

A systematic review exploring body image programmes and interventions in physical education

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Abstract

Body image has implications for child and adolescent well-being. Schools have been positioned as a suitable site to provide body image education and support the development of body image; however, little is known about the role of physical education in body image education. The aim of this study was to systematically review the evidence on the content and effectiveness of physical education-based body image or body-focused programmes published between 2000 and 2021. Using seven databases (Web of Science, SCOPUS, EBSCO, PsycINFO, MEDLINE, Science Direct, and SportDiscus), a total of 1185 non-duplicated articles were retrieved. The articles were selected using the following inclusion criteria: (a) intervention, programme or curriculum based in physical education that explores body image or related phenomena, (b) focused on children or young people, aged 18 years or younger, (c) conducted between 2000 and 2021, (d) quantitative and/or qualitative methods: and (e) published in English. Following the screening process, a total of 19 articles were included in this review. Results showed that most programmes reported successful outcomes, yet there was no consistent approach to the programme design and delivery. Physical activity and fitness-based programmes were the most frequently used intervention type, followed by critical sociocultural perspectives and programmes focused on movement experiences and body functionality. Whilst fitness-based programmes were generally effective in improving body image and related phenomena, future research should explore the mechanisms associated

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with these changes and further consider how sociocultural perspectives can be used to support body image programmes.

Keywords

Body image, body-focused, physical education, intervention, programme, schools

Introduction

In policy and practice, there is increased recognition of the role that schools, and specifically physical education programmes, can play in supporting the development of body image in the United Kingdom (Women and Equalities Committee Report, 2021; Youth Select Committee, 2017). It is generally accepted that body image is a multi-dimensional construct and consists of four main domains: perceptual (how we perceive our body), affective (how we feel about our body), cognitive (the thoughts and beliefs we have about our body) and behavioural (the behaviours we engage in when we are happy/unhappy with our bodies) (Ricciardelli and Yager, 2015). However, it is important to acknowledge that body image means different things to different researchers and can include concepts such as body anxiety, body esteem, body shame, appearance satisfaction, body concern, etc. (Grogan, 2016). There is also a growing emphasis on positive body image, which stems from positive psychology and explores the links between body image and well-being (Halliwel, 2015). In order to capture the diversity of definitions and conceptualisations of body image in the literature, the current review will define body image as an umbrella term that relates to the thoughts, feelings, emotions or perceptions of an individual, in relation to their physical appearance (Cash, 2004; Grogan, 2016; Yager et al., 2013).

Among children and young people, body image concerns have been described as a 'normative discontent' (Cash and Henry, 1995), with 66% of young people under 18 reporting negative or very negative feelings about their body image most of the time (Women and Equalities Committee, 2021). Whilst some research reports that body image concerns are more prevalent in female adolescents, compared to males (Bucchianeri et al., 2013), others argue that it is the manifestation of body image concerns that differ between boys and girls (Kerner et al., 2018). For example, in a physical education-based study, levels of body dissatisfaction were found to be comparable, with approximately 80% of boys and girls experiencing body image concerns (Kerner et al., 2018). The negative consequences associated with body image concerns are evident across a range of health and well-being outcomes in both boys and girls. For example, body dissatisfaction is positively associated with quality of life impairment in adolescents (Griffiths et al., 2017). Furthermore, adolescent body dissatisfaction also prospectively predicts depressive symptoms, disordered eating outcomes and risky health behaviours in early adulthood (Bormioli et al., 2019; Sharpe et al., 2018). Given the prevalence of body image dissatisfaction in young people, alongside the detrimental impact that these concerns can have on well-being, urgent action is needed to support the development of body image in young people (Youth Select Committee, 2017).

Schools have been positioned as a site to support the development of body image, as they offer a pre-existing learning environment, and provide core lifelong learning experiences and the opportunity to encourage positive health behaviours (e.g. Yager et al., 2013; Youth Select Committee, 2017). Yet, a recent UK government report by the Women and Equalities Committee (2021) found that 70% of

young people had not learnt about body image at school, with 78% stating they would like the opportunity to engage in body image education. The majority of school-based body image interventions and programmes have been developed for use in Personal, Social and Health Education and focus on developing media literacy and self-esteem (Yager et al., 2013). Yet, the Youth Select Committee (2017) recommends that a whole-school approach to body image education needs to be implemented. Whilst it has been recognised that physical education has the potential to create state increases in body dissatisfaction (Kerner et al., 2018), it has also been positioned as a body-focused subject (Armour, 1999). It is a curriculum area that has a role to play in supporting the development of body image due to the relationships between body image and physical activity (Sabiston et al., 2019) and the potential for the subject to focus on the functional qualities of the body (Youth Select Committee, 2017).

Previous systematic reviews have explored the impact of body image programmes, interventions or curricula in classroom-based settings (Yager et al., 2013) and the relationship between body image and physical activity (Sabiston et al., 2019). The systematic review of classroom-based programmes included studies that the authors categorised as ‘regular classroom-curriculum settings’ (Yager et al., 2013). Whilst the authors did not define ‘regular classroom-curriculum settings’ they did exclude physical education-based studies on the basis that this criterion was not met. This review concluded that effective programmes centred on themes such as media literacy, peer influence and self-esteem (Yager et al., 2013). The current systematic review specifically focuses on body image in physical education contexts. Based on the aforementioned, the purpose of this paper is to review research on physical education-based body image/body-focused programmes, interventions or curricula and explore the content and effectiveness of these.

Methodology

Search strategy

This systematic review was undertaken using the preferred reporting items for systematic reviews and meta-analyses (PRISMA) guidelines (2020) and employed a narrative synthesis of data. An extensive and comprehensive search of seven scientific databases (Web of Science, SCOPUS, EBSCO, PsycINFO, MEDLINE, Science Direct, and SportDiscus) was conducted by the second author. Following this, a range of journals publishing work in the areas of physical education and/or body image (*Sport, Education and Society*; *Body Image*; *European Physical Education Review*; and *Physical Education and Sport Pedagogy*) were also searched by the second author. This journal search was conducted as a supplementary approach to check the inclusivity of the search terms and identify studies that may not have been captured through the database search; however, no new studies were identified. A search for grey literature was also conducted, with the call for literature posted on the first author’s professional social media account. To further strengthen the scope of the search, the first author identified five key papers related to the research question, while the second author conducted a manual search of reference lists. As can be seen in Table 1, the search strategy included a combination of the following terms: physical education, programme and body image. Each term was searched separately, then terms were grouped together within their category as a string. After all categories were searched, all terms were inputted together into the databases to yield the most specific articles. The English Boolean data types of ‘and’, ‘or’, and ‘*’ were used. Search terms for body image were developed using previous systematic reviews (Sabiston et al., 2019; Yager et al., 2013), whilst also considering the multi-disciplinary nature of physical education body-focused research and the varying ways that discontent with the body has been defined. This review therefore

Table 1. Search terms used in all databases.

Physical Education	Programme	Body Image	
Physical education	Prevent*	Body image	Embodiment
PE	Intervention	Body-image	Body envy
Physical and Health Education	Program*	Body-image focused	Body surveillance
Health and Physical Education	Curricular*	Body-focused	Body attitudes
HPE	Module	Body concern	Body attitude
School sport*	Strategy	Body concerns	Physical attractiveness
Phys ed	Strateg*	Body satisfaction	Physical appearance
Gym class	Course	Body dissatisfaction	Physical self-concept
	Evaluation	Body image disturbance	Self-perceptions
	Critical inquiry	Body distortion	Body attractiveness
	Pedagog*	Body shame	Body-dysmorphia
		Body sham*	Body image avoidance
		Social physique anxiety	Body esteem
		Drive for thinness	Body discourses
		Drive for muscularity	Body discourse*
"Physical Education" OR PE OR "Physical and Health Education" OR HPE OR "School Sport" OR "Phys ed" OR "Gym Class"	"Prevent*" OR "Intervention" OR "Program*" OR "Curricular*" OR "Module" OR "Strategy" OR "Course" OR "Evaluation" OR "Critical Inquiry" OR "Pedagog*" OR "Strateg**"	"Body image" OR "Body-image" OR "Body-image focused" OR "Body-focused" OR "Body concern" "Body concerns" OR "Body satisfaction" OR "Body dissatisfaction" OR "Body image disturbance" OR "Body distortion" OR "Body shame" OR "Body sham*" OR "Social physique anxiety" OR "Drive for thinness" OR "Drive for muscularity" OR "Embodiment" OR "Body envy" OR "Body surveillance" OR "Body attitudes" OR "Body attitude" OR "Physical attractiveness" OR "Physical appearance" OR "Physical self-concept" OR "Self-perceptions" OR "Body attractiveness" OR "Body-dysmorphia" OR "Body image avoidance" OR "Body esteem" OR "Body discourses" OR "Body discourse**"	
"Physical Education" OR PE OR "Physical and Health Education" OR HPE OR "School Sport" OR "Phys ed" OR "Gym Class" WITH "Prevent*" OR "Intervention" OR "Program*" OR "Curricular*" OR "Module" OR "Strategy" OR "Course" OR "Evaluation" OR "Critical Inquiry" OR "Pedagog*" OR "Strateg**" WITH "Body image" OR "Body-image" OR "Body-image focused" OR "Body-focused" OR "Body concern" "Body concerns" OR "Body satisfaction" OR "Body dissatisfaction" OR "Body image disturbance" OR "Body distortion" OR "Body shame" OR "Body sham*" OR "Social physique anxiety" OR "Drive for thinness" OR "Drive for muscularity" OR "Embodiment" OR "Body envy" OR "Body surveillance" OR "Body attitudes" OR "Body attitude" OR "Physical attractiveness" OR "Physical appearance" OR "Physical self-concept" OR "Self-perceptions" OR "Body attractiveness" OR "Body-dysmorphia" OR "Body image avoidance" OR "Body esteem" OR "Body discourses" OR "Body discourse**"			

explored body image and related phenomena that considered content or discontent with physical appearance, with all terms discussed and agreed upon by the research team. Examples of body image constructs used in the current study include body dissatisfaction, body shame and body attitude. Related phenomena include the body attractiveness/physical attractiveness component of physical self-perceptions. This study included physical self-perceptions and related terminology in the search strategy. This was done because 'body attractiveness' or 'physical attractiveness' are components within the concept, i.e. an assessment of how physically attractive someone perceives themselves.

Inclusion and exclusion criteria

In line with the PRISMA framework, detailed inclusion and exclusion criteria were created. Peer-reviewed papers and grey literature published between 2000 and 2021 and written in English were assessed for suitability. A grey literature search is an important component of a systematic review as it allows for a balanced picture of existing evidence (Paez, 2017). Further inclusion criteria included: (i) used an intervention/programme/curriculum based in physical education; (ii) explored body image or related phenomena as a primary outcome; (iii) involved children/young people aged 18 years or younger; (iv) used either a qualitative, quantitative or mixed method approach.

Eligibility

Eligibility was assessed across three stages during the review process (see Figure 1, for an overview of the screening process). During stage one, duplicate papers were deleted (602), leaving 1185 papers in the review process. During stage two, the paper titles and abstracts were reviewed for eligibility by the

second and third author; papers were excluded if they failed to meet the detailed inclusion criteria listed above. At this stage 1118 papers were excluded, leaving 67. Full texts were then downloaded for independent screening by the second and third author. The research team met to discuss any concerns over eligibility until consensus was reached. Nineteen studies were included within the review, from which the following categories were extracted for analysis: year of publication, body image outcome, study objectives, participant characteristics, method of allocation to study group, study design, outcome measures, analysis, intervention, results, limitations and conclusions.

Reliability

To assess the quality of the appraisal process, the Mixed Methods Appraisal Tool (MMAT, 2018), one of the most reliable tools for appraising mixed method research (Crowe and Sheppard, 2011),

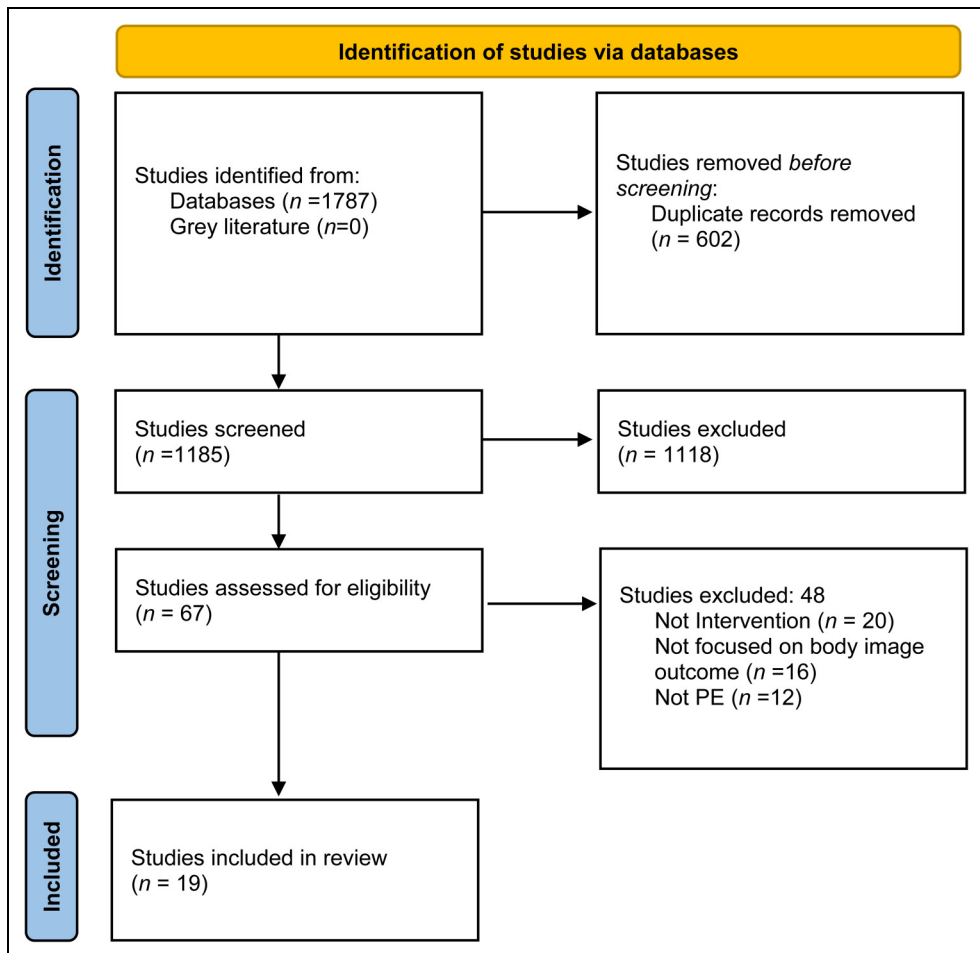


Figure 1. Preferred reporting items for systematic reviews and meta-analyses (PRISMA) 2020 flow diagram of the systematic review process (Page et al., 2021).

was used. Three reviewers were involved in this process. The stages of the MMAT (Hong et al., 2018) involved: (1) responding to screening questions that assess the clarity and effectiveness of the research questions; (2) categorising the study design; and (3) completing a checklist for each study design category to determine relevant quality characteristics.

Results

Study design

Of the studies included in the review, 14 were quantitative, four were qualitative and one study was mixed method. Two of the qualitative studies used visual participatory methods (Azzarito et al., 2016, 2017), one used field notes and interviews (Gehris et al., 2010) and the other used a combination of observations, focus groups and interviews (Schubring et al., 2021). The mixed method study used a combination of pre–post questionnaires and focus groups (Catunda et al., 2017). Of the quantitative studies, eight were randomised control studies (Christiansen et al., 2018; Costigan et al., 2016; Gibbons et al., 2018; Halliwell et al., 2018; Mayorga-Vega et al., 2012; Neumark-Sztainer et al., 2010; Olive et al., 2019; O'Brien et al., 2008) and six were non-randomised studies (Annesi et al., 2007; Burgess et al., 2006; Cox et al., 2017; Hajihosseini, 2015; McNamee et al., 2016; Plevkova et al., 2018).

Participant characteristics

The majority of studies included both boys and girls in the programme ($n = 11$) (Annesi et al., 2007; Azzarito et al., 2017; Christiansen et al., 2018; Costigan et al., 2016; Cox et al., 2017; Gehris et al., 2010; Gibbons et al., 2018; Halliwell et al., 2018; Mayorga-Vega et al., 2012; Olive et al., 2019; Schubring et al., 2021) and a smaller proportion included girls only ($n = 8$) (Azzarito et al., 2016; Burgess et al., 2006; Catunda et al., 2017; Hajihosseini, 2015; McNamee et al., 2016; Neumark-Sztainer et al., 2010; O'Brien et al., 2008; Plevkova et al., 2018). There were no studies included in this review that focused exclusively on boys. For studies that included both boys and girls, no study explicitly stated if the programmes/interventions were conducted in co-educational or single-sex settings. For these studies, traditional gender binary classifications were used when discussing males/females, boys/girls, etc. (e.g. studies did not mention non-binary, gender fluid students). Sample sizes ranged between 3124 (Christiansen et al., 2018) and 17 (McNamee et al., 2016) in quantitative studies, between 11 and 74 in qualitative studies, and the mixed method study contained 102 participants. The age of the participants ranged from 8 to 18 years. Eight studies included participants aged 12 or younger (Annesi et al., 2007; Christiansen et al., 2018; Gibbons et al., 2018; Hajihosseini, 2015; Halliwell et al., 2018; Mayorga-Vega et al., 2012; Olive et al., 2019; O'Brien et al., 2008). Studies were predominantly conducted in the USA ($n = 7$), Australia ($n = 2$) and the UK ($n = 2$).

Purpose of the research

Specific details on the purpose of each programme or intervention can be found in Table 2. The objectives of the studies included in this review can be divided into four categories. First, studies that implemented a programme with the primary aim of impacting body image or related constructs ($n = 9$) (Azzarito et al., 2016, 2017; Burgess et al., 2006; Catunda et al., 2017; Cox et al., 2017; Halliwell et al., 2018; O'Brien et al., 2008; Plevkova et al., 2018; Schubring et al.,

Table 2. Overview of included studies.

Authors/year	Country	Participants	Purpose(s)	Body image or related construct assessed	Body image or related construct assessment tool	Body image (or related construct) assessed. Primary focus of the study? (Y/N)	Other outcome measures	Intervention or programme key component	Methodology: data sources	Outcomes related to body image
Annesi et al. (2007)	USA	Students in PE group, n = 113 (51 females and 62 males); aged 9–12 years. African American (72%), Euro American (23%) and & other ethnic groups (5%). Low to low-middle class (82%) and middle class (18%) students.	To assess the impact of Youth Fit for Life protocol on mood, self-appraisal and voluntary PA.	Perceived physical appearance.	Physical Appearance Scale of the Self-Description questionnaire-I.	N – Physical appearance and physical self-concept are included with a range of other measures.	BMI, strength, flexibility, endurance, mood and PA.	Health behaviour change protocol.	Quantitative; pre/post questionnaires.	Significant increases in physical appearance and physical self-concept.
Azzarito et al. (2016)	USA	Eleven high school female students, aged 15–16 years. White students (n = 10) and black students (n = 1). School situated in an affluent urban area.	To incorporate a body curriculum into a fitness unit.	The body/embodiment		Y – Primary aim.		Body curriculum.	Qualitative; visual participatory.	The curriculum provided opportunities to critically reflect on body issues and media narratives.
Azzarito et al. (2017)	USA	High school students; n = 74 (45 females, 29 males); aged 15–16 years. African American (n = 30), Latino (n = 33), Asian (n = 8), Native American (n = 1) and White (n = 1).	To incorporate a body curriculum into a fitness unit.	Embodiment and body ideals.		Y – Primary aim.		Body curriculum.	Qualitative; visual participatory.	The curriculum provided opportunities to critically highlight body inequalities and to express accounts of the body.

(continued)

Table 2. Continued.

Authors/year	Country	Participants	Purpose(s)	Body image or related construct assessed	Body image or related construct assessment tool	Body image (or related construct) assessed. Primary focus of the study? (Y/N)	Other outcome measures	Intervention or programme key component	Methodology; data sources	Outcomes related to body image
Burgess et al. (2006)	UK	<p>students.</p> <p>School in an inner-city neighbourhood with high poverty.</p> <p>Fifty female students, aged 13–14 years.</p> <p>School catchment area predominantly White and from a lower working-class background.</p>	<p>To examine the impact of a PA intervention on body image.</p>	<p>Body attitudes.</p>	<p>The Body Attitudes Questionnaire.</p> <p>Six aspects: attractiveness, disengagement, feeling fat, salience, lower body fat and strength.</p> <p>Forty-four items</p>	<p>Y – Primary aim.</p>	<p>Aerobic dance.</p>	<p>Quantitative; cross over design. Pre-post questionnaires.</p>	<p>Participation in the aerobic dance programme reduced body dissatisfaction and enhanced physical self-perceptions, including attractiveness and physical self-worth.</p> <p>Significant improvements in body image perceptions in the experimental group.</p>	
Catunda et al. (2017)	Brazil	<p>Female students (n = 102), aged 13–18 years.</p> <p>No other demographic information provided.</p>	<p>To examine if fitness lessons impacted body image.</p>	<p>Body dissatisfaction.</p>	<p>Body Dissatisfaction Scale in Adolescents. Includes: weight concerns, appearance satisfaction and self-perception of body image.</p>	<p>Y – Primary aim.</p>	<p>Modified games.</p>	<p>Mixed method; control group design. Questionnaires and focus groups.</p>	<p>Physical self-worth and self-perception variables: sport competence, body attractiveness, social competence, global self-worth.</p>	
Christiansen et al. (2018)	Denmark	<p>Male and female students, aged 10–13 years (n = 3124).</p> <p>Socioeconomic status varied between schools.</p>	<p>To examine the impact of a PA intervention (Move for Well-being in school study) on physical self-worth and self-perception.</p>	<p>Perceived body attractiveness.</p>	<p>Body attractiveness subscale of the Children's Physical Self-Perceptions Profile.</p>	<p>N – Primary outcome is physical self-worth and physical self-concept.</p>	<p>Multicomponent PA programme.</p>	<p>Quantitative; cluster randomised control design. Pre-post and follow-up.</p>	<p>No significant intervention effects.</p>	

(continued)

Table 2. Continued.

Authors/year	Country	Participants	Purpose(s)	Body image or related construct assessed	Body image or related construct assessed	Body image or related construct assessed. Primary focus of the study? (Y/N)	Other outcome measures	Intervention or programme key component	Methodology: data sources	Outcomes related to body image
Costigan et al. (2016)	Australia	Sixty-five male and female students, aged 14–16 years. No other demographic information provided.	To examine the effectiveness of two HIIT protocols for improving cognitive and mental health outcomes.	Perceived appearance.	Perceived appearance subscale of The Physical Self-Description questionnaire.	N – The focus is on a range of cognitive and mental health outcomes.	Executive function, psychological well-being, psychological distress and physical self-concept.	High-intensity exercise.	Quantitative; three-arm school-based RCT. Questionnaires.	Small intervention effect for the resistance and aerobic HIIT condition on perceived appearance.
Cox et al. (2017)	USA	Twenty students in the yoga class (18 female, 2 male). Mean age 16.5 years. Twenty-three students (13 female, 10 male) in the traditional PE class. Mean age 14.5 years. Primarily Caucasian students (73.9%–85%).	To examine changes in body image variables as a result of a 12-week yoga-based curriculum.	Physical self-worth, trait and state body surveillance and body appreciation.	Trait and state body surveillance, the Body Surveillance Subscale of the Objectified Body Consciousness Scale and the Body Appreciation Scale.	Y – Primary aim.		Yoga.	Quantitative; control group (fitness/traditional PE), pre/post questionnaires.	Significant decreases in trait body surveillance in the yoga class.
Gehris et al. (2010)	USA	Twenty-seven 10th grade students (10 females, 17 males). Caucasian (96%) and Hispanic (4%) students. Eleven per cent of students received free or reduced-price school meals.	To examine students' views of an adventure-PE curriculum and impacts on physical self-concept.	Physical appearance.		N – The primary focus is on physical self-concept.	Global self-concept and nine components.	Adventure education.	Qualitative; interviews and field notes.	Students did not feel that the appearance component of physical self-concept was relevant to adventure education.

(continued)

Table 2. Continued.

Authors/year	Country	Participants	Purpose(s)	Body image or related construct assessed	Body image or related construct assessment tool	Body image (or related construct) assessed. Primary focus of the study? (Y/N)	Intervention or programme key component	Methodology; data sources	Outcomes related to body image
Gibbons et al. (2018)	Canada	Grade 7 and 8 students (n = 397); 183 females and 214 males. No other demographic information provided.	To compare the effectiveness of Team Buildings Through Physical Challenge and Adventure Curriculum for PE on self-perceptions.	Perceived physical appearance.	Physical appearance subscale of the Self-Perception Profile for Children.	N – The primary focus is on physical Self-Perceptions but appearance domain is included.	Adventure education.	Quantitative; random assignment to control, ACPE, TBPC. Pre-post questionnaires.	Both intervention groups reported greater scores in perceived appearance.
Hajhosseini (2015)	Iran	Forty-one female students aged 11–13 years (21 students in the control group). No other demographic information provided.	To examine the impact of a well-being programme on body self-concept.	Perceived appearance.	Perceived appearance subscale of The Physical Self-Description Questionnaire.	N – Physical self-concept is the focus of the study but the appearance domain is included.	Well-being programme.	Quantitative; experimental design. Pre-post questionnaires.	In the experimental group, significant improvements in overall body self-concept were identified. Significant improvements were also evident in the appearance domain.
Halliwel et al. (2018)	UK	Students aged 9–11 years (n = 344, 54.4% female). No other demographic information provided.	To examine the impact of a 4-week yoga intervention on pre-adolescents' body image and mood.	Body surveillance, body appreciation and body esteem.	The appearance subscale of the Body Esteem Scale for Children; The Body Appreciation Scale-2 for Children; and The Body Surveillance subscale of The Objectified Body Consciousness Scale-Youth.	Y – Primary aim.	Yoga.	Quantitative; pre-post and follow-up questionnaire at six weeks.	Both intervention and control groups experienced improvements in body appreciation and declines in body surveillance.

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Table 2. Continued.

Authors/year	Country	Participants	Purpose(s)	Body image or related construct assessed	Body image or related construct assessment tool	Body image (or related construct) assessed. Primary focus of the study? (Y/N)	Other outcome measures	Intervention or programme key component	Methodology; data sources	Outcomes related to body image
Mayorga-Vega et al. (2012)	Spain	Seventy-five primary school children, mean age 11.1 years; 41 boys and 34 girls. No other demographic information provided.	To assess the short-term effect of a physical fitness programme on physical self-concept and physical fitness elements.	Perceived appearance	Physical Self-Description Questionnaire (Spanish Version); physical appearance subscale.	N – The study focuses on physical self-concept and physical outcomes.	Physical fitness and nine components of physical self-concept: health, coordination, body fat, PA, sports competence, physical appearance, strength, flexibility and endurance. Two global components: global physical self-concept and self-esteem.	Fitness (circuit training).	Quantitative; cluster randomised control design.	No significant differences in self-perception scores, including physical appearance for the experimental group. The control group showed significant decreases in physical appearance post-intervention.
McNamee et al. (2016)	USA	Seventeen female students, aged 14–15 years. School population was 64% Caucasian, 32% Hispanic, 1% African American, 1% Asian and 2% other. Twenty-eight per cent of the school population enrolled in free or reduced-fee school lunch programme.	To explore the impact of the health club PE approach on PA, health-related fitness (direct) and psychosocial variables, including physical self-concept.	Perceived appearance	Appearance subscale of the Physical Self-Description Questionnaire.	N – The study explores a range of physical and psychological outcomes.	PA, physical fitness and psychosocial variables (behavioural control, self-efficacy and self-concept).	Health-related fitness.	Quantitative; psychosocial questionnaires pre–post programme. Physical fitness parameters and PA were also collected.	Significant increases in a range of physical self-perception domains, including appearance, post-intervention.

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Table 2. Continued.

Author(s)/year	Country	Participants	Purpose(s)	Body image or related construct assessed	Body image or related construct assessment tool	Body image (or related construct) assessed. Primary focus of the study? (Y/N)	Other outcome measures	Intervention or programme key component	Methodology; data sources	Outcomes related to body image
Neumark-Sztainer et al. (2010)	USA	Female students (n = 356); mean age 15.8 years. Eligible for reduced meals; 56% (control), 58% (intervention). Racial/ethnic minority students (75%).	To evaluate New Moves, aimed at preventing weight-related problems in girls, or free school meals.	New Moves Survey, including body and self-image measures.	Y – A range of primary outcome measures including body and self-image are explored.	PA, sedentary behaviours, dietary intake, eating patterns and weight control behaviours.	Multicomponent PA programme.	Quantitative; RCT design, including baseline, post and nine-month follow-up.	Significant improvements in body image and self-worth for the intervention group at nine months follow-up but not directly post-intervention.	
O'Brien et al. (2008)	Ireland	Female students (n = 85) from two classes of first year students (mean age, 12.5 years) and two classes of transition year students (mean age, 15.8 years). No other demographic information provided.	To examine the effects on an 8-week body-focused physical and health education module on self-objectification and social physique anxiety.	Social physique anxiety, Social Anxiety Scale (9 items).	Y – Primary aim.	Body-focused practical and critical inquiry.	Quantitative; control group design. One first-year and one transition class randomly assigned to the experimental group. Pre-post questionnaires.	Students in the experimental condition increased the value they placed on physical health and strength and decreased the value they placed on sex appeal but there were no changes in social physique anxiety. Students in the control condition experienced decreases in the value placed on physical fitness and experienced significant increases in social physique anxiety.		

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Table 2. Continued.

Author(s)/year	Country	Participants	Purpose(s)	Body image or related construct assessed	Body image or related construct assessment tool	Body image (or related construct) assessed. Primary focus of the study? (Y/N)	Other outcome measures	Intervention or programme key component	Methodology; data sources	Outcomes related to body image
Olive et al. (2019)	Australia	Students ($n = 821$) mean age of 8 years at baseline; girls ($n = 415$), boys ($n = 404$). Suburbs of schools had midrange socioeconomic status.	To assess the effect of a 4-year PE intervention on a range of mental health outcomes including body image.	Body esteem.	Adapted version of the Body Self-Esteem Scale for Children. Which included: self-perception attributed to others and physical attributes, and appearance satisfaction.	Y – A range of primary outcome measures including body image are explored.	Depression and stress.	Guided discovery.	Quantitative; cluster randomised controlled design. Schools allocated to intervention or control group.	Following one year of the intervention, there was a decrease in the body dissatisfaction of children in the intervention group and an increase in the control group; however, this was not sustained over time.
Plevkova et al. (2018)	Slovakia	Fifty-three female students, aged 14–15 years. No other demographic information provided.	To examine the effects of a 6-week strength endurance circuit training intervention on body image in school girls.	Body dissatisfaction.	Contour Drawing Rating Scale.	Y – Primary aim.		Fitness (circuit training).	Quantitative; random allocation to two intervention groups and one control group.	The intervention resulted in significant decreases in body dissatisfaction in the intervention groups.
Schubring et al. (2021)	Sweden	Three classes of 56 students (39 female and 17 male); aged 16 and 17 years. Mainly Swedish backgrounds.	To introduce a classroom-based teaching unit on body ideals and consider didactic possibilities and challenges.	Body ideals.		Y – Primary aim.		Teaching on body ideals (classroom based).	Qualitative; focus groups, lesson observations and teacher interviews.	Teaching on body ideals was meaningful to young people but differing levels of engagement depending on school background and context.

BMI: body mass index; HITT: high-intensity interval training; PE: physical education; RCT: randomised control trial; PA: physical activity; ACPE: adventure curriculum for physical education; TBPC: team building through physical challenges.

2021). Second, studies that employed a programme with a primary aim of impacting body image or related constructs but also included additional primary outcome measures ($n=2$) (Neumark-Sztainer et al., 2010; Olive et al., 2019), such as physical activity, weight control behaviours (Neumark-Sztainer et al., 2010), depression and stress (Olive et al., 2019). The third category of studies focused on developing physical self-perceptions when perceived body attractiveness was included in the outcome measures as a primary aim ($n=6$) (Christiansen et al., 2018; Gehris et al., 2010; Gibbons et al., 2018; Hajihosseini, 2015; Mayorga-Vega et al., 2012; McNamee et al., 2016). The fourth category focused on studies that examined physical self-perceptions when body attractiveness was used alongside other outcome measures ($n=2$), such as fitness (Annesi et al., 2007; Costigan et al., 2016), mood (Annesi et al., 2007) and cognitive and mental outcomes (Costigan et al., 2016).

Body image or related construct

For body image or related construct measures explored in the studies, the most commonly used measure was the physical attractiveness domain of physical self-perceptions ($n=8$). Of the eight studies that explored the perceived physical attractiveness domain of physical self-perceptions, seven were quantitative and were assessed using validated questionnaires, while the qualitative study used interviews (Gehris et al., 2010). For quantitative or mixed method studies that did not focus on physical self-perceptions ($n=8$), most studies ($n=5$) used one measure of body image, including body attitudes (Burgess et al., 2006), social physique anxiety (O'Brien et al., 2008), body dissatisfaction (Plevkova et al., 2018), body satisfaction (Neumark-Sztainer et al., 2010) and body self-esteem (Olive et al., 2019). Three studies included multiple measures of body image; two studies applied both body surveillance and body appreciation measures (Cox et al., 2017; Halliwell et al., 2018), while one study combined measures of weight concerns and appearance satisfaction (Catunda et al., 2017). Therefore, body surveillance and body appreciation were the second most frequently used quantitative measures after perceived physical attractiveness. Qualitative studies that did not focus on physical self-perceptions explored embodiment and/or ideal bodies (Azzarito et al., 2016, 2017; Schubring et al., 2021), adopted sociocultural perspectives (Azzarito et al., 2016, 2017) or were underpinned by health literacy (Schubring et al., 2021).

Intervention/programme characteristics

Table 3 provides an overview of the characteristics of each intervention or programme, including location, frequency, duration and key components. Five studies focused on increasing physical activity through a variety of means such as guided discovery, multicomponent programmes or modified games (Annesi et al., 2007; Catunda et al., 2017; Christiansen et al., 2018; Neumark-Sztainer et al., 2010; Olive et al., 2019). Five programmes were underpinned by fitness, and included strategies such as health-related fitness or circuit training (Costigan et al., 2016; Hajihosseini, 2015; Mayorga-Vega et al., 2012; McNamee et al., 2016; Plevkova et al., 2018). Two studies incorporated fitness alongside sociocultural elements (Azzarito et al., 2016, 2017), two studies were underpinned by yoga (Cox et al., 2017; Halliwell et al., 2018), and a further two studies incorporated adventure education (Gehris et al., 2010; Gibbons et al., 2018). Moreover, other studies included a sociocultural classroom-based programme (Schubring et al., 2021), an aerobic dance intervention that aimed to promote competence motivation (Burgess

Table 3. Overview of intervention or programme characteristics.

Authors/year	Duration and frequency	Location	Programme delivered by	Key components	Category
Annesi et al. (2007)	Total of 18 h (24 sessions): 12 weeks. 2 sessions per week. 45 min per session.	PE and afterschool.	Afterschool counsellors.	Intervention for PA and behaviour change: MVPA cardiovascular activities (each session). Strength training (3 consecutive sessions). Health and nutrition information (5 min each session).	PA.
Azzarito et al. (2016)	Total of 7 h (7 lessons): 60 min per lesson.	PE.	Researchers.	Body curriculum: regular fitness-based lesson plans informed by a sociocultural and critical view, with an opportunity to engage in 'body talk'.	Fitness and sociocultural.
Azzarito et al. (2017)	Total of 15 h (15 lessons): 60 min per lesson.	PE.	Teachers and researchers.	Body curriculum: regular fitness-based lessons informed by a sociocultural and critical perspective. Critical media pedagogy using a visually based learning platform.	Fitness and sociocultural.
Burgess et al. (2006)	Total of 10 h (12 lessons): 6 lessons. 2 lessons per week. 50 min per lesson.	PE.	Qualified instructor (aerobics). Teacher (swimming).	Aerobic dance intervention: 1. Warm-up. 2. Aerobic dance workout (underpinned by competence motivation theory). 3. Cool down and stretch.	Movement experience.
Catunda et al. (2017)	Total duration: hours unknown (3 lessons).	PE.	Teachers.	Intervention to increase PA through modified games.	PA.

(continued)

Table 3. Continued.

Authors/year	Duration and frequency	Location	Programme delivered by	Key components	Category
Christiansen et al. (2018)	Lesson duration unknown. Total of 6 h of PE content (4 PE lessons): 90 min per lesson. Across a school year.	Multicomponent including PE.	Teachers.	Intervention to increase PA through a multicomponent programme aimed at increasing intrinsic motivation. Included four settings: (1) PE, (2) in-class activities, (3) break time and (4) theme days. PE component based on developing competence, autonomy and relatedness.	PA.
Costigan et al. (2016)	Total of approximately 3.5 h (24 sessions): 8 weeks. 3 sessions a week (2 in PE and 1 at lunchtime). 8–10 min HITT sessions.	PE and lunchtime component.	Researchers.	Physical fitness programme: 1. Aerobic exercise programme. Cardiorespiratory exercises e.g. shuttle runs, jumping jacks and skipping. 2. Resistance exercise programme. Cardiorespiratory exercises and bodyweight resistance training, e.g. push-ups and bodyweight squats.	Fitness.
Cox et al. (2017)	Total of approximately 24 h (25 lessons): 12 weeks. 2 lessons a week (one 40 min and one 75 min). Plus an	PE.	Yoga instructor.	Yoga programme based on body functionality: Weekly theme and yoga pose. 1. Introduction. 2. Moving through different poses. 3. Closing and meditation.	Yoga.

(continued)

Table 3. Continued.

Authors/year	Duration and frequency	Location	Programme delivered by	Key components	Category
Gehris et al. (2010)	introductory lesson. Total of 12 h and 18 min (18 lessons): 41 min per lesson.	PE.	Teacher.	Adventure education: 1. Instruction (10 min). 2. Activity (20 min). 3. Management (6 min). 4. Debriefing (5 min).	Adventure.
Gibbons et al. (2018)	Total of 10.5 h (14 lessons): Every 2 weeks. 45 min per lesson.	PE.	Teachers.	Adventure-based approaches. 1. Team building through physical challenges: group problem-solving activities. Working in groups of 6–8. Physically challenging tasks. 2. Adventure curriculum for PE: themes of respecting differences, problem-solving, self-esteem and compassion.	Adventure.
Hajjhosseini (2015)	Total of 16 h (32 lessons): 16 weeks. 2 lessons a week. 30 min per lesson.	PE.	Not reported.	Cooperative tasks. Well-being programme: 1. Warm-up (5 min). 2. Health-related fitness (10 min). 3. Traditional games (10 min). 4. Cool down and theory (5 min).	Fitness.
Halliwell et al. (2018)	Total of 2 h and 40 min (4 lessons): 4 weeks. 40 min long.	PE.	Yoga instructor.	Yoga intervention: 1. Opening. 2. Warrior sequence. 3. Storytelling. 4. Breathing exercise. 5. Relaxation exercise.	Yoga.

(continued)

Table 3. Continued.

Authors/year	Duration and frequency	Location	Programme delivered by	Key components	Category
Mayorga-Vega et al. (2012)	Total of 11 h and 40 min (14 sessions): 8 weeks. 50 min per session.	PE.	Researcher (fitness classes). Teacher (control group).	6. Closing Fitness (circuits): Each student received task-orientated and affective positive feedback at least once during a session. 1. Warm-up (5 min). 2. Fitness programme (40 min). 3. Cool down (5 min).	Fitness.
McNamee et al. (2016)	Total of 52 h and 30 min (35 classes): 14 weeks. 90 min per class.	PE (off-campus).	Researchers and undergraduate students.	Health-related fitness: 40% cardiovascular activities. 40% in strength and endurance activities. 20% flexibility activities. The final 20 min of the lesson was an instructor-led group activity (choice of two activities).	Fitness.
Neumark-Sztainer et al. (2010)	Total hours: unknown 16 weeks. 4 days/week PA class. 1 day/week nutrition or social support class.	Multicomponent including PE	Teachers (PE component)	Multicomponent PA programme: 4 days/week PA class (3 days taught by PE teacher and 1 day by quest instructor). 1 day/week nutrition or social support class.	PA
O'Brien et al. (2008)	Total of 6 h and 40 min of PE	PE and health education.	Teacher/ researcher.	1. PE module: emphasised physical	Sociocultural and

(continued)

Table 3. Continued.

Authors/year	Duration and frequency	Location	Programme delivered by	Key components	Category
Olive et al. (2019)	content (8 PE lessons): 8 weeks. 80 min PE class. 40 min health education classes weekly. Total hours: unknown (average of 272 lessons): 2 lessons a week. 4 years. 50 min per lesson. Total hours: 9 h (12 sessions): 6 weeks. 2 sessions a week. 45 min a session.	PE.	Teachers.	function and kinaesthetic movement. 2. Health education module: critical inquiry around the body.	movement experience.
Plevkova et al. (2018)	Total hours: 9 h (12 sessions): 6 weeks. 2 sessions a week. 45 min a session.	PE.	Not reported.	Guided discovery to increase PA: a typical lesson includes: 1. Coordination and agility drills. 2. Movement challenges and games. 3. Dynamic movement control. 4. Core movement. Fitness (circuit training): 1. Warm-up (5–12 min). 2. Strength endurance circuit training (20–35 min). 3. Cool down (3–10 min).	PA. Fitness.
Schubring et al. (2021)	Total hours: unknown 4 lessons.	PE (classroom-based).	Teachers.	Classroom-based on body ideals: examples include identifying and describing stereotypical body ideals and consequences.	Sociocultural and health literacy.

HITT: high-intensity interval training; MVPA: moderate-to-vigorous physical activity; PA: physical activity; PE: physical education.

et al., 2006) and a curriculum combining critical inquiry with movement experiences (O'Brien et al., 2008).

Programmes focused on increasing physical activity assessed various outcomes including the perceived physical appearance component of physical self-perceptions (Annesi et al., 2007; Christiansen et al., 2018), body dissatisfaction (Catunda et al., 2017), body image (Neumark-Sztainer et al., 2010) and body esteem (Olive et al., 2019). Programmes focused solely on fitness strategies generally assessed the perceived physical appearance component of physical self-perceptions (Costigan et al., 2016; Hajihosseini, 2015; McNamee et al., 2016; Mayorga-Vega et al., 2012); however, one study assessed body dissatisfaction (Plevkova et al., 2018). Both programmes that focused on combining regular fitness-based classes alongside socio-cultural elements (e.g. critical media pedagogy) focused on embodiment and body ideals (Azzarito et al., 2016, 2017). Both studies underpinned by yoga incorporated a range of measures including body surveillance, body appreciation and body esteem (Cox et al., 2017; Halliwell et al., 2018), but the two adventure education programmes explored the physical appearance component of self-perceptions (Gehris et al., 2010; Gibbons et al., 2018). Body ideals were the focus of the sociocultural classroom-based programme (Schubring et al., 2021), whilst social physique anxiety was the focus of the study that combined critical inquiry with movement experiences (O'Brien et al., 2008). The aerobic dance intervention assessed body attitudes (Burgess et al., 2006).

Intervention/programme effectiveness

The majority of studies ($n = 15$) reported that programmes had positive impacts on body image, e.g. decreases in body dissatisfaction, declines in body surveillance and increases in perceptions of physical attractiveness (see Table 2 for specific detail on outcomes). For programmes/interventions that reported no impact on body image outcomes, they varied in approach from a study that combined movement experiences with sociocultural components (O'Brien et al., 2008) to physical activity (Christiansen et al., 2018), adventure education (Gehris et al., 2010) and fitness (Mayorga-Vega et al., 2012). Whilst these particular studies did not report positive impacts on body image, studies underpinned by similar content did report positive outcomes. For example, positive outcomes were identified in studies underpinned by physical activity (Annesi et al., 2007; Catunda et al., 2017; Neumark-Sztainer et al., 2010; Olive et al., 2019), adventure education (Gibbons et al., 2018), fitness (Costigan et al., 2016; Hajihosseini, 2015; McNamee et al., 2016; Plevkova et al., 2018) and those that combined movement with sociocultural approaches (Azzarito et al., 2016, 2017). Therefore, studies underpinned by physical activity, adventure education, fitness and combined sociocultural/movement experiences provided mixed results. Both yoga studies reported positive outcomes on body image (Cox et al., 2017; Halliwell et al., 2018), as did the classroom-based health literacy study (Schubring et al., 2021), and the study underpinned by movement experiences/competence motivation (Burgess et al., 2006).

Eight of the nine studies that implemented a programme with the primary aim of impacting body image or related constructs reported positive outcomes on body-related measures (Azzarito et al., 2016, 2017; Burgess et al., 2006; Catunda et al., 2017; Cox et al., 2017; Halliwell et al., 2018; Plevkova et al., 2018; Schubring et al., 2021). Whilst the remaining study did not report a decline in social physique anxiety in the experimental group, pupils did decrease the value they placed on sex appeal and increase the value placed on physical health and strength (O'Brien

et al., 2008). For the two studies that employed a programme with a primary aim of impacting body image or related constructs and also included additional primary outcome measures, improvements in body image were reported at different points during the follow-up period. The study by Neumark-Sztainer et al. (2010) reported significant improvements in body image at nine months follow-up but not directly post-intervention, whereas the study by Olive et al. (2019) reported a decrease in body dissatisfaction one-year post-intervention; however, these changes were not sustained over time (four years).

Of the six studies that focused on developing physical self-perceptions, when perceived body attractiveness was included in the outcome measures as a primary aim, four studies reported increases in the perceived physical appearance domain (Christiansen et al., 2018; Gibbons et al., 2018; Hajihosseini, 2015; McNamee et al., 2016). Of the remaining two studies, one qualitative study reported that students did not feel the appearance component was relevant to adventure education (Gehris et al., 2010), and the second study showed no significant differences in physical appearance perceptions post-intervention (Mayorga-Vega et al., 2012). Both studies that examined physical self-perceptions when body attractiveness was used alongside other outcome measures reported positive intervention effects (Annesi et al., 2007; Costigan et al., 2016).

The impact that overall programme duration had on effectiveness cannot be established in the current review, as there was a large variation in overall duration between successful and unsuccessful programmes. For example, successful programmes ranged from a total of 2 h 40 min (Halliwell et al., 2018) to 52 h (McNamee et al., 2016), whereas unsuccessful programmes ranged from 6 h (Christiansen et al., 2018) to 12 h 18 min (Gehris et al., 2010) (see Table 3 for further information). Information on who delivered programmes/interventions can be found in Table 3. Two studies that reported no impacts on body image were delivered by teachers (Christiansen et al., 2018; Gehris et al., 2010), yet five studies delivered by teachers alone had successful impacts on body image outcomes. Other studies that reported no impacts on body image outcomes were delivered by a teacher/researcher (O'Brien et al., 2008) and jointly delivered by a teacher and researcher (Mayorga-Vega et al., 2012).

Discussion

The aim of this systematic review was to describe the content and effectiveness of physical education-based body image/body-focused programmes, interventions or curricula. The review identified 19 studies that focused on delivering programmes, interventions or curricula that aimed to impact body image or related phenomena in physical education. This section reflects upon the findings and considers the implications for practice and future research. The review identified that most programmes reported successful outcomes, yet there was no consistent approach to the programme design and delivery, with a range of programme characteristics reported across the studies. Thus, it is evident from our findings that there is no clear consensus about the ways to deliver body image education in physical education. This discussion will consider the effectiveness of three broad categories of programmes, including studies that focused on (1) elements of physical fitness or physical activity, (2) sociocultural approaches and (3) approaches underpinned by movement experiences (e.g. yoga and adventure education).

The majority of studies in this review focused on increasing physical activity or were fitness-based programmes, including programmes that integrated components of fitness development alongside other programme elements. Fitness-based programmes tended to focus on physical self-perceptions, but were generally successful in positively impacting the appearance domain.

However, the mechanisms through which changes in perceived physical attractiveness or body image occurred were unclear and often not reported in studies. It is proposed that physical activity impacts body image through changes to the physical self, perceptions of changes to the self or changes in confidence (Martin Ginis et al., 2012). In relation to changes to the physical self, five studies included in this review incorporated pre–post measures of body mass index (BMI) or body fat (Burgess et al., 2006; Hajihosseini, 2015; McNamee et al., 2016; Neumark-Sztainer et al., 2010; Plekova et al., 2018), with only one study demonstrating significant changes in body fat or weight measures (Hajihosseini, 2015). This highlights that body image and related outcomes can change independent of changes to the physical self. Nonetheless, a physical activity-based intervention included in this review hypothesised that intervention groups would decrease body fat and BMI while increasing physical activity levels (Neumark-Sztainer et al., 2010); therefore, it could be argued that some studies expect the actual physical changes in body composition to subsequently contribute to the psychological perceptions of the aesthetic body. Future research should report the proposed mechanisms of change associated with the intervention or programme.

Whilst increased physical activity is likely to be associated with more positive perceptions of the body (Sabiston et al., 2019), physical activity or physical fitness-based programmes alone do not seek to challenge dominant ideologies relating to body shape and size, and arguably instead reinforce them. For example, focusing on changes in body composition as a means of enhancing body satisfaction is likely to align with dominant ideals related to the gendered and ‘healthy’ body (e.g. slim and/or muscular). There is the risk that if interventions or programmes have an emphasis on using physical activity and exercise as a means of changing the physical self, young people may perceive that the route to body satisfaction is through using exercise to shape and control the body. This could be problematic, as appearance-related exercise goals are linked with lower levels of body image in adults (Hurst et al., 2017), and may impede the ability of young people to challenge the wider sociocultural contexts that their bodies inhabit.

The evidence from this review suggests that there is potential in programmes that promote movement whilst simultaneously providing young people with the skills to challenge dominant discourses around physical activity and body image. It could be argued that studies combining fitness-based components with sociocultural perspectives have the potential to harness some of the benefits of fitness only programmes, whilst also allowing young people to engage in critical conversations relating to the body. Programmes that incorporate opportunities to discuss, challenge and critique the impact of the wider sociocultural context with teachers and peers, provide a platform for young people to also develop a critical awareness of the role of society in shaping their perceptions of attractiveness and health (Azzarito et al., 2016, 2017). Previous successful classroom-based programmes have incorporated content related to appearance ideals, media messages and social comparisons (e.g. Diedrichs et al., 2021) and the success of these classroom-based approaches has been confirmed in a systematic review (Yager et al., 2013).

The current review also highlighted the potential of programmes that focus on movement experiences, such as yoga and adventure education. In relation to movement experiences, body image programmes underpinned by yoga focus on the empowering nature of movement and allowing individuals to appreciate functional components of the body (Halliwell et al., 2018). The yoga programmes were underpinned by body functionality and the notion that focusing on body capabilities would decrease the value placed on the physical appearance of the body (Cox et al., 2017). Body functionality interventions have been successfully used in adult body image programmes (e.g. Alleva et al., 2016), typically through incorporating reflective writing activities (e.g. Alleva et al., 2010); however, physical education provides a space to engage with body functionality-based

programmes in an applied movement context. This review confirms that yoga interventions, when delivered in the context of body functionality, show promise in physical education. Adventure education may also impact body image through increased body functionality in adults (e.g. Mitten and Woodruff, 2010), yet the two adventure education studies included in this review provide mixed outcomes. Indeed, both of these studies were focused on changing multiple outcomes relating to self-concept; body attractiveness was not the sole programme focus. For studies focused on changing multiple outcomes, it is difficult to determine and isolate the proposed mechanisms through which the intervention impacts perceived attractiveness.

To our knowledge, this is the first systematic review to explore the content and effectiveness of physical education-based body image/body-focused programmes, interventions or curricula; however, findings should be interpreted in light of its limitations. Whilst this study acknowledged body image is a multifaceted concept (Cash, 1994) the lack of consistency in terminology and measurement (Kling et al., 2019) makes comparisons across studies difficult. However, the decision to include body image and related phenomena was based on the multi-disciplinary nature of physical education research. Furthermore, the use of English only publications has the potential to overlook research published in other languages, which may exclude important studies and disregard the importance of cultural variations. Furthermore, given that studies tend to focus on discussions of body image in relation to traditional gender binaries, future research may adopt more nuanced approaches to the exploration of body image in physical education.

Conclusions

This systematic review provides a comprehensive and critical overview of the literature that explores the content and effectiveness of physical education-based body image programmes or interventions and identified several promising programme types. The most frequently used programmes focused on either enhancing physical activity or implementing fitness-based strategies. Whilst these programmes appear to be effective in supporting body image, programmes focused on movement experiences (e.g. yoga and adventure education), body functionality and sociocultural approaches also show promise. The findings of this systematic review highlight that physical education-based body image programmes can have positive impacts on attitudes and perceptions of the body. The impact that the programme deliverer (e.g. teacher, researcher, and instructor) and programme duration had on programme outcomes cannot be determined in the current review and should be explored in future research. Future research and practice should also focus on determining the mechanisms of change associated with body image programmes and should explore the promising potential of content that focuses on movement experiences, body functionality and sociocultural approaches. Evaluating how physical education-based approaches compare to classroom-based approaches and how these approaches can be used to support a whole-school approach to body image education could also be a direction of future research.

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Supplemental material

Supplemental material for this article is available online.

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