberty, establishing peer and romantic relationships, identity formation; Markey, 2010; Voelker et al., 2015). Indeed, the peak onset for eating disorders is during late adolescence and emerging adulthood (16–20 years; Diagnostic Statistical Manual–5 (DSM-5); American Psychiatric Association, 2013)

(DSM-5, 2013). Adolescent body image concerns have been exacerbated by the Covid-19 pandemic (Barrett & Richarson, 2021), with one study reporting almost a doubling of the incidence of eating disorder hospital admissions and eating disorder related care in 2020, compared with previous years, among female young adults and adolescents (Lin et al., 2021; Otto et al., 2021; Taquet et al., 2021), highlighting the pressing need to address this issue.

Traditionally, eating disorder prevention programmes have targeted body dissatisfaction and risk factors for negative body image (Kusina &

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Exline, 2019), however, there is a growing recognition of the need to also build capacities for positive body image to promote healthy body image development (Cook-Cottone, 2015). Positive body image, most commonly operationalised as body appreciation, is a distinct, holistic construct that involves nurturing, respecting, honouring and appreciating the unique characteristics of one's body and its functions and is uniquely associated with greater life satisfaction, adaptive coping, intuitive eating and lower body dissatisfaction (Augustus-Horvath et al., 2011; Cook-Cottone, 2015; Halliwell, 2013; Tylka & Wood-Barcalow, 2015; Webb et al., 2015). Strength-based prevention efforts are required to foster this more functional and adaptive view of the body among adolescents.

Systematic reviews and meta-analyses have found school-based body image interventions that feature cognitive dissonance to be effective in reducing body dissatisfaction (Guest et al., 2019; Kurz et al., 2021; Kusina & Exline, 2019; Yager et al., 2013). Cognitive dissonance involves fostering a critical view of the unrealistic body ideals encountered in society to disrupt risk factors for body dissatisfaction including body ideal internalisation [whereby an individual adopts unrealistic body ideals as a personal body standard] and appearance comparisons [comparing one's own body with the societal 'ideals' or others within their physical environment or represented in various (social) media contexts] which together can result in body dissatisfaction when an individual perceives they have failed to attain this personal ideal (Stice et al., 2000). Current cognitive dissonance approaches are limited because many focus on traditional media and fail to target adolescents' social media-related body image concerns - an important risk factor for body dissatisfaction (see Gordon et al., 2020; McLean et al., 2017 for exceptions). Additionally, while two studies reported improvements in body appreciation following a cognitive dissonance intervention (Amaral & Ferreira, 2017; Halliwell et al., 2015), few schools-based prevention efforts have targeted positive body image specifically (Kusina & Exline, 2019; Torres, 2021). Thus, although cognitive dissonance may impact positive body image endpoints, interventions likely require additional components in order to directly address positive body image.

Self-compassion has been identified as a promising approach for supporting positive body image (Ferreira et al., 2013; Rodgers et al., 2017). Self-compassion incorporates three components: kindness (which involves non-judgement, self-care and empathy towards oneself), mindfulness (the capacity to view situations from a balanced perspective) and common humanity (the ability to recognise that all humans are imperfect and experience similar challenges in life; Neff, 2003). Together, these facets are thought to help individuals reframe self-critical thoughts into more empathetic ones (to reduce body dissatisfaction) and appreciate alternative aspects of themselves rather than overvaluing appearance as an aspect of self-worth (to improve functional and aesthetic body appreciation; Berry et al., 2010). A growing body of research has linked higher levels of self-compassion with improved body image outcomes among adolescents (Rodgers et al., 2017; Seekis et al., 2022). Meta-analyses report that self-compassion interventions which target affective components of body image are effective in reducing eating pathology and body image concerns in adults, with medium effect sizes ($g = 0.58$, $g = 0.39$) (Turk & Waller, 2020). Self-compassion interventions have not been extensively investigated among adolescents; however, preliminary findings indicate the potential of self-compassion interventions to promote positive body image (Mahon & Hevey, 2022; Rodgers et al., 2018; Sundgot-Borgen et al., 2018) and to effectively navigate recollections of weight-stigmatizing experiences in physical activity contexts among adolescents (Bailey et al., 2022). Notably, another recent analysis observed greater acceptability for a self-compassion versus a cognitive dissonance-based micro intervention among their female grades 10 and 11 secondary school participants (Kristoffersen et al., 2022). In the context of school-based prevention, where peers are present, there is also thought to be an additional benefit in building compassion for self

that facilitates compassion for others, thus changing peer norms, and potentially reducing appearance bias, body talk, and body shaming (Bell et al., 2021; Cheang et al., 2019; Gilbert, 2014; Perkins et al., 2022).

Contemporary perspectives in eating disorder prevention have called for the inclusion of social justice approaches and advocacy to address appearance-related biases (i.e., treating people differently based on their appearance; (Zavattaro, 2021; Russell-Mayhew & Grace, 2016). The social justice approach seeks to empower people to challenge the environmental factors and beliefs that have resulted in this social inequality. In shifting the focus of appearance to a social justice issue, it is thought that eating disorder prevention efforts can move beyond the individual to target the gender and power issues inherent in diet culture that create the context for the development of body image concerns in the first place (Russell-Mayhew & Grace, 2016). Some research suggests that engaging in prosocial body image behaviours towards others, such as uploading unedited images to social media, can offer protective benefits for body image (Matheson et al., 2021). However prosocial body image behaviours are largely under-researched in the body image intervention space, but potentially represent an alternative way of fostering more inclusive, positive conceptualizations of body image (Matheson et al., 2021).

Although progress has been made in developing effective body image interventions, current prevention programmes are limited in several ways. Firstly, body image interventions still tend to be primarily focused on female body image concerns, despite recognition of growing levels of body dissatisfaction among adolescent boys and greater awareness of the need to make programmes that are inclusive of those who do not fall within the gender binary (Diedrichs et al., 2021; Sundgot-Borgen et al., 2018; Yager et al., 2023). Additionally, most existing interventions are designed for early adolescents (e.g., Lewis-Smith et al., 2022; Lewis-Smith et al., 2023), with few programmes targeting older adolescents (14 + years) despite this being the peak time for the onset of body image concerns (Stice et al., 2003). Schools are ideal settings to facilitate inclusive, cost-effective and sustained engagement with young people within a learning environment across adolescence (Levine & Smolak, 2006; Yager et al., 2013), but there are gaps in terms of the availability of evidence-based programs for 14 + year olds who are at a time when body image is highly salient and who are simultaneously navigating many developmental changes (Markey, 2010; Voelker et al., 2015). There is also a dearth of research investigating the impact of body image interventions on disadvantaged groups in Western contexts, who may be at greater risk of developing body image concerns and who may benefit most from such school-based interventions (Neumark-Sztainer et al., 1999; Ramos et al., 2019). Finally, many body image interventions are delivered by researchers, but there is a need to shift delivery to teachers to facilitate more cost-effective, scalable and sustainable interventions (Diedrichs et al., 2021).

Be Real's BodyKind curriculum is a four lesson, teacher-led, gender-inclusive, school-based programme designed by an international team of body image researchers and anti-racist curriculum development specialists to improve body image among adolescents aged 14 + years. Recognising the need for a multipronged approach to supporting body image, BodyKind combines, for the first time, complementary approaches of cognitive dissonance, self-compassion, compassion for others and social advocacy to target cognitive, affective, and behavioural aspects of body image respectively, to reduce body dissatisfaction and promote positive body image. This multicomponent intervention specifically targets contemporary body image issues for adolescents, including social media-related concerns and is anticipated to enhance body image outcomes by facilitating various mechanisms of change to occur, as outlined in the Logic Model in Fig. 2.

Guided by the Medical Research Council's Guidelines on the Design and Evaluation of Complex Interventions (See Fig. 1, Skivington et al., 2021), we sought to build a continuum of increasing evidence for the BodyKind program, from the development phase, where relevant literature was explored to guide intervention development and identify intervention components and active mechanisms (i.e., programme

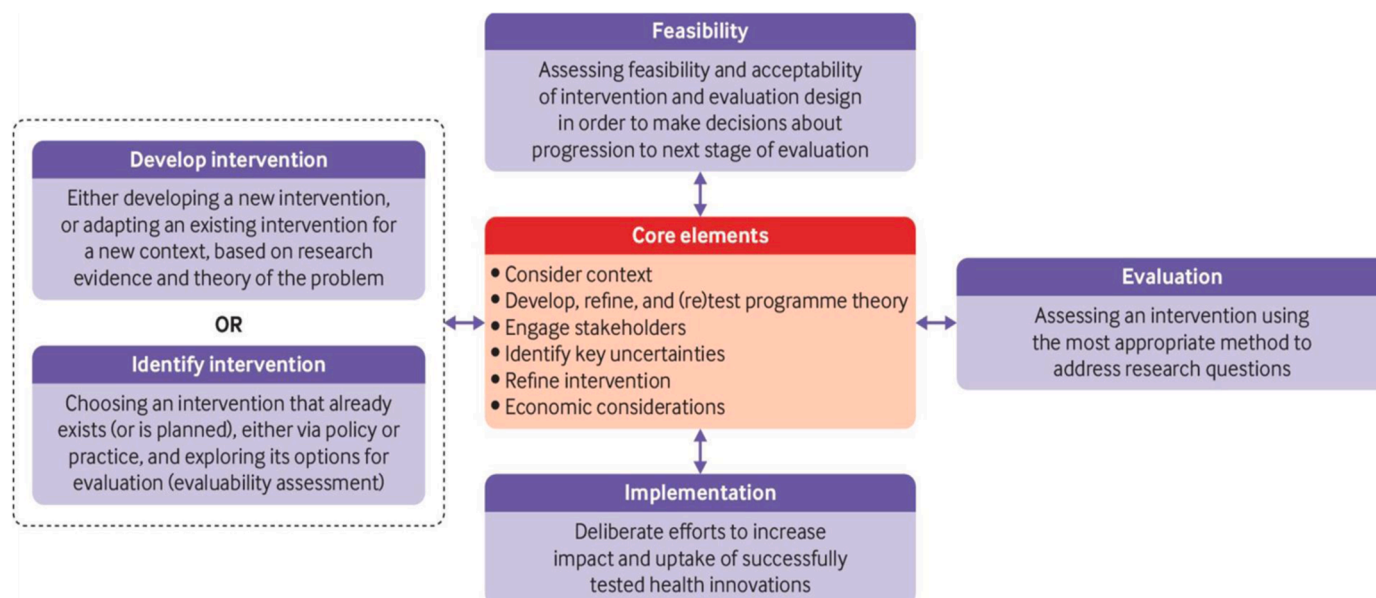


Fig. 1. Medical Research Council's (2021) Guidance on the Development and Evaluation of Complex Interventions.

theory), to the feasibility phase. involving assessment of study design (e. g. recruitment, data collection, retention, analysis) and the intervention (i.e., refining content and delivery, acceptability, fidelity) to the evaluation phase, involving exploratory effectiveness evaluation of the intervention. To this end, the present pilot study aimed to ascertain the feasibility and acceptability of the BodyKind curriculum among high school students in grades 9–12 when delivered by teachers in a diverse, lower socioeconomic, inner city, school setting. As a secondary aim, we also sought to evaluate the preliminary effectiveness of BodyKind in improving primary outcomes of body esteem, positive body image and secondary outcomes of self-compassion, compassion for others, social advocacy and body ideal internalisation among individuals who received the programme. We hypothesised that the programme would be acceptable and feasible and that those who received the programme would experience improvements in primary and secondary outcomes from pre-to-post intervention.

Colour coding indicates linkage between targets, intervention components, mechanisms to be evaluated and outcomes. There is conceptual overlap in concepts coloured in light and dark blue and overlap between concepts coloured in light and dark green. For example, self-compassion and cognitive dissonance may both target body ideal internalisation, through differing activities that activate motivations to relieve suffering experienced by the self. Concepts coloured in purple refer to process outcomes which are described in more detail in the methods section. Arrows also indicate potential relationships between intervention mechanisms. For example, we expect that gaining a sense of compassion for others may motivate a desire to alleviate suffering in others as well as more broadly in society.

2. Method

2.1. Design

A mixed method, single arm, pilot pragmatic trial assessed acceptability, feasibility, and preliminary effectiveness of the BodyKind curriculum. Teachers received training and delivered the programme to students. All participants received the BodyKind curriculum and scores on pre and post intervention surveys were compared. On completion of the curriculum, students answered additional survey questions and teachers participated in one-on-one interviews to assess programme acceptability. Programme feasibility (i.e., recruitment, retention,

attrition, adherence and teacher fidelity rates) was also assessed.

2.2. Intervention

BodyKind is a four-lesson, teacher-led, schools-based curriculum for adolescents aged 14 + years. The Be Real USA, NFP (<https://berealusa.org/>) partnered with experts in anti-racism curriculum development along with a team of experts in body image to design and refine the curriculum via iterative consultations with students, youth interns at Be Real, and high school health teachers. BodyKind incorporates empirically supported principles of cognitive dissonance and self-compassion which seek to foster emotional regulation and critical thinking skills to promote positive body image among adolescents. Program content was informed by existing, effective programs including The Body Project (Becker & Stice, 2017; Stice, Becker, & Yokum, 2013) and Dove Confident Me (Diedrichs et al., 2021), as well as pilot work from the self-compassion intervention Digital SMART (Mahon & Hevey, 2022). As an extension of self-compassion, the curriculum also uniquely encourages developing compassion for others as a mechanism to foster greater collective well-being and combat appearance-related bias among peers (Gilbert, 2014; Perkins et al., 2022). BodyKind also contains a social activism component that aims to further tackle appearance biases, discrimination and racism and promote greater inclusivity beyond the classroom.

During each 50-minute session students are invited to reflect on taught topics and relate them to their own experiences. Inside and outside of class, students are invited to answer short prompts in worksheets (see Table 1, for lesson outline). meditation/critical reasoning) that seek to help them deal with unwanted effects of social media.

As outlined in the Logic Model (see Fig. 2), it is anticipated that programme components may interact in several ways to influence body image outcomes. Cognitive dissonance is thought to be effective in improving body image perceptions by reducing body ideal internalisation (a risk factor for body dissatisfaction) and supporting protective 'cognitive' filtering (a protective factor for positive body image) (Stice et al., 2000; Wood-Barcalow et al., 2010). This programme seeks to foster capacities to publicly critique the pursuit of body ideals, though activities that highlight costs of appearance pressures and show individuals the benefits of valuing body diversity, body functionality, body gratitude, so that they are less likely to internalise and compare to body ideals and can protectively filter body-related messages in their

lives and on social media (i.e., filter in helpful content, and filter out unhelpful content) (Wood-Barcalow et al., 2010).

Self-compassion is hypothesised to target affective components of body image by reframing self-critical thoughts at the root of body dissatisfaction and helping individuals learn to accept themselves despite perceived appearance ‘flaws’ (Berry et al., 2010; Rodgers et al., 2017). BodyKind seeks to activate a self-compassionate motivation to alleviate their own suffering by teaching students how to identify their inner critics and learn how to speak to themselves more compassionately. Developing an awareness of how to respond to unhelpful content on social media using self-compassion, may also help strengthen capacities to engage in protective filtering. In this way cognitive and affective approaches may interact or build on each other to support positive body image development. Additionally, reading other people’s body stories through the Gallery Walk Activity may foster a sense of common humanity (i.e., the understanding that one is not alone in their body image struggles) which is a key component of self-compassion (Neff, 2003). Furthermore, learning ways to boost body confidence (e.g., body functionality, body gratitude) may also help build a sense of self-compassion by providing one with a way to compassionately reframe self-critical thoughts about their bodies (e.g., valuing what your body can do, versus how it looks) (Alleva & Tylka, 2021). It is therefore anticipated that various intervention components/activities, may increase trait self-compassion, which may in turn lead to increased positive body image and esteem.

Several activities, including the Body Story Gallery Walk (where students gain insights into other people’s body image experiences), a Letter to a Friend activity (where students advise a friend on how to build body confidence) and Person Like Me meditations (where students reflect on showing empathy for others) are designed to foster a motivation to alleviate other people’s body-related struggles. This may encourage students to engage in actions to create a kinder environment for body image in the classroom (e.g., reducing body talk, appearance teasing) (Bell et al., 2021; Gilbert, 2014; Perkins et al., 2022) and help individuals to feel a sense of belonging and body acceptance, which are considered important for the development of positive body image (Gattario & Frisé, 2019).

We expect that gaining a sense of compassion for others may motivate a desire to alleviate suffering in others as well as more broadly in

society. For example, students may develop awareness of suffering in others and themselves through learning about the negative effects of diet culture-driven systemic oppression including appearance bias and stigma via activities like the Body Story Gallery Walk. This in turn may lay the foundation for activating compassionate motivation to alleviate this type of suffering in themselves (self-compassion) and others (empathy/compassion for others) including a manner that transcends into broader community and social justice-driven motives to contribute to reducing suffering on a larger scale (social activism project) (Gilbert, 2014; Russell-Mayhew & Grace, 2016). Furthermore, motivations to alleviate distress in others, may lead to motivations to want to alleviate distress in the self and vice versa (Gilbert, 2014). The social activism project may also activate a sense of agency and empowerment, which Gattario & Frisé (2019) identified as a facilitator of positive body image.

Students also need to be able to engage with materials in order for motivations for change to be activated. Therefore, it is important to provide students various opportunities to engage with content (e.g., group and dyad discussion, interactive activities) and apply it to their own lives (e.g., reflective worksheets, thought exercises). It is also necessary to assess the degree to which students engage with the programme (e.g., complete classroom activities), perceive that learning objectives were met (fidelity) and view the programme as acceptable.

2.3. Participants

2.3.1. Teachers

Two female high school teachers self-nominated to participate in the research.

2.3.2. Students

Convenience sampling was used to recruit two schools in Minnesota, USA through existing networks. The health and wellbeing director liaised with teachers and school principals at these schools to facilitate the study. Data were collected between April and May 2022. It is important to note that in addition to navigating the challenges generated by the ongoing COVID-19 pandemic, the local community was coping in the wake of heightened racial trauma due to the recent killing of Daunte Wright at the hands of police at the time of this research project (See this

Table 1
BodyKind lesson content overview.

Lesson	Learning objectives	Learning strategies
1. Challenging appearance bias	<ol style="list-style-type: none"> 1. Define appearance bias, and state the impact of bias and discrimination on the basis of appearance 2. Empathize with a diverse range of people and their experiences of their bodies 3. Explain the costs of appearance pressure to a hypothetical friend 4. Reflect on their own body experience to determine what has influenced their beliefs about what they are “supposed to” look like (i.e., sociocultural pressures). 	<ol style="list-style-type: none"> 1. Body stories gallery walk to learn about other people’s experiences of body image. 2. Compassionate letter to a friend writing activity 3. Written reflection on ways to boost body confidence (homework)
2. Self-compassion and social media	<ol style="list-style-type: none"> 1. Explain the influence of social media and making comparisons to others 2. Articulate the difference between the inner critic and the inner compassionate voice 3. Utilize tools to activate their self-compassion in response to social media comparisons 4. Understand how the breathing exercises can be used as a tool for calming down and feeling less anxious in any situation. 	<ol style="list-style-type: none"> 1. Self-compassion Jigsaw Activity to understand key concepts in self-compassion. 2. Written reflection on self-compassionate social media use 3. Written reflection on ways to use social media in a more positive way (homework)
3. Compassion for others	<ol style="list-style-type: none"> 1. Explain why compassion for others is important 2. Describe tools and strategies to implement kinder thoughts, feelings, and actions in their lives 3. Imagine actions that could create a kinder environment for body image 	<ol style="list-style-type: none"> 1. Mindful thought reflection “A Person Just Like Me” [adapted from Bluth (2021)] to encourage compassion for others 2. Written lesson review to revise key lessons learned in the program. 3. Identifying social issues of concern to me, in preparation of lesson 4 “taking action”. 4. Becoming an expert in the social issue of concern to me (homework).
4. Taking action	<ol style="list-style-type: none"> 1. Determine an appearance-related topic they are interested in taking action on (e.g., challenging appearance bias) 2. Create a plan for positive change 3. Reflect on what they have learned in this process and this program 	<ol style="list-style-type: none"> 1. Students create their own roadmap for taking an idea from issue to action. They learn tested, tangible steps to create an action plan on an appearance-related issue they feel strongly about, empowering them to make positive changes in their communities.

Logic Model for the BodyKind Programme

Target	Intervention Components		Mechanisms to be evaluated	Outcomes	
Risk/protective factors	Psychological and Behaviour Change Processes		Behaviour change	Secondary	Primary
<p>Risk factors</p> <ul style="list-style-type: none"> • Body Ideal internalisation • Appearance comparisons (social media) • Self-critical thoughts <p>Protective factors</p> <ul style="list-style-type: none"> • Belonging & acceptance • Agency & empowerment • Self-protective cognitive strategies (protective filter) 	<p>Approaches</p> <p>Cognitive dissonance: Understanding problems with appearance bias, costs of appearance ideals, ways to boost body confidence (practicing body functionality, gratitude, celebrating diversity)</p> <p>Self-compassion: Quietening self-critic & learning how to talk to oneself more compassionately & help gain a sense of common humanity</p> <p>Compassion for others: Awareness of the impact of body talk & personal actions on other's body image</p> <p>Social Justice: Ability to recognizing the systemic nature of oppressive diet cultural forces/messages that drive appearance bias & tackle appearance-related societal issues of concern</p>	<p>Aligned activities</p> <ul style="list-style-type: none"> • <i>Boosting body confidence & Self-compassionate social media use worksheets</i> to brainstorm body positive actions that may be personally helpful in their own lives • <i>Interactive Self-Compassion Jigsaw</i> to consolidate learning • <i>Body Story Gallery Walk</i> to help students relate more to their own and other's body image experiences • <i>Letter to a friend activity</i> to encourage compassionate action • <i>Person like me' Meditation</i> to foster compassionate attention • <i>Roadmap for action activity</i> to give students tools to take action to tackle a body-related issue of concern to them (e.g., appearance bias) • <i>Reflective worksheets & homework</i> to enable students apply content to their personal lives • <i>Group & dyad discussion</i> (Socratic thinking) to increase engagement 	<p>Motivation to alleviate own suffering: Awareness of social media's impact & ability to use tools (e.g., critical awareness; cognitive reframing) to respond when upset by social media.</p> <p>Use self-compassion to challenge self-critical thoughts about the body</p> <p>Motivation to alleviate other's suffering: Empathize with other people's body image experiences & show compassionate action towards others</p> <p>Motivation to alleviate societal suffering: Identify & challenge appearance bias & feel empowered to tackle societal issues</p> <p>Engagement</p> <ul style="list-style-type: none"> • Completion of course & materials • Relevance/helpfulness • Comprehension • Learning objectives met • Application to personal life 	<p>↓ Body Ideal internalisation</p> <p>↓ Appearance-related social media investment</p> <p>↑ Self compassion</p> <p>↑ Compassion for others</p> <p>↑ Body image-related social advocacy</p>	<p>↑ Body Esteem</p> <p>↑ Positive Body Image</p> <p>Acceptability</p> <p>Fidelity</p>

Fig. 2. Logic Model for the BodyKind Programme.

Note: Column 1: Identifies risk/protective factors for body image as identified in the literature [Body Ideal Internalisation, Appearance Comparisons (Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999), Body-related self-criticism (Goss & Allan, 2014), Belonging/acceptance, agency/empowerment (Gattario & Frisén, 2019), self-protective cognitive strategies (Tylka & Wood-Barcalow, 2015). Column 2: Identifies intervention approaches (e.g., self-compassion) and the aligned activities proposed to facilitate psychological, and behaviour change processes. Column 3: Identifies mechanisms to be evaluated in the trial that are hypothesised to give rise to changes (directionality indicated by arrows) in primary and secondary outcomes in Column 4. In Column 3, black arrows indicate the anticipated bidirectional relationships between mechanisms/motivations e.g., we anticipate that having greater motivation to alleviate other's suffering may lead to a motivation to relieve one's own suffering and vice versa (Gilbert, Catarino, & Duarte, 2017).

news article for further background).

Participation was open to students in grades 9–12 who were taught by teacher participants. An a priori power analysis conducted using the G*Power3 (Faul et al., 2007) was used to test a repeated measures, within factors ANOVA design using a small effect size $f = .10$, alpha of .05, power of .80 and correlation of .60 for repeated measures, which was based on Kurz et al.'s, (2021) meta-analysis of school-based body image interventions, where small effect sizes $g = .16$ were observed for body image outcomes. Results showed that a total sample of 159 participants was required. Allowing for a conservative 30% attrition rate (Gordon et al., 2020; Rahimi-Ardabili et al., 2018), we aimed to recruit approximately 200 students.

2.4. Materials

Students completed online surveys administered on the Qualtrics survey platform prior to engaging in the program, and 1–3 days after competing BodyKind.

2.4.1. Student acceptability

Student acceptability of BodyKind was assessed via 9 items drawn from previous studies (Diedrichs et al., 2021; Garbett et al., 2021; Regehr et al., 2020), that asked about perceptions of programme enjoyment, comprehension, attentiveness, relevance, helpfulness, importance, comfort engaging with activities and teacher delivery competence (see Table 3). Participants also responded to statements that assessed students' perceptions of whether learning objectives for each

lesson (4 items) and the overall curriculum (3 items) were met. Participants responded to statements using 5-point Likert scales that ranged from 1 (Strongly disagree) to 5 (Strongly agree). Participants also indicated three things that they learned from the curriculum and one way they applied something they learned in the curriculum to their own life via open-ended responses.

2.4.2. Teacher acceptability

Teacher acceptability was assessed either through completion of a survey or a one-on-one interview, guided by a semi-structured interview schedule (see Supplementary Materials), according to their preference. Teachers were asked about perceived academic and pedagogical appropriateness of the curriculum, their experience of delivering the curriculum, and perceptions of student engagement with the curriculum. They were also asked about the ease of use of the teacher workbook and to report any perceived challenges in curriculum implementation.

2.4.3. Feasibility

Recruitment, retention, student attendance, and teacher fidelity were assessed to inform study feasibility. Aligning with previous studies (e.g., Bluth et al., 2016), the feasibility criteria applied aimed to achieve 75% attendance, 80% retention, and less than 20% survey attrition.

2.4.3.1. Teacher fidelity.

Following protocols of similar studies (e.g., Dowling & Barry, 2020; Yager et al., 2023) teacher fidelity to program materials was assessed via checklists that teachers completed after each lesson (see Supplementary Materials). Teachers indicated whether or

not they covered key content and activities in a given lesson. Although desirable by researchers, 100% fidelity is not considered feasible within most school contexts due to practical constraints of time, so we assessed whether the majority of lesson content was delivered by teachers.

2.4.4. Demographics, bullying experiences, and outcome measures

Primary outcomes were assessed using standardised measures that have been validated for use with adolescents (see Table 2). Participants also reported demographic characteristics including age, gender, ethnicity, self-evaluations of weight (Inchley et al., 2018), social media platforms used and frequency of engagement with social media (Dooley, O'Connor, Fitzgerald & O'Reilly, 2019) and self-reported experiences of bullying based on sexual orientation, ethnicity and appearance (Vigna et al., 2018). To ensure participant data would be confidential but could be linked from pre- to post-intervention, participants were asked to generate their own unique identification code using the initials of their first and last name, and the last four digits of their mobile/cell phone number.

2.5. Procedure

Ethical approval was received from the principal investigator's (last author) institution. Once school principals consented to host the research study in their school, they nominated two teachers to participate in the research. Teachers met with the research team via a zoom call to discuss the study and what participation involved before consenting to participate. A detailed and thorough informed opt-out consent process was used with parents/caregivers and students. Two weeks prior to study commencement, information sheets were distributed electronically to caregivers and students. Caregivers were given the opportunity to meet with the research team to ask questions about the study via a one hour online drop-in session (Zoom, 2022), that occurred at least one week prior to study commencement, but no caregivers attended these sessions. Caregivers and students could opt themselves or their child out

of participation by clicking on an embedded link to an opt out form that was contained within information sheets. Students could also verbally indicate to their teacher or researcher that they did not wish to participate. Students who opted out of the research completed another supervised activity during survey completion.

Teachers completed a 2.5-hour online training that took place over two sessions and was delivered by the second author (D.H.) who has extensive experience in training teachers to deliver body image-related content. Teachers were introduced to key concepts related to body image and taught how to use the BodyKind teacher workbooks, slides and student worksheets.

On the first day of the study, a member of the research team reminded students about the study and answered any additional questions they had regarding participation. Students then completed the 30-minute online questionnaire (Qualtrics, 2021) on their mobile phones or school laptops/tablets in class, under exam-like conditions to ensure privacy, supervised by a researcher and teacher. Teachers delivered the four 50-minute lessons of the BodyKind programme as part of Health or Science classes typically over a two-week period (2 lessons per week). The second author sat in on several of the lessons, to informally observe teacher delivery. Teachers were asked to complete checklists after each lesson and completed one-on-one interviews to assess programme acceptability. Students and teachers were fully debriefed and thanked for their participation. Teachers received a \$200 gift voucher each to thank them for their time in facilitating the research and programme.

2.6. Data Analysis plan

2.6.1. Acceptability analyses

Separate acceptability analyses were conducted for student and teacher data. Descriptive statistics were used to analyse quantitative responses to student acceptability questionnaires. Following Garbett et al. (2021), participant responses to acceptability statements were collapsed from 5 items to three items (i.e., agree and strongly agree were

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

Outcome	Scale	Pre-intervention α	Post-intervention α
Primary Outcome			
Body esteem	<i>Body Esteem Scale for Adolescents & Adults</i> (BESAA;Mendelson et al., 2001) Weight & appearance subscales combined, 18 items, mean response range 1–5. Higher scores = higher levels of body esteem.	.92	.90
Positive body image	<i>The Positive Body Image Among Adolescents Scale</i> (PBIAS;Maes et al., 2021) Body self-appreciation subscale, 6 items, mean response range 1–7. Higher scores = higher levels of body appreciation.	.88	.89
Secondary Outcomes			
Self-compassion	<i>Self-Compassion Scale Short Form</i> (SCS-SF;Raes et al., 2011) 12 items, mean response range 1–5 Higher scores = higher levels of self-compassion	.76	.81
Compassion for others*	<i>Interpersonal Reactivity Index</i> (IRI;Davis, 1983) Empathetic Concern subscale 3 items, mean response range 0–4 *Items 3, 6, 7 from the 7-item scale were used. In item 6, the word soft-hearted was replaced with 'kind-hearted'. Item 7 reverse coded. Purpose built scale demonstrating poor internal consistency. Higher scores = higher levels of empathy for others.	.31	.33
Body ideal internalisation	<i>Sociocultural Attitudes Towards Appearance Scale-3</i> (SATAQ-3;Thompson et al., 2004) Internalization-general subscale, 5-items, mean response range 1–5. *Replaced the word 'media' with 'social media' Higher scores = higher internalisation of body ideals on social media.	.96	.97
Body Image- related Social Advocacy	Purpose built items asking about 1.) awareness of experiences of people who look different, 2.) knowledge of how to promote fairness/equality for individuals regardless of appearance, 3.) intentions to take action to challenge appearance bias. 3 items, mean response range 0–5. Higher scores = higher engagement in appearance-based social advocacy	.74	.75
Appearance-related social media use	<i>Appearance-Related Social Media Consciousness Scale</i> (ASMC;Choukas-Bradley et al., 2020) 13 items, mean response range 1–5. (*note the original scale uses 1–7 response range, but was amended to 5-point response scale because of a data collection error) Higher scores = higher levels of appearance-related social media investment	.94	.98

collapsed to a single ‘agree’ category; disagree and strongly disagree were also collapsed to a ‘disagree’ category). Content analysis was utilised for open-ended data (White & Marsh, 2006). Each participants’ response was the unit of analysis; duplicate participant responses were not included in the analysis. Two researchers (authors 6 and 8) inductively developed a coding frame in an iterative process based on 20% of the data, and authors 6, 7, and 8 independently coded the remaining 80% set of open-ended responses using this coding frame. Where disagreements arose, authors 6 and 7 reviewed the data to enable a consensus to be reached. Intercoder agreement (i.e., extent of overlap in independent coder ratings across codes in the data set) ranged from ($\kappa=$.60–.95), with an overall Cohen’s Kappa coefficient of .73, indicating substantial levels of intercoder agreement. Teacher interviews were transcribed verbatim and analysed using iterative, inductive thematic analysis by author 1 (Clarke & Braun, 2021), which involves familiarisation with data, division of data into codes, categorisation of data into themes and subthemes and refinement/finalisation of themes. Subthemes and themes were reviewed by authors 8 & 9 and where discrepancies arose, authors engaged in discussion until agreement was reached.

2.6.2. Feasibility analyses

Teacher fidelity was assessed by calculating the percentage of the key lesson content/activities that were covered in each lesson by the teacher – this was self-reported by the teacher via fidelity checklists (see Supplementary Materials). Attendance (i.e., percentage of students attending each lesson) was calculated by teachers from their roll call for each class. Attrition was calculated by the number of participant survey responses collected at time one versus time two. Recruitment was considered successful if target recruitment goals informed by the power analysis were met.

2.6.3. Preliminary intervention effects

Initially, we planned to conduct a one-way repeated measures ANOVA to compare participant total scores on primary and secondary outcomes at pre and post intervention. In an effort to protect participant data yet allow for a link between pre- and post-intervention scores, participants were asked to produce their own unique identification code (as described in the materials section). However, codes were either incorrect or not provided and only 27 of the identification codes created at pre-intervention matched those at post-intervention. Therefore, it was not possible to conduct an adequately powered within-subjects analysis.

3. Results

3.1. Sample characteristics

Although 159 students were recruited, two students (aged 19 and 20) did not fall within the 15–18 age range and were excluded. A further 10 participant responses had >70% item-level missing data at pre-intervention and were excluded. Sample characteristics ($n = 147$) are presented in Table 3 below.

3.2. Student acceptability

3.2.1. Quantitative student acceptability

At post-intervention, analyses were conducted on 84 participants (100 responded, but 16 cases had >70% missing data and were excluded). Quantitative student perceptions of programme acceptability are presented in Table 4. Participants strongly endorsed statements about programme acceptability. Comprehension, satisfaction with teacher quality, attention during lessons, perceived importance and relevance were the most strongly endorsed statements. While statements around feeling comfortable discussing these issues with classmates and feeling that the programme helped them feel better about their bodies were less strongly endorsed, over half of students endorsed these

Table 3
Sample characteristics (n = 147).

Gender	N (%)	Age	N (%)
Male	80 (54.8)	15	33 (23.7)
Female	61 (41.5)	16	56 (40.3)
Not listed (e.g., non-binary)	3 (1.4)	17	32 (23.0)
Transgender	4 (2.7)	18	18 (12.9)
Race/Ethnicity		M Age (SD)	16.25 (.96)
White/Caucasian	6 (4.1)	Weight perceptions	
Latino	39 (26.5)	Much too thin	3 (2.1)
Black	53 (36.1)	A bit too thin	20 (13.8)
Native American	2 (1.4)	About the right size	61 (42.1)
Asian	36 (24.5)	A bit too fat	51 (35.2)
Mixed	11 (7.5)	Much too fat	10 (6.9)
Social media use		Bullied (because of sexual orientation)	
Social media profile		Never	117 (80.1)
Yes	133 (91.7)	Rarely	16 (11.0)
No	12 (8.3)	Sometimes	7 (4.8)
Social media platform		Often	5 (3.4)
TikTok	76 (51.7)	Very often	2 (.7)
Snapchat	85 (57.8)	Bullied (because of ethnicity)	
Instagram	87 (59.0)	Never	94 (64.8)
Facebook	60 (40.8)	Rarely	22 (15.2)
Other	42 (28.6)	Sometimes	24 (16.6)
Time spent on social media per day		Often	4 (2.8)
None	6 (4.1)	Very often	1 (.7)
Less than 1 h	12 (8.2)	Bullied (because of appearance)	
1–2 h	30 (20.5)	Never	77 (53.8)
2–3 h	31 (21.1)	Rarely	39 (27.3)
3 + hours	67 (45.9)	Sometimes	22 (15.4)
		Often	5 (3.5)

Note: some categories don’t add to 100% because of missing data or because categories are not mutually exclusive (e.g., social media).

Table 4
Quantitative data related to student perceptions of curriculum acceptability.

	Disagree	Neutral	Agree	
<i>Learning Objectives</i>	N	%	%	
Lesson 1: The curriculum helped me to identify and challenge the appearance biases that I encounter.	84	11.9	28.6	59.5
Lesson 2: The curriculum helped me to use self-compassion to challenge the self-critical thoughts I feel.	84	7.1	39.3	46.4
Lesson 3: The curriculum helped me to realise that being compassionate to others can help reduce appearance pressures that we all feel.	84	7.1	25.0	67.5
Lesson 4: I felt that the curriculum empowered me to tackle societal issues of concern to me.	83	10.8	45.8	43.4
This curriculum has helped me understand more about my own body image.	83	10.8	24.1	65.1
This curriculum has helped me understand more about how other people might experience their bodies.	83	4.8	24.1	71.1
This curriculum has given me tools that I can use to respond if/when I am upset by something on social media in the future.	83	13.3	34.9	51.8
<i>Student acceptability</i>				
I enjoyed the lessons.	77	6.5	28.6	64.9
I felt comfortable discussing the issues in a group with my classmates.	77	14.3	29.9	55.8
The lessons were taught well by the teacher.	77	1.3	16.9	81.8
It is important for young people to take part in lessons like these.	77	7.8	20.8	71.4
I paid attention during lessons.	77	7.8	16.9	75.3
I would recommend these lessons to a friend.	77	6.5	32.5	61
I understood what was being taught in the lessons.	76	1.3	17.1	81.6
The lessons helped me feel better about myself.	76	11.8	35.5	52.6
The lessons addressed issues that were relevant to adolescents.	76	7.9	18.4	73.7

statements. Most participants agreed that the learning objectives for each lesson had been achieved, except for lesson 4, where students were mostly neutral about the statement. There was strong agreement that broader curriculum goals were met, with students reporting that their understanding of their own and other people's body image had improved, while over half felt that the curriculum gave them tools to manage difficult feelings experienced on social media. There were high response rates to open-ended questions that asked participants to list things that they learned from the curriculum ($n = 83$), ways that they had applied lessons learned from the curriculum to their own life ($n = 78$) and to share any other comments they had about the curriculum ($n = 35$). Qualitative responses are described below.

3.2.2. Qualitative student acceptability

Content analysis identified three themes and several subthemes (See [Supplemental Materials](#) for Coding Frame), including: a.) Perceptions of the curriculum, b.) Impact/benefit of the curriculum, and c.) Application of lessons to personal life.

3.3. Theme 1. Perceptions of the curriculum

Some students who shared additional comments ($n = 34$), held positive views of the curriculum (14/34 responses, 41%), describing it as helpful, enjoyable and something "every teenager needs to hear". The content strongly resonated with students because they felt that "Body appearance is commonly the thing we most dislike about ourselves. This topic is very important to address that it's okay to look the way we look.". Students felt that the lessons addressed key issues of concern for them that were not typically covered in class, as noted by one student, "These topics are not often discussed in school, and it was great to have a chance to learn more about myself and body".

Participants praised the diversity of content and felt that there were "really good activities" in the programme. The body story activity, where students have the opportunity to read about "real experiences from people" was particularly popular with students ($n = 7$ students identified it as a highlight of the curriculum). Participants also reported liking compassionate letter writing activities and mindfulness exercises.

However, some participants ($n = 2$), found it difficult to engage with such topics in the school environment or when they felt their classmates failed to take the topics as seriously as themselves "I couldn't connect to the subject on a higher level other than 'It's School work' but if taught to the right person, they could connect to the problems and take action". One felt "more confused" following the curriculum and another felt that "more examples of how to be compassionate towards [them]selves" would be helpful. One participant reported they didn't like the social justice activity lesson, while another felt that aspects of the curriculum "were a little cheesy... but I understood why they were doing it".

However, for the most part, the curriculum was held in high esteem by participants, many of whom recommended that it "should be done in other places to spread the love of it!" and felt that there "should be more programs that help people feel more confident and overcome their challenges".

3.4. Theme 2. Impact/Benefit of the curriculum

When asked to list things they had learnt or what stood out to them, 83 participants provided at least one response (75 of which provided three or more responses), totalling 240 responses. Although some reported no learnings from the program (9/240 responses, 3.8%), many participants reported that the curriculum had a positive impact on them and that it facilitated personal growth in many ways, as demonstrated by this quote from a student, "Thank you for this curriculum...I hope you guys know that what you are doing is changing people's life".

3.4.1. Subtheme 1: Awareness of social media comparisons

Some participants reported that the programme enabled them to

develop greater awareness of the impact of appearance comparisons and how "social media can change someone's mindset very quickly" (28/240 responses, 11.7%). Participants recognised "that most of the people are insecure about their [their] body and all because they see those photos or videos in social media..." which is linked with "that [inner critical] voice that is saying like 'don't eat that cuz you will get more fat etc.". Although some students were aware of this influence, many reported this curriculum gave them the opportunity to talk about body image insecurities experienced on social media with peers which made them feel less alone with their struggles, as noted by one student "I already knew this stuff, but it helps to put it into words".

3.4.2. Subtheme 2: Awareness of inner critic and compassionate voice

Participants also reported that "This curriculum gave [them] insight[s] to how we view ourselves or others, and how we can change our thinking and mindset" (13/240 responses, 13%). In particular, participants reported developing an awareness of their self-critical thoughts (16/240 responses, 6.7%) and learning how to reframe into more compassionate thoughts (19/240 responses, 7.9%). Participants recognised that "[they] don't usually treat [them]self with compassion" and that "If [they're] going to treat others with compassion [they] should treat [them]self the same". As noted by one participant:

"Something that stood out to me was the lesson to challenge critical thought. I think it really helped me realize how negatively people thought about themselves and how to "challenge" those thoughts"

3.4.3. Subtheme 3. Body compassion and body appreciation

Participants also appeared able to apply this self-compassion to their bodies and reported that they "learned about how being kinder to yourself and loving your body is a huge benefit to your everyday life". Greater appreciation and self-care for one's body was a common theme from the curriculum that appeared to resonate with participants (23/240 responses, 9.2%). Many facets of positive body image, such as prioritising self-care (i.e., "putting yourself first when it comes to your body"), not overvaluing appearance as an aspect of self-worth (i.e., "body or face doesn't define you") and valuing body functionality (i.e., "focusing on what your body can do") were reported as key learnings from the curriculum by participants. Body appreciation also appeared to be facilitated by the recognition that body image struggles are commonly experienced by others, as illustrated by one student quote, "Self-acceptance and accepting others as they are important because we all go through things". This sense of common humanity also appeared to help some students feel less alone with their body image struggles, which may have facilitated greater body compassion, as noted by one participant, "Reading the stories, helped me know that there are a lot of people who struggle with some of the same issues as me".

3.4.4. Subtheme 4: Compassion for others' bodies

The curriculum appeared to enhance students' social consciousness of the body image concerns experienced by others (59/250 mentions, 23.6%). In particular, students reported that they were more aware of how "many people are judged for their bodies" and how "people get hurt because of how they look" through experiences of "body shaming" and "appearance discrimination" based on body size/type, skin colour, and/or disability. Participants recognised that appearance beliefs can be deeply entrenched and that it "takes effort to consider others' perspectives", particularly as it can be "an unconscious thing to judge others... everyone is judging each other or being a Critic". However, participants reported that this curriculum helped them "not to assume someone is bad or good by how they look" and taught them "how to be more mindful of others" and learn "different ways to show compassion for others" (28 mentions, 11.2%).

3.5. Theme 3. Application to personal lives

When asked to how they have applied the programme to their daily

life, 77 participants provided at least 1 response, with four providing 2 responses giving a total of 81 responses. Participants reported several ways in which they have applied or intended to apply lessons learned from the curriculum (63/81 responses, 77%).

3.5.1. Subtheme 1: No personal application

However, some reported that “*nothing has been applied in my life from this program*” or were ambivalent towards the curriculum “*Idk. I just finished. I don't really care too much about what others think in the first place*” (14/81 responses, 17%).

3.5.2. Subtheme 2: Reconsider social media behaviours

For some (8/81 responses, 10%), the curriculum served as a reminder about the influence of appearance comparisons online and encouraged participants to rethink or evaluate their social media use. One participant reported that “*[they] learned (but kind of knew) to stay off of social media and to stop comparing [them]self to others*”, while for another participant, they felt that they “*look at Instagram differently since learning about the body preferences*”.

3.5.3. Subtheme 3: Self-compassion

Developing greater self-compassion was a key learning from the curriculum that many participants sought to apply to their own lives (8/81 responses, 10%). Many participants reported efforts to be “*less harsh on [them]self and just love [them]self as [they are]*” and felt that the curriculum helped them to realise that nobody is perfect and “*not everything goes as planned, and that is ok*”. Participants reported that they were “*Learning to control my little voice in my head, or the thoughts that bring me down...*” and now felt that they could “*... just readjust my thoughts and try to make them positive!*”. Participants reported consciously reframing negative thoughts to more compassionate ones to help them foster a sense of love and appreciation for themselves.

“There are somedays [sic] when I wake and criticize myself and feel ashamed. However, I have been applying what I learned in this program and tell myself to stop. Stop and appreciate who I am. No one in this world is perfect. I should be happy for who I am and love myself.”

3.5.4. Subtheme 4: Body Kindness

Some participants reported that they sought to be more compassionate and to develop a greater kindness and appreciation towards themselves (7/81 responses, 8.6%) their bodies (11/81 responses, 14%). One participant reported efforts to foster aspects of positive body image by reminding themselves that their self-worth is more than just their appearance and by practicing gratitude and protectively filtering out perceived negative statements made about their body.

“Sometimes I have issues loving myself, but this helped remind me that my body and personality offers so much more than what I'm just thinking. Self-compassion for myself was something I took and reflected a lot on. I tried to challenge my mindset into counting things I should be grateful for about myself. I tried to erase the false statements about myself that I or others may think of me. Overall, it's been a helpful reminder.”

Some participants reported that the programme encouraged them to engage in acts of self-care towards their body, for example on participant reported that “*[They] learned to love my body more, [they] started eating breakfast*”, while another reported that since doing the programme they sought to minimise distressing behaviours and no longer “*instantly stare at themselves in the mirror*” and “*now try limit the mirror view*”. This indicates that the programme may have had the capacity to address, not only body related thoughts and feelings but also body-related behaviours.

3.5.5. Subtheme 5: Prosocial behaviour

The curriculum appeared to make some participants more aware of how their actions impact others, and some reported that they now are

more conscientious of “*how others might interpret [their] words*” because “*[they] never want someone to be inadvertently hurt by what [they] say*”. Some reported efforts to build a kinder body image environment and engaged in prosocial behaviours towards their friends to counteract negative impacts on body image (19/81 responses, 23%). One participant reported how they now reminded their friends how much they valued them and their unique beauty in an attempt counterbalance negative influences of social media “*Social media can impact a young kids life very strongly and change their complete personality, I applied a change but letting my friends know repeatedly that they are beautiful and one of a kind*”. For a few participants (n = 2, 2.5%), the programme encouraged them to engage in prosocial behaviour at a broader level and sparked a “*want to get more involved with activism and important things in the world*”.

3.6. Teacher acceptability

3.6.1. Quantitative teacher acceptability

The post-intervention survey was completed by one teacher, who agreed that the curriculum was academically and pedagogically appropriate for students, that learning objectives were met and that students understood and enjoyed and engaged well with lessons (Likert rating=4, *agree*). They also enjoyed and felt confident delivering the programme (Likert rating=5, *strongly agree*) and would recommend the curriculum to other teachers. Responses to open ended questions were not provided.

3.6.2. Qualitative teacher acceptability

The other teacher completed a 50-minute post-intervention one-to-one interview via zoom with D.H.

The teacher was satisfied with quality of training and information in the resources provided but recommended that resources should be made google compatible (i.e., google doc version) and include further reading for teachers around challenging appearance biases and an option for teachers to ‘check in’ with or ask questions of curriculum writers.

According to the teacher, the curriculum “*definitely had positive ripple effects*” for students”. Talking about appearance discrimination and bias was deemed particularly helpful, as biases related to colour/race/sexual orientation were issues that many of her students struggled with and this curriculum provided a platform to talk about these issues, an opportunity to “*put these issues on people's radars*”, and challenge unhelpful, discriminatory beliefs/comments in the classroom. The content was also perceived as accessible for students and the “*well-rounded*”, inclusive “*approach*” enabled students to relate topics to their own lived experience, including experiences outside of appearance. The programme was thought to be particularly well suited to older students (Grade 11/12) who “*really opened up*” and “*resonated with the self-compassion and compassion for others*”. The messages around liking yourself and engaging with self-care and challenging unhelpful body talk were considered “*really important*” and “*topics that some people don't even reach in their entire lifetime*”. The teacher felt “*it was nice*” to “*be able to talk about*” difficult topics, like mental health, discrimination and body image in the classroom, and from these discussions the teacher was able to refer students to healthcare professionals and school counsellors for further help when it was required.

The teacher felt that students really “*connected with*” the Body Stories, which prompted discussion around topics like ableism and fostered greater awareness of other people's body-related struggles. The creation of a campaign around a social justice issue of interest in lesson four, was also popular among older students (Grade 11/12), many of whom refined their topic and worked on it independently. Mindfulness reflections were popular among more students in Grade 9/10. In terms of suggested improvements, the teacher recommended restructuring some of the lessons, including more interactive activities (e.g., graffiti boards) and including a restorative practice approach (a technique for building community and responding to challenging behaviour through empathetic discussion).

Developing a strong relationship/connection with students and “creating a safe space with expectations around how people will treat and talk to each other” were key conditions that were required to deliver this programme effectively, because “it can be really unsettling to have your view challenged and have yourself reflect like that”. It was deemed important to be conscious of how students responded to the content and for teachers to follow up where necessary to direct a student to further supports and/or challenge and address unhelpful/harmful comments to ensure a safe space was maintained. Also ensuring students wishes for responses to worksheets to be kept private (i.e., not read by the teacher), was emphasised as key to maintaining a safe space in the classroom.

3.7. Feasibility

3.7.1. Recruitment/Retention

Recruitment success (Total surveyed/available students) was high, with only one caregiver opting their child out of participation. While 156 were recruited, 142 student responses were included in the analyses which fell short of our aim to recruit 200 students and the minimum power requirement of 157 students for a repeated measures design. Retention was high, no student explicitly withdrew their participation in the program. Although the voluntary nature of participation was emphasised to students, it can be inherently difficult to assess retention in classroom contexts where students can find it challenging to discreetly disengage from such programs.

3.7.2. Attrition

The total number of valid survey responses was 147 at pre-intervention and 84 at post-intervention, indicating a considerable loss of data pre-to-post. This high level of attrition was likely due to student absences due to illness and systemic issues with absenteeism at the school. Also, pre-intervention data collection was observed in-person by the research team, while post-intervention data collection was observed remotely (via zoom), because of limitations imposed by outbreaks of Covid-19.

3.7.3. Attendance

Student attendance ranged from 74% to 86% across the four lessons, with an average of 80% attendance for the whole curriculum, exceeding the 75% feasibility threshold.

3.7.4. Teacher fidelity

Fidelity checklists were returned by one teacher who reported covering all aspects of the curriculum. The second teacher reported in the interview that they felt they covered all of the key points highlighted in the teacher manual, which was corroborated by researcher D.H. who informally observed both teachers delivering the curriculum in class. Completing fidelity checklists when teaching the curriculum to many classes was considered burdensome.

3.8. Intervention effects on outcome measures

Data were not missing completely at random and level of missingness per item ranged from 0% to 7.5% at pre-intervention and 0–9.5% at post-intervention. However, no differences in gender $F(3, 152)= 1.5, p = .21$, age $F(5, 142)= .71, p = .61$ and ethnic identity $F(5, 150)= 1.97, p = .09$ were observed among participants with > 70% missing data and those with < 70% missing data at pre-intervention, therefore, listwise deletion was used to deal with missing data.

Although this was a within-subjects design, 78 students in pre-intervention did not have an identification (ID) code to link pre-post, and of those who created an ID code, only 25 participants could be accurately linked from pre-to-post. Therefore, it was not possible to conduct a sufficiently powered within-subjects ANOVA design and the aim of statistically assessing preliminary effectiveness could not be met.

4. Discussion

This pilot trial sought to test the acceptability and feasibility of the BodyKind curriculum. Findings demonstrate high levels of acceptability of BodyKind. Most students and teachers enjoyed the lessons, felt that the content was relevant and important for adolescents and would recommend this curriculum to a friend/teacher. Specifically, students and teachers felt that this curriculum gave them a platform to discuss body image concerns and appearance biases, which were considered key issues for adolescents that were not typically addressed in the school curriculum. A majority of students reported that they were attentive during lessons, felt the content was easy to understand and that the lessons were taught well, indicating that the content was pitched at the right level and was able to be delivered by non-expert teachers. Teachers also reported that students understood and were engaged with the content and that materials were pedagogically and academically appropriate for this age group.

Most participants agreed that key learning objectives were met, although “feeling empowered to make societal change” was less strongly endorsed by students. Gaining a greater understanding about how other people experience body image concerns and realising that being compassionate to others can help reduce shared body image pressures were two learning objectives that were most strongly endorsed by students. Notably, the body story activity, where students read about other people’s varied lived experiences of body image was highly rated by students and teachers, as it enabled students to connect with the experiences of others and feel that they were not alone in their body image struggles. The creation of a campaign around a social justice issue of interest in lesson four, was also reported by the teacher to be popular with students. Given that most existing body image interventions have primarily focused on challenging the individual’s beliefs about their own body, it is interesting that the alternative focus of this curriculum in understanding appearance bias and other people’s body image experiences was what most strongly resonated with students. This further indicates the potential benefits of encouraging prosocial behaviour to promote positive body image perceptions and warrants further research (Matheson et al., 2021).

Qualitative data from open ended responses from students also suggests that the curriculum was successful in changing how some participants related to themselves and their bodies. Aligning with the goals of self-compassion, many participants reported a heightened awareness of their inner critical dialogues and endeavoured to relate to themselves in more self-compassionate ways (Neff, 2003). As supported by a growing body of literature, self-compassion appeared to foster positive body image among participants, with some citing efforts to be more compassionate, appreciative and loving towards their bodies, including valuing body functionality, and the unique aspects of their appearance (Berry et al., 2010; Rodgers et al., 2017; Turk & Waller, 2020). Supporting cognitive dissonance aims, some participants reported greater awareness of the unrealistic appearance comparisons on social media and felt encouraged to rethink their social media use (McLean et al., 2017; Stice, Becker, & Yokum, 2013). Some participants reported that the programme increased their awareness of appearance bias and encouraged them to be more conscientious and compassionate towards the body image struggles that other people experience, thereby indicating benefits of social justice approaches and compassion for others (Gilbert, 2014; Perkins et al., 2022; Russell-Mayhew and Grace, 2016; Zavattaro, 2021). Participants also reported several ways that they had applied various lessons learned from the curriculum to their daily lives, including, actively challenging self-critical thoughts, writing supportive messages to friends, and engaging in acts of self-care towards their bodies including eating breakfast or avoiding mirror checking behaviours. The capacity for students to apply lessons learned from the programme to their thought and emotional processes, in addition to behaviour change, highlights the potential utility of BodyKind as an eating disorder prevention programme for high school students.

Teachers delivering BodyKind reported that the curriculum facilitated important conversations around difficult topics like mental health and discrimination, which enabled teachers to address/challenge unhelpful/harmful beliefs (e.g., racist beliefs) in the safe space of the classroom. She also felt that opening up dialogue about these topics provided students with the opportunity to raise personal concerns with the teacher who could refer students to further supports (e.g., school counsellor) where necessary, demonstrating the potential benefit of this programme for early identification and encouraging help seeking behavior. Qualitative data from the teacher interview indicated that the training and teacher workbook were acceptable and some recommendations for improving accessibility of training materials, managing teacher expectations and resources for the programme (e.g., including restorative circle practices), were suggested, which have now been incorporated into the curriculum materials.

In terms of feasibility, while recruitment and attendance rates were reasonable and student retention was high, there was a high level of study attrition at post intervention. Although not formally investigated, data loss to follow up may be attributed to student absenteeism and the fact that post-intervention data collection was supervised remotely by researchers because of restraints on in person data collection imposed by Covid-19 pandemic. Although the researcher team 'zoomed' into classes while data collection was taking place and answered student questions, this may have been a less than optimal method of collecting data and highlights some of the challenges in conducting school-based research throughout the Covid – 19 pandemic. Although 'in person' supervision of data collection at both time points would be advisable, future studies should consider ways to incentivise participants and optimise remote data collection in a classroom setting. Attrition may also be linked with more systemic issues related to school attendance and classroom engagement within this lower income, inner city school community that was coping not only with the pandemic but also heightened racial trauma. This highlights the complexity of intervention delivery and evaluation within varied school contexts (Jaycox et al., 2006; Mishna et al., 2017) and indicates the potential utility of incorporating process evaluations to capture contextual factors that may impact program implementation.

In line with Jaycox and colleagues' (2006) we adopted a flexible approach to data collection that was responsive to the schools' needs; this meant offering teachers options to complete post-intervention surveys or interviews based on their preference and time availability. While teacher acceptability findings may be biased by teacher's self-selection to complete an interview versus the survey, we sought to facilitate and incorporate both teachers' feedback on the programme. Fidelity checklists were returned by only one teacher (who indicated that all key aspects of the curriculum were covered), but interview discussions and informal observations of the second teacher's delivery indicate good fidelity to the programme.

A secondary aim of this pilot was to test the preliminary effectiveness of BodyKind in improving primary outcomes of body esteem, positive body image, and secondary outcomes of self-compassion, compassion for others, body ideal internalisation, appearance-focused social media and social justice motivation. However, we were unable to conduct the within-subjects analysis to compare participant scores between pre and post due to the inability to link participant identification codes from pre-post intervention. In line with protocols used by other researchers (e.g., Matos et al., 2022), to protect participants' identity we asked students to generate their own identification code using their initials and last four numbers of their cell phone/mobile number. However, only 27 participants provided ID codes that could be matched from pre-post intervention, indicating that this method of having participants devise their own ID codes may be too complicated for adolescents. Therefore, future school-based studies with adolescents should use alternative methods of collecting confidential linked data, for example, directly sending a survey to each participant with a pre-generated ID code or replacing participant names with pseudonyms when inputting data into

datasets for analysis. Future studies should also using consider working with young people to codesign/coproduct study materials to tease out potential issues, such as difficulties creating identification code, and to ensure that study methods/processes are accessible and user-friendly for young people (Bearman et al., 2020).

Although disappointing, evaluating the effectiveness was a secondary aim of this pilot trial, and did provide valuable insights into potential pitfalls to avoid in terms of data collection in school-based trials and the opportunity to test the performance of measures included in the study which can inform future trials.

The ongoing impacts of the COVID-19 pandemic on adolescents' embodiment and well-being, highlights the critical importance of addressing this growing public health need. This study provides the groundwork for future larger-scale intervention investigations grounded in the current approach.

4.1. Strengths, limitations, and future directions

One of the major strengths of the current analysis involved targeted recruitment of a relatively large sample of racially and ethnically diverse high schoolers from a lower socioeconomic community in the Mid-western US. Indeed, the experiences of students representing these diverse, intersectional backgrounds have not typically been represented in body image research generally, and in particular, in research evaluating school-based body image curricula. Additionally, rich acceptability and feasibility data were gathered reflecting the contributions of a mixed method study design.

Nevertheless, findings are limited by the absence of a control group, inability to link pre-post intervention scores, post-intervention attrition and poor reliability for one purpose-built survey to measure compassion for others. Additionally, participant quotes post-intervention were anonymous and could not be linked to demographic characteristics, limiting our ability to comment on assessments of acceptability across differing student profiles. This curriculum was piloted in two affiliated schools in the same school district, and it is unclear whether findings will generalise to other student contexts. Furthermore, data collected from both students and teachers were self-reported which may introduce bias. In the present study, teacher training occurring prior to programme delivery was facilitated live by the lead curriculum developer. However, in order to continue to advance the scalability, cost-effectiveness, and accessibility of this curriculum, future efforts will also test the feasibility, acceptability, and effectiveness of implementing asynchronous, online teacher training modules. Further, larger-scale controlled trials across different schools using active control groups and follow up periods are required to provide a more rigorous test of the effectiveness of this curriculum. Consideration regarding procedures for tracking participant data from pre to post assessment, incentives to encourage post-intervention survey completion, more sensitive measures to capture compassion for others (e.g., Compassionate Engagement and Action Scale for Adolescents; Henje et al., 2020), shortening of teacher fidelity checklists and inclusion of questions about student attendance in post-intervention questionnaires to reduce administrative burden on schools, are recommended for future studies. Finally, the potential moderating role of gender and experiences of appearance-based bullying on intervention effects, and appropriate dosage, require further investigation.

5. Conclusions

This teacher-led, mixed gender, inclusive body image intervention for older adolescents was one of the first to blend complementary intervention approaches of self-compassion, compassion for others, cognitive dissonance, and social activism in the one curriculum, thereby representing a novel and important contribution to the field of body image interventions. Qualitative findings indicate that the curriculum operated through mechanisms outlined in the logic model as

participants reported heightened awareness of unrealistic appearance comparisons on social media (cognitive dissonance), greater awareness of and compassion for their own and other people's body image concerns (self-compassion) and desires to be kinder to their own bodies and less judgemental of others (compassion for others and social justice); however, robust quantitative data are required to further substantiate this qualitative evidence and to investigate how intervention components interact with each other to influence outcomes. This curriculum was piloted among a diverse group of urban adolescents from a lower-socioeconomic schools district aged 15–18 years, which further extends the literature as this is a demographic that is not typically represented in body image intervention research. Findings demonstrate high acceptability and reasonable fidelity of BodyKind among adolescent students in a lower socioeconomic school setting but further trials evaluating programme effectiveness in diverse settings are required.

CRedit authorship contribution statement

Ciara Mahon: Conceptualization, Methodology, Data curation, Project administration, Formal data analysis, Writing – original draft, Writing – review & editing. **Denise Hamburger:** Conceptualization, Methodology, Investigation, Funding acquisition, Project administration. **Zali Yager:** Conceptualization, Methodology, Supervision, Writing – review & editing. **Mayra Almaraz:** Conceptualization. **Jan Mooney:** Methodology, Investigation, Writing – review & editing. **Tran Tran:** qualitative analysis validation. **Orlagh O'Dowd:** qualitative analysis validation. **Lia Bauert:** qualitative analysis validation. **KG Smith:** investigation. **Verenice Gomez-Trejo:** Investigation. **Jennifer B. Webb:** Conceptualization, Methodology, Project administration, Writing – review & editing, Supervision.

Declaration of Competing Interest

The second author D.H. is the executive director and founder of the Be Real Foundation, and although she assisted with training teachers and overseeing data collection, she was not involved in the data analysis of the project. Compensation for teachers' time and contributions to the project was financially supported by the Be Real Foundation, USA <http://berealusa.org/>.

Data Availability

The authors do not have permission to share data.

Acknowledgements

We would like to acknowledge staff at participating schools, our contacts at the district level and the students and parents who provided valuable contributions to this research.

Appendix A. Supporting information

Supplementary data associated with this article can be found in the online version at [doi:10.1016/j.bodyim.2023.101636](https://doi.org/10.1016/j.bodyim.2023.101636).

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