

## Examining body image among adolescent girls

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# **Examining Body Image Among Adolescent Girls**

**Sharon Yvonne Dalmedo**

**A thesis submitted in partial fulfilment of the  
requirements of University of Wolverhampton for the  
degree of Doctor of Philosophy**

**2022**

# Examining Body Image among Adolescent Girls

SHARON YVONNE DALMEDO

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August 2022

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## **Publications**

### **Peer-Reviewed Journals**

- McIntosh- Dalmedo, S., Devonport, T. J., Nicholls, W., & Friesen, A. P. (2018). Examining the effects of sport and exercise interventions on body image among adolescent girls: A Systematic Review. *Journal of Sports behavior*, 41(1).

### **Conference Proceedings**

- McIntosh-Dalmedo, S., Devonport, T. J., Nicholls, W., & Friesen, A. P. Examining the effects of Sport and Exercise Interventions on Body Image Among adolescent girls: A Systematic Review. British Association of Sport and Exercise Science conference. Poster presentation. Harrogate November, 2018.

### **Other**

- Reflective Piece for the PGR Newsletter: A Working Mothers' Survival Guide to Completing a PhD During a Pandemic (Jan 2022).
- Face-to-face meeting with Gina Wallis (October 2021). Gina is representative of the National Association of PE Teachers, a consultant for Sport England, The Youth Sport Trust and an Ofsted inspector. The purpose of the meeting was to discuss the findings of my research programme; with a view to actioning the study findings on a national level through a wider targeted audience of PE practitioners and Head teachers. An outcome of this was an invitation to present study findings at a PE National Conference.
- Raising Girls 'participation in Sport and Exercise (2019). I delivered a presentation and workshop to the South Birmingham Oaks Collegiate. I presented my research findings to P.E teachers from 11 Secondary Schools within South Birmingham during an annual

collegiate teacher training day. The overall aim of the session was to provide P.E teachers with an understanding of participation barriers in Girls Physical Education, and present strategies and research insights into ideas to facilitate an increase in female participation.

- Athena SWAN programme (2016-2017). University of Wolverhampton.  
Representative for Doctorate students at the Forum meetings: Addressing gender equality barriers for females in Education.
- The Doctoral College Annual Researchers' internal poster competition. University of Wolverhampton. McIntosh-Dalmedo, S., Devonport, T. J., Lane, A. M., & Nicholls, W., (2017). Examining the Test-Retest Stability of the Body Esteem Scale Among a Sample of Female Adolescents.
- University of Wolverhampton Post-graduate promotional video (June 2017).  
McIntosh-Dalmedo, S., Devonport, T. J., Lane, A. M., & Nicholls, W. Examining the Test-Retest Stability of the Body Esteem Scale Among a Sample of Female Adolescents.
- University of Wolverhampton Blog: McIntosh-Dalmedo, S., Devonport, T. J., Nicholls, W., & Friesen, A. P. (2016). Do exercise interventions enhance the body image of adolescent girls?
- The Doctoral College Annual Researchers' internal poster competition. University of Wolverhampton. McIntosh-Dalmedo, S., Devonport, T. J., Nicholls, W., & Friesen, A. P. (2016). Examining the effects of Sport and Exercise Interventions on Body Image among adolescent girls.

## **ABSTRACT**

Negative body image is commonplace among females. The start point for this programme of research was to undertake a systematic review to (a) provide a comprehensive review of sport and exercise interventions intended to enhance female adolescent body image, (b) identify research strengths and limitations, and (c) inform the development of interventions to enhance body-esteem. Findings illustrated inconsistencies in measures and methods used to assess adolescent body image, and equivocality in study outcomes. Researchers and practitioners alike need to know if changes in body-image scores can be attributed to an intervention or a product of using an unstable scale. Study two built on the systematic review by examining the test-retest stability of the 14-item Body Esteem Scale (BES; Confalonieri et al., 2008) among female adolescents. It also assesses the stability of the scale within and across the contexts of a school hall (in uniform) and Physical Education (PE) within changing rooms (in PE kit). Findings indicate good test-retest stability for BES subscales within context, but poor test-retest stability across contexts. Body esteem was consistently lower when completed wearing PE kit, as opposed to school uniform. These findings informed a simple PE uniform intervention for study three that sought to enhance body esteem in PE contexts. Girls first completed the BES wearing traditional PE kit. Then, for a two-week period, they were allowed to wear PE clothing from a flexible range of options, completing the BES again at the end of this period. Across all three subscales (appearance, weight, and attribution), body-esteem scores were highest when afforded flexibility in PE clothing options. The intervention delivered presents a simple, cost effective, scalable, and effective strategy that may prevent a reduction in body-esteem ascribed to PE contexts for adolescent girls. It is known that low body-esteem presents a barrier to engagement in physical activity

for female adolescents, whilst participating in physical activity has been found to act a protective factor against low body-esteem by decreasing body image disturbance. Further research is required to test the efficacy and transferability of sport clothing interventions on body esteem in different contexts and among different groups. For example, different age groups, ethnic groups, gender, disability status, religion, educational level and deprivation levels that include socially disadvantaged communities. Research is also required to establish the longitudinal effects of such interventions.

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I would like to dedicate this research to not only my children, but to those who suffer with their mental health or well-being. To those who feel they have no voice or cannot cope, know that you are of unique worth, and remember that what ever difficulties come your way that you have inside you the power to overcome, as you are endowed with greater strength than you can comprehend. Always choose to fight against giving up. *For God hath not given us the spirit of fear; but of power, and of love, and of a sound mind (2 Tim: 1.7).* Beyond body image is the most important beauty we possess; that which we carry inside our souls through how we treat one another, and support one other.

Finally, to my creator, who is always just a prayer away. To my God in heaven for making this dream possible; from a grubby, carefree child growing up in the glorious 70s and 80s, with absolutely no regard for appearance related concerns on a council estate, to my PhD.

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# Chapter One: Introduction

## *1.0 Introduction and Context of Research*

Body image is a construct that is subjective in nature and comprises of perceptual, cognitive, emotional, and behavioural considerations associated with one's body (De Bruin et al., 2011; Spreckelsen et al., 2018). According to Gardner (2011), the two most commonly reported aspects of body image are perceptual (which signifies an individual's judgements of their appearance and shape) and attitudinal (which relates to how individuals feel about their body). Evaluations and judgements relating to one's body (i.e., the degree of personal satisfaction with one's appearance) is a concept described as body-esteem (Franzoi & Shields, 1984). Research suggests body-esteem can be moderated by numerous factors (Zanon et al., 2016) including social scrutiny (e.g., other people evaluating your body), social comparisons (e.g., comparing your shape and size with others), body exposure (e.g., undressing in a PE changing room), being physically active (e.g., participating in school sport) and type of clothing worn (e.g., PE kit) (Cash, 2002).

Measuring the cognitive-affective aspects of body image (BI) is important, as it enables feelings of satisfaction or dissatisfaction regarding one's body shape to be captured and quantified (Gaudio et al., 2014). Research suggests that socio-cultural expectations imposed on girls and women regarding their body shape and visual appearance present a source of judgment (Devonport et al., 2019). In Western society, including the UK, a slender toned body is the normative ideal that females are encouraged to strive for in all contexts (Homan et al., 2012). As such, women are encouraged to scrutinise and modify their body in accordance with these norms (Hendley & Bielby, 2012). For example, in the ESPN's

“Magazine Body Issue and Sports Illustrated Swimsuit Issue”, images of muscular, toned body shapes are presented as works of art (Cranmer et al., 2014). Exposure to such physical idealism can increase Body Image Dissatisfaction (BID); which refers to negative evaluations regarding the body shape or size, in particular the disparities between the self-perceived body and the body ideal (Homan, 2010; Mitchison et al., 2017).

### ***1.1 Examining Body Image Among Adolescent Females***

It is of importance to examine body image during adolescence as the changes taking place during this time can lead to discontent with shape and size, which is a contributing factor to low body esteem. During adolescence, female’s transition through a variety of physical and emotional changes; for instance, rapid physical changes where they acquire up to 50% of their total adult body weight (Maxwell & Cole, 2012). This period of intense change, in a relatively short time can present emotional challenges and/or physical difficulties (Kail & Cavanaugh, 2010; McCabe & Ricciardelli, 2004). For example, female adolescents can struggle to accept transformations that their bodies must undergo as they transition into womanhood; this challenging period can present an unwelcomed onset of gain weight (Wertheim & Paxton, 2011). For many girls, pursuit of the body ideal begins during childhood, and awareness of body ideals increases as pressures to conform continue (Juli, 2017; Readdy et al., 2011). The pervasive consequences of poor body image in girls are well established and have been documented for over two decades (Moehlecke et al., 2020; Thompson et al., 1999).

As literature continues to accumulate, the growing scale of the issue is evidenced exposing repercussions of negative body image that are far reaching and may materialise

from the ages of three to five years (Perez et al., 2018). Etcoff and colleague's (2004) found that six out of 10 adolescent girls reported that they would feel more content if they had a thinner body shape. In later research, when selecting body ideals (combined weight and shape), an underweight ideal was preferred among female adolescents (Kuan et al., 2011). Similarly, Martins and colleagues (2010) report that during adolescence a relationship endures between body dissatisfaction and body weight status, with overweight females experiencing greater discontent with their body image.

Across Western countries, the damaging effects of BID are reported among 40-50% of pre-adolescent girls, rising to 50-70% during adolescence (Wertheim et al., 2004). Between 40 and 70% of adolescent girls are unhappy with at least two parts of their bodies (King, 2018). BID evident during childhood does not show signs of relenting until young adulthood (Bucchianeri et al., 2013). Possessing a negative body image is suggested to be widespread, particularly among females (Salk & Engeln-Maddox, 2012). On a global scale, the Dove Campaign for Real Beauty identified that nearly three quarters of girls sampled confirmed they felt dissatisfied with their looks, and desired ways and means to appear more attractive (Celebre & Waggoner Denton, 2014). Indeed, negative thinking among females about their body size or shape is thought to be so commonplace it has been termed normative discontent (Cash & Smolak, 2011; Hardit & Hannum, 2012; Rodin et al., 1984; Tantleff-Dunn et al., 2011). Several factors have been implicated in the development of normative discontent, including exposure to society's stereotype of the female ideal (Rodin et al., 1984; Tantleff-Dunn et al., 2011).

Appearance size norms are perpetuated through media portrayals of what is deemed to be an 'average' sized woman (sizes 14 and 16), and society sees the 'idealization of some

[the thin], the acceptance of the average, and the denigration of others [the fat]' (Brown, 2005, p. 248). Society teaches individuals that being overweight is unattractive and unacceptable (Kwan & Graves, 2013). Global normative appearance representations of what is considered to be acceptable abound, as we see for example within fashion, as plus-size models continue to be under-represented and marginalised (Peters, 2014).

There remains a great deal to do to challenge and broaden society's representations of appearance perfection. For example, global advertising corporate campaigns such as the Dove Real Beauty campaign, that are apparently designed to focus on 'body positivity', direct females to believe Dove's products will enhance a woman's attractiveness, which is an apparently an integral part of being a woman (Johnston & Taylor, 2008). With universal messages of aspiring to achieve normative appearance ideals, it is unsurprising that females can be unsatisfied with their body shape and appearance (Gill & Elias, 2014). Elia and colleagues (2020) suggest that adolescence is a critical period for forming either positive or negative perceptions of the body (de Pinho et al., 2019). As such this time presents a window of opportunity in seeking to positively influence body esteem. However, studies investigating body esteem among child and adolescent populations remain limited (Zhang et al., 2020).

### ***1.2 Sport and Exercise Interventions Intended to Enhance Adolescent Female Body Image***

The utility of sport and exercise as an intervention intended to enhance body image is not without challenges, as a complicated relationship exists between body image and physical activity participation (Camacho et al., 2006). It appears that whilst body image can act as a positive mediator for exercise participation for some individuals, it can also remove a desire to exercise in others' (Schuler, 2004). For instance, up to 60% of 1,200 adolescent girls (aged

between 10-to-17-years of age) recruited from six countries (U.S., Canada, U.K., Germany, Brazil, and Russia) stipulated that they had avoided physical activities because of body image concerns (Dove, 2010). Furthermore, participating in sport and exercise can result in negative experiences including body dissatisfaction (Esnaola & Revuelta, 2009), and can therefore be a detrimental experience for some. Physical Education (PE) can be an environment where adolescent females feel vulnerable (Parrish et al., 2012; Stanley et al., 2012). To address this issue, researchers highlight a need to identify interventions that will reduce negative experiences of physical activity and enhance body image among female adolescents (Juli, 2017).

### ***1.3 Aims and Objectives of Research***

The objective of this programme of research was to investigate adolescent female body image in the context of sport and exercise; striving to develop an evidence-based sport and exercise intervention intended to enhance body esteem. As such the first objective of this programme of research was to synthesise published peer reviewed literature that had delivered a sport or exercise intervention with the aim enhancing adolescent female body image. The key questions explored in conducting this systematic review were (a) What are the effects of exercise interventions on body image among adolescent females? (b) What are the implications of a critique of included studies for future practice?

Completion of this systematic review identified inconsistent methodologies and concerns with the measures of body image used. This finding changed the direction of the planned programme of research. If a measure body image used is not reliable, then it is not possible to deduce that any change in body image following a sport or physical activity

intervention is attributable to the intervention. As such, the programme of research had an additional focus towards an examination of the test-retest stability of a measure of body image. Specifically, the test-retest stability of the 14-item Body Esteem Scale (BES; Confalonieri et al., 2008) was assessed both within and across the contexts of PE changing room (dressed in PE kit), and school hall (dressed in school uniform). The research questions addressed were (a) What is the test-retest stability of all 14-items of the Body Esteem Scale (BES; Confalonieri et al., 2008) across all three subscales (BE-Appearance, BE-Weight, and BE-Attribution), (b) Does the BES yield the same results following repeat distribution within the same and across different contexts.

Findings indicated that the wearing of school PE kit in a PE changing room can negatively influence body esteem, and by extension, can moderate a female's willingness to participate in sport and physical activity (Slater & Tiggeman, 2010). This programme of research concluded by examining the effects of a simple PE uniform intervention intended to maintain body esteem. The rationale being that if effective, this presents a simple, scalable intervention, accessible to all schools, of benefit to body esteem, and with the potential to enhance girls' experiences of school PE. The final intervention study addressed the following questions (a) What are the effects of a PE clothing intervention on BES scores and (b) Does the context in which BES is measured (PE changing room or school hall) have any influence on the effect of the intervention.

#### ***1.4 Structure of the Thesis***

This thesis is comprised of seven chapters. Chapter two critically examines background theory and literature pertinent to female adolescent body image and the aims of this

programme of research. Chapter three presents a systematic review examining the effects of sport and exercise interventions on body image among adolescent girls. In summarising key findings, this informed a change of direction in planned the programme of research. Whilst the systematic review is published as a four-author article, I claim authorship in developing the protocol for the systematic review and completing the work. For example, I established the search terms, ran scoping searches, collated articles, synthesised the literature, and wrote up findings. Additional authors contributed by supporting title screening (a requirement of systematic reviews), reviewing the manuscript as it evolved, and engaging in discussions to support write up.

The systematic review highlighted concerns over the reliability and stability of measures of body image used (McIntosh-Dalmedo et al., 2018). Body image is purported to be malleable and thus can be improved and enhanced through intervention (Tylka & Wood-Barcalow, 2015). In order to confidently state that an intervention, such as a sport and exercise intervention, has had influence; the test-retest stability of measures of body image becomes vitally important (Mendelson et al., 2000). As such, examining the test-retest stability of the 14-item Body Esteem Scale (BES; Confalonieri et al., 2008) was the focus of study two, the findings of which are presented in chapter four. The test-retest stability of the three subscales of BES (appearance, weight, and attribution) was examined within and across two contexts, those being in a school hall in school uniform, and in a PE changing room wearing PE kit. Test-retest outcomes indicate measure stability within context, but not across context. Findings highlight lower body-esteem among adolescent girls whilst in PE uniform. This led to a PE clothing intervention intended to maintain body-esteem which is presented in

chapter five. Intervention outcomes are discussed, and implications for future research considered.

Chapter six presents a general discussion of key findings and recommendations from across the programme of research. This chapter identifies the strengths and limitations of the research programme before highlighting future research directions and conclusions. Finally, chapter seven concludes the thesis by presenting relevant reflections on the process of undertaking of this programme of research.

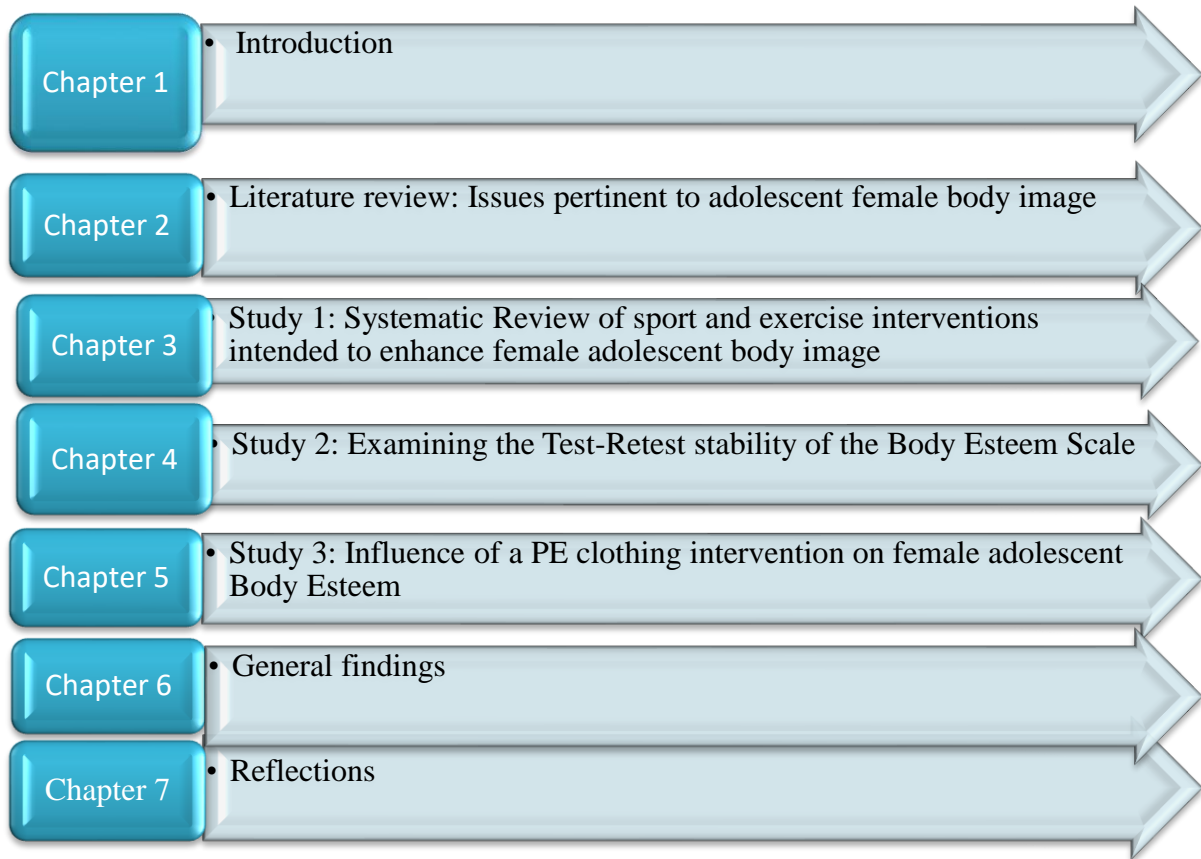


Figure 1. Flow chart presenting the structure of the doctoral thesis

# Chapter Two: A Review of Female Adolescent Body Image Literature

## *2.0 Introduction*

This chapter presents a critique of literature regarding female adolescent body image. Having defined body image and related concepts, theories of body image will be examined in order to establish a strong theoretical foundation for the present work. The key development stages of adolescence will be investigated along with factors that affect adolescent body image, and outcomes of body image dissatisfaction. Extending the literature review, Chapter three presents a systematic review, undertaken as study 1, which examines the effects of sport and exercise interventions on body image among adolescent girls. This was in order to inform the development of a sport or exercise intervention intended to enhance adolescent female body image.

## *2.1 Definitions of Body Image and Related Constructs*

Body image (BI) has been defined as “the multifaceted psychological experience of embodiment, especially but not exclusively one’s physical appearance” (Cash, 2004, p. 1). Body image is complex encompassing numerous perceptual and attitudinal components such as evaluative–affective and cognitive–behavioural aspects (Cash, 2002). Due to the multi-dimensional nature of the body image construct, terms such as body-esteem, body image and self-image are often interwoven (Powell & Kahn, 1995). This includes additional terms of altered body image such as negative body image, body disturbance, and body dissatisfaction (Hosseini & Padhy, 2020). Of relevance to this programme of research, two contrasting, yet prominent constructs include female appearance satisfaction and body image dissatisfaction

(BID), and when amalgamated create the term body-esteem (BE). BID is defined as a subjective negative evaluation of one's physical appearance (Presnell, Bearman, & Stice, 2004) and features heavily within body-image literature in identifying a cause-effect relationship. Body-esteem refers to a person's self-evaluation, attitude, and feelings about their body (Fisher & Cleveland, 1968). Body-esteem is cited as an important dimension within the body image construct (Thompson et al., 1999), however, as a more specific sub-component of the broader term of body image it is not widely investigated or reported. Therefore, in the present programme of research, as body-esteem is embodied within the global construct of body image, the terms body image and body-esteem are utilised interchangeably.

## ***2.2 Theories of Body Image Relevant to Female Adolescent Populations***

Theory is defined as “systematically organised knowledge applicable in a relatively wide variety of circumstances devised to analyse, predict, or otherwise explain the nature or behaviour of a specified set of phenomena that could be used as the basis of action” (van Ryn & Heaney, 1992, p. 316). According to Maxwell (2013) theoretical frameworks identify the fundamentals beliefs, assumptions and possibilities that drive and support research. Not only do theories identify “what is, or can be observed” (Denzin, 1989, p. 4), they can provide a clearly articulated rationale, and highlight the significance of the findings which can be instrumental in shaping interventions intended to facilitate behaviour change. For instance, theories help to make sense of key findings and provide a structure or insights into how a study can contribute new knowledge (Anfara & Mertz, 2015). Whilst, inadequate use of theory is recognised within literature to be a concern (Bradbury-Jones et al., 2014; Davies et

al., 2010; Ravitch & Carl, 2016), information observed only through a theory, and not practically explored can weaken the notion of objectivity (Guba & Lincoln, 1994; Maxwell, 2013).

Given the number of body image theories, selecting a theory, or theories, that best underpin this programme of research necessitates consideration of the relevance to adolescent female populations, through providing insight into the characteristics of body image and factors that may moderate or mitigate body image. Boyer (2018) highlights the benefits of drawing on a range of theoretical concepts in order to explore the impact of social contexts, which are less understood. Three key influences on body image are reflected within theories of body image. These are the Self (i.e., emotions; objectification), Others (i.e., regulation by others; self-concept) and Wider (context; culture). These influences were captured within four main theories described within this literature review. Those being the Social Comparison Theory (SCT; Festinger, 1954), the Objectification Theory (Fredrickson & Roberts, 1997), the theory of Objectified Body Consciousness (OBC; McKinley & Hyde, 1996), and the Cognitive Behavioural Model (Cash, 2002, 2012).

### ***2.2.1: Social Comparison Theory (Festinger, 1954)***

The Social Comparison Theory (SCT; Festinger, 1954) contends that appearance comparisons are based on internalisation from exposure to external influences. This theory identifies a natural tendency to liken one's opinion, thoughts and beliefs with those of others for the purpose of self-evaluation (Festinger, 1954). The SCT identifies that an individual not only compares their opinions and abilities with others for self-evaluation but also for self-

understanding. Social comparisons have been described as a personality trait (Yang & Robinson, 2018) with the drive or desire to engage in social comparisons varying from person-to-person (Gibbons & Buunk, 1999). Females with greater appearance concerns may place greater value on appearance comparisons (Cash & Pruzinsky, 2002; Grogan, 2008), carrying greater negative consequences for body-esteem and self-esteem (Cash & Pruzinsky, 2002; Ip & Jarry, 2008). There are two comparisons outlined within the SCT (Festinger, 1954) that underpin investigations of adolescent female body image. Firstly, comparisons known as “an upward comparison” describe comparisons with other girls who they perceive themselves to be superior to. Secondly, “a downwards social comparison” is one whereby a person deems another to be inferior to them.

There are different responses and emotions that are initiated through the processes of upward and downward comparisons. Upward comparison leads to negative responses including unpleasant emotions (i.e., anger or frustration) and lowered body satisfaction. because such comparisons negatively influence self-evaluations and downward comparisons lead to positive responses, such as improved mood, enhanced self-worth and self-esteem (Buunk & Gibbons, 2007, Wills, 1991). Research suggests that social comparisons (reported through either respect to physical appearance or through elements of body functionality) can lessen the benefits associated with focusing on one’s own body functionality (Thomas et al., 2019). Social comparisons can have important implications for female adolescent well-being in particular (Buunk & Gibbons, 2007), as this presents a time when adolescent girls may be vulnerable, and or susceptible to the influences of tailored messages. They may be more inclined to evaluate themselves against other people, and struggle to evaluate themselves in an impartial and unbiased manner (Festinger, 1954). They may also be more inclined to

participate in actions that reduce differences between other people and themselves (Halliwell, 2015). The SCT identifies external influences as agents of socialisation that can influence social norms in adolescents and youth populations (Webb & Zimmer-Gembeck, 2014).

In the context of sport and physical activity, the body may be on show to a greater extent, and thus may increase the opportunity for appearance comparisons thereby influencing body-esteem. Indeed, research indicates that females are initially evaluated and judged by others because of their body shape and appearance (Holland & Tiggemann, 2016; Karsay et al., 2018). Self-evaluations of appearance are powerful in informing the degree to which an individual uses their physical appearance to identify themselves within their social and emotional contexts (Cash et al., 2004). Therefore, the SCT is relevant to adolescent female body image research as it assists in understanding how “individuals’ beliefs about how their looks influence their personal or social worth and sense of self” (Cash et al., 2004, p. 309). What remains unclear and is connected to the main tenets of the SCT, is the impact of contextual/environmental variables in specific situations that may or may not influence appearance comparisons for body-esteem.

### ***2.2.2: Objectification Theory (Fredrickson & Roberts, 1997)***

The objectification theory (Fredrickson & Roberts, 1997) presents a framework to understand the implications of being female in Western society, whereby females are primarily viewed as an object, scrutinised and commented upon purely because of the way that they look (Holland & Tiggemann, 2016; Karsay et al., 2018). This established theory argues that the objectification of women leads to valuing appearance over other attributes such as personality or health (Fredrickson & Roberts, 1997). Furthermore, repeated objectification experiences

can lead to females' accepting and internalising another person's gaze on their appearance (Fredrickson & Roberts, 1997; Moradi & Huang, 2008). This theory proposes that self-objectification leads to appearance anxiety (Roberts et al., 2018), increased body shame (Greenleaf, 2005; Daniel et al., 2010), lower body satisfaction (Prichard & Tiggemann, 2005; Strelan et al., 2005), and lower body-esteem (Impett et al., 2011; Strelan et al., 2005). Growing evidence suggesting that self-objectification severely limits female emotional well-being, starting at a young age (Grabe et al., 2007), and with an increased self-objectification of girls' bodies initiated by puberty (Fredrickson & Roberts, 1997).

The objectification theory also highlights that the process of self-objectification can be triggered in context dependent situations and environments. For example, Tiggemann and Slater (2001) report that participating in specific physical activities (i.e., ballet) during childhood was correlated with adult self-objectification. In another example, self-objectification levels increased through modifications to context, such as clothing worn (Fredrickson et al., 1998). In support, Quinn and colleagues (2006) found that certain clothing worn by young women (i.e., swim wear), increased levels of objectification and body shame in comparison to females who wore looser fitting clothing; such as sweaters. Self-objectification initiates a focus on viewing the body as an object, devaluing and blocking internal experiences (i.e., sensation and function) in order to concentrate on appearance (Roberts et al., 2018). This facilitates a process whereby women see and value themselves based on their physical appearance, from an outward perspective looking in, as opposed to concentrating on internal qualities.

This theory contends that targeting self-objectification through intervention is suggested to enhance body image and psychological wellbeing. To this end, exercise is

reported to reduce self-objectification, and enhance body image (Ariel-Donges et al., 2019; Cox & McMahon, 2019; Cox et al., 2019; Mahlo & Tiggemann, 2016; Neumark-Sztainer et al., 2018). Exercise serves as a means to focus thoughts and opinions of how the body can act and feel (an internal focus); as opposed to how it looks (an external focus), therefore reducing emphasis on the appearance of one's body (Impett et al., 2006).

### ***2.2.3: Theory of Objectified Body Consciousness (OBC; McKinley & Hyde, 1996)***

The theory of objectified body consciousness (OBC; McKinley & Hyde, 1996) is closely allied to the objectification theory (McKinley & Hyde, 1996). Across literature, the term objectified body consciousness is used interchangeably with self-objectification. However, the OBC refers specifically to a process whereby the individual becomes aware of an observer's gaze on their appearance (Feltman & Szymanski, 2018; Fredrickson & Roberts, 1997; Moradi & Huang, 2008). This realisation can lead to a greater awareness of self-consciousness related to physical appearance (Fredrickson & Roberts, 1997; McKinley & Hyde, 1996). Self-consciousness is something that increases when personal identity has been shaped and distinguished through physical appearance (McKinley & Hyde, 1996).

Increases in OBC can evoke negative feelings whereby an individual begins to see themselves negatively from an outward perspective, lowering body-esteem and resulting in harmful behaviours (Bell et al., 2018; Cohen et al., 2018; Caso et al., 2019; Fardouly et al., 2015). Internalisation is specific to negative body image and leads to anxiety, and social isolation (Patalay & Hardman, 2019).

The theory of objectified body consciousness consists of three elements: body surveillance, body shame, and appearance control beliefs (McKinley & Hyde, 1996). Moradi

and Huang (2008), state that body surveillance is multi-dimensional in nature and comprises of three aspects (self-objectification, body surveillance, and internalisation) and self-objectification correlates with body surveillance (McKinley & Hyde, 1996). Body surveillance is harmful as it creates persistent thinking and relentless scrutiny in order to avoid or prevent negative judgments (Daniel & Bridges 2010; Jackson et al., 2016).

Adolescent girls demonstrate greater amounts of body surveillance, self-objectification and body shame (Grabe et al., 2007), adolescence presents as a time of vulnerability when peer approval and social acceptance is of utmost importance (Bell et al., 2018; Foulkes & Blakemore, 2016). Females typically experience more negative experiences relating to body shame based on their physical appearance. For instance, Jeon and colleagues (2018) found that women (particularly overweight women) are more often targeted and verbally reprimanded and abused for their physical appearance in comparison to overweight men. Types of negative appearance related behaviours include body checking (e.g., constantly touching and checking one's shape), clothing concerns (e.g., wearing loose fitting clothing as to not draw attention to one's shape or size), and engaging in behaviours to control appearance (e.g., sport and exercise participation, dieting, substance use, cosmetic surgery).

Appearance control beliefs relate to a view that physical appearance is something that can be modified if enough time and effort are taken to present oneself in a positive manner. Appearance control beliefs can however facilitate positive insights. For instance, they can instil a belief that one has control over their life (McKinley & Hyde, 1996; McKinley, 1998, 1999) and can improve psychological well-being, body-esteem, and body satisfaction (John & Ebbeck, 2008; McKinley, 1999; McKinley & Hyde, 1996; Noser & Zeigler-Hill, 2014). If a person approximates their appearance, ideals are consistent with their identified

gender, their gender identity may be legitimised and their self-worth elevated (Tiggemann, 2011). Scholars suggest that when adolescents suppose they have control over their appearance, they have greater levels of body confidence (John & Ebbeck, 2008; McKinley & Hyde, 1996). Therefore control beliefs can moderate behaviours and feelings (Schall et al., 2016) through the ability to increase perceived self-efficacy, and therefore improve physical self-worth (John & Ebbeck, 2008). In summary, a complex relationship between appearance control beliefs and OBC exists (McKinley & Hyde, 1996, 1998, 1999; Moradi & Varnes, 2017). Therefore, investigating and exploring ways to address body image concerns during adolescence may be fruitful in helping the development of a more resilient body image.

#### ***2.2.4 Cognitive Behavioural Model of Body Image (Cash, 2002, 2012)***

The cognitive behavioural model (Cash, 2012, p. 334) posits that “appearance-related experiences consist of (1) perceptions of the aspects of personal appearance (i.e., mental representation of one’s size, shape, and facial characteristics); and (2) attitudes about one’s appearance”. This model (Cash, 2002, 2012) describes two main elements of body image; body image evaluation (i.e., satisfaction or discontent with body shape and appearance) and body image investment (i.e., how one thinks and feels about body self-evaluation). Body image evaluation reflects an individual’s beliefs, appraisals and feelings (e.g., satisfaction or dissatisfaction) concerning one’s body (evaluative-affective). Body image investment identifies how a person feels regarding their appearance in relation to their sense of self and how their attitude is shaped through thoughts, feelings and behaviour towards oneself (Cash, 2012). Body image investment can be captured through quantifying value, meaning and the impact of body appearance in a person’s life (Cash et al., 2004). When more time and effort

is placed in improving appearance, anxieties can increase, therefore those who invest more in their bodies also tend to use negative body image coping behaviours (e.g., body checking) (Engle et al., 2009).



**Figure 2: Cognitive Behavioural Model of Body Image (Cash, 2012)**

Historical factors identified in the model highlight how events, experiences, and characteristics can mediate how a person feels and thinks about their body (i.e., personal experiences, physical changes, and personality). For example, Cash (2012) posits that meeting or not meeting cultural appearance norms can influence body image, (e.g., heavier body weight, too tall, too short). However, Cash argues that personality types also play a role in the development of body image, with certain traits (e.g., perfectionism or self-objectification) facilitating an increase in body image concerns, whilst other traits (e.g.,

strong body acceptance or high body-esteem) help maintain a positive body image. Proximal influences presented in the cognitive-behavioural model describe life events that can influence appearance evaluations. For example, body image can be influenced in environments where social and cultural norms are demonstrated, and through childhood experiences (Daig et al., 2006; Nichols et al., 2018; Saiphoo & Vahedi, 2019). For example, older female adolescents who look to avoid engaging in PE because of expectations of how to look in sports clothing, and/or due to concerns that physical exertion leads to sweating and modifying hair and make-up, thereby resulting in appearance concerns.

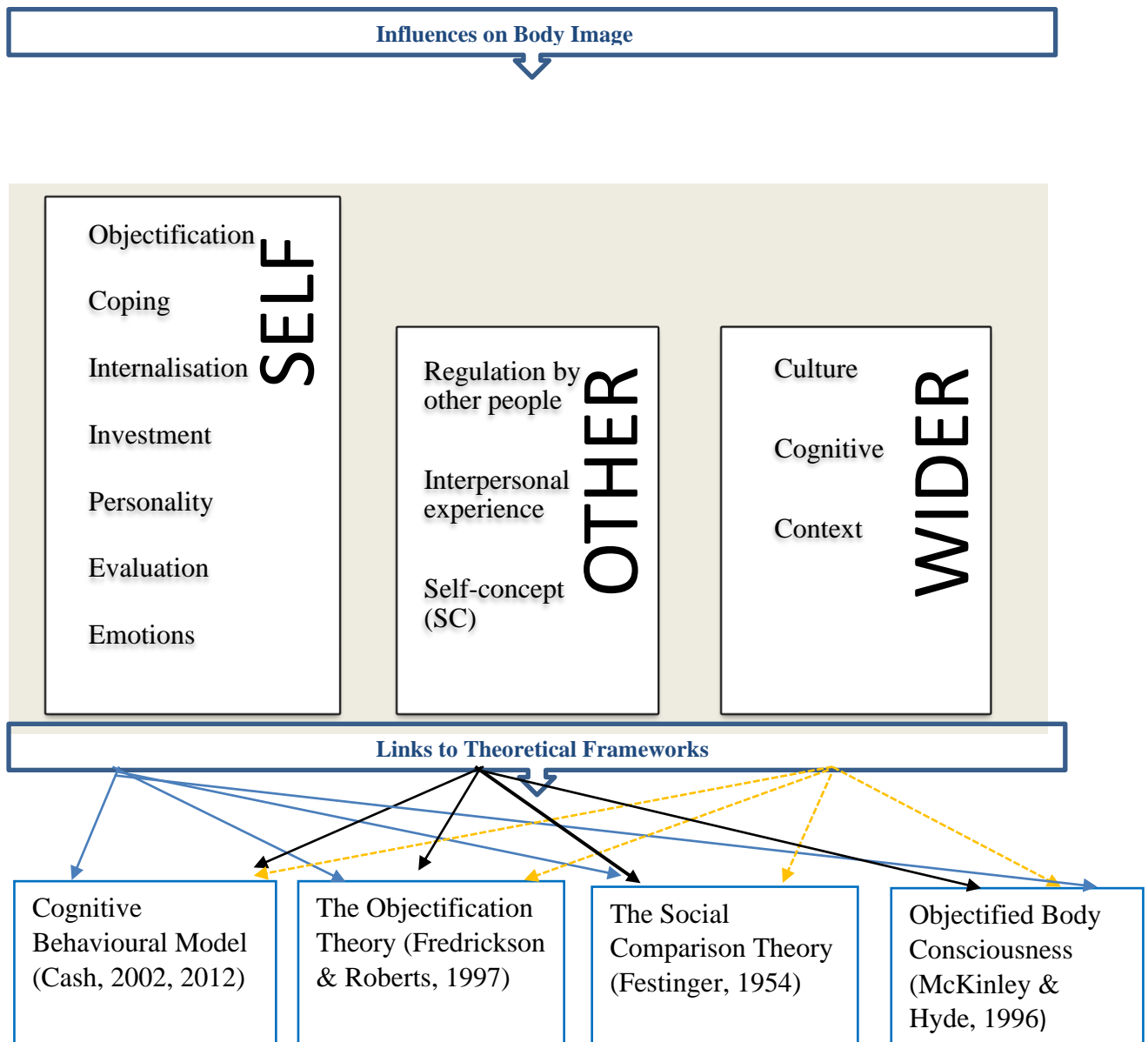
### ***2.2.5: Commonalities Across Presented Theories***

As illustrated in Figure 3, all four theories of body image described seek to explain how appearance related concerns are shaped and manifested via three forms of influence (SELF, OTHER or WIDER). Theories highlight how these three forms of influence can affect adolescent females' thoughts, attitudes and behaviours surrounding body image. For instance, The Social Comparison Theory (SCT; Festinger, 1954) described how a person instinctively makes comparisons and judgements of others (against themselves), and that this can often lead to changes in individual behaviours. The Objectification Theory (Fredrickson & Roberts, 1997) illustrates the consequences for females who are objectified, highlighting that where girls and women internalise an observer's view of their physical self, habitual body checking and monitoring.

The Objectified Body Consciousness Theory (OBC; McKinley & Hyde, 1996) describes how a female's body is an object to be viewed, and can be viewed as a detached observer (attempting to see themselves as another sees them). Being objectified and or scrutinised can

increase body surveillance resulting in increased body dissatisfaction and appearance related shame. Finally, Cash's cognitive behavioural model suggests that an individual's body image is constructed through a combination of events which influence thoughts, feelings, and emotions which effects responses to these bodily experiences. Processes that can influence body image include social evaluations (e.g., others scrutinising your body shape and size), social comparisons (e.g., comparing your body with others), body exposure (e.g., in a PE changing room), exercising (e.g., playing basketball) and wearing particular clothing (e.g., physical education kit) (Cash, 2002).

The importance and relevance of the influence of context is paramount to this project, as the potential role of social and cultural factors as a major contributor influencing PE clothing is one that requires greater exploration; as this is central to this research project. Research provided by Ng and colleagues (2015), suggests that cultural experiences can lead to differences in how individuals relate to their bodies. Greater insights into the influence of context can be provided through a deeper understanding of social and cultural factors. Sociocultural models of body image identify that body dissatisfaction increases when females repeatedly compare their physical appearance to that of others (Vartanian & Dey, 2013). In addition, it is suggested that the more frequently females engage in behaviours where they can repeatedly compare their physical self, the greater the level of body dissatisfaction (Vartanian & Dey, 2013). To highlight these findings further, influences on body image and potential links to theoretical frameworks are outlined below (Figure 3).



**Figure 3: Influences on body-esteem**

### ***2.3 Defining Adolescence***

The World Health Organisation (WHO, 2006) defines subcategories of adolescence as; early (10-15 years), middle (14-17 years), and late adolescence (17-21 years). The majority of adolescents are included in the age-based definition of “child”, adopted by the Convention on the Rights of the Child, as a person under the age of 18 years. The commonly accepted categories offered by WHO will be used to guide the present research. This is important to clarify because there are wide variations evident in existing literature in defining early, middle and late adolescence. Adolescence is a significant phase in the development of body image (Fenton et al., 2010; Kostanski et al., 2004) because it encompasses psychological, social, ethnical, and physical aspects of maturation. However, research suggests that different populations enter puberty at different stages within adolescence. The definitions of these changes within adolescent vary. For example, Black girls enter puberty faster than White girls, with some from the age of 8 (Mendle et al., 2010). Most body image research is undertaken with White female populations of an adolescent age, whilst research relating to girls from different ethnicities and male populations are far less prominent (Biro et al., 2013; Marceau et al., 2019).

### ***2.4 Factors Influencing Female Adolescent Body Image***

#### ***2.4.1 Pubertal Maturation***

Puberty is described as a time when a child develops sexual and reproductive characteristics (Zhu, 2021). The average age of the onset of puberty is approximately 8 to 13 years for a female, whereby substantial changes exist such as the growth of pubic hair (pubarche) (Wolf & Long, 2016), and rapid growth can be evidenced in body height and weight (Christian et

al., 2018). But this range can differ across literature. For instance, in other studies the consensus is that pubertal development for girls ranges between 9 to 17 years of age (Carter, 2020). During puberty, increase in amounts of adipose tissue (Cameron et al., 2017) can often be correlated with an increase in body dissatisfaction (Da Luz Neto et al., 2019). Craike and colleagues (2016) undertook 59,750 repeated measures observations, gathered across five successions of data collection. Findings indicated that body dissatisfaction increases through adolescence across both genders; however, boys are less prone to report body dissatisfaction and convey lower levels of weight and shape concern opposed to their female counterparts. Whereby, girls described themselves as “too fat,” with higher instances of this among older adolescent girls as opposed to younger girls (45.5% v 40.9%).

As adolescents navigate through puberty, body-image dissatisfaction can begin to increase due to dissatisfaction with shape, size, physical appearance and changes within and of sexual organs (Gao et al., 2005). This is in addition to accepting significant changes that take place regarding hormonal levels (Choi, & Kim, 2016). Arguably, puberty is a notable period of vulnerability for adolescents where body-esteem can decline (Robins et al., 2002; Tiggemann, 2005) and therefore a wide plethora of physical changes can contribute to increases in anxiety (Holder & Blaustein, 2014). But in addition to undergoing several physical changes, the adolescent female undergoes several emotional changes that are triggered during puberty. Scholars recognise that the most common body image issue faced by adolescents is body image dissatisfaction (BID) (He, et al., 2016). For example, Bucchianeri et al. (2013) investigated variations in body dissatisfaction from adolescence to young adulthood over a 10-year period with 1,902 participants from 31 public schools. Amongst females, body dissatisfaction outcomes were significantly higher than male

counterparts, and female participants became progressively dissatisfied with their bodies as time progressed. Within the females it was reported that body dissatisfaction increases relatively steadily over time during middle school, which is identified as early adolescence). However, the greatest decreases in body dissatisfaction were seen between middle school, identified as early adolescence ( $M_{\text{age}} = 12.8$  years,  $SD = 0.7$ ) and high school, identified as middle adolescence ( $M_{\text{age}} = 15.9$  years,  $SD = 0.8$ ) and body dissatisfaction increased further during the transition to young adulthood ( $M_{\text{age}} = 23.2$  years,  $SD = 1.0$ ) but stabilised thereafter in middle young adulthood ( $M_{\text{age}} = 26.2$  years,  $SD = 0.9$ ). This trend was duplicated in a large investigation of males and females ( $n = 16,882$ ) aged 9 to 18-years (Calzo et al., 2012). In other supporting studies, BID has been reported as a concern for over half of adolescent females (60.4%) during the early adolescence phase (mean age 12.15;  $\pm = 0.72$ ) (Buckingham-Howes et al., 2018). Again, highlighting that during mid adolescence such concerns do not abate, but continue. According to the findings of Jankauskiene and Baceviciene (2019), body weight overestimation is more prevalent in females opposed to males within mid adolescent females aged between 14–16 years old ( $M = 15.0$ ,  $\pm = 0.4$ ). Overall, what remains a concern is that body image dissatisfaction is reported in adolescent females regardless of pubertal maturation stages, in those who have normal body weight and a healthy Body Mass Index (as identified within cross-sectional research) across both early and mid-adolescent female stages (Malla et al., 2021).

One reason provided within the literature that highlights the specific influences of puberty on body image is recognised as weight gain. For example, McCabe and colleagues (2004) compiled data from 1,185 adolescent pupils (527 males, 598 females) whose ages ranged between 11 and 14. Girls expressed a greater desire to lose weight in comparison to

boys. Puberty was highlighted as a contributing factor to reduce overall body weight. In support of this finding in other adolescent studies body weight is highlighted as a mediator of adolescent body image, within perceived and actual ideal body image in 13-year-olds (Almeida et al., 2012). These findings revealed a discrepancy between perceived ideal and actual size that determined the level of body dissatisfaction with 57.2% of females, and within that a further 41.4% expressed a desire to have a smaller body shape and size. The strongest effects were found in adolescents who perceived themselves as being overweight.

#### ***2.4.2 Fat-Talk***

Fat-talk refers to negative talk about any aspect of a person's body weight, size, or shape (Nichter & Vuckovic, 1994; Salk & Engeln-Maddox, 2012). Fat-talk is a term used to describe when a person talks about either their own, or other peoples' physiques in a derogatory manner (Nichter, 2000). It is destructive as it can stimulate detrimental outcomes for both parties (the discloser and receiver), such as reductions in body dissatisfaction (Corning et al., 2014), negative body image (Mills & Fuller-Tyszkiewicz, 2017), and psychological distress (Arroyo, 2012; Salk & Engeln-Maddox, 2011). In Western cultures, it has become a normative and acceptable way to exchange dialogue (Martz, et al., 2009; Salk & Engeln-Maddox, 2011). In an attempt to challenge fat-talk, Nichter (2000) developed intervention programmes for females to raise awareness about the negative outcomes of fat-talk, as well as to help them challenge how it is expressed behaviourally. In order to challenge acceptance of fat-talk changes need to be made both individually and on a global platform.

Fat-talk platforms include mainstream television whereby the narrative for overweight individuals has transferred from an external source of mocking by others, to that where the actor(s) are portrayed to verbally belittle themselves through negative fat-talk (Zimdars, 2015). Weight stigma in media forms such as reality television remains evident (Lupton, 2018; Raisborough, 2016), with examples of self-acceptance rarely expressed (Zimdars, 2015). This is potentially problematic as 90% of undergraduate women state that they participate in fat-talk (Salk & Engeln-Maddox, 2011) and cite pressure as the reason for not using dialogue that reflects more self-accepting forms of body talk (Martz et al., 2009; Payne et al., 2010). It could be suggested that negative talk such as fat-talk, provides a space whereby an individual can compare what they perceive to be their negative bodily aspects against another (Social Comparison Theory; Festinger, 1954). For instance, participating in fat-talk provides a platform for discussing negative aspects of an individual's body and what is needed to combat this is developing the skills to refrain from engaging in negative body-based dialogue (Salk & Engeln Maddox, 2011) and find ways to appreciate one's shape, size and imperfections.

### ***2.4.3 Social Media***

In Western society it can be difficult to ignore appearance ideals which are ever present in traditional and social media (Conlin & Bissell, 2014; Tiggemann & Zaccardo, 2018). Several studies indicate that social media usage including Facebook, Twitter or Instagram, is associated with poor emotional well-being and increased internalisation in both adolescence (Sampasa-Kanyinga & Lewis, 2015) and young adulthood (Jelenchick et al., 2013; Rosenthal et al., 2016; Simoncic et al., 2014). For example, research indicates that frequency of

Instagram use is a mediator of negative mood states that include body dissatisfaction, adverse social comparison, isolation, physical appearance anxiety, and decreased self-esteem (Brown & Tiggemann 2016; Sherlock & Wagstaff, 2018; Yang, 2016). To highlight the consequences of social media on body image, Swami et al., (2010) undertook a large collaborative study known as the International Body Project. This study consisted of 7,434 individuals (4,019 women), across 26 different countries from 10 world regions. Participants were surveyed and their exposure to Western and local media captured via self-report questionnaires. Findings indicated that body dissatisfaction was correlated with media exposure, with women reporting more exposure to Western media also reporting greater levels of body dissatisfaction (larger discrepancies between their current and ideal body size).

However, more recent research suggests that not all body image related social media serves as a negative mediator of body image. ‘Body positivity’ movements show images of toned females termed “fitspiration”, or those with curvy shapes (thin with large breasts and buttocks). Studies show that exposure to images of full-figured female’s increases state body appreciation when measured against individuals who surveyed images of thin models (Williamson & Karazsia, 2018). However, exposure to such images may still lead to increased body dissatisfaction, and self-objectification in females (Betz & Ramsey, 2017; Brown & Tiggemann, 2016; Robinson et al., 2017).

#### ***2.4.4 Body Acceptance/Appreciation***

Body appreciation is not the same as body satisfaction. Despite whether a person is satisfied with their appearance, shape or size; body appreciation encompasses a state of mind that is not influenced by physical perfection but rather body appreciation allows a person who

may not be satisfied with all aspects of their physical form and functioning to still appreciate and respect their body by taking care of it (Tylka & Wood-Barcalow, 2015). Body appreciation allows an individual to view their body with greater amounts of self-compassion and respect, appreciating how their body works whilst choosing to not dwell on body imperfections (Swami et al., 2018). Body appreciation incorporates elements of gratitude, acceptance, self-care, love, and respect (Alleva et al., 2017; Wood-Barcalow et al., 2010).

Body appreciation is correlated with increased levels of self-esteem, enhanced life satisfaction and long-term wellbeing (Davis, 2020). Understanding and accepting human flaws and physical imperfections can be instrumental in helping women to accept that cultural appearance ideals are often unrealistic. Concentrating on internal body experiences is associated with higher body appreciation (Oswald et al., 2017). With this in mind, a wider more inclusive definition of beautiful is needed by appreciating wider and broader definitions of internal and external beauty (Tylka & Iannantuono, 2016). A wider range of cultural and societal representations (Cooper, 2016) that present greater diversity in body shapes and sizes (Cwynar-Horta, 2016) may increase body acceptance, particularly as cultural bias appears to remain (Tukachinsky et al., 2015).

There is a need to increase understanding of the importance of body acceptance for all, as up to 91% of women state that they would prefer a different body shape or size (Runfola et al., 2013). Body appreciation should incorporate body beautiful definitions in spite of imperfections or flaws, through striving to protect ourselves and one another from unrealistic societal appearance ideals (Avalos et al., 2005; Tylka & Wood-Barcalow, 2015). Greater education is needed within individuals, schools and families to convey that (a) there is power in body acceptance for nurturing body image; instead of accepting messages to

modify and change the way one looks, and (b) in learning how to filter damaging appearance ideals against those messages that reinforce positive body image (Calogero et al., 2009). Cash et al. (2005) states that there are three main reactive responses to manage potential body image threats/encounters. These are known as: (1) avoidant, which is when one endeavours to avoid the threat; (2) appearance fixing, which is modifying appearance through concealing or camouflaging body shape and size, the alleged or actual blemish or imperfection; and (3) positive rational acceptance, whereby an individual learns to embrace one's experiences through initiating processes such as self-care and constructive self-talk.

#### ***2.4.5 Body Functionality***

Franzoi (1995) stated that the body can be portrayed from two basic viewpoints: from the perspective of the “body-as-process” (evaluations based on body functionality), or from the perspective of the “body-as-object” (evaluations based on physical appearance). Franzoi postulates that more recognition is given toward the “body-as-process” in comparison to “body-as-object”, with males responding more to their body-as-process, and women are socialised to accept and identify more with their body-as-object. This contention is supported by research indicating that women show higher levels of body-as-object orientation than male counterparts, which is detrimental to opportunities to embrace a functionality-based mind set regarding their bodies (Calogero, 2009; Calogero & Thompson, 2009; Moradi & Huang, 2008). According to Alleva et al. (2015) body functionality is a concept that describes the things that the body is capable of doing, including functions such as (a) internal responses (e.g., the body reacting to a virus and trying to inhibit it from progressing), (b) physical capacities (e.g., running, jumping), (c) bodily awareness (e.g., feeling, tasting), (d) creative

abilities (e.g., cooking, drawing), (e) self-attention (e.g., resting, personal hygiene, and (f) interactions with others (e.g., conversations).

Body functionality recognises all physical capacities but also the creative talents (e.g., singing, dancing), and communications with others (Alleva et al., 2015). Alleva et al. (2017) postulate that learning to understand the value of the body's functionality is correlated to positive elements of body image, and conversely there are negative consequences for body image where a lack of awareness and understanding of body functionality are apparent (e.g., self-objectification and negative mood states). In order to create opportunities to foster positive body image there should be an attentional shift away from a global fixation with physical appearance and a move towards body functionality (Neff, 2003). Toole and Craighead (2016), highlight that a focus on functionality leads to lower body surveillance. As a standalone, body functionality is not a construct of body image, rather it describes the abilities of the body. Body functionality only becomes a facet of body image when an individual ruminates on the facts and feelings of what a body is capable of. This combination of body functionality and body image is known as functionality appreciation, which is “appreciating, respecting, and honouring the body for what it is capable of doing, extending beyond mere awareness of body functionality (e.g., knowing that the body can digest food vs. being grateful that the body can digest food)” (Alleva et al., 2017, p. 29).

A growing body of research suggests that focussing on body functionality can protect individuals from negative appearance-related thoughts and comments from others (Tylka & Wood-Barcalow, 2015), and increase positive body image (Webb et al., 2015). This finding supports previous research that found positive correlations between female positive body image and an awareness of body functionality; more specifically a shared belief of the

importance of maintaining good care of the body in order to keep it functioning well (McHugh et al., 2014; Wood-Barcalow et al., 2010). Body functionality interventions have taken the form of online writing interventions (e.g., writing about what the body can achieve), producing improvements to body image. For instance, Alleva et al. (2015) investigated correlations between body functionality, body satisfaction and body appreciation. Participants aged between 18 and 30 years ( $M = 22.77$ ,  $SD = 3.19$ ) completed three structured writing assignments that covered 1) the body's senses and physical capacities, 2) health and creative endeavours, and 3) self-care and communication. Results revealed significant increases in body functionality, functionality satisfaction, lower levels of self-objectification and greater body appreciation. It appears that embracing body functionality is beneficial as it increases levels of body appreciation (Avalos & Tylka, 2006),

Participation in physical activities (whilst concentrating on body functionality) has also been used as an intervention to facilitate a distraction from appearance anxieties and prompts individuals to remember what the body is physically capable of (Ginis, 2011; Martin, 2002). Alleva et al. (2018) investigated the impact of a 10-week Hatha yoga intervention on functionality appreciation in young adult women ( $N = 114$ ;  $M_{\text{age}} = 22.19$ ). The findings revealed that yoga participants experienced lower self-objectification over time, which facilitated improvements in body appreciation and body compassion. In a further example, undergraduate women were invited to participate in an exercise class that focused on motivational comments that supported body functionality (Engeln et al., 2018). For example, "Think of how strong you are getting!" (p. 515) as opposed to comments based around physical appearance (e.g., "Blast that cellulite!" p. 515). Participants from the functionality-focused class reported more positive effects including greater increases in body

satisfaction and greater feelings of positivity in comparison to the appearance-focused class who expressed more negative terms that included guilt and shame.

Supporting women in fostering functionality appreciation may help counteract appearance-based fixations toward the body, which may contribute towards improvements in body image through focusing on the strengths of the body and its capacity to be strong (Abbott & Barber, 2011; Fredrickson & Roberts, 1997). This awareness is crucial for improving how physical activity is viewed within the realm of positive body image, as body functionality can act as a protective factor opposed to an over reliance on physical appearance. However, it should be noted that not all interventions yield significant positive effects. A meta-analysis of 62 studies investigating the impact of functionality based body image interventions highlighted that interventions had only facilitated small-to-moderate improvements in women's body image (Alleva et al., 2015).

### ***2.5 Exercise as a Body Image Intervention for Female Adolescents***

One area of investigation regarding interventions intended to enhance body image, is the influence of exercise participation (Bucchianeri & Neumark-Sztainer, 2014). Exercise interventions have been found to enhance adult body image (Bassett-Gunter et al., 2017; Castonguay et al., 2015; Cook-Cottone et al., 2013; Fuller-Tyszkiewicz et al., 2017; Jaarsma & Smith 2018; Mahlo & Tiggemann, 2016; Pearson & Hall, 2013; Sabiston, Pila, Vani, & Thøgersen-Ntoumani, 2019, Tiggemann et al., 2014; Tylka & Homan, 2015), including improvements in adult physical self-concept (Babic et al., 2014), self-esteem and self-concept (Sani et al., 2016). In young adult populations, enhanced appearance satisfaction has been reported following exercise intervention among female college participants (Ariel-Donges et

al., 2019), with research also demonstrating greater functionality appreciation in both sexes (Alleva et al., 2017), enhanced body satisfaction (Neumark-Sztainer et al., 2018), overall improved positive body image (Neumark-Sztainer et al., 2018) and greater body acceptance (Cox et al., 2017) following exercise.

Exercise interventions in children and adolescents have also proven successful with wide ranging physical, psychological, and social benefits (Hills, 2015). These include improved global self-esteem and perceived athletic competence (Noordstar et al., 2016), improved body awareness (Sheinbein et al., 2016), overall enhanced body image (Fischetti et al., 2019), and enhanced body satisfaction (Neumark-Sztainer et al., 2018). Gestsdottir et al. (2018) examined the relationship between physical activity as a mediator of body image satisfaction in 15 years old adolescents ( $n = 385$ ). A follow up study was completed when the participants were 23 years old. The results revealed that as fitness and physical activity decreased, body image dissatisfaction and anxiety increased. However, not all sport and exercise interventions yield positive results. For example, correlational studies have highlighted that participation in appearance-focused physical activities, such as gymnastics, figure skating, or ballet, is correlated to a more negative body image (Crissey & Honea, 2006; Kong & Harris, 2015; Slater & Tiggemann, 2011).

Understanding how and why body image interventions enhance body image may help optimise positive outcome for individuals, schools, and communities (Cook-Cottone et al., 2013). When delving deeper into the available body image intervention research it is clear that females experience weight-related pressures disproportionately to their male counterparts (Hatzenbuehler et al., 2009). Scholars suggest that greater levels of weight discontent may indicate that females are susceptible to more extreme weight bias internalisation than males

(Himmelstein et al., 2017). However, Levine and Smolak (2002) caution that interventions created within and for specific environments only tend to show short-term effects.

Furthermore, gaining an understanding of potential mediators of exercise participation in adolescent females may provide resilience against body image dissatisfaction (Campbell & Hausenblas, 2009).

### ***2.6 Physical Education (PE) and PE Uniform as Contextual Themes and Promising Interventions***

Physical Education (PE) is the development of physical skills through play and movement in order to increase health and physical fitness (Anderson, 1989). PE is a physical activity and health term (Kirk, 1999), and over time reflects a wide range of sport/exercise and health ideologies which has led to many variations and definitions (Kaplan & Flum, 2012). In modern times the National Curriculum in England states that Physical Education should enable pupils in the process of becoming physically confident within health and fitness, through sport and physical activities that strengthen character (DfE, 2013). It is typical for a PE uniform to be worn in school in the UK. Research indicates that sport uniforms can improve comfort and increase confidence (Watson, 2015), and therefore, the influence of PE clothing on Body-Esteem as a body-esteem intervention. According to Joseph (1986), clothing is considered a uniform (i.e., a PE uniform) when it provides a group emblem, and or certifies an institution's legitimacy. The terms PE uniform, PE kit and PE clothing are used interchangeably within this thesis as is the case in wider literature.

Globally, Baumann and Krskova (2016) highlight five main geographic/sociocultural groupings where uniforms are worn in schools. These include Anglo-Saxon countries (United

Kingdom, New Zealand, Australia, United States), Asia, East Asia (South Korea, Japan), the Americas (e.g., Mexico), and Europe. Across Europe there are differing views on normative standards for school uniform. For instance, school uniforms are not mandated in Germany in both state and private schools, or in state schools in Austria, Poland, Spain, and Switzerland (exception of international and private schools). School uniforms were abolished in Turkish school 2012 (with the exception of international/foreign schools where uniforms are still required) and have not been enforced in French schools since 1968 (with the exception of military schools and boarding schools).

However, there are European countries where partial or full uniform is a requirement. For example, in Italy one compulsory clothing item known as a “smock” (which is a clothing item worn on top of clothing) is expected to be worn as part of the school uniform (re-introduced in 2008 in state schools only). In Malta wearing school uniform is widely accepted, but not implemented in all state schools, whilst in Albania compulsory school uniforms has existed for all secondary age school students since 2009. In the United Kingdom, there is no legislation mandating school uniform being worn in either England, Wales, Scotland, and Northern Ireland, though schools have a responsibility to adhere to equality legislation (McCourt, 2013). Clothing and dress policies exist to prevent discrimination through clothing on grounds such as age, sex, race, disability, religion or belief and sexual orientation (Equality & Human Rights Commission, 2014). Guidance from the (DfE, 2021) on school uniforms is designed to comply with these obligations outlined within the Human Rights Act (1998) and the Equality Act (2010).

Having an awareness of differences amongst school uniform policies within Europe is necessary within the context of this research because no normative standards for PE uniform

exist for schools to be guided by, as PE uniform is an extension of a school's uniform policy (DfE, 2019). Across the three main governing bodies for school education in the UK (The department for Education (DfE), Ofsted, and the National Curriculum for Physical Education (NCPE)), no definition of PE uniform is provided. Where school uniform or a dress code might be required by local authority-maintained state schools, they are not mandated among academies, independent schools, and or free schools in the UK. The latest statutory guidance on PE clothing offered by the DfE (DfE, 2021) advises schools to not be overly specific in creating kit requirements for different sports, to limit the number of branded items and to select PE kit which is practical, comfortable, appropriate to the activity involved, and be affordable for families. As such, school uniform policies remain open to interpretation and are ultimately the decision of the Head Teacher and stake holders.

The absence of normative standards for school uniform, presents a unique research opportunity to objectively evaluate the influence of PE clothing on body-esteem and inform future uniform policies so as to be inclusive for all students, and enhance student physical and psychological health (McCarthy, 2019).

## ***2.7 Future Directions and Conclusion***

The research question for the present study is 'what are the effects of sport and exercise interventions on body image among adolescent girls? The purpose of this following review was to explore body image literature pertinent to female adolescents. As body image is a multifaceted and complexed construct, insights were provided within the literature review to highlight the differences between the negative consequences of body image dissatisfaction and the positive elements of body image. An understanding of positive and negative

moderators of body image were highlighted through theory, and literature offered insight into prominent influences during adolescence. From this literature review, it is possible to conclude that early intervention is advocated as body image dissatisfaction is associated with negative health behaviours (Homan et al., 2012). Effective interventions respond to and address the concerns of the study population (Leask et al., 2017). However, when exploring ways to enhance body image, it becomes apparent that robust interventions, targeting adolescent females are scarce. However, limitations were evident when investigating the available body image literature. These limitations exposed problematic issues with measures used, failure to account for test-retest stability, and poor control over context. Therefore, due to these restrictions and limitations suggest that caution is to be exercised in interpreting findings.

As such, there is need to synthesise research that has delivered exercise interventions to female adolescent populations with the aim of enhancing body image. Completing a systematic review of sport and exercise interventions intended to enhance body image among female adolescents would (a) shape the future programme of research based on the strengths, weaknesses, and moderators identified with available literature and (b) facilitate a greater understanding of the key factors and elements that could ultimately create a scalable, cost effective and sustainable intervention. The key questions explored in conducting this systematic review were (a) What are the effects of exercise interventions on body image among adolescent females? (b) What are the implications of a critique of included studies for future practice?

# Chapter Three: Systematic Review

## ***3.0 Introduction***

Body image research has largely been pathology-driven with a focus on negative body image and body image disorders, and so there is need for positive body image research (Smolak & Cash, 2011). Finding ways to understand and enhance positive body image should be a key objective of interventions (Albertson et al., 2015; Tylka & Wood-Barcalow, 2015). To this effect, considerable efforts have been made to develop effectual body image interventions for adolescent girls and young adult women (Stice et al., 2008), however more can be done.

Early intervention is advocated as many female adolescent's lack confidence in their physical self and can become socially disempowered in a society where elevated importance is placed on physical attributes (Garrett, 2004). Physical activity levels during adolescence continue to decline (Nader et al., 2008). Indeed, a substantial proportion of females aged 11–14 years elect to cease participation in sport and exercise, frequently citing appearance-based reasons (Slater & Tiggemann, 2010, 2011).

Whilst there is growing support for the notion that being physical active can enhance body image (Homan & Tylka, 2014; Rodríguez & Alvis, 2015), research indicates that many adolescent females lack a desire to engage in physical activity. For example, in one study, one third of 21,000 girls stated they did not wish to engage in physical activity because of low self-confidence resulting from a fear of being physically scrutinised (Horn & Sinno, 2014). Negative body image continues to be an obstacle to girls taking part in physical activity (Elder et al., 2007) and therefore more research is needed within distinctive adolescent female subgroups to investigate efficacious physical activity-based interventions

(Corr, 2019; Martins et al., 2015). There are many female adolescents who would benefit from intervention; including those who find it difficult to participate in physical activity and are from disadvantaged socioeconomic backgrounds (Jonsson et al., 2017).

Sport and exercise interventions present an intuitive solution for cultivating positive body image, with the potential to instil greater confidence in the body and physical abilities, particularly through the difficult transitional periods of adolescence whereby (Neumark-Sztainer et al., 2006). Physical exercise and sports can provide an opportunity for adolescents to acquire knowledge, skills, abilities, and self-assurance (Sanchez-Vaznaugh et al., 2012).

### ***3.1 The Rationale Behind Completion of a Systematic Review***

Systematic reviews synthesise past and present literature informing recommendations for future research (Munn et al., 2018). A systematic review follows a process of rigorously examining a specific research area guided by a research question, which provides structure (Munn et al., 2014; Pearson et al., 2012; Steinberg et al., 2011; Stern et al., 2014). The purpose of conducting a systematic review was to examine the effects of exercise interventions on body image among adolescent females. In doing so, methodological considerations associated with procedures, study designs and synthesised literature would be examined (Clarke et al., 2011), in order to create a framework to identify key factors and considerations for a scalable, cost effective, and sustainable intervention.

**3.2 Examining the effects of sport and exercise interventions on body image among  
adolescent girls: A systematic review**

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## **Abstract**

Body image dissatisfaction among females is suggested to be so widespread, that it has been described as normative discontent. Consequently, there is great interest in the development of interventions that may enhance body image perceptions. The aim of the present systematic review was to investigate the effects of sport and exercise interventions on body image among adolescent females. Following preferred reporting items for systematic reviews and meta-analyses guidelines (Higgins & Green, 2009; Petticrew & Roberts, 2005), a search of six electronic databases produced 4,210 records of which six met the inclusion criteria. The methodological quality of included articles was assessed using the Standard Quality Assessment (Kmet, Lee, & Cook, 2004). This yielded a mean score for quality of .90 (SD = 0.22), indicating poor quality of research. In two studies, significant and positive change was observed in body image following intervention (aerobics or self-selected sports activities) in comparison to a control condition. In four studies, no significant effect of intervention on body image was observed. We conclude that there is insufficient evidence to suggest that sport and exercise interventions can improve body image. Furthermore, due to the limitations of existing research highlighted within this review, findings suggesting positive influence should be interpreted with caution. Recommendations for improving the methodological quality of research examining the influence of sport and exercise interventions on body image are proposed. This includes considerations such as participant sampling, control conditions/groups, measurement of key variables, intervention features, and analysis of data.

**Keywords:** gender; measurement; body attitude; body dissatisfaction; physical education.

## **Examining the effects of sport and exercise interventions on body image among adolescent girls: a systematic review**

Body image has been described as a person's perceptions, thoughts, and feelings about their body (Grogan, 2016). Body image is a multifaceted construct consisting of a variety of measured dimensions (Thompson, 2004; Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999). This includes perceptual, cognitive, affective and behavioral components (Bane & McAuley, 1998). Body image dissatisfaction (BID), defined as a subjective negative evaluation of one's physical appearance (Presnell, Bearman, & Stice, 2004), has been the focus of much research to date. In Western societies, BID is suggested to be so widespread, particularly among females (Salk & Engeln-Maddox, 2012), that it has been described as normative discontent (Cash & Smolak 2011; Hardit & Hannum, 2012; Rodin, Silberstein, & Striegel-Moore, 1984; Tantleff-Dunn, Barnes, & Larose, 2011).

There is a wealth of research indicating that, across a lifespan, females are more likely to experience BID when compared to their male counterparts (Buchanan, Bluestein, Nappa, Woods, & Depatie, 2013; Elgin & Pritchard, 2006; Feingold & Mazzella, 1998; Sweeting & West, 2002). Indeed, girls as young as five years of age have been found to convey dissatisfaction with their body shape and (or) size (Davison, Markey, & Birch, 2000). As children transition from preadolescence into their next stage of maturity, adolescence becomes a significant phase in the development of body image (Fenton, Brooks, Spencer, & Morgan, 2010; Kostanski, Fisher, & Gullone, 2004). In the present study, we utilised the World Health Organisation (WHO) guidelines which describes adolescence as occurring between 10-19 years of age. Body image dissatisfaction has been reported to intensify during

adolescence, most notably amongst girls, due to the bodily changes that take place during puberty (Bucchianeri, Arikian, Hannan, Eisenberg, & Neumark-Sztainer, 2013; Calzo et al., 2012; Maxwell & Cole, 2012). Furthermore, an increasing regard for the opinions of others during adolescence exacerbates the potential for BID (Reber & Reber, 2001). Despite adolescence presenting a potentially volatile time for body image, previous research has typically focused on young adults, with studies of adolescents being less common (Mellor et al., 2013; Rubin, Gluck, Knoll, Lorence, & Geliebter, 2008; Williams, Ricciardelli, McCabe, Waqa, & Bavadra, 2006).

In looking to develop and deliver body image interventions, there is growing support for the notion that participation in sport and exercise can enhance body image perceptions (Abbott & Barber, 2011; Daniels & Leaper, 2006; Fox, 2000; Hausenblas, Cook, & Chittester, 2008; Langdon & Petracca, 2010; Slater & Tiggemann, 2011; Swami & Tovée, 2009). Three meta-analyses demonstrated small (Campbell & Hausenblas, 2009; Hausenblas & Fallon, 2006) to moderate (Reel et al., 2007) effects of exercise on body image (based on 57, 121 and 35 studies respectively), whereby an exercise intervention had the observed outcome of improved body image. However, the design of any sport and/or exercise intervention must account for the complex nature of the association between body image and motivation to exercise, which may vary according to demographics. The above meta-analysis included broad demographic samples (males and females across a broad age range), and thus it is difficult to inform interventions for female adolescence with confidence. Whilst a desire to improve body image can act as a motivator to exercise in certain individuals, for others, it may present an obstacle for exercise participation (Focht & Hausenblas, 2004; Schuler et al., 2004). For example, Slater and Tiggemann (2010) noted that females (aged 13 to 15 years)

frequently reported appearance-based concerns as a reason for ceasing participation in sport and exercise. In a follow up study, teasing and body image concerns appeared to contribute to reduced rates of participation in sports and other physical activities among adolescent girls (aged 12 to 16).

Within the present review, elucidating the outcomes of different sport and exercise interventions on body image may help identify effective strategies for enhancing body image. The aim of the present review is to provide a systematic evaluation of sport and (or) exercise interventions that seek to enhance body image among female adolescents. Specifically, this review will synthesize findings to address the following objectives:

- (a) to examine the effects of sport and/or exercise interventions on female adolescent body image;
- (b) to critique included studies highlighting the implications for future research practice.

### ***Method***

To ensure methodological rigor, objectivity and replicability, the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines (PRISMA; Higgins & Green, 2009; Petticrew & Roberts, 2005) were applied. The review was registered on PROSPERO (CRD42016037225) and all aims, inclusion criteria, data extraction, and data quality evaluation were specified at the outset.

### ***Procedure for Search Strategy and Study Inclusion***

A primary systematic search of six electronic databases through EBSCO was conducted (Medline, PsycINFO, SPORTDiscus, Child and Adolescent Studies, Education Research Complete, and Psychology and Behavioral Sciences) from inception up to and

including March 2016. Search terms included “body image”, “adolescence”, “sport and exercise”, and “intervention” (see Appendix for the complete search strategy). For inclusion, there had to be consensus that the following criteria were met:

- (a) peer reviewed journal article published in the English language;
- (b) data were reported from female adolescents;
- (c) an exercise or sport intervention was delivered;
- (d) intervention had a measured attempt to affect positive body image change;
- (e) the outcomes were measured (quantitative or qualitative) with data at baseline and post-intervention;

(f) study sample should not include clinical populations or subpopulations with known differences that could obscure the direct examination of the effect of sport and exercise (e.g., illnesses or disease; physical disabilities, elite adolescent athletes, young offenders, or statemented adolescents with educational or behavioral and emotional needs).

Reference management software was used to organize citations (Endnote X7). The primary search yielded 4,210 records (see Figure 1), which following deduplication reduced to 3,073. These titles were independently screened by three reviewers to identify studies. Following title screening, 3,015 titles were excluded. Where there was disagreement, the full text manuscript was consulted, and for a paper to be included, there had to be consensus that the above inclusion criteria were met.

A full screen of the remaining 58 papers resulted in a further 52 exclusions as follows;

- (a) sport and/or exercise was not delivered as a body image intervention ( $n = 28$ );
- (b) non-target population (e.g., wrong age, clinical population, coaches;  $n = 17$ );
- (c) results not

reported for females or male participants only ( $n = 4$ ); (d) technology or computer-based interventions ( $n = 2$ ) and, (e) a meta-analysis ( $n = 1$ : Campbell & Hausenblas, 2009).



### *Data Extraction*

Data extraction parameters were established in line with the research questions and data extraction was processed using Microsoft Excel. This facilitated the capture of pertinent information including sample, measures, intervention characteristics, body image outcomes, research limitations, and implications for future practice (see Table 1).

### *Data Quality*

The methodological quality of the included studies was scored and assessed using the standard quality assessment for evaluating primary research papers (for details see Kmet et al., 2004). Kmet et al. (2004) provides comprehensive guidelines (pp. 14-22) to ensure that the scoring of quality within and between systematic reviews is completed to a given standard. Synthesizing data quality scores “provides a systematic, reproducible and quantitative means of simultaneously assessing the quality of research encompassing a broad range of study designs” (Kmet et al., 2004, p. 11). Studies were evaluated on 20 criteria spanning design, sampling, methodology, analysis, results and conclusions. For each criterion, benchmark statements are provided to guide scoring. Papers scored 2 (good), 1 (partial fulfilment), 0 (not fulfilled), or X (not relevant), possible score range was 0-2, with a higher score indicating better quality (Kmet et al., 2004). A mean score was calculated for each paper to give an overall rating of quality. In addition, a mean score for each of the sub-criteria was used to indicate the relative strengths and limitations across included studies, with the mean scores (SD) for individual studies presented in Table 1.

## ***Results***

### *Characteristics of the Included Studies*

Included studies (see Table 1) originated from the U.S.A. ( $n = 2$ ; Gehrman, Hovell, Sallis, & Keating, 2006; Waldron, 2007); U.K ( $n = 2$ ; Burgess et al., 2006; Daley & Buchanan, 1999); Canada ( $n = 1$ ; Boyd & Hrycaiko, 1997); and Sweden ( $n = 1$ ; Lindwall & Lindgren, 2005). One study included male and female participants but reported female data separately (Gehrman et al., 2006). The remaining studies had female only samples, with participant numbers ranging from 50 (Burgess et al., 2006) to 181 (Boyd & Hrycaiko, 1997). Mean age was reported in four studies, and ranged from 11.5 ( $SD = 0.96$ ; Gehrman et al., 2006) to 16.35 years ( $SD = 1.56$ ; Lindwall & Lindgren, 2005). Three studies failed to report ethnicity (Boyd & Hrycaiko, 1997; Daley & Buchanan, 1999; Lindwall & Lindgren, 2005), whilst two studies (Burgess et al., 2006; Waldron, 2007) simply reported ethnicity as predominately Caucasian. Gehrman et al. (2006) reported participants as 45% Caucasian, 38% Hispanic, 8% African-American, and 8% as “other” ethnic backgrounds. Social and economic data were presented in two studies reporting participants to be of lower socioeconomic status (Burgess et al., 2006; Lindwall & Lindgren, 2005).

Table 1 *Characteristics of Included Studies*

Author & Year of study	Mean Age <sup>a</sup> (SD) of participants	Study design	Sample description	Intervention- sport/ exercise type	Frequency and Duration	Measure/instrument used	Main findings of the study	Mean data quality (sd)
Boyd & Hrycaiko, 1997	NR (range 9-16)	Experimental design Comparing age group (Pre, early, mid adolescence) and comparing intervention with a comparison condition <sup>c</sup> . Measures taken pre and post intervention.	A non-random convenience sample of 181 schoolgirls, described as pre, early, and mid adolescence. Subjects scoring in the 50th percentile or lower on the SDQ were assigned to the low self-esteem group.	Three components; (1) physical activity (strength training, CV and agility –precise activities were tailored to the group), (2) education (healthy lifestyle, weight management, healthy role models), (3) self-report (logbooks tracking own performance).	40-minute sessions over six weeks. Pre-adolescent participants had nine sessions. Early and mid-adolescent groups had 12.	Self-Description Questionnaire I and II (Marsh, 1988) subscales; general self-esteem, physical self-concept, physical abilities, physical appearance.	No significant main effect of intervention on self-esteem (or the physical appearance sub-scale).	0.67 (0.69)

Burgess, Grogan, & Burwitz, 2006	13.5 (0.3)	Experimental design comparing intervention and comparison groups. Counterbalanced intervention delivery. Measures pre, mid, post-intervention, and 12-week follow up.	50 British school girls from a specialist sports college; selective sampling of participants with low physical self-perception and high body image dissatisfaction.	Aerobic dance –warm up, dance workout, cool down & stretch. Control group partook in swimming lessons.	Fifty-minute classes, twice a week for six-weeks.	Body attitude questionnaire (Ben-Tovim & Walker 1991) Children and Youth Physical Self-perception profile (Fox & Corbin, 1989) Leisure time physical activity questionnaire (Aaron, Kriska, & Dearwater, 1995). Body Mass Index.	Means show attractiveness was marginally higher in the aerobic condition, and disparagement, feeling fat and were marginally lower when compared to the swimming group. No significant differences in pre-to-mid, mid-to-post or pre-to-post BMI scores for both groups.	1.12 (0.78)
Daley & Buchanan, 1999	NR (range 15-16)	Experimental design comparing intervention ( $n = 43$ ) and comparison condition ( $n = 70$ ). Measures taken pre and post-intervention.	113 British school girls (from a single-sex school)	Aerobics (warm up, aerobic workout, resistance, cool down and stretch).	One hour of physical education plus one hour of aerobics for five-weeks. Control group partook in one hour of physical education per week.	Physical self-perception profile (Fox & Corbin, 1989) Participation in physical activity questionnaire (Daley & Parfitt, 1996).	The experimental group improved physical self-worth, sports competence, strength competence, and body attractiveness over time when compared to the comparison group.	0.72 (0.67)

Gehrman, Hovell, Sallis, & Keating, 2006	11.5 (0.96) <sup>b</sup>	Experimental design. Random allocation to intervention ( $n = 49$ ) or comparison condition ( $n = 35$ ). Measures at pre and post-intervention.	84 American children (females $n = 52$ , males $n = 32$ ). Participants were eligible if their BMI <32, and they were not currently participating in organized sports for three or more days per week	Parent groups taught behavior modification techniques to increase activity and change dietary habits in children. Children participated in fitness sessions and provided information regarding nutrition. Children completed activity logs. The comparison group completed family sessions on the subject of injury prevention.	An eight-week physical activity and nutrition intervention. Frequency and duration of sessions not reported. Control condition was two-hour family sessions, delivered weekly for eight-weeks.	Eating Disorders Inventory-2 (Garner, 1991) Weight concerns scale (Killen et al., 1994), physical maturity –Tanner Scale Drawings (Morris & Uldry, 1980), Body Mass Index, Parental Body Mass Index.	Mean scores for females on body dissatisfaction followed the same pattern for the intervention group when compared to the control group.	1 (0.77)
Lindwall & Lindgren, 2005	16.35 (1.56)	Experimental design with random assignment to intervention group ( $n = 27$ or waiting list control group $n = 35$ ). Measures at pre and post-intervention.	Non-physically active Swedish adolescent girls recruited from schools. Eligible if they were active for less than 20 minutes per day, exercise less than once a week, and medically healthy.	Self-selected exercise activities and discussion on healthy lifestyles. Control group had no organized activity.	45-min exercise sessions followed by 15-min healthy lifestyle discussion delivered twice a week for six-months.	Physical self-perception profile (Fox & Corbin, 1989). Social physique anxiety scale (Hart, Leary, & Rejeski 1989) Body mass index and submaximal oxygen uptake.	No significant difference in physical self-perception observed between groups, both groups improved significantly over time. Improvement in social physique anxiety scale over time for intervention group compared to control group.	1.16 (0.83)

Waldron, 2007	11.51 (0.37)	Mixed design, with no control group. Measures at first and final week of the course.	An American community sample of 34 schoolgirls.	Structured coaching programme based on Harter's model of competence motivation culminating in a 5km running race.	Ninety-minute Girls on Track running sessions, twice a week for eight-12 weeks.	Self-perception profile for adolescents (subscales; physical competence, physical appearance competence, self-worth; Harter, 1988). Semi-structured interviews.	No change in self-perception subscales observed at follow up. Interviews indicated that following intervention, the girls expressed greater self-acceptance, improved fitness, and enhanced knowledge of body care.	0.72 (0.57)
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*Notes.*

<sup>a</sup>Where mean age is not reported, age range is provided.

<sup>b</sup>Mean age is reported from the whole sample, separate data were not available for females.

<sup>c</sup>Group sizes NR for each condition.

Sport and exercise interventions were delivered within schools ( $n = 4$ ; Boyd & Hrycaiko, 1997; Burgess et al., 2006; Daley & Buchanan, 1999; Lindwall & Lindgren, 2005) or to the community ( $n = 2$ ; Gehrman et al., 2006; Waldron, 2007). Of these, five prescribed exercise, those being weight circuits (Boyd & Hrycaiko, 1997), non-competitive games and weight-bearing activities (Gehrman et al., 2006), aerobics (Burgess et al., 2006; Daley & Buchanan, 1999) and an established 5km running training programme (Waldron, 2007). One study allowed self-selected exercise (Lindwall & Lindgren, 2005), with selected activities including: aerobics, water aerobics, step-up, spinning, dancing, yoga, badminton, kick-boxing, climbing, bowling, karate, jujitsu, and different ball-games. The duration of exercise and sport interventions ranged from five-weeks (Daley & Buchanan, 1999) to six-months (Lindwall & Lindgren, 2005). Five studies reported the session length, with interventions delivered through sessions varying from 40-minutes (Boyd & Hrycaiko, 1997) to 120-minutes (Gehrman et al., 2006), producing a mean of 72 minutes ( $SD = 32.71$ ). Three studies combined taught or discussion-based components alongside exercise components (Boyd & Hrycaiko, 1997; Gehrman et al., 2006; Lindwall & Lindgren, 2005).

Six different measures of body image were utilized across included studies. Only one measure (Physical self-perception profile; Fox & Corbin, 1989) was common to two studies (Daley & Buchanan, 1999; Lindwall & Lindgren, 2005) and no further consistency in measurement of body image was observed. Other variables measured included; physiology ( $n = 3$ ; Burgess et al., 2006; Gehrman et al., 2006; Lindwall & Lindgren, 2005), participation in exercise ( $n = 2$ ; Burgess et al., 2006; Daley & Buchanan, 1999), and eating behavior ( $n = 1$ ; Gehrman et al., 2006). Details of measures used are included in Table 1.

## *Narrative Synthesis of Findings and Discussion*

Having first discussed data quality, the findings of this systematic evaluation are synthesized and discussed in accordance with the stated aims. These were (a) to examine the effects of sport and/or exercise interventions on body image (b) to critique included studies highlighting the implications for future research practice.

### *Data Quality*

The possible range of scores on the quality assessment was 0-2, with a higher score indicating better quality (Kmet et al., 2004). The mean scores (SD) for individual studies are presented in Table 1. The overall mean score for data quality was 0.90 (SD = 0.22), pointing to a poor quality of research on this topic. The range was 0.67 (SD = 0.69; Boyd & Hrycaiko, 1997) to 1.16 (SD = 0.83; Lindwall & Lindgren, 2005). One of the included studies scored more than one standard deviation below the sample mean (Boyd & Hrycaiko, 1997). The mean scores (SD) for individual indicators of quality across all quantitative studies are presented in Table 2 ( $n = 6$ ). Of the indicators that were assessed, studies performed particularly poorly on experimental methodology. This was due to limitations such as failure to account for or control confounding factors, randomization not being performed rigorously, nor with the appropriate blinding of participants or investigators, and a failure by all included studies to collect long-term follow up data. Studies overall performed comparatively well on use of suitable and validated predictor and outcome measures, and specifying a clear hypothesis.

Table 2 *Quality review scores*

Item	Indicator of Quality	Mean	(SD)
13	Quality of measures	1.67	0.52
1	Hypothesis	1.67	0.52
3	Predictor and outcome measures	1.50	0.84
2	Study design	1.33	0.52
7	Describing those lost to follow up	1.20	0.84
6	Sample descriptions	1.17	0.98
14	Methods of analysis	1.17	0.41
5	Selection is unbiased	1.00	0.63
19	Description of findings	1.00	0.00
10	Description of trial	0.83	0.41
8	Sample size	0.83	0.41
20	Conclusions	0.67	0.52
15	Inclusion of effect sizes	0.50	0.55
11	Concealment of randomization from participants	0.67	1.03
4	Follow up	0.33	0.52
9	Randomization	0.50	0.84
16	Control for confounding variables	0.17	0.41
17	Concealment of randomization from investigators	0.00	0.00

*Note.* Item 18 referred to adjustments in analysis made for the differences in timing of follow up data collection. Since none of the studies collected follow up data, this item has been omitted here. Item 12 was omitted as it was not relevant to the included studies.

### *The effect of sport and exercise interventions body image*

Two studies revealed significant improvements in one or more sub measure of body image. Daley and Buchanan (1999) asked an experimental group to complete a one-hour

aerobics class, once a week, for five-weeks, in addition to compulsory physical education. The experimental group improved physical self-worth, sports competence, strength competence, and body attractiveness over time when compared to a comparison group (partaking in compulsory physical education one-hour per week). Changes in exercise behaviors were not reported for either the experimental or comparison group. In a six-month intervention, Lindwall and Lindgren (2005) offered 45-minutes of self-selected exercise activities and 14-minutes of discussion on healthy lifestyles twice a week. A waiting-list control group had no organized activity. After the intervention, when conducting analysis that excluded participants with missing data, the intervention significantly reduced social physique anxiety and increased scores on three subscales from the physical self-perception profile (sport competence, physical conditioning and physical self-worth). However, when undertaking more conservative intent-to-treat analysis (i.e., including all participants that were originally allocated to conditions), no effect of intervention on the physical self-perception profile was observed, but effect of the intervention on social physique anxiety (over time and between groups) was still observed, with those in the intervention having an improved score post-intervention. These positive changes were not associated with changes in physiological variables.

No intervention effect on body image was found across four studies. Boyd and Hrycaiko (1997) found no significant main effect of a six-week intervention (comprised of physical activity (training, cardiovascular and agility), education (healthy lifestyle, weight management, healthy role models), and self-report (logbooks tracking own performance) on general self-esteem when compared with a control group doing regular PE lessons. Gehrman et al. (2006) delivered an eight-week intervention, providing sessions designed to teach the

importance of physical activity in overall health and non-competitive games and weight-bearing activities designed to enhance bone health. The intervention did not have a significant effect upon body dissatisfaction, drive for thinness, or weight concerns; with mean scores for body dissatisfaction following the same pattern for the intervention group when compared to the comparison group who completed training on injury prevention.

Burgess et al. (2006) utilized a cross-over design with two equivalent groups who participated in a comparison condition (conventional British physical education swimming program), and an experimental condition (aerobic dance). Both groups completed both conditions in a counterbalanced order. Within the inferential analysis, the differences between conditions were not reported, therefore for the purpose of comparing conditions, we report the means. No differences were found between the experimental and comparison condition in physical activity participation over time. Means show attractiveness was marginally higher, and disparagement and feeling fat marginally lower in the aerobic condition, when compared to the swimming condition. Waldron (2007) delivered a running intervention comprised of 90-minute sessions, twice a week for 8-12 weeks. There was no change in self-perception subscales observed post intervention. However, interviews indicated that following intervention, the girls expressed greater acceptance of the self, improved physical fitness, and enhanced knowledge of taking care of their body.

#### *Critique of included studies and recommendations for future research practice*

Analysis of the data quality assessment highlighted that included studies were poor in their application of experimental method, which might have introduced bias or confounding factors. In particular, none of the included studies detailed whether the aims of the study were concealed from participants. This may mean that participants could guess the aims of the

study and be unduly influenced. Likewise, investigators were not blinded as to the group's activities when analysis took place, and again this may introduce bias. In addition, key details were omitted from reporting. For example, only one study reported the level of attendance at the intervention (Lindwall & Lindgren), at a rate of 56% (SD = 19%). Where no effect is observed, poor attendance or adherence with the intervention may be an explanatory factor.

Sampling strategies used in the included studies present limitations that require consideration. The predominant strategies used were convenience samples from schools (Boyd et al., 1997; Daley & Buchanan, 1999), or the community (Waldron, 2007), or selectively sampled participants for characteristics such as low physical activity levels (Burgess et al., 2006; Gehrman et al., 2006; Lindwall & Lindgren, 2005). Two studies (Gehrman et al., 2006; Lindwall & Lindgren, 2005) randomly assigned participants to conditions. Daley and Buchanan (1999) acknowledge that random sampling is preferable, but state that this was impractical in a school setting where girls were asked to voluntarily stay behind after school for intervention activities.

Studies comprised of volunteers (e.g., Daley & Buchanan, 1999), selective sampling of participants scoring low at baseline testing on a variable of interest (e.g., body attitudes, Burgess et al., 2006), or selective sampling from a population hypothesized to be less physically active (e.g., low socioeconomic status communities; Burgess et al., 2006; Lindwall & Lindgren, 2005). Volunteer-based recruitment strategies might result in biased samples because participants might have an increased desire to take part (Lubans & Sylva, 2006; Mauriello et al., 2010). Selective sampling of participants scoring low on a variable of interest increases the likelihood that improvements on this variable may be observed over time as compared to a sample scoring higher at baseline. This was illustrated by Walters and

Martin (2000) who found no significant improvement in the self-concept of school children (male and female) following a 13-week aerobic exercise intervention. The authors suggested that as pre-test self-concept scores were generally high, this left limited scope for further increases (a ceiling effect). Similarly, Raglin (1990) found exercise did not decrease levels of depression in those whose initial scores fall within normal range, noting "exercise does not make normal more normal" (p. 325).

When evaluating control or comparison conditions, one study had a waiting list control group who were inactive (Lindwall & Lindgren, 2005), whilst one study employed a within subjects design (Waldron, 2007). Three studies included a comparison group participating in a different sport or exercise activity to the intervention group (Boyd & Hrycaiko, 1997; Burgess et al., 2006; Daley & Buchanan, 1999), whilst one study had a comparison group completing a non-sport activity (Gehrman et al., 2006). This presents a confounding factor, as if sport and exercise activities were to have an effect on body image, this effect should also be observed in any comparison group participating in a different sport or exercise activity to the intervention group. Comparison group activities are described in Table 1.

When choosing to utilize swimming as the comparison group activity, Burgess et al. (2006) rationalised that swimming has been reported to be one of the most disliked physical education activities for adolescent females, and may not benefit body image. Dislike for swimming is partially attributed to the tight, form-fitting, swimsuits that are associated with increases in self-consciousness and body image dissatisfaction (Reel, Petrie, SooHoo, & Anderson, 2013). Evidence for this contention was provided by Thøgersen-Ntoumani, Ntoumanis, Cumming, Bartholomew, and Pearce (2011) who demonstrated that wearing

tight/revealing exercise attire heightened physically active female university students' levels of state self-objectification. Among individuals with low self-esteem, this heightened self-objectification associated with low satisfaction with body shape and size. With regards, the findings of Burgess et al. (2006), they found that attractiveness was marginally higher, and disparagement and feeling fat marginally lower in the aerobic condition, when compared to the swimming condition.

There was little consistency in the physical activity offered as an intervention across included studies. An aerobics based intervention had a positive change on body image (Daley & Buchanan, 1999), with the authors noting that female participants may have greater confidence in their capacity to participate in gender typed 'feminine' activities (Clifton & Gill, 1994; Lirgg 1991). A second study delivering an aerobics intervention (Burgess et al., 2006) did not have a significant effect on body image, however, as previously noted, the poor methodology applied in this study, and the consequent lower data quality score mean that less emphasis should be placed on this study in the context of this review. Where a competitive element was implied in the intervention delivered (e.g., training for a 5k race, Waldron, 2007), no significant effect of intervention on body image was observed. It has been suggested that for female adolescents in particular, competitive sports may increase unrealistic expectations and have a negative influence on self-concept, self-esteem and self-confidence (Cox, Schofield, & Kolt, 2010).

Three included studies provided multiple physical activities as interventions. Where this involved self-selected activities along with a discussion component (Lindwall & Lindgren, 2005), positive change in body image was found. By contrast, two studies providing multiple physical activities alongside a logbook and education (Boyd, 1997;

Gehrman, et al., 2006) had no significant effect on body image. It may be that presenting the opportunity to partake in self-selected activities was the key factor in determining the positive change in body image observed following the intervention delivered by Lindwall and Lindgren (2005). Arguably self-selecting exercise activities supports self-determined behaviors, and may therefore create more opportunity to have a positive effect on body image (Thøgersen-Ntoumani & Ntoumanis, 2007). In the study by Lindwall and Lindgren (2005), activities were designed to encourage self-control, pride in their body, and competence through promoting their abilities to meet their needs, and where necessary to engage other resources. Exercise enjoyment was a key aim of this study.

An important consideration when undertaking body image research is the selection of measures used, with assessment errors characterizing much of the work in this area (Thompson, 2004). Thompson (2004) notes that it is vitally important that researchers clearly identify the dimension of body image they wish to investigate, and then select a measure that assesses this specific dimension. Attention to such detail is necessary to help understand which, if any, aspect of body image is responsive to sport and exercise interventions. It is quite plausible that some components may not change (e.g., body image investment), whereas, other components (e.g., weight-specific dissatisfaction) may improve. Thus, clearly articulating and adhering to dimensions of body image underpins the evaluation and advancement of theories of body image (Thompson, 2004). Whilst the measures used (see Table 1), along with the titles of included studies, infer a focus on body image perceptions across the majority of included studies (Burgess et al., 2006; Daley & Buchanan, 1999; Lindwall & Lindgren, 2005; Waldron, 2007), none of the included studies sufficiently acknowledged the dimension of body image assessed, or justify the measure(s) of body image

used. Similarly, measuring physical activity can be a complicated endeavour, as all measures have known limitations (Baranoski, Thompson, Durant, Baranoski, & Puhl, 1993).

Failing to sufficiently control basic exercise variables (frequency, duration, and intensity) in order to account for fitness improvements and heterogeneity of outcome measures was a limitation of the included studies (Campbell & Hausenblas, 2009). Physical activity (frequency, intensity and type) was commonly recorded via self-report (Boyd & Hrycaiko, 1997; Burgess et al., 2006; Daley & Buchanan, 1999). This does not provide the most accurate form of recording information, particularly in both paediatric and adolescent populations, as this subjective technique may lead to inaccuracy, falsification, or over, or underestimation of actual physical activity levels (Godin, Jobin, & Bouillon, 1986; Sallis & Saelens, 2000; Shephard, 2003; Sirard & Pate, 2001; Welk et al., 2000). None of the included studies analysed data pertaining to the intensity of the activity participants engaged with in the intervention.

As highlighted within literature, exercise intensity is positively correlated with psychological benefits in adolescents (Biddle & Asare, 2011). This is therefore a variable consideration for the design of the interventions, and as a covariate in assessing the effect of interventions on outcome measures that are salient. Usage of accelerometers in gathering data would enable physical activity to be measures with greater precision and confidence. In particular thigh-worn accelerometers support a more sensitive and specific evaluation of exercise frequency, duration, and intensity (Montoye, Pivarnik, Mudd, Biswas, & Pfeiffer, 2016).

With respect to the treatment of data, there were examples where the analysis undertaken was inappropriate, meaning that the findings could not sufficiently address the

study aims. For example, Burgess et al. (2006) employed a counterbalanced design including two groups and two conditions across three time points. Whilst this was an example of good study design, the analysis did not include a variable to describe 'condition'. Therefore, the effect of the condition on the outcome variables could not be assessed. In a further example, Boyd and Hrycaiko (1997) substituted a 'difference' score into the ANOVA, instead of using the raw scores for pre and post-intervention. Consequently, the effect of the interaction between groups over time on body image could not be assessed, and the lack of descriptive statistics makes interpretation of their findings difficult. Similarly, Gehrman et al. (2006), included post-test scores as a co-variate, so again there was no clear analysis of the effect of the intervention on body image over time.

Included studies reported a large number of analyses. The reporting was unclear in some cases, and did not allow for the number of analyses conducted to be discerned (e.g., Boyd & Hrycaiko, 1997). Conducting many analyses increases the possibility of a type one error, with only two studies controlling for this in their interpretation of findings (Daley & Buchanan, 1999; Waldron, 2007). In some cases, small sample sizes precluded the application of multivariate analysis, meaning that repeated paired t-tests (Waldron, 2007) or ANOVA (Boyd & Hrycaiko, 1997) were used. For other studies, it was unclear why some of the analyses were presented. For example, Gehrman et al. (2006) included gender as an independent variable, where it would have been more appropriate to their aims to include pre and post-intervention scores in the analyses as an independent variable, as their study aimed to examine the effect of the intervention on body image. Boyd and Hrycaiko (1997) applied a mean-split based on scores on self-concept, and used this as an independent variable in analyses, although the independent variables were described as the intervention condition

versus control condition and the age of participants. Only one study reported a strategy for the imputation of missing variables (Lindwall & Lindgren, 2005). The same study also reported intent-to-treat analyses, which include all participants who are randomized to a treatment (including drop-outs) and are therefore more conservative than analyses of only those who do not drop out.

### *Conclusion*

The present review evidences two interventions which had a positive effect on body image. These two studies indicate that the use of gender-aligned, or self-selected sport and exercise activities, undertaken in conjunction with careful discussion around empowering adolescent females, may have positive outcomes for body image. However, an ability to draw conclusions regarding the potential for sport and exercise interventions to help promote positive body image among female adolescents is presently limited by the overall poor quality of research in this area. There is a need to undertake future research with greater methodological rigor as detailed by the present systematic review. This includes more careful attention to considerations such as participant sampling, control conditions/groups, measurement of key variables, intervention features, and analysis of data.

### ***3.3. Aims and Hypothesis of the Present Study***

Key findings from the systematic review prompted reconsideration of the initial research question guiding this programme of research, that being ‘what are the effects of sport and exercise interventions on body image among adolescent girls?’. Inconsistencies were evidenced in the efficacy of sport and exercise interventions in enhancing the body image of female adolescents. An unforeseen and yet notable limitation across the intervention studies that may underpin this equivocality, was the wide range of measures used to capture adolescent female body image. Within this systematic review, a conclusion was that ‘none of the included studies sufficiently acknowledged the dimension of body image assessed or justify the measure(s) of body image used’ (p. 47). Webb et al. (2015) highlighted the extent of the challenge that lies in selecting measures that will accurately capture elements of a selected body image construct. They note that there are at least 18 validated measures that can assess 11 psychological components of positive body image (i.e., body appreciation, positive rational acceptance coping, body image flexibility, body functionality, attunement, body pride, positive and self-accepting body talk, body sanctification, broad conceptualisation of beauty, and body acceptance by others).

In further considering measurement limitations that could undermine the aims of body image intervention work, the test-retest stability measures used is a vitally important consideration. If a measure has good test-retest stability, we expect the same body image scores to appear twice when completed by the same individual. For measures demonstrating good test-retest stability, we can be confident that any change following intervention can be more confidently attributed to the intervention. If body image scores do not show test-retest stability without intervention, then the measure is a poor measure, and we cannot confidently

ascribe any changes to an intervention. For this reason, when reflecting on the aim of this programme of research, in order to achieve the original objective of assessing the effect of an exercise-based intervention, there was a need to first establish test-retest stability of a measure of body image. The revised objectives were therefore:

- (1) To establish the test-retest stability of a measure of body image intended for use in subsequent intervention research.
- (2) To develop and test an effective, scalable (on a national level), and cost-effective body image intervention.

As such, study two sought to examine the test-retest stability of the 14-item Body Esteem Scale (BES; Confalonieri et al., 2008). The aim was to identify whether this instrument remained stable within and across contexts, thereby establishing confidence in the measure. This was deemed important as without test-retest stability any changes post intervention could not be attributed fully to the intervention, rather could plausibly be poor test-retest stability, contextually dependent influences, or the results could be erroneous due to fundamentally inept measurement instruments that could fail to highlight individual or group differences; through either attitudinal or psychometric variances in or across item responses (Cheung & Rensvold, 2002). The process of exploring measurement invariance can aid effective group contrasts and evaluations (Milfont & Fischer, 2010), through discerning whether any disparities are a result of latent variations, or the instruments actual psychometric properties (Knight et al., 2009). Therefore, investigating a measures psychometric integrity is a necessity as opposed to an option (Thompson, 2004).

### ***3.4 Rationale Behind Selecting the Body Esteem Scale (BES; Confalonieri et al., 2008) to Examine Test-Retest Stability***

In assessing the suitability of any scale for research, reliability is a key consideration. Two established methods for investigating the reliability of a scale are internal reliability and test-retest reliability (Bryman, 2012). Internal reliability is calculated through investigating whether survey items correlate, as shown through Cronbach's alpha values  $\geq 0.70$  (Bryman, 2012; DeVellis, 2016). Test-retest reliability can be verified over a specific length of time (Rossi et al., 2013) through the Kappa coefficient (Cohen, 1968) for binary categorical outcomes (Cohen, 1960), and for the numeric outcomes with two or more measurements Bland-Altman Limits of agreement and Intra-class Correlation (Bland & Altman, 1986; Weir 2005).

The original 23-item Body Esteem Scale for Adolescents and Adults (Mendelson et al., 2001), from which the 14-item BES (Confalonieri et al., 2008) was developed is reported as having high internal consistency and reliability. However, there are limitations with the original validation study. Firstly, participants comprised a pool of 1334 (female  $n = 763$ , male  $n = 57$ ) participants from three separate research papers. Participants were recruited from Canadian high schools, universities, and a junior college. They were aged between 12-25 years (mean = 16.8 years, no SD reported). Therefore, this age range exceeds the World Health Organisation definition of adolescence (WHO, 2006), which ends at age 21. Secondly, whilst a factor analysis on a subset of 1240 with complete data, resulted in a three factor solution (Appearance, Attribution, and Weight), it is of note that the factor analysis involved removing items 'because of problematic wording related to gender' (p. 96), for example "I can wear clothes that show my figure", rather than resulting from the analysis of

psychometric properties, which does point to a less robust or questionable method of item reduction. Thirdly, whilst the test–retest reliability of the BES was high, this was reported in a sub-sample of 97 junior college students, and with a three-month period between testing (female  $n = 61$ , male  $n = 36$ ; mean age not reported), which offers a limitation in that the sample included males and was likely to be of adult age. Therefore, this study highlighted the initial evidence for test-retest stability, but further investigation was warranted due to the limitations outlined above. In support of this critique, Cragun and colleagues (2013) assert that the original (BESSA; Mendelson, Mendelson, & White, (2001) has several further shortcomings; scales lacking structural invariance across developmental age group, items loading on multiple factors; various item pairs with similar wording and correlated error.

During the validation of the 14-item Body Esteem Scale (Confalonieri, 2008), the scale was administered to a sample of 674 Italian adolescents aged 11-16 years ( $M = 13.33$ ;  $SD = 2.1$ ). However, here the mean ages by gender were unclear, therefore there is still a need to examine the test-retest stability of this measure among adolescent females.

When selecting a measure suitable for use with adolescent populations, length of the questionnaire is an important consideration. Confalonieri et al. (2008) note that brevity is an important factor in measures used, particularly for adolescent populations, where lengthy measures may cause an attrition of motivation and attention and negatively influence the integrity of the data (Arthur et al., 2017; Fuller Tyszkiewicz et al., 2013). A concise instrument can provide more accurate data quality (Galesic & Bosnjak, 2009; Maloney et al., 2011). Lengthy questionnaires increase perceived energy demands and has been evidenced as decreasing willingness to complete a survey instrument among child (Stone et al., 2007) and adolescent populations (Trull & Ebner-Priemer, 2020), this is referred to as response burden

(Medical Outcomes Trust, 1995). Therefore, the 14-item BES (Confalonieri et al., 2008) was identified as a suitable instrument being adapted from the original BESSA (Mendelson, Mendelson, & White, 2001). This measure has been validated across all age groups (Rintala et al., 2018; Ono et al., 2019). The 14-item BES (Confalonieri et al., 2008) has 3 subscales: BE–Appearance (general feelings about appearance), BE–Weight (weight satisfaction), and BE–Attribution (evaluations attributed to others about one’s body and appearance). After reverse scoring the appropriate items, participants’ responses are averaged across items so that higher numbers indicated more positive body satisfaction. Study participants were 674 adolescents, aged 11-16 years ( $M = 13.33$ ,  $SD = 2.1$ ). Factor analyses resulted in the removal of 9 of the original items from the BESSA (1, 3, 6, 14, 15, 16, 17, 19, 22) due to items loading on more than one factor creating the revised 14-item version. This 14-item version formed a three-factor solution that accounted for 60% of the total BES variance. Confirmatory factor analysis revealed a good-fit indexes with internal consistency and reliability (estimated by means of inter-scales correlation and Alpha coefficients) reported as satisfactory.

To examine test-retest reliability, Confalonieri et al. (2008) distributed the 14-item BES to a sample of 131 adolescents (84 females and 47 males;  $M = 18.6$  years). A total of 97 adolescents (61 females and 36 males) were retested three months later. Test-retest correlations were high for the three subscales (Appearance:  $r = .89$ ; Weight:  $r = .92$ ; Attribution:  $r = .83$ ). Convergent validity was evaluated through the Rosenberg Self-Esteem scale (Rosenberg, 1965). Global self-esteem was partially correlated with Appearance ( $r = .39$ ) through the Rosenberg Self-Esteem scale (Rosenberg, 1965) but not the additional two body esteem subscales Weight ( $r = .07$ ) and Attribution ( $r = .03$ ).

# Chapter Four: Test-retest stability of the Body Esteem Scale among female adolescents

## *4.0 Introduction*

Body-esteem (BE) reflects the self-evaluations of one's body or appearance (Mendelson, Mendelson, & White, 2001). Low body-esteem is correlated with a range of negative outcomes (Murray et al., 2015; Wichstrøm & von Soest, 2016) such as anxiety (Cruz-Sáez et al., 2015; Parent, 2013), depression (Dooley et al., 2015; Wichstrøm & von Soest, 2016) and a poorer quality of life (Huang et al., 2007). Historically, body image investigations have focussed on young adults, often failing to investigate body image across adolescent populations (Mellor et al., 2013; Rubin et al., 2008) and investigations into ways to enhance positive body image are often overlooked due saturation of the more established field of negative body image research (Tylka, 2012). One suggestion to reduce wide ranging consequences of negative body image remains with opportunities for prevention and intervention in schools (Fazel et al., 2014). Children and adolescents experiencing low body-esteem have been found to describe themselves through demeaning terms as useless, slothful, and unattractive (Puhl & Brownell, 2009). An additional consequence of poor body-esteem is that female adolescents are less likely to engage in physical activity (Gutholdt et al., 2020). Being physically active is widely acknowledged as providing numerous benefits for adolescent females, ranging from appearance satisfaction to improved self-concept (Ariel-Donges, Gordon, & Perri, 2019). In a western society where 40 to 70% of adolescent females are discontent with at least two bodily parts (King, 2018), effective intervention is needed in order to improve perceptions of body image.

Investigating independent variables that can moderate body image has been described as an essential process in analysing and identifying body image discrepancies (Daig et al., 2006; Joraschky et al., 2018). However, scholars consistently indicate that inadequate assessments of psychometric tools continues to be a problematic issue within body image research (Kling et al., 2019; Thompson, 2004; Thompson & Schaefer, 2019). Whilst it is important to assess stability and the susceptibility of individual items within a measure to random change (Nevill et al., 2015). In addition, researchers often fail to scrutinise the test-retest stability when making their choice (Kember & Leung, 2008). Evaluating the stability of any assessment tool, through observing minimal measurement error in a test-retest assessment, is vital to validating psychometric tools (Lane et al., 2005) and establishing the integrity of research (Patton, 2001). To identify the proportion of agreement (PA) used to calculate 'estimates of uncertainty of an agreement' Wilson and Batterham (1999) suggests an item-by-item analysis, opposed to assessing the reliability of the homogeneity of group items through methods such as Cronbach's alpha. An item-by-item analysis is a process that permits test±retest deviations to be made apparent and quantified within a value. This is an important factor within this study as body image experiences can fluctuate, as an individual's judgment on the perception of their body can be influenced by situational contexts (Quittkat et al., 2019) and therefore a challenge exists to capture a wide plethora of potential variations.

Context (or circumstance) is an important consideration in body image, as when applied to a population it has the capacity to become a mediator that may influence stability through varying cognitive and affective variables (Creswell, 2003; Nichols et al., 2018; Saiphoo & Vahedi, 2019). O'Donovan and Kirk, (2008) postulate that contextual situations may initiate body image disturbance therefore enabling assessments of outcomes

from across diverse social situations can assist in the process of evaluating adolescent measures (Cash, 2002). Context as a consideration can provide evaluative data for interventions intended to support positive health promotion, and well-being outcomes (Cook-Cottone et al., 2013). Addressing this research challenge can be determined through evaluating whether the outcomes obtained by a measurement and procedure can be successfully replicated across different time spans (Nevill et al., 2015), populations (Atkinson, 2012; Veal & Darcy, 2014), or contexts.

Whilst body image remains an important topic in adolescent research (Allison & Baskin, 2009) limitations exist regarding investigating the contextual moderators of adolescent female body image (e.g., a changing room or whilst wearing different clothing). Exploring measurement invariance can aide effective group contrasts and evaluations (Milfont & Fischer, 2010). Capturing the cognitive-affective aspects of body image (BI) is important, as it enables feelings of satisfaction or dissatisfaction regarding one's body shape to be quantified (Gaudio et al., 2014), therefore in order to establish a positive body image, it is vital to investigate and understand factors that may moderate positive body image, body satisfaction, and body-esteem. Therefore, the process of discerning whether disparities are a result of latent variations, or the instruments actual psychometric properties validates psychometric confidence through the process of robust scrutiny (Knight et al., 2009). From this perspective, authentic and validated research outcomes can be established by investigating attitudinal or psychometric variances in or across item responses (Cheung & Rensvold, 2002). This may also underpin future body image interventions. For the present study the 14-item Body Esteem Scale (BES; Confalonieri et al., 2008) was selected for examination of test-retest stability.

The 14-item Body Esteem Scale (BES; Confalonieri et al., 2008) presents as a suitable instrument of adolescent female body image as the measure's subscales are conceptually divergent, which enables the measurement of the specific dimensions of body-esteem, as opposed to that of a single construct. Completion of the questionnaires required participants to respond to Likert-scale items from 1 (never) to 5 (always) with higher score indicating more positive body esteem. After reverse scoring the appropriate items, participants' responses are averaged across items. Higher numbers indicate more positive body satisfaction. Within the construct of the measure, a six-item appearance subscale captures overall satisfaction with appearance, an example item is "I wish I looked like someone else." The four-item weight subscale denotes satisfaction with one's weight, an example item is "Weighing myself depresses me," and higher scores indicate more positive weight esteem. Finally, the four-item attribution subscale summarises evaluations attributed to others about one's body and appearance. For example, "Other people consider me good looking".

The measure is reported to provide good reliability and internal validity with a three-factor solution: attribution (the evaluations of one's own body and appearance attributed to others), weight (weight satisfaction), and appearance (an overall feeling about one's appearance). The three subscales have reportedly adequate reliability (appearance:  $\alpha = .76$ ; attribution:  $\alpha = .68$ ; weight:  $\alpha = .84$ ) and this measure has been validated for use among 11–16-year-olds ( $n = 674$ ;  $M = 13.33$ ,  $SD = 2.1$ ) (Confalonieri et al., 2008). In addition, brevity is an important consideration. Lengthy questionnaires are suggested to increase the perceived burden of study participants (Trull & Ebner-Priemer, 2020) and this can compromise data quality (Fuller-Tyszkiewicz et al., 2013; Jones et al., 2018).

The aims of the present study are twofold.

- (i) To assess the test-retest stability of all 14-items of the Body Esteem Scale (BES; Confalonieri et al., 2008) across all three subscales (BE-Appearance, BE-Weight, and BE-Attribution).
- (ii) To assess the capacity of the measure to yield the same results following repeat distribution within and across different contexts. Specifically, when wearing PE kit in a PE changing room and school uniform in a school hall.

## ***4.1 Methods***

### ***4.1.1 Design***

An experimental within subjects 2x2 design was applied. The independent variables were context on two levels (PE kit or Uniform) and time on two levels (test and retest). Dependent variables were the three subscales of the body esteem scale; BE-Appearance (“feelings about one’s general appearance”), BE-Weight (“feelings about one’s weight”), and BE-Attribution (“evaluations attributed to others about one’s body and appearance”; Confalonieri et al., 2008).

### ***4.1.2 Participants***

Ethical approval for this study was obtained from the University of Wolverhampton ethics committee. Consent was sought for involvement in this research from the parents/carers of female adolescent participants recruited from an inner-city secondary school in the Midlands (UK). Thirty-one pupils declined to participate. 119 female Key Stage 4 pupils (Year 10 and 11) aged between 14 to 16 years ( $M_{\text{age}}=14.9$ ,  $SD_{\text{age}}=0.75$ ) took part.

This age group was selected, as with a Year 7 to 9 cohort (aged between 11 and 14 years), there would be a lower probability of female participants who had entered the stages of advanced puberty and experienced the challenges to body image previously described. The socio-economic demographic revealed a pupil premium allocation of 52%, which was significantly higher than the national average of 14.1% (DfE, 2019). White British pupils represent 62.4% of the school population and BME populations 37.6%. Those whose first language is not English (EAL) represent 7.3%. This is below the National average of 16.9% (Department for Education; 2019).

#### ***4.1.3 Measure***

The 14-item Body Esteem Scale (BES; Confalonieri et al., 2008) is a multifaceted measure that differentiates an individual's body esteem judgements concerning 'Appearance' 'Weight' and 'Attribution'. The six-item appearance subscale captures overall satisfaction with appearance with items such as "I wish I looked like someone else." The four-item weight subscale denotes satisfaction with one's weight, for example, "Weighing myself depresses me," and higher scores indicate more positive weight esteem. Finally, the four-item attribution subscale summarises evaluations attributed to others about one's body and appearance. For example, "Other people consider me good looking". Completion of the questionnaires required participants to respond to Likert-scale items from 1 (never) to 5 (always) with higher score indicating more positive body esteem. After reverse scoring the appropriate items, participants' responses are averaged across items.

#### ***4.1.4 Procedure***

The data were gathered in one secondary school in the West Midlands, UK. Following ethical approval, information regarding the requirements of the study was provided via hard copy to the Head Teacher. Also, as guided by the British Educational Research Association (BERA, 2012), pupils, parents and carers were notified about the study (both verbally and in writing) and informed that they could cease participation at any time without divulging any reasons for their withdrawal (Hammersley, & Traianou, (2012). Consent for this study was attained from the Head Teacher, parents, and carers. The administration of the questionnaires was supported by the Head of the Girls P.E department and two part-time female qualified PE teachers, each with over 15 years of teaching experience. ECT's (early career teachers) and support staff were excluded from supporting with any study procedures or data collection. Pseudonyms were used to match questionnaires across the two data gathering periods and to protect and secure pupil identity. During test and re-testing, pupils were directed to complete their questionnaires in silence and asked not to communicate one with another. A member of the research team was present throughout data collection to answer any questions participants may have had regarding completion or item descriptions.

At the time of the study key stage 4 girls (aged 14-16) were taught twice a week for PE. These two PE lessons were used to facilitate the completion of the 14-item BES measure in two different contexts at the start of each respective lesson. The procedure for data collection were as follows: firstly, completion of the 14-item BES in the school hall, in standard school uniform (school jumper, trousers and shirt and tie). Secondly, the measure was completed two days later in the PE changing rooms wearing PE kit (PE top, shorts, tracksuit bottoms or skorts). A two-week interim period then passed before these procedures were repeated.

Questionnaires were again administered at the start of the lesson. In order for participants to adhere to the procedures, pupils/parents and carers were made aware of these four weeks in advance. This was outlined in writing to all 14-16-year-old girls in the school with the permission of the Head Teacher.

Participants were then verbally reminded of the procedure prior to the study commencing and received reminder notifications during form registration. Participants were also aware that any deviation from the standard school PE kit (i.e., additional colours or named brands worn), would result in participants borrowing standard PE kit and not being able to wear their own variations of clothing choice. Any potential clothing deviations were checked and monitored prior to questionnaire completion in order to ensure consistency. Following completion, participants were asked to double check that questionnaires had been completed in full prior to handing in. After this time no amendments were permissible. All raw data were stored in a secured and locked location.

#### ***4.1.5 Data Analysis***

Raw data via hard copy was inputted into an SPSS database on a password protected and encrypted computer. Data were cleaned and checked for errors. Allowances were made for missing data within the boundary that only one missing item per subscale would be accepted otherwise data would be removed from the study. Within the single page questionnaire missing values were left blank, as to not compromise the quality of the data scoring procedures. Overall, missing data were within an acceptable range (2.4%) according to the guidance of Bennet (2001). All mean scores were calculated. Descriptive statistics were calculated for the three subscales across the two conditions (PE kit and school uniform). An

ANOVA was conducted to test any variations among repeated measures and was used to analyse any potential differences among means.

#### 4.2 Results

Descriptive statistics for the three body-esteem subscales (BE-Appearance, BE-Weight, and BE-Attribution) across the two contexts (school uniform in worn a school hall, and PE Kit worn in a school changing room) are reported in Table 1. Trends here show that participants experience lower body-esteem when wearing PE Kit, when compared with wearing school uniform. The lowest scores for both T1 and T2 were manifested whilst wearing PE kit. Interestingly, attribution (pupil’s perceptions of how they thought others saw them) of others on how they thought they looked had the lowest scores, out of all the subscales. In contrast, the highest body-esteem scores were evidenced whilst wearing school uniform for Appearance subscales (and a pupil’s perception of their own looks). When exploring trends over time, differences were very limited.

Context	Subscale	Test Mean $\bar{x}$	Test $\pm$ SD	Retest mean $\bar{x}$	Retest $\pm$ SD
Uniform	Appearance	2.8969	.77004	2.9210	.76226
	Weight	2.8340	.60351	2.8011	.60533
	Attribution	2.7080	.54266	2.6877	.52852
PE Kit	Appearance	2.7356	.80812	2.7370	.81190
	Weight	2.6863	.84843	2.6744	.80224
	Attribution	2.5770	.59888	2.5651	.57716

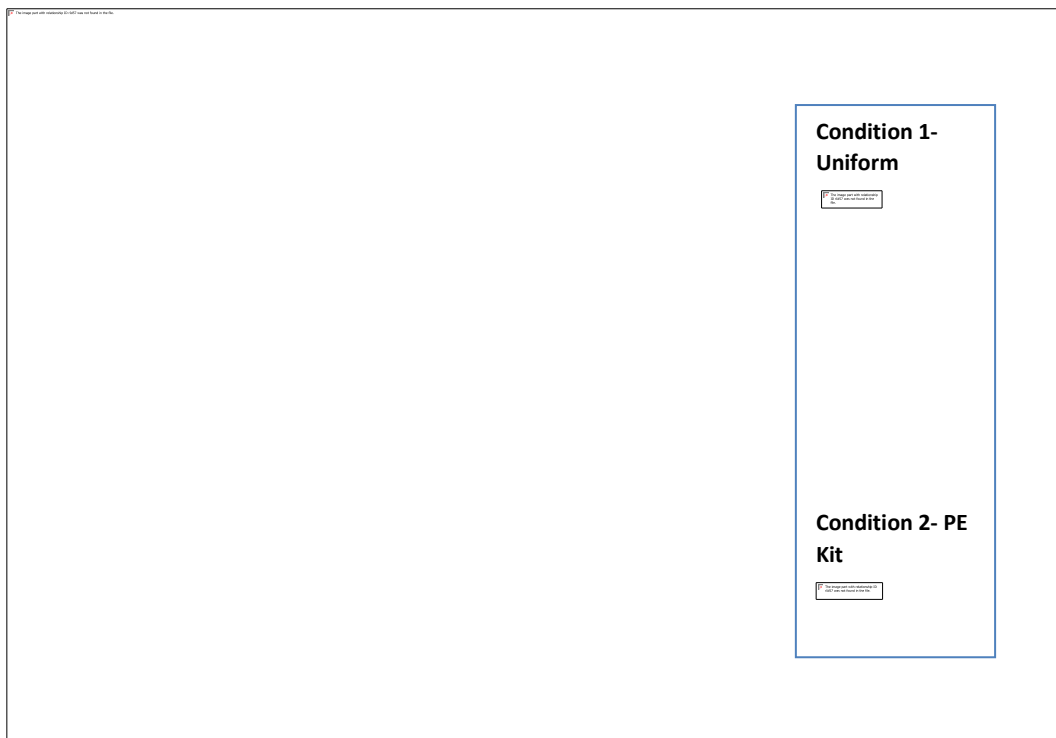
**Table 3: Descriptive Statistics for adolescent body-esteem across contexts and subscales**

Inferential statistics were conducted to meet the two aims of this study; being to identify whether subscale scores varied significantly over time (test-retest) and/or between contexts

(uniform or PE kit). A two-way repeated measure Multivariate Analysis of Variance (MANOVA) test was conducted. Independent variables were context (uniform or PE kit) and time (test and retest). Dependent variables were the three subscales of the body esteem scale. The assumption of normality was tested using the Shapiro-Wilk test ( $p > 0.05$ ), and partial eta-squared effect sizes. Normality checks were carried out on the residuals. The assumption of Sphericity was tested. Where variables and interactions violated the assumption of Sphericity (see output for study 2 in appendix 3) a Huynh-Feldt correction was applied. This was true in all cases with the exception of the subscale \* condition interaction. Field (2009) stresses that where assumptions tests expose inconsistencies, reliable and accurate outcomes cannot be assured. The results revealed there were significant multivariate effects of *condition* (Wilk's  $\Lambda = .944$ ,  $F(1, 118) = .6.985$ ,  $p = .009$ , partial  $\eta^2 = .056$ ) and multivariate effect of the interaction between *subscales and time* (Wilk's  $\Lambda = .943$ ,  $F(2, 117) = 3.52$ ,  $p = .033$ , partial  $\eta^2 = .057$ ) on subscale responses. No other multivariate effect demonstrated significance; there was no significant multivariate effect of *time* on subscale responses (Wilk's  $\Lambda = .992$ ,  $F(1, 118) = .913$ ,  $p = .341$ , partial  $\eta^2 = .008$ ); or *time and condition* (Wilk's  $\Lambda = .1$ ,  $F(1, 118) = .013$ ,  $p = .909$ , partial  $\eta^2 = .000$ ); and no three way interaction effect of subscale, time and condition (Wilk's  $\Lambda = .979$ ,  $F(2, 117) = 1.24$ ,  $p = .294$ , partial  $\eta^2 = .021$ ) on subscale responses.

This analysis highlights that contextual differences, i.e., wearing school uniform in a school hall environment as opposed to wearing PE Kit in a changing room made a significant difference in the pupil's responses across all three subscales combined (appearance, weight and attribution). In addition, over time there were changes in how the three subscales were answered. Therefore, investigating the effects of each subscale individually would be

instructive. These effect sizes are within a small to medium range, as Cohen (1988) outlines effect sizes as small ( $\eta^2 = 0.01$ ), medium ( $\eta^2 = 0.06$ ), and large ( $\eta^2 = 0.14$ ). The profile plots presented below (Figures 4-6) show the mean body-esteem scores for Appearance, Weight, and Attribution at data collection points *T1* and *T2*, and across both contexts (uniform/PE kit).



**Figure 5: *T1* and *T2* BES scores for Appearance subscale**



**Figure 6: *T1* and *T2* BES scores for Weight subscale**



**Figure 7: *T1* and *T2* BES scores for BE Attribution subscale**

The results suggest that body-esteem differences between groups at *T1* and *T2* are largely reflective of decreases in body-esteem with a change in context when wearing PE kit. In addition, whilst the plots demonstrate that conditions showed an effect across all three subscales. Pattern responses varied as the lowest body-esteem scores were reported in the attribution sub scale; a person's perceptions of what they think others think of them, when wearing PE kit. Conversely, the highest body-esteem increases were for appearance satisfaction; what I think of myself, when wearing school uniform. Therefore, within context the scales remain reliable, but across contexts they become unstable.

### ***4.3 Discussion***

The primary aim of this study was to evaluate the test-retest stability of the 14-item BES (Confalonieri et al., 2008). Findings highlight the need to ensure that the context is consistent when measuring body-esteem, to mitigate for the influence of context on reporting.

Results indicate that whilst the measure remained stable within the same context, it was unstable across contexts. These unique study findings specifically highlight that adolescent females report significantly lower body-esteem scores when wearing PE kit in a PE changing room across all subscales (appearance, weight and attribution), in comparison to wearing their school uniform in the context of a school hall.

In seeking to explain the finding that body-esteem reduced in the PE context, it is suggested that body-esteem was influenced through one or both of two factors, contextual change (PE clothing) and the environment (the changing rooms). Social and contextual factors shape and influence emotional and behavioural attributes of body-esteem (Rasberry, 2008). For example, body shame can be induced in changed contextual environments (Cash,

2002; Legenbauer et al., 2008; Sabiston et al., 2019; Tiggemann, 2004). Research indicates that clothing creates a contextual change that can ignite body image concerns (Reel, 1998; Reel & Gill, 1996; Reel & Gill, 2001) and body shape comparisons (Krane, Stiles-Shipley, et al., 2001). Pressure to comply with appearance norms can lead to body image comparisons (Lunde & Gattario., 2017) which can re-frame thoughts and concerns through negative self-evaluations (Cash, 2012). Literature has evidenced negative social and psychological outcomes among adolescent females in the school PE environment (Andersen et al., 2007; Cale & Harris, 2006). This includes fears over appearance judgements by others whilst being active (Slater & Tiggemann, 2011), and an increased risk of feeling self-consciousness (Vani et al., 2020).

Thompson and Sherman (2010) state that young people have been deterred from sports participation due to fears associated with clothing. For example, Allender and colleagues (2006) reviewed 24 studies investigating motivation for participation in sport and exercise. This revealed PE uniforms were commonly cited as a key obstacle across studies in preventing girls from engaging in school sport. Despite such findings, very limited progress has been made in addressing the negative effects of context as a moderator associated with PE uniforms in schools. It is important to support adolescent females to establish a healthy and positive body-esteem; and this might include addressing contextual stimulus in PE contexts that reduce body esteem and dissuade participation in a range of physical activities (Field, 2009).

Piacentini and Mailer (2004) contend that clothing choice is closely linked overall worth in young populations, with a direct relationship between how a person feels about themselves, and clothing choice. It has been suggested that females are more negatively

influenced by self-consciousness through clothing choice than males (Kwon, 1991). The powerful influence of clothing in moderating body-esteem is an integral, yet limited area of research in adolescent female body image research. For instance, Tiggemann and Andrew, (2012) instructed participants to imagine what they would be seeing, feeling, and thinking when given clothing choices within different contexts. Choice of clothing included a bathing suit in public, wearing a bathing suit in a dressing room, wearing a jumper in public, and a jumper in a dressing room. Main effects for clothing were found when wearing the bathing suit as evidenced through increases in self-objectification, body shame, and body dissatisfaction, indicating interrelationships between women's attitudes toward clothing and their attitude toward their body image.

In summarising, examining the impact of clothing choice and contextual influences on body-esteem is important for supporting body-esteem. Findings of the present study suggest that allowing an element of choice in the selection of PE uniform may be of benefit to female adolescent body-esteem within a physical education context.

#### ***4.4 Study Limitations***

This study consisted of female participants who were mid-adolescents (aged between 14 to 16 years) from the South Birmingham region of the West Midlands. This limits the generalisability of the results through age and geographical location. Participants were also from a high deprivation area, and so caution is urged in making predictions regarding adolescent females from more affluent socio-economic backgrounds.

#### ***4.5 Conclusion***

In conclusion, findings contribute to our understanding of contextual moderators of body image through the investigation of adolescents' body-esteem. Specifically, results support the notion that there is an increased likelihood of altered body-esteem (appearance, weight and attribution beliefs) when clothing and context are modified in adolescent female populations. The 14-item BES (Confalonieri et al., 2008) held stable within but not across contexts, and so findings highlight the need to hold context stable when measuring the influence of any intervention intended to enhance body-esteem. The research questions addressed were (a) What is the test-retest stability of all 14-items of the Body Esteem Scale (BES; Confalonieri et al., 2008) across all three subscales (BE-Appearance, BE-Weight, and BE-Attribution), (b) Does the BES yield the same results following repeat distribution within the same and across different contexts.

In addition, findings point to a need to examine the influence of PE uniform on body-esteem which may help PE practitioners and stakeholders understand the influence of PE context on body-esteem. Therefore, the final study presented within this programme of research investigates whether modifying PE clothing could positively influence female adolescent body image. A clothing intervention, should it prove effective, presents a simple intervention that could be rolled out without specialist training, actioned regardless of a school's financial budgets, and with the potential to be disseminated on a national scale, inclusive of every female adolescent in the UK.

# Chapter Five: Influence of a PE uniform intervention on female adolescent body-esteem

## *5.0 Introduction*

Adolescent female body image concerns are a widespread issue (Juli, 2017). Appearance esteem is an important domain within body-esteem and relates to general feelings about how one looks (Mendelson et al., 2001) and one important aspect of positive body image is known as body-esteem (BE). It identifies personal feelings toward one's physical appearance (Franzoi & Shields, 1984; Mendelson, et al., 2000), and beliefs pertaining to the self-evaluations of one's body or appearance (Mendelson et al., 2001; Nelson, et al., 2018). The BES (Confalonieri et al., 2008) measure is a validated 14-item scale that captures perceptions of body-esteem. Concerns that female body perceptions are negatively impacting large proportions of girls are widely reported not just within the U.K, but across the globe. For instance, over three quarters of female adolescents of Indian heritage have reported feeling dissatisfied with their body image (Ganesan et al., 2018). Findings provided by the Women & Equalities Committee for a National parliamentary inquiry into body image concerns for under 18-year-olds during the Lockdown period of 2020 identified the extent of this issue, as over half of all females surveyed stated they were impacted by negative appearance experiences (Body Image Survey Results, 2020). Other research sources report similar trends with approximately half of mid-adolescent females dissatisfied with their appearance (Miranda et al., 2021; Urvelyte & Perminas, 2020).

Girls and women continue to be judged by their visual appearance and body shape (Devonport et al., 2019), as females within western society strive towards gaining a slender

and toned body shape as the preferred ideal in all contexts (Homan et al., 2012). As such, women are encouraged to scrutinise their bodies through a preoccupation with monitoring one's physical appearance and attractiveness (Hendley & Bielby, 2012). Exposure to such physical idealism increases Body Image Dissatisfaction (BID); which refers to negative evaluations regarding the body shape or size and magnifies the disparities between the self-perceived body, and the body ideal (Homan, 2010; Mitchison et al., 2017). For a female the harmful effects of BID are salient, and are evident across three significant life stages; childhood (in girls as young as four) (Worobey & Worobe, 2014), during adolescence (Dion et al., 2016) and if undetected during this phase, BID typically prevails into early adulthood (Bucchianeri et al., 2013; Cash, 2011; Ferguson et al., 2011).

Recent research suggests that appearance-related concerns span across an adolescent girls' secondary school life (12 to 17-years of age; Scully, Swords, & Nixon, 2020). This can lead to an array of detrimental consequences that are documented across a robust literature for the adolescent female. For example, decreases in self-esteem (Murray et al., 2015; Wichstrøm & von Soest, 2016), heightened anxiety (Cruz-Sáez et al., 2015; Dooley et al., 2015), reduced quality of life (Haraldstad et al., 2011) and low mood (Dooley et al., 2015; Wichstrøm & von Soest, 2016).

As body-esteem is subjective in nature, it can be influenced by contextual changes (i.e., an individual's perceptions of body shape and satisfaction) and moderated by body conscious contexts (Wilski et al., 2016). The school physical education (PE) environment is acknowledged as a place where contextual changes can increase negative body image experiences (Evans, 2006). However, investigations into the influences of perceptual and attitudinal body image, and BID are scarce within physical education (Kerner et al., 2017). In

particular, investigations into body-esteem, context and clothing in adolescent females are scarce. This is a neglected area of research within body-esteem literature; the school PE kit (Watson et al., 2015) and appearance concerns (Standiford, 2013) are both cited as significant barriers to being physically active for adolescent females, being associated with poor body dissatisfaction (Satiya et al., 2018) and low body image (Pawlowski et al., 2018). Despite being a potentially crucial contributor to a female's bodily experience, investigations into the impact of clothing on body image are limited (Frith & Gleeson 2004). Therefore, the challenge exists to find effective ways to help engage adolescent females during PE (Croston & Hills, 2017; Scraton, 2018) and improve their physical activity and sporting experiences.

In understanding the complexities surrounding disengagement in physical activity, research provided by Woods and colleagues (2018) states that up to 90% of adolescent females in the U.K do not participate in enough physical activity or avoiding exercise entirely (Añez, et al, 2018; You & Shin, 2016). Manifestations of this can include an increased likelihood for a female adolescent to find ways to avoid exercise (Añez, et al, 2018 & You & Shin, 2016). Decreases in physical activity can lower body confidence (Troshikhina & Manukyan, 2016), and thus a negative spiral begins further undermining intentions to exercise. According to the findings of an 11-year longitudinal study, adolescence presents as an ideal period for intervention to generate greater body confidence, as body image does not stabilise until early adulthood (Frisén et al., 2015). Importantly, what research highlights is that being physically active provides numerous benefits for adolescent females (Gomez-Baya et al., 2019). For example, increases in body appreciation, body satisfaction (Halliwell, Dawson, & Burkey, 2019), body acceptance (Cox et al., 2017), appearance satisfaction (Ariel-Donges, Gordon, & Perri, 2019), improved self-concept (Beasley & Garn, 2013) and

decreases in body surveillance (Cox et al., 2017). Contradictory findings suggest that that lowering body dissatisfaction does not automatically facilitate increases in positive body recognition or body-esteem (Swami et al., 2018).

Research consistently indicates that a high proportion of adolescent females are unhappy with their body shape, size and or appearance during adolescence (Scully, Swords, & Nixon, 2020; Urvelyte & Perminas, 2020). Therefore, in striving to find ways to create positive changes and address this disconnect, adolescent female body-esteem investigations are needed to investigate the aetiology of negative experiences within contexts such as clothing in the PE environment. Several strategies have been implemented; yet produced limited improvements or long-term, sustainable changes that have enhanced positive experiences for the adolescent female in physical education. For example, national compulsory strategies have been created to improve female adolescent engagement through games focused interventions (Sport England Strategy, 2008-2011). This initiative failed to produce any significant gains and participation rates remained low at (21%). In other research, school-based interventions to improve girls' participation have been inconsistent and highlighted varied effects (Metcalf et al., 2012; van Sluijs, 2007).

The ultimate aim of the intervention and research programme is to promote physical activity behaviour in adolescent females. Therefore, when seeking to make improvements in future policy and practice that incorporate this aspiration, a key focus and required change is to expand opportunities for adolescent female enjoyment and enhance body-esteem within physical activity. As previously articulated through the Body Conceptualization Theory provided by Franzoi, (1995), the body can be viewed through evaluations based on body functionality 'body as process', or evaluations based on physical appearance 'body as object'.

This notion is central to the intervention design in this research project and supported by the research of Franzoi (1995) who highlights that body image can decrease when the focus is on the ‘body as process’ opposed to ‘body as object’.

Also of paramount importance to the intervention design and objectives of this project, is the ideal that focusing on evaluations based on body functionality (body as process), may be instrumental in reducing body esteem concerns (Abbott and Barber, 2010, Wasylkiw and Butler, 2014). Therefore, in seeking ways to design a robust, innovative and effective intervention, the potential implications of the theoretical concept provided by Franzoi, (1995) have been carefully considered as more than just a useful metaphor in creating a greater awareness of body-esteem, but as a major contributor factor that underpins the intervention design. As such, there are potential ramifications for future intervention design beyond this project.

Empowering girls to re-examining the appearance based cultural emphasis placed on females, is critically important in the endeavour to challenge girls to be less inclined to compare their body shape and size, and reject traditional feminine beauty ideals. To address this, a suggestion for future policy and practice could address the promotion of clothing choice within physical education through physical body-type diversity (increasing clothing options that cater to a wide range of body sizes and shapes). Physical body-type diversity can facilitate changes through emphasizing appreciation of what the body can do, and consequently can often increase body satisfaction and body appreciation (Cohen et al., 2019, Ogden et al., 2020).

In addition, and also central to the intervention design is the ideology that suggests that when girls are motivated by choice and autonomy, sustained physical activity behaviours can increase (Ntoumanis et al., 2021). Therefore, this is an opportune time for intervention as body image concerns continue to be an obstacle to physical activity (Sabiston et al., 2019). In this vein, future research could meaningfully contribute to body image literature that could provide innovative alternatives in initiating steps towards understanding the impact of PE clothing choice on how body feels and what it can do within a body functionality-orientated capacity (body as process).

Beyond understanding appearance based thoughts and processes, body image consists of perceptions that relate to body functionality (Abbott & Barber, 2010). This is an area of research in body image literature that is under-developed (Cash & Smolak, 2011), and warrants future investigations. For instance, a meta-analysis of 62 body image interventions highlighted that only small-to-moderate improvements in women's body image were found, of which none of the 62 studies focused on body functionality (Alleva, Sheeran, Webb, Martijn, & Miles, 2015). Future studies that focus on body functionality (body as process), may provide a greater understanding of the complexity of the body's capabilities pertaining to body image (Tylka & Wood-Barcalow, 2015). For instance, qualitative studies in adolescent girls suggest that focusing on body functionality (body as process), is correlated with greater positive body image as perspectives are shaped through appreciation of the body, interactions with others and enjoyment (Frisén & Holmqvist, 2010).

In conclusion, future policy recommendations should focus on a campaign throughout schools for adolescent females to be empowered through the fundamental aspect of greater

choice through PE clothing, and focus on the importance of body functionality (body as process) in order to facilitate greater enjoyment for girls' experiences within physical education.

A notable challenge still remains where schools face challenges such as financial restraints, limited staffing resources, challenges regarding opportunities for intervention (Milat et al., 2013, 2014), including PE practitioners who lack confidence in delivering the topic of body image through interventions (Ricciardelli et al., 2010). Furthermore, many interventions are simply not sustainable on a wider scale, and difficult to effectively re-create and follow up post intervention (Love, Adams, van Sluijs, 2019).

What is needed is not more of the same, but effective, simplistic, widely scalable investigations. This is in order to ameliorate the factors that limit adolescent female exercise participation (Slater & Tiggemann, 2010). The aim of the study is twofold:

- (i) To replicate the findings from chapter 4 regarding the stability of the BES overtime and within context.
- (ii) To assess the effect of a clothing intervention on BES scores by comparing baseline and follow up scores.
- (iii) To assess whether the context in which BES is measured (PE changing room or school hall) has any influence on the observed effect of the intervention.

## **5.1 Methods**

### **5.1.1 Design**

An experimental ABA within subjects 2x2 design was applied. The independent variables were context on two levels (PE kit or Uniform) and time on two levels (baseline and post-intervention). Dependent variables were the three subscales of the body esteem scale; being BE-appearance, BE-weight, and BE-attribution (Confalonieri et al., 2008). All participants took part in the intervention.

### **5.1.2 Participants**

Participants were adolescent females from an inner-city secondary school ( $n = 110$ ) within Key Stage 4 (aged between 14 and 16). Twenty-five pupils declined to participate in the present study. This comprised of two combined year groups; Year 10 and 11 ( $M_{age} = 14.9$ ;  $SD_{age} = 0.68$ ). Historically, body image investigations have focussed on young adults, often failing to capitalise on opportunities to investigate body image across adolescent populations (Mellor et al., 2013; Rubin et al., 2008; Williams et al., 2006). One suggestion to reduce wide ranging consequences of negative body image remains with opportunities for prevention and intervention in schools (Fazel et al., 2014). Pupils were selected from an inner-city school in South Birmingham in the Midlands (UK). The socio-economic demographic revealed a pupil premium allocation at 53%. This is higher than the national average of 14.1% (DfE, 2019). The schools' socio-economic demographics outline that White British pupils represent approximately 62.2% of the school population and BME populations approximately 37.8%.

The rationale behind the population choice was that this specific age group warranted further investigations, as this area of adolescent female body image appeared to be limited,

and literature had highlighted that body image declined after adolescence was initiated. With Year 7 to 9 participants (Key Stage 3) there would be a lower probability of females who had entered advanced puberty stages and therefore adolescent females (within the mid adolescent range) would be a more appropriate population to investigate in terms of physical maturation. Ethical approval was obtained from the University of Wolverhampton ethics committee. Parental/carer consent was sought for participants recruited from an inner-city school in the Midlands (UK).

### ***5.1.3 Measure***

The 14-item Body Esteem Scale (BES; Confalonieri et al., 2008) is a multifaceted measure that differentiates an individual's body esteem judgements concerning 'Appearance' (general feelings about appearance), 'Weight' (weight satisfaction), and 'Attribution' (evaluations attributed to others about one's body and appearance). The 14-item measure is an adapted version of the Body Esteem Scale for Adolescents and Adults (Mendelson et al., 2001) and was developed by Confalonieri et al., (2008). For study purposes, this instrument was selected for a number of reasons (refer to page 76).

### ***5.1.4 Procedure***

The data were gathered in one secondary school in the West Midlands, UK. University of Wolverhampton ethics approval was obtained along with and consent from the Head Teacher, parents, and carers (refer to page 77). At baseline, the 14-item BES (Confalonieri et al., 2008) was completed in two contexts (uniform in a school hall and PE kit in a PE changing room) within one week. No time limit was provided. Pupils first completed the measure in the

school hall, where they wore the standard school uniform (school jumper, trousers and shirt and tie). The PE context was in changing rooms wearing PE kit (PE top, shorts, tracksuit bottoms or skorts). This procedure was repeated one week later for the purpose of calculating test-retest statistics at baseline.

At Intervention stage, for a period of two weeks, pupils could choose to wear; (1) a plain (with no logo) base layer long sleeve top (black, white, navy blue or grey only), under their PE top (2) Plain (with no logo) black full-length leggings (opposed to shorts or a skort) (3) their school jumper on top of their PE top. School jumpers were part of the school uniform, and not part of the school PE kit. Wearing a standard school jumper would provide a level of consistency, and thus prevent participants from wearing different sporting logo's and brands, for which it might be suggested that more expensive branded clothing might have influenced outcomes by facilitating increases in body-esteem, opposed to the actual clothing items. During their standard PE lessons, the lesson content remained the same as no changes were made to the curriculum, as the activity had no bearing on the intervention. The intervention focus was entirely on the opportunity to choose from three additional clothing options or choose to wear their usual clothing. Post intervention, the BES was administered, again both in the Uniform context, and in the PE context. Both administrations of the questionnaire took place within a one-week period and procedures were repeated a week later, again to allow for test-retest statistics to be calculated from follow up data. In total the measure was repeated eight times. Whilst all 110 participants were enabled with choice, 90 pupils chose to wear an additional item of a base layer, leggings or a school jumper, with 20 opting to wear the standard PE kit.

## ***5.2 Data Analysis***

Hard copies of one-page raw questionnaire data were stored in a locked cupboard on school premises, and input into a SPSS database on a password protected computer. Data were cleaned and checked for errors. Allowances were made for missing data within the boundary that only one missing item per subscale would be accepted otherwise data would be removed from the study. Missing values were left blank, so as to not compromise the quality of the data scoring procedures. Overall, missing data were within an acceptable range (2.4%) according to the guidance of Bennet (2001). All mean scores were calculated. Descriptive statistics were calculated for the three subscales across the two conditions (PE kit and school uniform). To replicate the findings from chapter 4 regarding the stability of the BES overtime and within context, the BES was administered twice at each timepoint and in each context and correlations and t-tests were used to assess stability of the measure within context. To assess the effect of an intervention on BES scores, baseline scores on the BES were compared with post-intervention follow up scores using a MANOVA. To assess whether the context in which BES is measured (PE kit in PE changing room or school hall in school uniform) has any influence on the observed effect of the intervention, measures were taken in both contexts at both time points context was entered as an IV within the same MANOVA.

## ***5.3 Results***

### ***5.3.1 Test-Retest Analysis***

To fulfil the aim of replicating findings from study 1, test-retest data were gathered from participants at baseline and follow up and are presented in Table 3. Table 3 shows that all test-retest correlations ( $n = 12$ ) were significant ( $r = .96-.99$ ,  $p < .001$ ), and none of the t-tests

demonstrated a significant difference between test-retest scores. Therefore, the findings from study 1 were replicated, and the BES demonstrated stability over time and within the different contexts.

### ***5.3.2 Descriptive Statistics***

Table 3 presents the means at baseline and post intervention, across contexts and subscales. Dependent variables were the three subscales of the body esteem scale; being BE-Appearance (“feelings about one’s general appearance”), BE-Weight (“feelings about one’s weight”), and BE-Attribution (“evaluations attributed to others about one’s body and appearance”; Confalonieri et al., 2008). It can be observed that the highest mean body-esteem scores were achieved post intervention, when wearing PE kit across for all three subscales ( $M = 14.46$ ,  $SD = 0.55$ ) opposed to uniform ( $M = 13.44$ ,  $SD = 2.65$ ). This shows the overall highest means (and therefore greatest) body-esteem scores were identified within the PE clothing intervention group when compared across all conditions: time, contexts and as combined subscales. All the subscales of body-esteem differed between those wearing PE kit and those in uniform. Across all subscales, the lowest (and therefore poorest BE scores) were consistently reported as BE-Attribution; despite time (baseline or Post Intervention) or context (PE kit or uniform). With the poorest BE-Attribution scores reported during baseline testing: ( $M = 11.10$ ,  $SD = 1.89$ ) and retest phases: ( $M = 11.09$ ,  $SD = 1.95$ ).

Regardless of time or context, the greatest overall appearance concern for adolescent females was not their own perceptions of their appearance, neither their weight, but their perceptions of how other people see them. Across the subscales, the greatest increases (and therefore the most dramatic changes) were seen within BE-Appearance in PE kit during

baseline retest (M= 15.92, SD=2.95); BE-Attribution (t=-0.38,  $p < 0.71$ ) to Post Intervention retest (M= 17.93, SD=3.06); BE-Attribution (t=-0.96,  $p < 0.34$ ) (see Table 3). It can be seen that PE clothing is a moderator of body-esteem, BE-Attribution is the most dominant concern, and our intervention serves to increase all aspects of body-esteem, with appearance-esteem in adolescent females revealing the largest improvements.

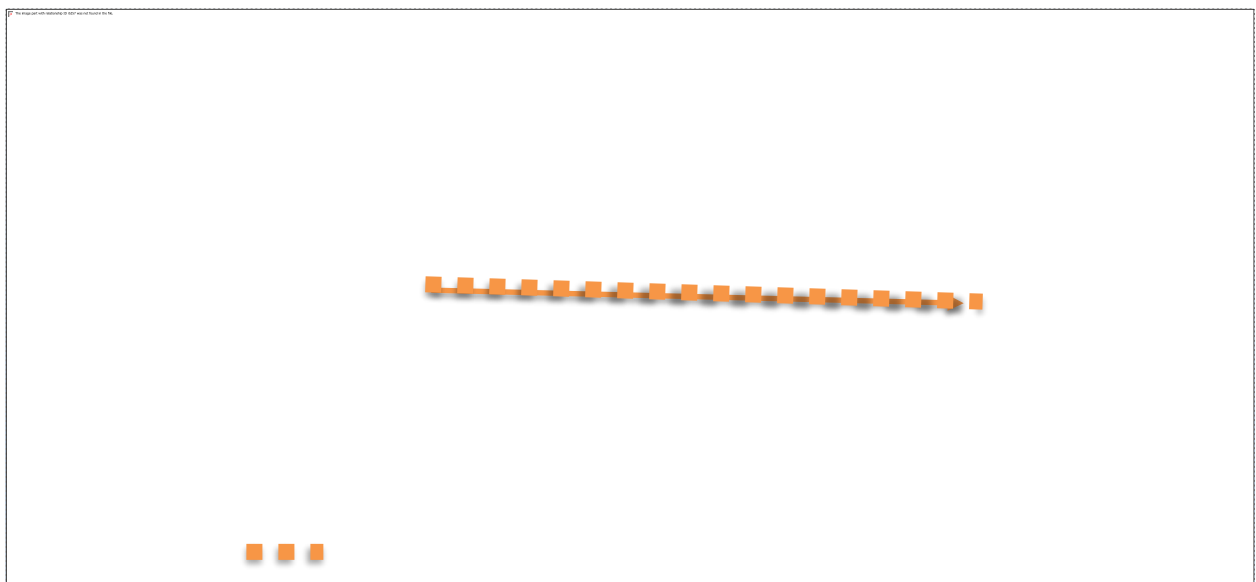
Time	Context	Subscale	Test		Retest		Correlation test-retest		Confidence interval		Difference test-retest	
			M	SD	M	SD	R	P	t	p		
<b>Baseline</b>	PE Kit	Appearance	15.90	2.97	15.92	2.95	0.99	0.00	-0.11	0.08	-0.38	0.71
		Attribution	11.10	1.89	11.09	1.95	0.97	0.00	-0.08	0.10	0.21	0.84
		Weight	11.51	1.98	11.43	2.05	0.96	0.00	-0.02	0.19	1.53	0.13
		<b>Total Mean</b>	<b>12.84</b>	<b>2.66</b>								
	Uniform	Appearance	16.41	2.74	16.44	2.75	0.98	0.00	-0.12	0.07	-0.58	0.57
		Attribution	11.92	1.98	11.91	2.00	0.98	0.00	-0.06	0.08	0.26	0.80
		Weight	12.29	1.78	12.28	1.83	0.97	0.00	-0.08	0.10	0.20	0.84
		<b>Total Mean</b>	<b>13.54</b>	<b>2.49</b>								
<b>Baseline</b>	<b>Total Mean</b>	<b>13.14</b>	<b>2.14</b>	<b>13.18</b>	<b>2.36</b>							
<b>Post Intervention</b>	PE Kit	Appearance	17.95	3.05	17.93	3.06	0.97	0.00	-0.11	0.16	0.40	0.69
		Attribution	12.45	2.02	12.40	2.09	0.97	0.00	-0.05	0.14	0.96	0.34
		Weight	12.98	2.18	12.89	2.19	0.96	0.00	-0.02	0.20	1.59	0.11
		<b>Total Mean</b>	<b>14.46</b>	<b>0.55</b>								
	Uniform	Appearance	16.49	2.62	16.51	2.42	0.97	0.00	-0.14	0.10	-0.29	0.77
		Attribution	11.75	2.07	11.72	2.03	0.97	0.00	-0.06	0.13	0.75	0.45
		Weight	12.06	1.84	11.98	1.77	0.96	0.00	-0.02	0.18	1.63	0.11
		<b>Total Mean</b>	<b>13.44</b>	<b>2.65</b>								
	<b>Post Intervention</b>	<b>Total Mean</b>	<b>14.02</b>	<b>2.39</b>	<b>13.90</b>	<b>2.64</b>						
		PE Kit	Total Mean	13.65	2.70	13.61	2.72					
	Uniform	Total Mean	13.49	2.30	13.47	0.38						

**Table 4: Descriptive statistics and test-retest data for the Intervention Study** (BE Appearance (feelings about one's general appearance), Weight (feelings about one's weight) and Attribution (evaluations attributed to others about one's body and appearance))

### 5.3.3 Multivariate Analysis

To address aims 2 and 3, a MANOVA was conducted. The MANOVA tested the effect of time (Baseline to post intervention) and context (PE kit and school uniform) on the three subscales measuring body esteem. Posthoc univariate analyses were conducted to examine the nature of the significant effect in more detail. For the purpose of the MANOVA, the data from the column marked 'test' (Table 3) were used.

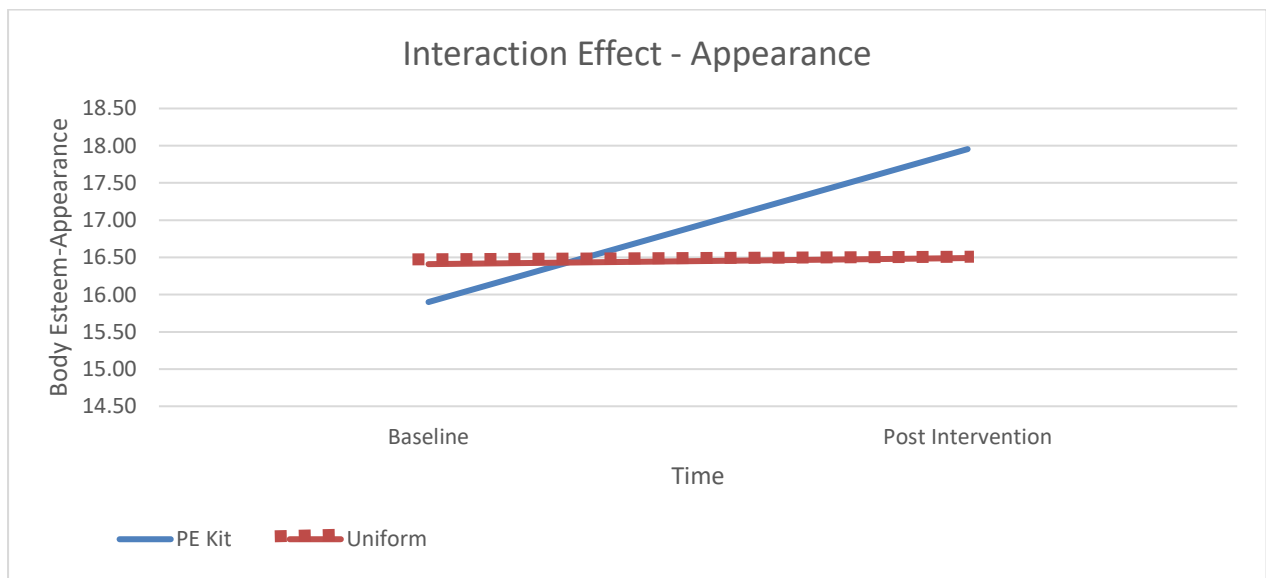
The main multivariate effect of 'context' was significant (Wilkes Lambda = .05,  $F(3, 107) = 35.180$ ,  $p < .01$ , partial  $\eta^2 = .38$ ). The effect was large (Murphy & Myors, 2004). The average of all scales across all time points (Table 3) shows a slightly higher score for PE kit than for uniform, demonstrating comparably better body esteem in this context. Univariate analyses demonstrated a significant effect was observed on all three subscales (Appearance:  $F(1, 107) = 66.01$ ,  $p < .01$ , partial  $\eta^2 = .38$ ; Weight:  $F(1, 107) = 34.99$ ,  $p < .01$ , partial  $\eta^2 = .24$ ; Attribution:  $F(1, 107) = 37.61$ ,  $p < .01$ , partial  $\eta^2 = .26$ ).



**Figure 8: Multivariate Interaction of Context and Time on Body-Esteem**

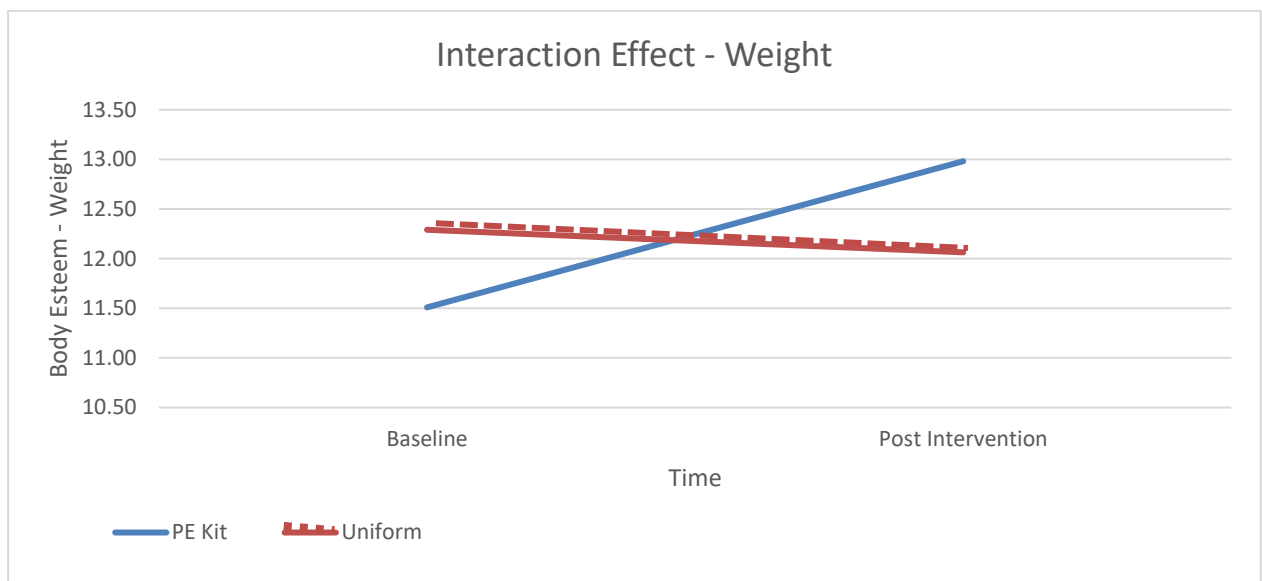
The main effect of time was not significant, there was no significant multivariate effect of the intervention on the BSE scores at baseline compared with post-intervention (Wilkes Lambda = .94,  $F(3, 107) = 2.172$ ,  $p = .1$ , partial  $\eta^2 = .06$ ). In univariate analysis, this pattern was found for all subscales (Appearance:  $F(1, 107) = 5.96$ ,  $p = .02$ , partial  $\eta^2 = .05$ ; Weight:  $F(1, 107) = .09$ ,  $p = .077$ , partial  $\eta^2 = 0$ ; Attribution:  $F(1, 107) = .07$ ,  $p = .80$ , partial  $\eta^2 = 0$ ).

The interaction effect of context and time was significant (Wilkes Lambda = .40,  $F(3, 107) = 54.236$ ,  $p < .01$ , partial  $\eta^2 = .60$ ). As shown in figure 8, this interaction is explained by the PE context scoring lower at baseline and higher at post intervention. Conversely the Uniform context remained stable over time.

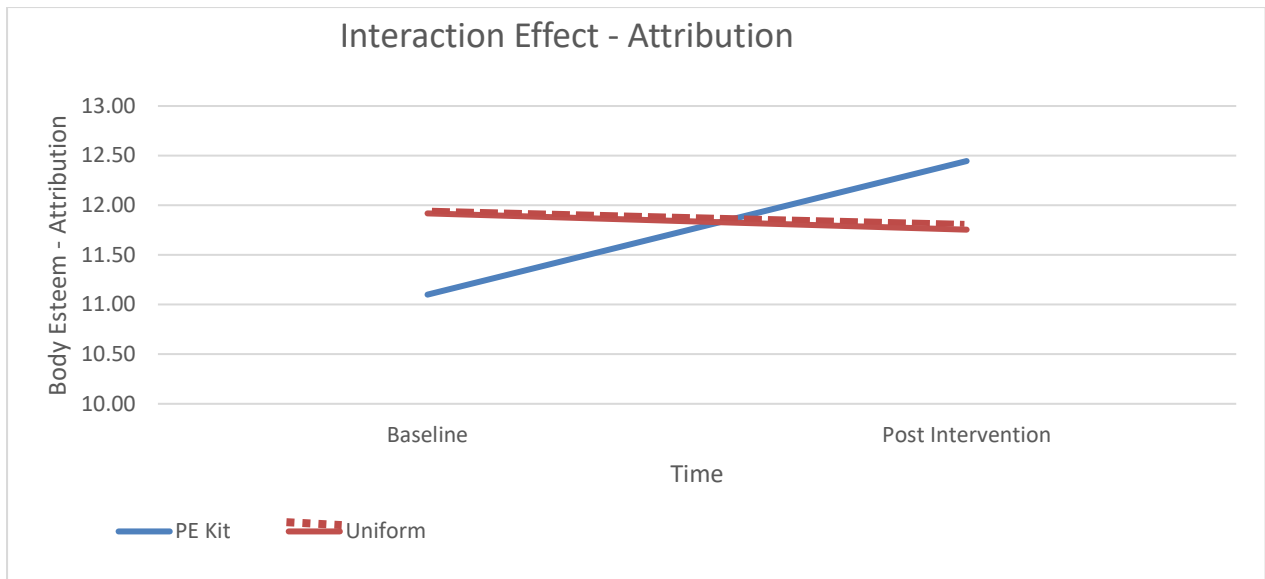


**Figure 9: The effect of context and time on Appearance Subscale scores**

This interaction was significant across all subscales (Appearance:  $F(1, 106) = 73.35, p < .01$ , partial  $\eta^2 = .40$ ; Weight:  $F(1, 106) = 51.24, p < .01$ , partial  $\eta^2 = .32$ ; Attribution:  $F(1, 106) = 63.31, p < .01$ , partial  $\eta^2 = .37$ ). As observed in figures 8, 9, and 10, the effect was more pronounced for the weight and attribution subscales, where a decrease in scores was observed in the Uniform context, whereas an increase was observed in the PE context.



**Figure 10: The effect of context and time on Weight Subscale scores**



**Figure 11: The effect of context and time on Attribution Subscale scores**

Taken together these findings indicate that the intervention had a significant and positive effect on body esteem, however the increase in body esteem was only detected where measures were taken in the PE context.

#### **5.4 Discussion**

The first aim of this study was to replicate the test-retest stability observed in chapter 4. The same pattern of findings was observed in that BES scores held stable within, but not across context, therefore this adds support for the observations regarding test-retest stability within and across context presented in the previous chapter. The second and third aims of this study were to analyse the effect of an intervention on female adolescent body-esteem. Our study demonstrated that contextual clothing and environmental changes have an effect on adolescent female body-esteem. Being able to choose their own PE kit had the effect of improving female body-esteem. However, it is only when the effect is measured in context,

and that is within the PE context, that the effect was observable. Notably, no change in body-esteem was observed, as a result of the intervention, when measurements were taken whilst the same adolescent females were wearing their school uniform.

Contextual difference may have been evidenced through changes to both the environment, and clothing facilitated increases in negative body image. If we were to implement an intervention in the PE context, but only take the measures in the school hall, then no effect would have been observed. Significant improvements are reported in adolescent female body-esteem when choice through greater flexibility and clothing coverage for PE kit during lessons are offered. For example, Velija and Kumar (2009) have identified that when pupils can choose their PE kit, body image concerns decrease, and this can be instrumental in supporting girls to feel less conscious during PE lessons. There are important considerations that may have contributed to these study outcomes.

Literature suggests that within schools' social hierarchies exist (Valentine, 2000) and group norms are formed where appearance ideals and feelings around body size can be shaped within the school context (Ricciardelli & Yager, 2016), as such this can become a catalyst for mediating negative feelings regarding one's body (Knowles, Niven, & Fawkner, 2011; 2014). In seeking ways to improve an adolescent girls' PE experience, previous assumptions in the literature were made that suggested girls' negative attitudes were the overriding factor for their disengagement in PE activities (Biddle et al. 2005), with limited investigations into why. However, findings from the present study may provide appearance related insights into the influence of clothing and context.

In support of our study outcomes, Wang et al. (2019) imply that situational or contextual influences are suggested to be a potent force that influences attitudes towards one's body, a contention also presented in the Cognitive Behavioural Model (CBM; Cash, 2012). The CBM identifies that body image consists of potential activating events that can be in response to physical encounters and experiences (Cash, 2002). Contextual change can invoke negative emotions, and body-esteem can be impacted by numerous factors (Zanon et al., 2016) including social scrutiny (e.g., other people evaluating your body), social comparisons (e.g., comparing your shape and size with others), body exposure (e.g., undressing in a PE changing room), being physically active (e.g., participating in school sport) and type of clothing worn (e.g., PE kit) (Cash, 2002). Fanon (1952) contends that social comparisons increase feelings of inferiority and self-consciousness. In such contexts, body image issues can be triggered as self-perceptions are fragile, and can be manipulated (Ansari, Dibba & Stock, 2014; Liechty 2015; Borowsky et al., 2016).

Adolescents face a range of emotional challenges, including internalising body appearance ideals (Smolak, 2009). Comparisons through perceived physical appearance differences in PE kit lead to behaviours that are suggested to create negative physical activity experiences in the form of victimisation (O'Connor & Graber, 2014). This can often be more evident for overweight adolescents who may experience greater hostilities (Wiltshire et al., 2017). Such experiences are consequential, as Elliott and Hoyle (2014) advocate that wearing PE kit has the potential to increase feelings of self-consciousness, and lower body-esteem, particularly if poorly fitted (Flintoff & Scraton, 2001; Allender et al., 2006). Tight fitness clothing increases body image concerns (Slater & Tiggemann, 2011) as clothing and body satisfaction are inexorably linked (Tiggemann & Lacey, 2009). Impractical PE kit may

limit and restrict participation in physical activities, even in the young females due to poor design (Norrish et al., 2012). In this vein, a Systematic Review (supported by Sport England) to identify ways to improve sport participation for girls revealed that PE kit was cited as “uncomfortable and embarrassing” (Foster, 2005, p. 5), as such the study outcomes implied that participants desired to have greater choice in the range of available PE Kit offered.

Body conscious females report appearance concerns are related to PE kits that reveal body shape (Velija & Kumar, 2009). Yet a one style fits all approach continues to desecrate the adolescent female PE experience. In contrast however, Carmona and colleagues (2015) posit that wearing looser clothing can facilitate increase body confidence (Fisette, 2011) particularly around peers (Rudd & Lennon, 2001). In order for adolescents to feel more confident with their appearance when physically active, it is perceived body image, rather than knowledge of body weight that is more instrumental in facilitating improvements in the amount of physical activity undertaken (Yan et al., 2015; Kantanista et al., 2015).

Beyond clothing, our study findings are compatible with studies that diametrically oppose the school PE environment as a stable context as it is can often be correlated with negative social and psychological outcomes (Eime et al., 2013). For example, the PE changing room is recognised as a context that may prompt and heightens concerns related to physical appearance (Allender et al, 2006); whereby negative emotions, and comparisons could thrive and magnify BID (Tiggemann, 2015; Coyl, 2010). It can be suggested that the sheer magnitude of negative body image experiences through appearance related PE issues should not be underestimated, therefore body-esteem interventions in the context are important (Bhatnagar et al., 2013; Duncan et al., 2009; Stice et al., 2013), in order to increase

adolescent self-esteem (Erickson & Gerstle, 2007; Franzoi & Klaiber, 2007). Adolescence is highlighted as an opportune time to intervene as this time period sees the most dramatic decreases in female body-esteem (early and mid-adolescence) for both appearance and weight-esteem (Abbott et al., 2012; Holsen et al., 2012).

Therefore, our study outcomes imply that small, but significant steps can be taken to empower girls through PE kit choice which increases comfort during lessons (Velija & Kumar, 2009) and enhances positivity (Boyes et al., 2007). As Jackson and colleagues (2010) highlight, if improvements are made regarding more flexible PE clothing choices, females will be more likely to engage in participation. Therefore, a few basic manipulations to PE kit would strengthen and reduce negative perceptions and experiences within the context of physical education, i.e., reducing perceived physical differences of body size or shape (Jachyra 2016).

Allowing choice of PE kit may present protective mechanisms facilitating healthier positive body recognition and increased physical fitness in female adolescents (Cook-Cottone et al., 2013; Mahlo & Tiggemann, 2016; Tiggemann, Coutts, & Clark, 2014). Our findings indicate that clothing choice, as an intervention can be influential and offers a more promising area of research therefore, it could be hypothesised that improvements in PE clothing could lead to an enhanced positive experience within exercise and sport. We would therefore argue that what is needed is not highly sophisticated or innovative interventions that will ultimately prove successful in engaging girls through greater satisfaction and experiences within physical activity; rather basic, widely scalable, and effective interventions (Norrish et al., 2012; Watson et al., 2015).

### ***5.5 Strengths of this Research***

Having captured adolescent girl's experiences of PE clothing and investigated the implications of contextual changes, these are promising findings. The experience of wearing PE clothing should not be detrimental to an adolescent females' body-esteem. Therefore, we are able to suggest an effective intervention that could be implemented across schools nationally. In striving to meet this challenge, it was necessary to consider the challenges that school practitioners face was explored in order to propose an intervention that could be presented as plausible. As such, this study may have far-reaching consequences for body-esteem research in schools. This intervention provides preliminary evidence in a limited research area, that through the suggested clothing manipulations our body-esteem intervention can be integrated with confidence into all PE programmes. presents minimum disruption to the PE curriculum, in that it does not require specialist training or intervention specialists, can be administered whether facilities are limited or not, can be actioned regardless of constraints on a school timetable, can be implemented regardless of a school financial budgets, allows for stake holders that include student voice, parents and carers, teaching staff, senior leaders and school governors to be part of the kit expansion options; and most importantly can be presented as an intervention that is inclusive of not only specific populations or year groups, but for every female adolescent in the UK.

### ***5.6 Limitations and Suggestions for Further Research***

Although this intervention study is unique in its approach to identifying how female body-esteem can be influenced through PE clothing, there are limitations that must be accounted for when interpreting these results. Firstly, further research is needed to investigate the

impact of body-esteem interventions across younger adolescent female ages, as study participants were Key Stage 4 pupils only (year 10 and 11). Secondly, data collection was based on a self-reporting measure, and qualitative research might provide a more extensive and in-depth analysis within this field. Thirdly, comparisons were done through repeat measures and not with a control group wearing exact clothing, and this may be seen as a limitation; however, this intervention was not exclusively about clothing and context. It was about the freedom to choose. Finally, these outcomes were recorded over a short period of time and what would be needed is longitudinal post intervention follow up over a 3, 6 and 12 months in order to investigate the sustainability of the increases in body-esteem over longer periods of time.

### ***5.7 Conclusion***

The study outcomes have captured adolescent girl's appearance experiences of PE clothing and body-esteem. This research makes a significant contribution towards exploring the impact of contextual changes on body-esteem through adolescent female perceptions and providing a basic way for schools to reinforce healthy body-esteem within the context of PE. The final intervention study addressed the following questions (a) What are the effects of a PE clothing intervention on BES scores and (b) Does the context in which BES is measured (PE changing room or school hall) have any influence on the effect of the intervention.

These exciting results have important ramifications for PE practitioners striving to positively improve female adolescent body esteem experiences, through albeit minor adaptations. Our

findings not only expose how contextual differences can impact body-esteem but why extending the range of particular PE clothing items can improve this problematic issue. In addition, these favourable changes can be implemented with speed and delivered at scale within schools across the country, and these adjustments can be implemented in a sustainable manner which makes this a major strength of this intervention.

Effective body-esteem interventions are required to improve and impact the female adolescent physical education experience, and indeed the development and efficacy of this intervention is promising.

## Chapter Six: General Discussion

### *6.0 Introduction*

This chapter comprises three main elements. Firstly, the main outcomes from this research programme are summarised within the key findings of research. Secondly, the practical implications of the thesis are reviewed and finally strengths and limitations are outlined for future research on improving female adolescent body image.

### *6.1 Summary of Key Findings*

There are strong reasons why the research is necessary, and these are worth briefly reiterating as they help contextualise the key findings. As will be suggested, the study has made significant progress in developing a scalable and cost-effective intervention to combat deteriorating and unstable body image. However, additional research is needed to investigate the assessment of adolescent female body image further, as this might enable schools to educate pupils and increase awareness on this topic. With the onset of puberty females experience a range of challenging physical and emotional changes (Choi, & Kim, 2016) that are driven by a period of vulnerability where body-esteem can decline (Tiggemann, 2005). Low body-esteem is suggested to be emotionally harmful and can increase negative emotions including anxiety (Cruz-Sáez et al., 2015; Dooley et al., 2015; Murray et al., 2015; Parent, 2013; Wichstrøm & von Soest, 2016). Therefore, intervention during puberty may provide fortitude against body dissatisfaction because when detected in early adolescence it reportedly remains in late adolescence (Dion et al. 2015). In order to review the strengths and

weaknesses of potential interventions, a Systematic Review of Sport and Exercise Interventions intended to Enhance Body Image was completed.

There was equivocality in the extent to which sport and exercise interventions could enhance body image. In looking to account for why, the Systematic Review highlighted that the measures of body image used within adolescent physical activity research were of poor quality, and inappropriate selections of measures were applied. All measures have known limitations (Atkinson, & Diedrichs, 2021). Webb et al (2015), state that selecting measures that will accurately capture elements of a selected body image construct is a research challenge that should be addressed. The Systematic Review identified that none of the included studies sufficiently acknowledged the dimension of body image assessed or justified the measure(s) of body image used. Furthermore, inconsistencies were exposed across methodological designs, and it was evident that one of the most severe limitations within the research was a failure to account for the test-retest stability of body image measures. This key finding would prove instrumental in changing the direction of the research project, due to greater insights into considerations of participant sampling, control conditions/groups, measurement of key variables, intervention features, and issues surrounding the analysis of data. Notably, in studies where the test-retest stability of measures was not accounted for, this creates challenges in drawing conclusions regarding the potential for sport and exercise interventions to help promote positive body image among female adolescents. This is because it the test-retest stability of the measure used cannot be confirmed. Therefore, the second study sought to address this limitation by investigating the test-retest stability of the 14-item Body Esteem Scale (BES; Confalonieri et al., 2008).

Due to limited investigations of test-retest stability, study two investigated whether the 14-item Body Esteem Scale (BES; Confalonieri et al., 2008) remained stable within and across contexts, thereby seeking to test confidence in the measure. This was necessary because without test-retest stability any changes post intervention could not be attributed fully to any intervention, rather could plausibly be poor test-retest stability, contextually dependent influences, or due to inept measurement instruments (Cheung & Rensvold, 2002; Thompson, 2004; Knight et al., 2009; Milfont & Fischer, 2010). The findings of study 2 indicated strong test-retest stability within context (school hall (in uniform) and PE changing rooms (in PE kit)), but poor test-retest stability across contexts. That is, body esteem was lower in PE kit in the PE changing room when compared in an assembly hall when wearing school uniform.

The findings of study 2 proffer support for literature illustrating that contextual change can be negatively influence body-image (Zanon et al., 2016). Allender, Cowburn and Foster (2006) highlighted that PE kit can negatively influence a girls PE experience, particularly if poorly fitted and uncomfortable (Elliott & Hoyle, 2014) as the school PE kit is widely known as a barrier to being physically active for adolescent females due to appearance related concerns (Watson et al., 2015; Standiford, 2013). Studies suggest PE kit can trigger appearance concerns leading to poor body dissatisfaction (Satija et al., 2018) and lower body image (Pawlowski et al., 2018). Poorly fitted clothing (Slater & Tiggemann, 2011; Thøgersen-Ntoumani, Ntoumanis, Cumming, Bartholomew, & Pearce, 2011) can also increase feelings of self-consciousness, and lower body-esteem (Flintoff & Scraton, 2001; Allender et al., 2006). Study 2 identified a gap in research knowledge, warranting further investigations into whether PE kit might contribute to appearance beliefs in adolescent females (Frith & Gleeson 2004). Therefore, study 3 tested the notion that clothing and body

satisfaction are inexorably linked (Tiggemann & Lacey, 2009). To test this notion, a choice of PE clothing intervention was delivered and test-retest differences in body-esteem were measured within and across contexts (PE kit intervention in PE changing room, and school uniform in assembly hall). Offering choice of PE kit as an intervention was intended to maintain girls' body-esteem and experiences of PE.

The findings of study 3 demonstrated that contextual clothing and environmental changes can moderate adolescent female body-esteem. The results indicated that the highest (and therefore greatest) body-esteem scores were identified within the PE clothing intervention group (with the appearance subscale revealing the highest BE scores) when compared to wearing school uniform in a school hall on all subscales (appearance, weight and attribution). The lowest (and therefore poorest body-esteem scores) were found within the attribution subscale whilst wearing the standard PE kit. Thus, findings suggest that the intervention strategy of offering choice of PE clothing can significantly improve adolescent female body-esteem. This is of value because facilitating a positive recognition of one's own body-esteem can become a powerful tool in reducing negative body image. Ricciardelli and McCabe (2004) contend that body image has a positive predictive effect on exercise participation, and has the potential to exert a positive influence on exercise participation through improved body image and an increased desire to exercise (Hu, 2017). As it is well documented that exercise participation is correlated with a wide range of positive health outcomes, interventions that may support more positive experiences of PE are desirable (Breda et al., 2018).

## ***6.2. PE Policy and Practice***

Historically within Physical Education (PE), an underlying emphasis on a restricted dominant games model focusing on teamwork has embodied PE pedagogies (Kirk, 2010), therefore the necessity for the subject to evolve was acknowledged in order support contemporary change and allow PE as a subject to survive (Kirk, 2013; in Capel & Whitehead). Within PE it is recognized that as time changes, amendments to curriculum design are warranted (Green, 2010). Current PE policy and practice through the Department for Education (DfE) set the National Curriculum. The 2013 National Curriculum for Physical Education (NCPE) was created in order to implement PE policy. However, interpretation regarding priorities for the delivery of the subject are often varied (Herold, 2020). Judgements for implementing PE in schools are reviewed by Ofsted (this is an independent body responsible for inspecting and regulating schools in England). PE is a compulsory subject under the National Curriculum in schools and is delivered through a programme of study outlining what should be taught at each key stage.

On a National level, English local authority-maintained schools are required to comply with the aims of the National Curriculum in PE through section 78 of the Education Act (2002). Academies and free schools do not have to follow the National Curriculum but are required to provide a broad and balanced PE curriculum that promotes the physical development of pupils, whilst also facilitating the spiritual, moral, cultural and mental development of pupils (as decreed under section 1 of the Academies Act (2010)). According to the DfE, (2013) policy dictates that PE should help pupils to develop competence to excel in a broad range of physical activities, become physically active for sustained periods of time, engage in competitive sports and activities and lead healthy, active lives.

At Key Stage 3 [ages 11-14] pupils should be taught to use a range of tactics and strategies to overcome opponents in direct competition through team and individual games, develop their technique and improve their performance in competitive sports, perform dances, take part in outdoor and adventurous activities building on trust and developing skills to solve problems, analyse their performances and take part in competitive sports and activities outside school.

At Key Stage 4 [ages 14-16] pupils use and develop a variety of tactics and strategies to overcome opponents in team and individual games, develop their technique and improve their performance in competitive sports, participate in team building outdoor and adventurous activities skills to solve problems, demonstrate improvement across a range of physical activities, and continue to take part regularly in competitive sports and activities outside school through community links or sports clubs (DfE, Sep, 2013).

The aims of the NCPE should provide opportunities for pupils to become physically confident in a way which supports their health and fitness. However, important information pertaining to body image within the realm of PE are not mandated to be taught; such as a knowledge and appreciation of the functionality of the body, or the importance of positive body image and clothing choice. These vital topics are not incorporated into any key stage of the entire school life of a child. Despite the ambitions of the NC, there appears to be a disconnect which may prevent opportunities for the adolescent female to understand such concepts that might facilitate shaping a healthy body image attitude, particularly during a period of time where girls may be amenable to change. Furthermore, in terms of public policy and or government regulation it appears that no consensus exists regarding specific guidance on uniform design, design decisions, and or considerations in policy development and implementation, apart from student voice and parental contributions (Zhang, 2014).

With limited autonomy given to the Head teacher (Green, 2014), PE practitioners should approach Headteachers on this matter to influence change.

Regardless of the National Curriculum aims, the purpose of PE is still disputed as its meaning remains unclear (Whitehead, 2020) and therefore change is needed. In October 2015 a new sport strategy; *Sporting Future: A New Strategy for an Active Nation* (HM Government, 2015). was published in December 2015. The strategy outlined that the Government's commitment to re-defining what success looks like in sport by concentrating on five key outcomes: physical wellbeing, mental wellbeing, individual development, social and community development and economic development. The strategy re-iterated the importance of blending the different stages of education and seeing them "as part of the wider 'taking part' strategy". In this review the Government also stated it would strive to better understand the barriers and issues around the drop-off in engagement from primary to secondary as well as identify good practice, particularly for those groups who are most affected, such as girls. However, this appears to be no more than lip service in relation to actioning real change. Ofsted's PE research review which was released on the 18th March 2022. With regards to policy agenda contextual considerations can present issues that are complicated and multi-faceted by nature when shaping PE (Ball et al. 2012).

### ***6.3 Practical Implications***

When drawing together the outcomes of this programme of research and reviewing practical implications for body-esteem and the adolescent female, the study findings clearly indicate that clothing and context are influential. This has been highlighted through reported lower body-esteem scores when wearing standard school PE clothing in PE changing rooms; as

contextual changes serve as a moderator of body image. Although wearing school PE kit supports a schools' ethos, values, traditions, and identity (Wilken & Aardt, 2012), it should also represent choice, comfort, freedom of movement and be associated with opportunities for a positive adolescent female body-esteem experience. Allowing choice of clothing gave participants the option of wearing base layers, and therefore the choice to cover areas of the legs and arms that would normally be exposed with traditional PE clothing. Within the context of physical education, clothing choice not only influences body-esteem as indicated by present findings, but also appears instrumental in influencing emotions, confidence and physical comfort (Kang et al., 2013). As such clothing choice within PE kit ranges offers benefits to many including pupil, parents, governor's and leadership teams.

As a scalable, effective, cost friendly intervention that does not impact the curriculum, or a school's resources provides a practical intervention that can be of benefit to body-esteem. The Association for Physical Education (AfPE) supports an ethos that PE as an environment that should provide the foundations for lifelong adherence to physical activity and healthy living (AfPE, 2012). As such, a responsibility lies with educators to seek ways encourage students to lead more physically active lifestyles and increase positive feelings of how they view their physical self and long overdue changes are vital to support this endeavour. Schools can be instrumental to providing opportunities to reduce wide ranging consequences of negative body image through prevention and intervention (Fazel et al., 2014). For pupils who are content with the PE kit options offered, kit induced confrontations with PE and practitioners' staff may lessen (O'Donovan & Kirk, 2008). Ultimately the physical activity and sporting experiences of female adolescents need to be improved if they are to have any desire to create a life-long love of being active.

Over time, sports clothing has become more innovative (Rossi et al, 2018). However, changes to PE clothing have been more resistant to change, despite adolescent females telling researchers well over a decade ago that their physical education kit is uncomfortable and a source of embarrassment (Sport England, 2005). In other studies, adolescent females from the U.K conveyed their unhappiness with their PE clothing as this was identified as a barrier to participation (Flintoff & Scraton, 2001). Their further investigations highlighted that when females dislike their PE clothing, it can lead to humiliation within physical education classes (Flintoff & Scraton, 2006). Again, discontent with PE clothing was cited as environmental factor that creates a barrier to participation (Niven et al., 2014). In order to understand the apparent, disconnect between PE clothing and body-esteem greater insights must be obtained in order to move forward and create change for the adolescent female.

PE clothing has changed within British society (see Figure 12 & 13). Mills and Cooling (2019) provided both Year 7 (aged 11) and Year 11 (aged 16) female adolescents via flash cards of the JD sports clothing range (see Figure 14). This was in order to evoke discussions based around PE kit choices for the purposes of designing an 'ideal' PE kit. The results showed that the younger girls (year 7) created an ideal design that included a fitted skin and polo shirt. In contrast, the older girls (Year 11) designed a loose polo shirt and sweatshirt. This indicated with age adolescent females will select sportswear that they feel more comfortable in, opposed to tightly fitted, giving them freedom to present their body to others, in a way they are comfortable with (Rudd & Lennon, 2001). Yet still, despite the evident differences in sports clothing over the last half a century (see Figure 12) educators are still slow to respond to much needed change in relation to PE kit choice.

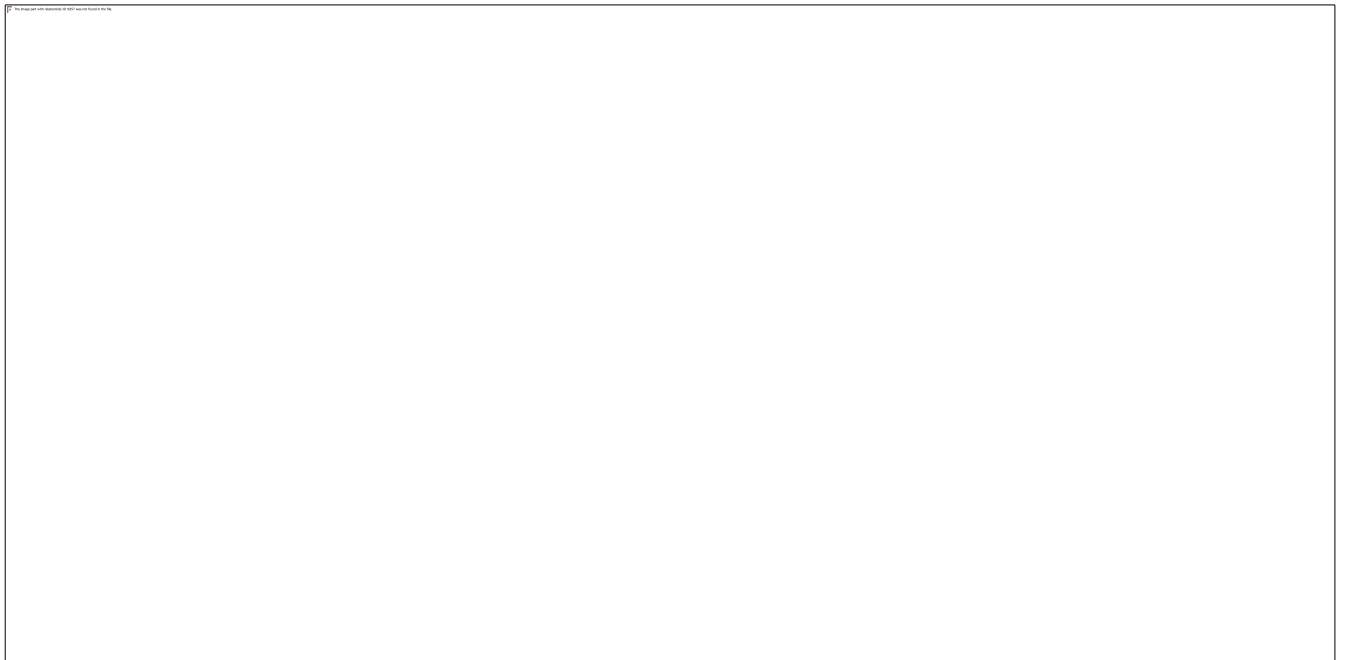
Over the years we can see that a greater range of PE clothing exists that in previous times (Figure 13 &14), however a greater range of “choices” for PE clothing needs to be incorporated into *every school* within the U.K that would standardly include leggings. With regards to a broader universal term for leggings, leggings are a leg attire that are usually a close-fitting high-rise garment. Leggings are usually made from a nylon-lycra blend or a cotton-polyester-lycra combination. In addition, a PE jumper and or base layers. In order to offer flexibility, leggings could be worn under shorts for those who may consider leggings to be too tight fitting that may lead to feelings of being uncomfortable or body conscious.

It is important to note however, that within the conditions of our clothing intervention branded items of clothing were excluded. Expensive branded adolescent clothing is a lucrative market (Gentina et al., 2016). Therefore, in some educational settings in the UK specific items of expensive branded clothing are banned in order to promote equality among students, as being unable to purchase such items can stigmatise those individuals and families who are socially and economically disadvantaged (Agerholm 2018; John 2018). For adolescents branded clothing can be used as a tool to socially isolate individuals, and this can often lead to name calling and bullying (Piacentini & Mailer, 2004), particularly within the context of a school (Roper & La Niece, 2009). Branded clothing influences how children socialise and respond with each other (Williams & Littlefield, 2018). For example, Elliott and Leonard (2004) state that friendships are desired when branded sports items are worn by others. As fashion is a complex cultural and social phenomenon and wearing branded clothing items can reinforce adolescent self-perceptions as pupils seek approval from peers (Gil et al., 2012). Therefore, wearing branded clothing (see Figure 14), it can be argued

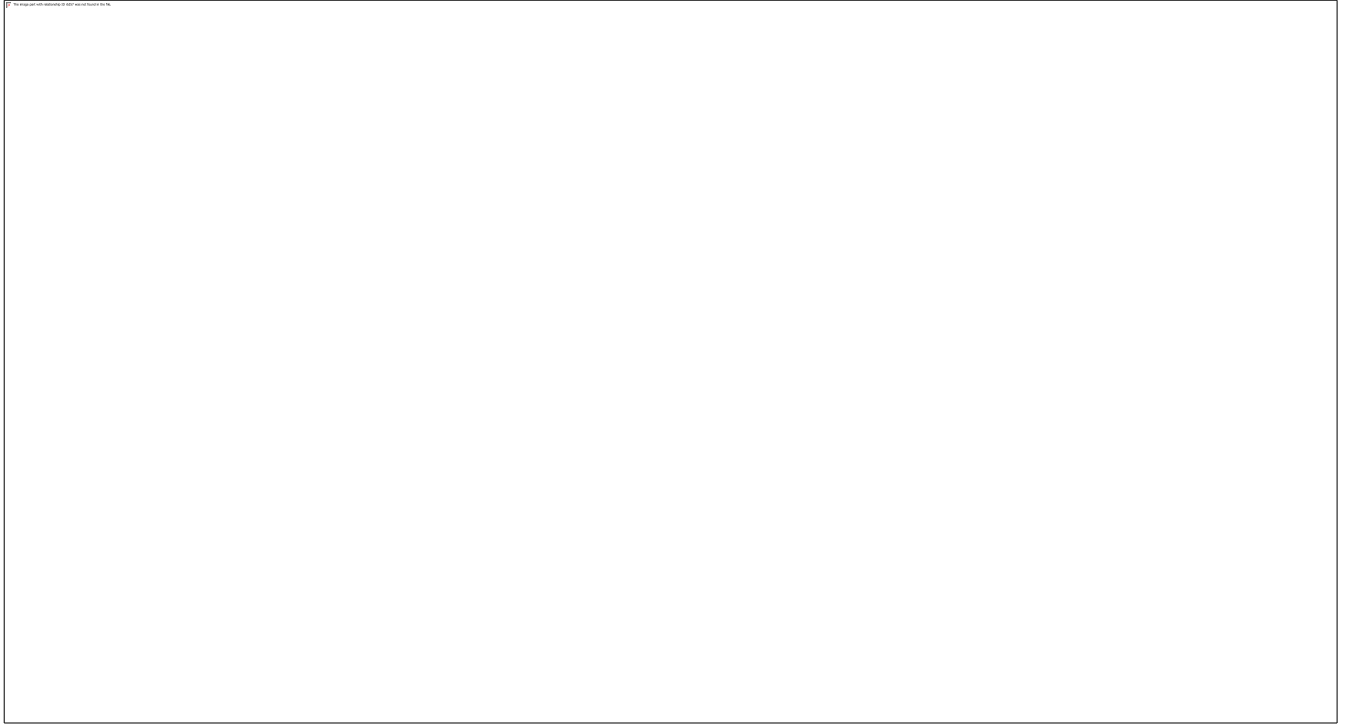
works against the notion of enhancing body-esteem. Conversely, the practicality of a non-branded item intervention allows accessibility for all.

Implementing innovative approaches for improving girls' engagement with physical activity is necessary and can be further explored through cultural and social factors.

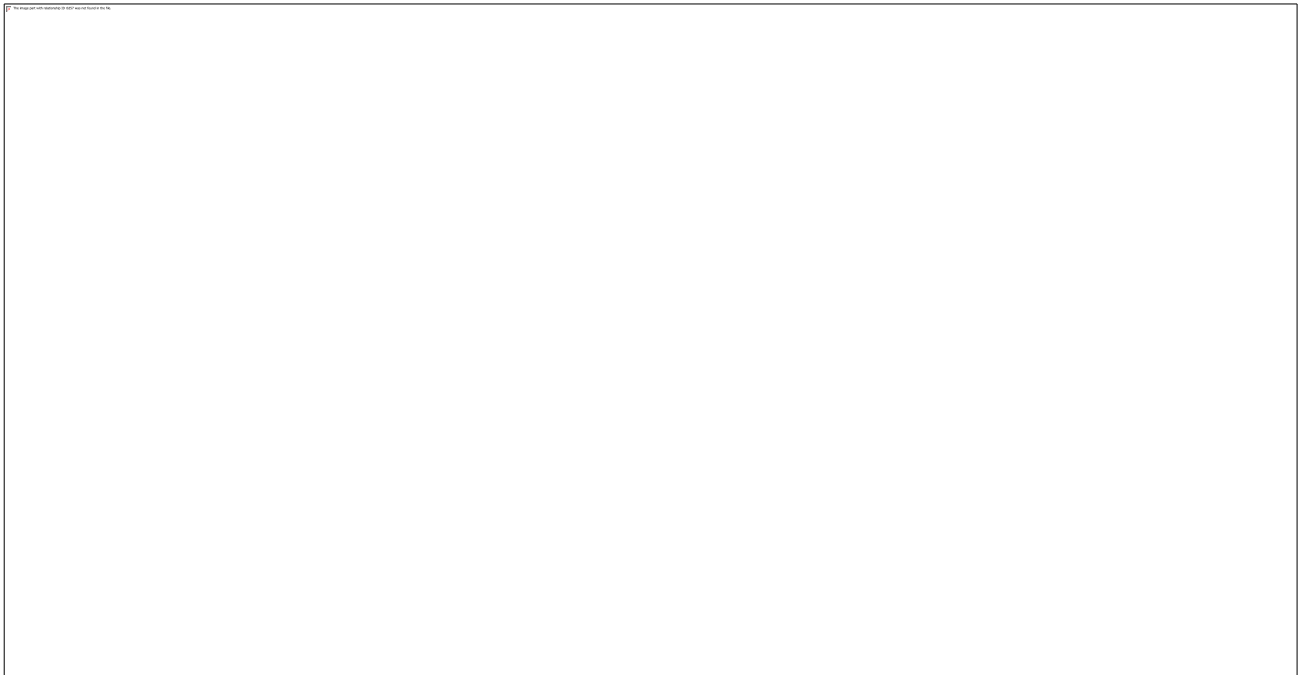
In seeking to explore how and if clothing choice would enhance body-esteem and therefore improve girls' experiences of physical activity in school, this research has usefully articulated that PE clothing is influential in moderating feelings deriving from the influences of context.



**Figure 12: Lancashire Life Magazine, November 1958**



**Figure 13: Alicia Canter/The Guardian**



**Figure 14: PE kit trend driven sportswear (JD Sports, 2020)**

#### ***6.4 Influencing Key Decision Makers in Physical Education***

The World Health Organization (WHO) promotes health in all government policies to improve overall population health. It could be suggested that choice of PE uniform is of public interest as its use and effects are prevalent in schools and are amenable to improving body-esteem. Wider access to social policy setting to improve health and education is needed (Marmot, 2016) in order to enhance students' physical and psychosocial health and wellbeing. Despite regular judicial reviews, there is little consensus on the function of school uniforms generally, or research exploring evidence of the impact of clothing on education and health because the fundamental problems driving uniform design and policy are overlooked (Schmidt-McCleave, 2014). Wider collaboration may be a key factor in impacting change. For instance, Wilken and van Aardt (2012) have explored different factors to improve uniform use policy within schools, through involving multi stakeholder insights (parent, teachers, senior leaders and school governors). This model could be facilitated to impact change through expansion via local authorities and local government.

The outcomes provided by this research project clearly identify that the power of choice within PE uniform can improve body-esteem and this is central to this thesis. Improving PE experiences through offering PE clothing uniform ranges that include greater flexibility for clothing choice is instrumental in making PE more desirable (Meadmore, 1997). It could be argued that PE practitioners should be more actively involved and seek ways to implement effective innovation that can create policy enactment.

### ***6.5 Choice and Autonomy***

Whilst there is some evidence on how uniform facilitates physical activity (e.g., Rudd & Lennon, 2000), there is limited evidence on the psychological effects of clothing on adolescent females in school PE contexts. As an experienced PE teacher, through my own observations I have gained an understanding of girls' experiences in respect of PE uniform and body-esteem. While the foci of interventions intended to enhance body image have historically varied, this programme of research examined the influence of PE clothing choice on potentially improving body-esteem, and therefore improve girls' experiences of physical activity in school. School uniform design and policy can pose a barrier to exercise, particularly for girls. Improving PE experiences through clothing choice may be instrumental in making PE more desirable (Meadmore, 1997). As such, this research has identified an area for further research, and present findings that may inform future policy changes regarding PE uniform. Failing to update PE uniform policies may continue to negatively influence the physical activity experiences of female adolescents in schools.

### ***6.6 Strength of the Research***

The main strengths of the research project are manifested through the unique insights provided into a limited, yet important area of body adolescent female body image research; body-esteem. From the outset, the directive for this research project has been to create effective and practical ways to enhance body image among female adolescents. Whilst this was initially intended to be via a sport and exercise intervention, the findings of a systematic review informed a change of direction and have produced novel contributions to body image

research. In order to confidently test interventions, measurement tools must be able to demonstrate good test-retest stability (Kember & Leung, 2008). Evaluating the stability of any assessment tool, through observing minimal measurement error in a test-retest assessment, is vital to validating psychometric tools (Lane et al., 2005) and establishing the integrity of research (Patton, 2001). Therefore, in examining the test-retest stability of the 14-item BES (Confalonieri et al., 2008), this research has illustrated the influence of context on body-esteem. This presents an important implication not previously considered. That being, when testing an intervention, it is necessary to *administer* a measure of body image in the *same context* (same environment, same or similar clothing), otherwise any variance in scores may be down to change of context and not an intervention.

A second strength of this research project is that the framework for the intervention was underpinned by theoretical concepts. The purpose being to identify specific components of relevant theories of body image to gain an awareness of the factors that might influence the behavioural target (which was to improve body-esteem), know the target population (adolescent females), and understand the context (assembly hall and PE changing room) in which the intervention could be delivered (Michie et al., 2009; Mitchie et al., 2011). Johnston and Dixon (2008) note that failing to understand the nature of a concept under investigation is often a problematic issue unaccounted for at the beginning of intervention development. Therefore, in order to address this when reviewing theoretical concepts that aligned with practical application relating to the stability of body image, the Cognitive Behavioural Model (CBM) of body image development and experiences provided insights into how body image can be moderated within schools during PE and via PE kit (Cash, 2002).

Thirdly, the development of a simple *choice of clothing intervention* that has proved to be of benefit to body-esteem is a scalable and cost effective is a strength of this programme of research. The school environment is one where this basic, yet effective intervention can be practically implemented. Models of effective adolescent school-based interventions incorporate a whole school approach (Kriemler et al., 2011) with the support of pupils, parents/carers, teaching staff, senior leadership teams and school governors. With simple, scalable interventions, whole school support is more likely to be attained. The whole school approach taken in the present programme of research assisted in challenging the detrimental effects for body image that many girls face when experiencing school PE.

When striving to create positive body image changes among female adolescents, knowledge of theoretical concepts and cultural and social factors that can be influential are of little consequence, if not acted upon. What is required is a willingness to initiate meaningful change in schools through intervention. In doing so, PE practitioners can provide valuable insights into how physical activity is shaped within the context of schools (Alcántara-Porcuna et al, 2022). By working with PE practitioners in developing and delivering interventions, the complex cultural and social factors that influence physical activity may be better understood and accommodated, and resultant study outcomes offering theoretical insights that may underpin change. As the researcher, being an established member of staff within the school for over 20 years was beneficial for additional reasons. External researchers can face challenges in obtaining access to schools and subsequent parent/carer(s) consent (Bergstrom et al., 2009).

A fourth strength of the research is that it sought to apply science within everyday practice. The COVID-19 pandemic brought slogans such as ‘following the science’ into the daily lives of people; the present study created an intervention that was empirically informed and theory-led. Fundamental to good science is the need for the measures used to the construct(s) of interest to be valid and reliable. The development of a valid and reliable scale is a sizeable task and a conscious decision was for this PhD programme of study not to follow a similar path. A comparison of self-report scales that assess body image show that they have similar questions, suggesting little need to develop a new scale. Rather in this programme of research, within and between context test and re-test stability was examined, something not done previously. The findings demonstrate how important context is, and how easy it is for researchers to assume stability (the scale was stable within context). In the present study, if context was not accounted for (as is the case for many studies), it would not be possible to illustrate the influence of context on body-esteem. Findings demonstrated that the BES scale was stable, and that body-esteem was altered in context.

As previously articulated within previous chapters (2.2.1) a tendency to make appearance-related social comparisons is reported to exist within different contexts (i.e., the PE changing room). According to the findings Festinger (1954), The Social Comparison Theory (SCT) suggests that individuals compare themselves with others. In linking the theoretical concepts of the SCT to the influences outlined within the PE changing room, context provides a unique environment where tendencies to make and internalise appearance-related social comparisons exist, this exposure may moderate negative emotions that could potentially contribute to body image concerns among female adolescents.

In contrast, contextual difference (i.e., wearing school uniform in a school hall) might not provide the same level of scrutiny and or social comparison that is reported to be initiated through self-consciousness triggered by internalised concerns over physical appearance, as highlighted through the Theory of Objectified Body Consciousness (OBC; McKinley & Hyde, 1996). These are important findings that should guide future research.

When summarising the strength of the evidence relating to the studies included in this thesis (as outlined above), it could be suggested that this research project contributes towards an understanding of body image in the school physical educational environment, where similar studies are scarce. This is central to the thesis in that this research might be influential in increasing understandings of how physical activity and body-esteem experiences can be improved. Within the Ofsted Educational framework (2019), pupil engagement in PE is deemed important, and this research identifies a means to support engagement in physical activity. Indeed, this research speaks directly not only to PE practitioners and school leaders, but wider sporting organisations and clubs, including community sports. Insights into adolescent female body-esteem experiences, thoughts and feelings that have been uniquely captured within the school PE environment through quantitative design. Further exploration using qualitative methods may provide additional insights within this research area.

### ***6.7 Limitations of the Research and Future Directions***

Undertaking research within schools can be unpredictable, as the researcher does not have exclusive control over the research process (Plummer et al., 2014). Unforeseen incidents such as forgetting PE kit, illness, fire drills, mentoring, and disruptive behaviours can all limit

opportunities for data collection, or complete data sets for all participants. With regards to additional limitations, time constraints were also a factor, and disruption to lessons are problematic as completing questionnaires can be time consuming within a rigid school curriculum (Taylor et al., 2018). Another limitation was that the research comprised only of quantitative data. In moving forward, a mixed-methods approach collating both quantitative and qualitative data may provide greater insight into the influence of context (e.g., PE kit) on body-esteem (Thomas et al., 2015). Examining the perceptions of PE teachers could also provide a more comprehensive understanding of additional limitations and the practicalities of implementing physical activity interventions in school (Malden & Doi, 2019; Pawlowski et al., 2014).

There are three main recommendations for the future directions of this research project. The first recommendation would be for a greater range of investigations into body-esteem across different stages of adolescence (pre, mid or late-adolescence) on outcomes specific to PE clothing interventions as Mendelson et al. (1996) highlights that the degree of association between body image dissatisfaction and self-esteem changes with age (within adolescence), being greater during mid-adolescence (M=14.2 years) as opposed to early adolescence (M=10.4 years). A second recommendation would be to conduct longitudinal research to examine the long-term effects of a choice of PE clothing intervention across different stages (i.e., three, six and twelve months). This would identify whether the benefits of choice of PE clothing for body-esteem hold over time.

The third recommendation would seek to address the limitation outlined above (in relation to a lack of qualitative research). This would be to potentially provide greater insights into adolescent females insights, through qualitative exploration. For example, a

different aspect of body experiences within the realm of clothing choice could be considered through clothing comfort and confidence. However further investigations are warranted relating to such factors within clothing choice, as available research in this area is significantly limited and can be conflicting. Clothing discomfort is described as detrimental and is suggested to impair sporting competence (Bell, 2005), in addition adolescent females imply that wearing suitable clothing options are instrumental in increasing their confidence, as clothing that is perceived to fit correctly is deemed of particular importance to this population (Tselepis & de Klerk, 2004). In contrast, research provided by (Krane et al., 2004) studied female participants views on worn fitted sports uniforms that highlighted their body contours, shape and size within a range of different tight-fitting classifications. Study findings revealed no difference in female student's attitudes towards personal body satisfaction.

This underrepresented research area could be expanded to facilitate greater insights surrounding thoughts and perceptions on not only the utility of individual PE clothing items, but capture how students feel they could be improved (i.e., the most desirable optimal length of PE leggings). Furthermore, a greater understanding of adolescent perceptions relating to PE clothing and acceptable levels of skin exposure, opinions surrounding body contours, the impact of tight fitting or loose-fitting clothing options, and choice surrounding textures are all relevant (Skillen, 2012). Additional qualitative investigations could identify how and why items of PE clothing might be perceived as those that provide better comfort, enhanced confidence and allow greater functionality. In a study investigating female insights into confidence and discontent with body shape and size, Chattaraman and Rudd (2006) identified that females can be disproportionately dissatisfied with their thighs and lower body. This

highlights the importance of accessibility for well-fitting clothing options for females (Grogan, 2013).

### ***6.8 Concluding Remarks***

This programme of research offers important contributions regarding the psychometric properties of the 14 item BES (Confalonieri et al., 2008), specifically with regards the test-retest stability of this measure within and across contexts. Findings highlight the importance of holding the context of questionnaire completion stable when looking to evaluate the outcomes of any intervention, otherwise there is a risk of any change being due to contextual influences. In examining the influence of context, findings illustrate the effectiveness of a simple choice of clothing intervention that is cost effective (with the option of base layers, or phased changes to kit), requires limited or no changes to staffing (no trained intervention specialists), and does not impact timetabling (no changes to activities). Such interventions are likely to be of appeal to PE practitioners and educators at every level; in seeking to reduce the deleterious effects of low body-esteem in PE contexts.

This research has highlighted that choice of clothing is influential as a protective factor against body dissatisfaction, and that this simplistic, nationally scalable, easy to implement and cost-effective intervention can be delivered with no additional costs to a school or academy. In addition, it has indicated that the body-esteem of female adolescents can be improved by addressed the context and environment of physical education (Tylka, & Wood-Barcalow, 2015). The study findings within this programme of research have broadened investigations into practical ways to implement effective body-esteem intervention in PE contexts (Kerner et al., 2017).

Future research is warranted that examines the effects of choice of PE clothing interventions on body-esteem across the stages of female adolescence, using mixed-methods, and with follow up evaluations longitudinally.

# Chapter Seven: Reflections

## **7.0 Introduction**

This chapter is comprised of seven sections which explore how my own childhood and adolescent body image experiences were shaped through physical activity and identifies how my development as both a practitioner and researcher has been influenced through body image theory and literature.

## **7.1 My Journey**

In reflecting on my personal experiences, I am guided by an auto ethnographic approach. This follows a process of self-reflections delivered through “*highly personalized accounts that draw upon the experience of the author/researcher*” (Sparkes, 2000, p. 21). It presents a means of drawing on individual experience by considering “*macro and micro linkages; structure, agency and their intersection; (and) social reproduction and social change*” (Laslett, 1999, p. 392). As a researcher I have been informed by my experiences and perspectives as a mother, a PE practitioner, Pastoral Behaviour and Attendance Lead, and Head of Health and Social Care in an inner-city secondary school.

As a child I was born into a home where participating in sporting activities were deemed as “the norm”. Being physically active was not a choice; it was a way of life for my siblings and me. My father was an immigrant who left behind the family farm in the West Indies (St Kitts) to start a new life. He joined the army at 16 and became a para trooper who represented the army as both a distance runner and an amateur boxer. He went on to compete professionally across the globe (as far as South Africa) for England. Our home was that of a

disciplined athlete's home. As the oldest child at the age of 10, I would be active at 6am most mornings, running in the forests of the Lickey Hills with my Dad as part of his winter training sessions. These endurance runs would begin with running up (and not walking) the famous "100 steps" and would extend on from there. Most 10-year-olds that I knew would still be fast asleep at this time, but for me looking beyond the displeasure of sleep deprivation and having to exercise early, my life was greatly enriched through these sporting experiences.

It was in this environment that I learned about self-discipline, resilience and not making excuses for entering pain thresholds through being physically or emotionally uncomfortable. In addition, I was introduced to the enticing beauty of woodlands, as well as becoming a beneficiary of the power of exercise on the body and mind in the quiet morning hours where loveliness abounds (sounds, smells and visual delights). When I have recounted these experiences (although unfathomable and hilarious now to my own children) somehow, they helped me to develop a passion for sport and exercise. At 10 years old, I joined Birchfield Harriers and competed for a running club in my chosen event which was hurdling and the 800m. I continued to compete until my parents separated six years later. Having left school, it was made clear to my brother and I that we would need to provide income in order to support my mother financially, and support with the bills. Further education was not an option as my mother was a struggling single mother at this time. Educational aspirations were put on hold for the next 10 years as I entered and remained in the work force. However, my aspiration to become a PE teacher never left me and this desire burned deeply within me.

In order to pursue this dream, I became a personal trainer and this path also led to becoming a fitness manager and sports massage therapist. I studied and worked simultaneously to fund

myself. I completed my BA (Hons) in Sports Studies full-time, whilst working full-time and arranging clients around my studies between 6am and 9pm. It became both a physical and academic challenge, but one I was more than willing to endure. I specialised in training females only, and my awareness of the challenge's women face became very apparent during these years. Helping women strive to improve their body image became my priority.

It was during this time that my increased awareness of body image matters heightened, as I gained many years' experience listening to women's concerns about their body shapes and size. These insights played a significant role in sculpting my own research. Whilst completing a Master's Degree in Sports and Exercise Science I investigated the concept of body image through exercise and pregnancy. I studied part-time and worked full-time. Having outlined the wide-ranging benefits of exercise during pregnancy; specifically, through exploring improved psychological and physiological pregnancy outcomes, I naively and arrogantly believed my own experiences would be textbook like, due to a greater understanding on this topic. Three emergency C-sections later I soon realised that (1) researching a topic does not make you an expert and therefore exempt from complications or pain, and (2) that actual life experience is the best educator for arrogance.

## ***7.2 How my Evolving Perceptions and Evaluations of Body Image Influenced my Research.***

I have seen many changes since my childhood of the late 1970's and early 1980's to today. Beyond the influence of my father, being physically active during my childhood, particularly during school holidays was a rite of passage and not rarity amongst other children. The summer holidays during my childhood encapsulated the magic of being able to be active and be free, with little fear for both parents and children alike of stranger danger. This is now an era gone by. This was an era where children basked in opportunities for outdoor physical play and activities. A world where children played out on the streets after school, weekends and holidays, only to return home as the sun was setting as grubby, tired and ravenously hungry children. A magical world where games and activities included climbing tree's, hide and seek, bike riding (usually left outside overnight), making dens, bulldog, apple scrumping, Acky 123 and playing with marbles. These activities were ours to own, and we relished in them.

Upon reflection, this was a world where youth were not hostages of the indoors; nor invisibly shackled to electronic devices. A world where what you wore was of little consequence to yourself or anyone else. For the many, body image at this time did not appear to impact mental well-being as we were just too busy getting dirty and playing games, being children and having fun. Sadly, this type of childhood no longer exists, now and forever erased from British society. For I was a glorious, feral child of the 1970's who played freely in the summer holidays. Set free to be an active child without the slightest concern for my own appearance and body image, as I was too busy being carefree in our innocent and somewhat protected environment, on our council estate. From this given point, if you fast forward one generation and inactive lifestyles are more prevalent, we see young females struggling with the heavy burden of trying to meet the demands of body image perfection

(Conlin & Bissell, 2014; Jelenchick et al., 2013; Rosenthal et al., 2016; Sampasa-Kanyinga & Lewis, 2015; Tiggemann & Zaccardo, 2018).

On a global scale body image dissatisfaction is rising in adolescents and leading to reduced self-esteem (Singh, Ashok, Binu, Parsekar, & Bhumika, 2015). As the numbers of young people declining to participate in PE and physical activity is escalating (Haug, 2009), it appears that this is in part due to physical scrutiny and ruthless appraisals of body image. My first recollection of having an awareness of my own body image came from my own experiences as a child during my PE lessons. I did not enjoy school, apart from PE lessons. This was a subject where I thrived. My PE teacher “Miss Gloria Viles” was a wonderful teacher who was patient, kind and inspirational. What appeared to ruin the PE experience for many girls was the PE kit. I have vivid memories of being exposed to the elements on many cold winter mornings, shivering in an aertex top, PE skirt and blue PE nickers, archaic kit options were the only ones available back then in the 1980’s. Although I loved participating in PE, bracing the winter mornings in totally inadequate/not fit for purpose clothing left an indelible impression in my memory of utter misery as chills ran through my bones.

In addition, I recall comparing my own body shape to those around me and wondering why I had numerous comments regarding my legs being so long, gangly and thin back then! Such comments were not exclusive to the school environment, as I also remember the same ridiculing appearance-based comments that I would receive at the running track for several years later. This was because I had been given an appearance-based nickname “Olive Oil” from a cartoon back in the 80’s called Popeye.

The other main recollections of my own body image stemmed from my father, with regards to running kit clothing at the club. Armed with his regimental background, my Dad had an ethos that in order to be bought athletic club clothing item, you would have to win a race and earn privilege rights to appear the same as everyone else. For several months I attended Birchfield Harriers running club in my school PE kit with my pump bag as everyone else paraded their expensive tracksuits and running spikes. I became acutely aware of my lack of street credibility and spindly body shape. This proved to be an extremely embarrassing childhood experience for me, one that seemed to endure for a long period of time. I recall feeling humiliation through clothing. My Dad's answer to this was that I had to wait for the track season to start. For every race that I won, I received an item of clothing. The first was the club tracksuit, and so on and so forth. It was to my great relief I discovered that I could run quickly and win races. The first being by a clear 200m during an 800m race! I'm not sure if this outcome was produced from my own physical ability or the deepest desire to appear the same as other people and not be mocked.

Although I may appear to sound like a victim, I do believe many of these somewhat unorthodox experiences (later in life) made me become more resilient, and if nothing else developed my own sense of humour and gave me personal first-hand insights into understanding and empathising with adolescent females who have ever encountered anxieties over sporting clothing.

### ***7.3 Lessons Learned as a Teacher and PE Practitioner***

My desire to research adolescent female body image began many years ago at the start of my teaching career over twenty years ago. It was during this time that I began to gain some insights into the challenges that many girls face, in terms of struggling to accept their own body image; and the implications this held for them. There have been several lessons that I have learnt as a PE practitioner regarding attitudes towards female body image. For instance, girls at the age of 13 who have bitterly wept because they have not wanted others to see the shape of their legs in a pair of PE shorts, several girls over time who would rather receive a sanction than change into PE kit, and girls who have felt unable to attend school on a PE day. Both support and change are required to help adolescent females overcome these barriers, it appears the times of my childhood where children played freely in the streets and took no regard as to their appearance after school or within a PE lesson are gone.

For several years in the U.K, negative body image has been presented as a national concern (Neumark-Sztainer et al., 2006) with a British parliamentary review stating that body image as a topic should be implemented on a mandatory basis within primary and secondary schools to address this concern among adolescent populations (All Party Parliamentary Group on Body Image, 2012). Yager et al. (2013) suggest that Schools are an ideal setting for health promotion interventions and in actioning this review, from September 2020, Relationship and Sex Education and Health Education became compulsory in schools in England. This was due to be fully operational through statutory guidance from the Department for Education (DfE; 2019) issued under section 80A of the Education Act 2002 and section 403 of the Education Act, 1996. In the near future, this will come under the core theme of health and wellbeing with a specific focus on how to maintain physical, mental and emotional health and wellbeing. Whilst all these things are noteworthy and a step in the right

direction from an overall educational perspective, the impact and efficacy of such government initiatives in addressing body image concerns and creating improvements specifically for adolescent females, in schools remains unclear. Such recommendations do not provide the clarity that is necessary within female physical education itself. Therefore, with this in mind urgent changes are needed to address the chasm of low body-esteem in the PE environment for adolescent females. I have come to understand that negative adolescent female body image issues need to be highlighted with far more urgency, and most importantly this can be addressed within the context of Physical Education. I have learnt that as girls have different body types and shapes PE clothing can trigger body-related comparisons, create feelings of self-consciousness, and increasing negative body image concerns.

#### ***7.4 Experiences of Applying Theory and Literature in Practice***

When combining theory to practice, a wide body of evidence supports the findings that global statistics reveal that less than 20% of adolescent girls complete the recommended amount of physical activity for their age (Sallis et al., 2016). Looking back my initial belief was that many girls were de-motivated with regards to engaging in physical activity and that this was an issue that could easily “be fixed”. In my ignorance I was yet to understand the complexed plethora of negative emotions that can be associated with being active for the female adolescent, and I was, at the start of my academic journey unable to comprehend the fundamental role positive body-esteem would play in my investigations.

Despite the lengthy years within my teaching role, I feel I had understood very little about body image. Research indicated that body image perceptions are formed during

adolescence, as this is a crucial period where attitudes are formed that impact later life perceptions relating to body image (Bibiloni, Pich, Pons, & Tur, 2013). I naively believed that motivating girls through improving body image would be a relatively easy task. That with the correct physical and sporting intervention; girls would relish in the opportunity to participate in all types of physical activity. I believed that perhaps the *right kind* of physical intervention could easily remedy poor body image and increase confidence in those who were struggling. I wanted to explore a physical activity intervention because I had loved the opportunity to participate in athletics growing up, I felt that all girls just needed to find “their sport”, and that this would then trigger enjoyment in other sports and activities too. However, embedded in my mind were the findings of Alleva et al. (2015) who highlight that increasing physical activity does not guarantee efficacious outcomes for improving body image.

Through my research, I have come to identify how theoretical concepts are played out in the context of physical education. For instance, the power of social comparisons as described in the social comparison theory (Festinger, 1954) can be observed in influencing personal experiences in a PE context. I have witnessed a tendency for girls to align their opinion, thoughts and beliefs with those of others for the purpose of self-evaluation and also for self-understanding. The objectification theory (Fredrickson & Roberts, 1997) sheds light on what it means to be a female in Western society, whereby females are primarily viewed as an object and scrutinised as evident with clothing comparisons, and associated comparisons during physical activities, particularly in the realm of the girls PE changing room (Holland & Tiggemann, 2016; Karsay et al., 2018).

As noted by the theory of objectified body consciousness, increased self-consciousness can evoke negative feelings whereby an individual begins to see themselves negatively from an

outward perspective, lowering body-esteem and resulting in harmful behaviours, such as avoiding physical activity (Cohen et al., 2018; Caso et al., 2019). However, for me, the most pertinent theory within physical education when reviewing my teaching career and experiences over the years of the cognitive behavioural theory of body image (Cash, 2002, 2012). Cash describes two main elements of body image; body image evaluation (i.e., satisfaction or discontent with body shape and appearance) and body image investment (i.e., how one thinks and feels about body self-evaluation). Body image evaluation reflects an individual's beliefs, appraisals and feelings (e.g., satisfaction or dissatisfaction) concerning one's body (evaluative-affective).

Through body image investment feelings surrounding appearance in relation to their sense of self and how their attitude is shaped through thoughts, feelings and behaviour towards oneself can be revealed and understood (Cash, 2012). Over time, my appreciation of the need for self-acceptance among adolescent females has increased, due to what I believe to be higher levels of scrutiny and consequences for non-conformity than ever before seen. I feel that greater knowledge and insight leads to better understanding within a teacher role. I hope I am able to be a more supportive teacher using the theoretical and practical insights I have gained through this programme of research.

I have learnt more from my years as a researcher on this project than I have from all of my teaching's years combined. I have developed more understanding, and empathy through my studies, and actioned beneficial changes for the girls and families to whom I serve. This change focussed on something I and many other adolescent physical activity body image researchers have simply overlooked, which was exploring the impact of clothing as an

intervention, as opposed to creating a physical activity intervention that may have been ineffective, costly and unscalable. It became evident across studies that varied outcomes from sport and exercise interventions existed; a lack of consistency in the measurement of body-esteem, measures with poor methodological reliability have been too often used, and limited intervention fidelity for body-esteem research exists. As too was scarce literature regarding PE clothing as a potential moderator. Instead, my research has led me to understand that contextual changes initiated through ill fitting, old fashioned and unappealing PE clothing are a modifiable risk factor for adolescent body-esteem. Bizarrely, a unique yet basic intervention was right in front of me, yet not seen until after the test-retest study. Interestingly because of this factor, the intended outcomes and research path for this programme took a turn due to the findings of the systematic review, and a new programme of research was sculpted as the findings within could not be ignored.

### ***7.5 Limitations of the Study and Reflexivity***

When reviewing the outcomes of this project, there were several limitations identified. The intervention study comprised only of quantitative data. This was a noted limitation; qualitative research may have provided greater insights into the wider perspectives of the adolescent females. Another limiting factor was the restricted age range of the participants. Additional studies could also include females during early, late adolescence, or pre-adolescence. In addition, longitudinal research would identify whether the benefits of choice of PE clothing for body-esteem hold over time. As a researcher/practitioner (RP) this facilitated many insights into body-esteem in PE contexts among female adolescents, as

well as facilitating research access. However, as a potential limitation, years of experience as a PE practitioner had provided insights that produced personal assumptions, views, and behaviours.

Reflexivity defined is the “analytic attention to the researcher's role in qualitative research” (Gouldner, 1971, p. 16, as cited in Dowling, 2006). It is described as both a concept (through a level of consciousness), and as a process (Dowling, 2006). It is suggested that the overriding role of a researcher/practitioner is to remain impartial, as an individual that can reflect on the unique position as an active participant within the specific field of knowledge (Ackerly & True, 2010). When reflecting back on the challenges of being a research/practitioner, it was vital to remain impartial during the methodology process for each individual study (Hesse-Biber, 2007). This was achieved through regularly challenging my own assumptions throughout the research process and reflecting on my individual values (Parahoo, 2006). This necessary approach was an integral part of all methodological processes in this research project, in ensuring that that research integrity was upheld.

Through personal experiences developed, it became apparent that there are both benefits and challenges for being actively involved as the research/practitioner. Benefits include an acute awareness of the established relationships that exists with the pupils. However, challenges also arise as not being independent researcher that requires a continuous process of reflection in examining, and understanding how “social background, location and assumptions affect their research practice” (Hesse-Biber, 2007, p. 17).

Through the use of reflexivity, I sought to maintain objectivity as far as possible by identifying and accounting for my own assumptions and beliefs. This was important, because as an “insider” within school, I played an integral role in the data collection

process and therefore had to ensure that research integrity was not compromised through any potential influence of my underlying beliefs. This was addressed through confronting assumptions to explore the unknown; thus, allowing a more critical reflexive approach.

### ***7.6 Overcoming the Challenges Faced, and the Role of Self-Compassion***

The experience of embarking on this research project has proven to be one of the most difficult challenges I have ever faced. This is because I have many times felt the burden of trying to maintain balance. Firstly, my role as a mother is certainly the most difficult and important role I face. I began this research journey when I had three children 5-years and under. My youngest daughter was 3-years old. She is now 9-years old. I have lost time with my family and had to sacrifice many family experiences in order to commit to this process. Without the support of my husband, my academic dream would have been impossible. In addition, working full time in a demanding career has often been extremely difficult.

When reflecting on this research journey and as time has progressed, I have learnt to understand that I cannot be all things to everyone. I can only try to do my best. Sometimes I come up short, and at other times I have been able to meet the challenges, demands and commitments I face. I have had to learn to step away from engulfing myself in guilt and look to meet my challenges by moving forward and not berating myself, as the latter is not helpful or constructive for either me or my family. Another major consideration was balancing the demands of a full-time career with motherhood and research has been very hard. In my role as an Assistant Headteacher in a large inner-city school I have often worked late into the night feeling physically and emotionally fatigued, only to arise feeling the same on some days. On those days a clear vision of the end goal, combined with a deep desire to show my

children that goals can be achieved, I have learnt to adapt to my “new normal”. My reality being that there are seasons for everything, good days and bad and accepting that fatigue through multi-tasking plays a role in achieving dreams.

At the beginning of this journey, I felt I was not academically minded and had a number of inadequacies. However, over time I have appreciated the absolute pleasure and gratification that I feel when I am able to immerse myself in literature and indulge in my research tasks. When I am researching, I feel an utter sense of fulfilment and excitement. This is despite the days that I have felt quite overwhelmed with the enormity of “trying to get it right”. Although deeply challenging and emotionally taxing, this research journey has been an awesome experience and one that I simply would not wish to trade. I feel I have grown academically, emotionally and spiritually throughout my time as a researcher.

With regards to the Coronavirus pandemic, this has presented a unique challenge for me personally and professionally at the point of writing up my thesis. January 2020 was the date that the World Health Organisation announced that the Coronavirus disease 2019 (COVID-19) had become a global Public Health Emergency. A high proportion of countries enforced “lockdown” directives that impacted daily life and routines in an unprecedented manner. Restrictions were immediately implemented on meeting additional family members, friends, social interactions and social events. As of 26th March, 2020, school closures impacted the lives of both pupils and their families and teachers (Lindzon, 2020).

Researching during COVID-19 presented several practical, physical, social and emotional challenges. For me, the most difficult challenge related to restricted access of electronic devices; i.e., laptops. As a parent with 3 school age children (one still at primary

school) the combined tasks of home schooling, balancing work commitments, and researching were often difficult. It was necessary to prioritise who needed access to laptops the most at particular times. The implications of this were that for me, my research opportunities fell between 5.30–8am or 8-10.30pm to ensure work commitments were met and that my children had access to schoolwork and completed tasks on time.

My personal experience of contracting Covid, and currently living with Long Covid (due to a lung infection) has been difficult to accept. Impaired health is a challenge that I have not had to deal with before, other than during the birth of my children, and this was short-term. There are days where I have had sustained pain and associated ill health that has reduced my already small window of opportunities to complete my research. This has been frustrating and annoying. However, I know that at some point I will return to full health, and I am determined to not let physical discomfort hijack my opportunities for personal, academic development and growth.

As well as physical implications on health for our world because of Covid, according to the Institute of Fiscal Studies there was a significant decline in emotional wellbeing during the UK lockdown period for females and young people (Banks & Xu, 2020). Post COVID, according to the Office for National Statistics (ONS) in 2020, cross-sectional studies and Covid-specific surveys have highlighted reported lower levels of subjective wellbeing and greater increases in anxiety opposed to the last quarter of 2019. Yet, what was wonderful to know was that physical activity was positively associated with improvements in body image in adolescent girls during the COVID-19 pandemic (Faramarzi et al., 2021).

### ***7.7 Recommendations for Policy and Practice***

Findings from this programme of research illustrate the importance of clothing choice on body-esteem among adolescent females within the school PE environment. This is important as body and environmental literacy are “part of physical education” (Lynch, 2020, p. 60). Indeed, mental health and wellbeing issues remain an area of priority to address among young people (Goodyear, Kerner, & Quennerstedt, 2019). As part of the Health Education curriculum all secondary school pupils should be taught about mental health. Recent policy guidelines have been released by Public Health England (PHE) and the Department for Education (DfE, 2021), for “Promoting and supporting mental health and wellbeing in schools and colleges”. To support this policy request, nearly 400 mental health support teams will collaborate with schools, suggestedly reaching nearly 3 million pupils in England. Senior mental health leads will teach young people about managing their mental health and wellbeing, with an aim to increase body positivity and resilience.

The present programme of research indicates that females with poor body image are more likely to experience poor body-esteem. Girls who feel ashamed about their body will often participate in less exercise and physical activity. From September 2020, all schools were required to teach pupils about relationships and health, including the impact of unhealthy or obsessive comparisons with others. Relationships, Sex and Health Education (RSHE) underpins the social and emotional development of children and young people. The statutory RSHE guidance includes, friendships, stereotypes, menstrual wellbeing, fertility, sexual harassment, pornography, online harms, healthy relationships, accessing sexual and reproductive health services and more (DfE, 2019).

Since September 2020, RSHE became compulsory in England and consequently the Ofsted framework (Ofsted, 2021) requires schools to be challenged on routinely assessing pupils' mental health and wellbeing. Maintained schools have a duty of care under the Children's Act, 2004, to promote children's well-being and meet statutory responsibilities to provide a curriculum that is broadly based, balanced and meets the needs of all pupils. To this end, schools should be instrumental in raising awareness of a positive body image through education around healthy and unhealthy body image and prioritise opportunities for learning how to form a positive relationship with their own bodies. In addition to Physical education (PE) would be an ideal environment to develop positive body image. This could be implemented by (1) mandatory wider choice of clothing for PE (2) PE curriculum time allocated and protected for lessons supporting development of resilience through learning about and acquiring healthy body image, and understanding and acquiring positive attitudes towards body appreciation and functionality (3) Implement effective policies and practices that address appearance-related teasing; i.e., body shaming.

The findings of this research project could serve to inform changes in policy and practice. Firstly, when seeking to articulate how and where policy change might be directed from the findings of this research project, an overview of current policy and recommendations within PE is warranted. The National curriculum for PE (NCPE) in England: Physical Education Programmes of Study (DfE, 2013) at Key Stage 3 and 4 is for pupils aged between 11 and 16. It is a document that was published almost a decade ago (11th September 2013). The main foci of the curriculum intent for PE is based on competitive sport, becoming physically confident and embedding character building (i.e., learning about fairness and respect (DfE, 2014).

In addition to this guidance, in March 2022 Ofsted published the latest statutory guidance for Physical Education in schools. The Research Review: PE (DfE, 2022) was a total of 30 pages and 231 supporting references. It highlighted the governments universal goal of lifelong participation for children at Key Stage 3 & 4; through what were described as 3 pillars of development. The pillars included developing competent movement, knowledge of rules and tactics, and healthy participation. This document refers to PE being a gateway to long term participation in sport and physical activity through a key driving factor; knowledge and physical competency (i.e. being sufficiently skilled) through knowing and doing more. White (1959), describes competence as the opportunity for a pupil to interact in an environment, due to sustained learning in order to succeed within a school.

Developing performance and competence is heavily embedded within current PE policy, as is the notion that proficiency in skill development can lead to a healthy lifestyle (McEvelly et al., 2014). Competency, as a major pedagogical contributor within current PE policy does not appear to strengthen or address girl's wider well-being and or personal growth and as such, this dominance appears to be a limiting factor for other pedagogical approaches (i.e. positive body image), therefore a more critical analysis of the current discourses within the PE curricula in England from PE practitioners is needed (Kirk, 2010).

Secondly, understanding how to effect change within a PE review, and become a contributor of knowledge is another important quest. On the 30<sup>th</sup> March 2021, a report by Ofsted was published entitled "Principles behind Ofsted's research reviews and subject reports" (DfE,2021). Insights in this report are relevant for gaining understanding how changes can be mandated (i.e., within the Physical Education framework). In this guidance.

The findings of this report are of relevance for understanding how to potentially implement curriculum change in England from the broader subject community, as they reflect Ofsted's stance on how they might obtain research that underpins their established principles for quality education. This report states that they seek updated research through academic papers, and or secondary evidence, (i.e., teacher-authored blogs) in order to shape future change(s).

However, in seeking ways to realistically initiate change in PE policy, there appears to be a disconnect with the current statutory guidance at local levels in schools, and the ability for PE practitioners to implement innovative change(s). For instance, government policy states that teacher autonomy is a central tenet of government policy (DfE 2010)), yet this appears to remain a fundamental barrier in schools, as practitioners do not always have autonomy over the curriculum. For example, interpreting and enforcing what can be often viewed as complexed curricula can lead to practitioners being overwhelmed, therefore practitioners' resort to teaching their usual way, with no changes being initiated (Petrie et al., 2021). As such, this may limit opportunities for autonomous thinking and pedagogical innovation within the school curriculum. Opportunities to influence curriculum development in shaping how PE is conceptualised in England are needed at both local and national level.

Thirdly, policy changes in education are made through government (Thorburn & Horrell, 2011), but a barrier exists for educators and researchers when elements of PE policies need to be re-conceptualised, as very little, and often no input from the wider PE profession is sought as they are not consulted (Thorburn & Horrell, 2011). Therefore, in challenging this process, Evans (2014) contends that a united professional voice is needed to profile how PE can be re-conceptualised. As, Evans (2014) asserts, *'what and where are the possibilities for*

*influencing educational debate and decision-making processes affecting policy and pedagogy in PE?*' (p. 548). A response is provided through Kirk and Macdonald (2001), who state that practitioners should be active in policy reform and should be a '*ubiquitous feature of the systematic renewal of curriculum*' (p. 566). In addition, Penney (2008) advocates that PE practitioners need to '*be proactive in establishing and pursuing their authority to speak contemporary education discourses and furthermore, that doing so is critical for the future of the learning area*' (p. 45). Therefore, it can be implied that until researchers/practitioners utilise and create verified platforms where they can critically engage in policy debate and dialogue, opportunities to implement policy recommendations within the PE curriculum and pedagogy will remain stagnant.

Finally, identifying why and where (if anywhere) future changes could be embedded within the existing PE curriculum literature have been reviewed. A recommendation to address this issue lies within changes to current policy to educate children on the benefits of positive body image and body-esteem. Why this needs to be achieved is to facilitate ways to mitigate low confidence (particularly in girls), not only a protective factor, but as a means to enhancing lifelong enjoyment (which is the governments universal goal). A recommendation would be that this heavily featured component: low competence in competitive sport = low confidence, curriculum focus needs to be re-conceptualised. Modernisation is required for what appears to be an out of touch, and old-fashioned PE curriculum. It urgently requires collaborative insights from PE practitioners and researchers to reform its current direction.

The third PE pillar of progression, found within the Research Review Series: PE; (DfE, 2022) describes how healthy participation promotes healthy and active lives. It describes the

challenge of misconceptions, limitations of decreased participation in sport and physical activity, making informed choices, makes suggestions for practitioners to provide some understanding of physiological, psychological and socio-cultural aspects of physical activity and sport, and highlights the importance of encouraging physical activity beyond school. Within this context, pupils could be educated on how to analyse the influences on their own health-related behaviours. A recommendation for policy changes within “making informed choices” could be through PE clothing choice being mandated in schools. In addition, the current PE guidance informs practice by stating that declarative (knowing what) and procedural (knowing how) could be implemented within the PE framework (Lawless & Kulikowich, 2006).

As more than a possibility of what could be actioned, a recommendation to address this is practice is to mandate positive body image and body-esteem within the PE curriculum. The suggestion would be to initiate this not as a vague addition of listed information within the current 30-page document, rather provide a concise overview of key points on *what* to mandate and action that would be less than a page in length. As there is no mention of positive body image provided within either current PE guidance or the PE curriculum, within the tenets of declarative knowledge a recommendation for future policy change could be implemented through innovative change placed within the curriculum to address: raising awareness within movement (i.e., functionality; body as a process), health and participation (i.e., positive body-esteem), and appearance-related teasing; i.e., body shaming.

An enhanced understanding of declarative knowledge can help pupils to articulate their understandings of strengths, limitations, ideas, and choices (Lemov, 2020). It could be

suggested that this curriculum development idea is unique to this research project in that it is driven by the research evidence that can challenge misconceptions that are not currently judged by Ofsted within the curriculum.

Kirk and Macdonald (2001) state that curriculum changes to PE policy are not initiated beyond the classroom, because practitioner's expertise is not disseminated beyond a local level. Therefore, it can be argued that vital change is needed. When PE practitioners can evidence the utility of positive change, they can become more likely to support change (Gray et al., 2012). The outcomes provided within this project provide promising areas for future research development that can support vital PE curriculum change.

### ***7.8 Future Plans to Impact Change***

I believe that the findings from my programme of research are of value because effective interventions that enhance female adolescent body-esteem are urgently needed. Scholars continue to create different sport and exercise interventions that can be ineffective (on both a short- and long-term basis), which limit teaching opportunities, often cannot be implemented within the national curriculum, are a burden on a school's resources and finances, cannot be implemented across different schools as they are not scalable, and require specialists for delivery therefore are not viable. Investigations of the role of PE kit and clothing are scarce, and as such this work presents evidence underpinning a rationale for an alternative approach to PE interventions intended to enhance body-esteem.

My own childhood experiences of feeling self-conscious, cold and uncomfortable in a PE kit at school endorse this alternative approach from a personal perspective, and these

experiences are echoed anecdotally among many, many female adolescents past and current day. This includes seeing a wide range of girls (from all year groups) who refuse to participate in physical education, or who struggle with their body-esteem in PE clothing to the extent that they would rather truant or have the entire school day off than wear school PE kit. As both a PE practitioner, and a researcher I have had the advantage of investigating theory with the opportunity of practical application to create change.

Armed with the knowledge and insight I have developed, I will continue to share these findings with key stakeholders within education; including head teachers, physical education school leaders, pupils, parents, and sport and exercise organisations. I have been able to use my research findings as a platform to re-design the entire girls PE kit, after several consultations with student voice, kit suppliers and stakeholders. I have implemented the first kit change for several decades in my school. I feel honoured to have presented study findings at the BASES conference, and excited to have shared my research findings with eight other schools in our collegiate on PE teacher training days in order to support PE kit changes across South Birmingham schools. My greatest opportunity to date arising as a direct consequence of the research findings, has been in securing a meeting with Gina Wallis. Gina currently serves as an advisor for the National Association of PE Teachers and is a consultant for Sport England. In addition, Gina is a consultant for Youth Sport Trust and is an Ofsted inspector with numerous contacts within the realm of physical education and sport in the U.K.

Prior to our meeting I sent Gina a copy of the Systematic Review and outlined some of the insights that I have gained during my research journey. I summarised the challenges and difficulties that the PE practitioner faces with regards to female body-esteem, kit issues and

reduced participation in school sport and exercise. We discussed the implications that could be drawn from study 3. This face-to-face meeting provided me with an opportunity to highlight the limitations within female body image research, and the niche area of research I have undertaken in creating a female body-esteem intervention that is effective, scalable, does not impact the national curriculum and requires no extra costs or additional staffing within schools. I discussed the fact that I had implemented a PE kit change at my school and the positive impact this had had. Gina talked about the importance of getting Head Teachers on board.

During this meeting Gina suggested contacting the MEND programme (Mind, Exercise, Nutrition... Do it!), to share the study findings in order to support changing children's attitudes to exercise behaviours with family engagement (through raising awareness of the impact of clothing choices). MEND is a national project intended to increase participation in children aged 7-13 years old. The goal of MEND is to reduce global obesity. The program consists of three components to support behavioural change; (i) education (ii) skills training, and (iii) motivational enhancement.

In addition, we discussed the "This Girl Can" (Sport England) project and how sport and exercise in schools can impact emotional well-being (particularly post pandemic), and the role that PE clothing could play in this. We discussed the possibility of PE being mandated to be a core subject in schools via support from the APE, and how exercise attitudes that are developed in adolescence impact female attitudes in adulthood. Finally, I was asked if I might be interested in presenting at the Annual APE conference in December 2023 and that funding

for me to attend could potentially be offered to the school through the Sport England capitation grant.

My future aspirations lie within sharing these research findings on both a local and national basis through the creation of a foundation (and or promotional materials) to influence policy change within the DfE for the PE curriculum at key stage 3 and 4 in England. My two-fold vision is shaped through seeking to implement statutory changes to the PE curriculum that support broader PE clothing options (in order to strive to improve body-esteem), and the creation of a resilience based learning focus (in order to teach about healthy body image and body functionality). This would be in order to strive to facilitate greater enjoyment for girls' experiences within physical education.

Finally, my PhD has enabled me to try to inspire children from impoverished backgrounds to seek the best education they can receive. Being a female BME researcher within my environment is rare. It is a privilege to try to inspire young minds to seek all opportunities for study.

## ***7.9 Conclusion***

What I have come to know is that incontestably, body image matters to female adolescents. When I reflect, I am still perplexed by the fact that very little has changed with regards to girls PE clothing since my own childhood of nearly 30 years ago. Improving PE kit will serve to support active lifestyles and improve physical and emotional well-being; thus, help create resilience to unrealistic notions of body image ideals that western society presents. As Sally McGraw (2012) states "*learning to love your body may seem small or selfish or pointless at*

*times, especially when compared to fighting for larger causes and reaching out to help others. But to fashion yourself into a powerful, effective, whole being, you've got to come at life from a place of strength. Your body is your home. If you hate your home, if you flee from it, disrespect it, and wish it were fundamentally different; your strength will be diminished. Whether you want to help others or simply find your way to happiness in your own life, loving yourself is absolutely vital. And loving yourself includes loving your body. Your body is integral to yourself” (Vakoch, & Mickey, 2017, p.97).*

I feel extremely proud that my contribution to research may serve to improve adolescent females PE experiences, making it far more enjoyable. PE kit choices matter, and so do the voices of hosts of unseen adolescent female generations. My journey does not end here, in many ways it is just beginning.

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## Appendix 1

### The brief Body Esteem Scale (Confalonieri, Gatti, Ionio and Traficante, 2008)

The brief BES has 3 subscales: BE–Appearance (general feelings about appearance), BE–Weight (weight satisfaction), and BE–Attribution (evaluations attributed to others about one’s body and appearance). After reverse scoring the appropriate items, participants’ responses are averaged across items so that higher numbers indicated more positive body satisfaction.

Directions: Below is a set of statements describing feelings/experiences you may have had or are familiar with because you have had them for a long time. Please read each statement, and select the response that indicates the frequency with which you find yourself feeling/experiencing what is being described. Circle the appropriate number beside each statement.

Never = 1      Seldom = 2      Sometimes = 3      Often = 4      Always = 5

1. Other people consider me good looking.	1	2	3	4	5
2. I am preoccupied with trying to change my body weight.	1	2	3	4	5
3. I think my appearance would help me get a job.	1	2	3	4	5
4. There are lots of things I’d change about my looks if I could.	1	2	3	4	5
5. I am satisfied with my weight.	1	2	3	4	5
6. I wish I looked better.	1	2	3	4	5
7. I really like what I weight.					
8. I wish I looked like someone else.	1	2	3	4	5
9. People my own age like my looks.	1	2	3	4	5
10. My looks upset me.	1	2	3	4	5
11. Weighing myself depressed me.	1	2	3	4	5
12. My looks help me to get dates.	1	2	3	4	5
13. I worry about the way I look.	1	2	3	4	5
14. I look as nice as I’d like to.	1	2	3	4	5

\* Negative items, that must be reverse-coded (i.e., 1 = 5, 2 = 4, 3 = 3, 4 = 2, 5 = 1)

BE–Appearance subscale: Items (4\*, 6\*, 5\*, 10\*, 13\*, 14)

BE–Weight: Items (2\*, 8, 7, 11\*)

BE–Attribution: Items (1, 3, 9, 12)

## **Appendix 2**

### **Study participants consent form for study 2**



**Primary researcher:** Sharon McIntosh Dalmedo

**Supervising Researcher:** Dr. Tracey Devonport and Professor Andrew Lane

### **Test-retest stability of the Body Esteem Scale**

#### **Objective:**

The objective of this project is to investigate the test-retest stability of the 14-item Body Esteem Scale (BES Confalonieri et al., 2008). The Body Esteem Scale asks your child to rate how they feel about their body image. There are no right or wrong answers. There are minimal risks in taking part and possible social and psychological implications are minimal. Pupils will be asked to complete this questionnaire at the start of two PE lessons in a single week, once in the school hall in school uniform, and again in the PE changing room in PE kit. Following a two-week break, pupils will repeat this procedure for completion of the BES.

There are no physical risks involved in this study and the possible social and psychological implications are minimal.

#### **Confidentiality:**

All information collated the purpose of the study will be stored in a locked cabinet at Bartley Green School and thereafter shredded at a later date. All information will be recorded without names. The only people with access to the data will be the supervisors of this project.

You are free to withdraw your child from participating in this research and withdraw use of their data at any time without any negative pressure.

Please **place a cross box to CONFIRM that:**

1. I have read and understand the information sheet for the above study and **AGREE** for my child to participate.

2. I **DO NOT** agree for my child as their parent/guardian to take part in the above study.

Name of participant: \_\_\_\_\_

Signature of participant: \_\_\_\_\_

Name of guardian: \_\_\_\_\_

Signature of guardian: \_\_\_\_\_

Date -----

If you require further information, please contact: Sharon McIntosh (Bartley Green School)  
Telephone: [redacted]

Dr. Tracey Devonport or Professor Lane or (University of Wolverhampton) **Telephone:** [redacted] (9am-5pm), or **email:** [e-mail address redacted] or [e-mail address redacted]

## Appendix 3

### Participant consent form for study 3



**Primary researcher:** Sharon McIntosh Dalmedo

**Supervising Researcher:** Dr. Tracey Devonport and Professor Andrew Lane

#### **Influence of a PE uniform intervention on female adolescent body-esteem**

We are using a questionnaire to assess body image and are asking for your child to help us. We will ask your child to complete a short questionnaire, the 14-item Body Esteem Scale (Confalonieri et al., 2008), which asks your child to rate how they feel about their body image. There are no right or wrong answers. There are minimal risks in taking part and possible social and psychological implications are minimal.

They will complete the BES in two contexts within a week. First in the school hall in standard school uniform, second in the PE changing rooms wearing PE kit. This procedure will be repeated a week later.

For a period of two weeks, your child will be given choice in what to wear for PE. 1) a plain (with no logo) base layer long sleeve top (black, white, navy blue or grey only), under their PE top 2) Plain (with no logo) black full-length leggings (opposed to shorts or a skirt) 3) their school jumper on top of their PE top. Following this two-week period, the BES will be completed in the Uniform context and PE context. This procedure will be repeated a week later. In total your child will be asked to complete the BES eight times.

#### **Confidentiality:**

All information collated for the purpose of the study will be stored in a locked cabinet at Bartley Green School and shredded at a later date. The only people with access to the data will be the supervisors of this project. All information will be anonymised for reporting purposes.

You are free to withdraw your child from participating in this research and withdraw use of their data at any time without any negative pressure.

Please **place a cross box to CONFIRM that:**

1. I have read and understand the information sheet for the above study, and as their parent/guardian, I **AGREE** for my child to participate.

2. I **DO NOT** agree for my child as their parent/guardian to take part in the above study and agree to the terms set.

Name of participant: \_\_\_\_\_

Signature of participant: \_\_\_\_\_

Name of guardian: \_\_\_\_\_

Signature of guardian: \_\_\_\_\_

Date -----

If you require further information, please contact: Sharon McIntosh (Bartley Green School)  
Telephone: [redacted]

Dr. Tracey Devonport or Professor Lane or (University of Wolverhampton) **Telephone:**  
[redacted] (9am-5pm), or **email:** [e-mail address redacted] or [e-mail address redacted]

## **Appendix 4**

### **Participants letter to parents/carers**

