# Extending body image intervention from daughters to mothers: A two-part evaluation of parallel school-based body image interventions for mothers and daughters in an independent school for girls

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# Abstract

Body dissatisfaction is a significant concern with severe and persistent consequences. Thus, there is a need for effective prevention and early intervention strategies that can be delivered in a timely and efficient manner, such as within the context of schools by teachers. There have been calls within the field for researchers to evaluate existing interventions under diverse conditions prior to global dissemination, and adopt an ecological approach by extending interventions to include parents.

The project included two consequative studies conducted two-years apart. The first study aimed to identify effective intervention strategies for improving body image outcomes in Year 8 girls. Heeding calls for rigorous and independent evaluation of existing programs under varied conditions, Study 1 aimed to replicate the UK school-based body image program *Dove Confident Me* (DCM) among a selective population of adolescent girls in Australia. Expanding on Study 1, Study 2 aimed to improve body image outcomes for both Year 8 girls and their mothers. The second study evaluated a modified version of DCM alongside an investigation of *Raising Confident Girls* (RCG), a school-based 3-session seminar delivered to mothers. Further, the thesis aimed to understand factors contributing to improved parental uptake in body image programs and to examine whether extending classroom-based interventions to include mothers enhances the effectiveness of outcomes in daughters.

Study 1, involving teacher delivery of DCM to Year 8 students ($n$=198) attending an independent girls' school in Australia, hypothesized that compared to the control group ($n$=208), girls receiving DCM would report significant improvements in body image and psychosocial outcomes, alongside reduced severity of known eating disorder risk factors and behaviours. Multilevel mixed modeling analyses revealed significant intervention effects for social comparison and sociocultural pressure, but not in the direction hypothesized. A lack of teacher confidence with delivery, limited student engagement with the UK version of the program, and poor student-teacher relationship due to a timetable issue were highlighted as areas for improvement.

Study 2, answered calls within the body image field to develop both etiological and ecological programs by conducting a second replication of a modified version of DCM and the addition of a parental intervention *Raising Confident Girls* (RCG) delivered to mothers. The modified DCM program was delivered to Year 8 students (*n*=242) and outcomes were compared with a control group (*n*=354). Despite significant improvements in acceptability and engagement ratings, the modified DCM program did not improve body image outcomes for participants. Interestingly, the intervention group reported a significant increase in both internalization of the thin-ideal and perceived sociocultural pressure following participation in the intervention. *Raising Confident Girls* (RCG), was delivered to Year 8 mothers (*n*=69) and outcomes were compared with a control group (*n*=51). Multilevel mixed modelling analyses revealed that mothers who participated in RCG reported significantly greater body esteem and body appreciation compared to the control group. Further, as predicted, participation in RCG improved a mother's knowledge, confidence and skills parenting an adolescent girl, and improved her positive role modeling for her daughter with respect to body image. Receiving high acceptability ratings, strong engagement and low attrition rates, the RCG program appeared successful in overcoming long held difficulties with engaging parents in body image interventions. Finally, Study 2 examined whether students completing DCM benefited from having their mother attend RCG. Students whose mothers participated in RCG demonstrated a significant change in appearance-based talk at 3-month follow-up compared to students whose mothers were not involved in RCG. Additionally, there were noticeable improvements in a number of body image outcomes from pre-test to post-test for the group of students whose mothers attended RCG, however none of these findings reached significance. The study offered valuable insights towards increasing our understanding of transfer of parent intervention outcomes to daughters.

The findings of the thesis contribute knowledge to the field of research regarding body-image intervention for adolescent girls and their mothers, in addition to providing practical insights for schools intending to implement body image interventions. Specifically, the study draws attention to

the complexities of global dissemination and the limitations of using selective and universal programs interchangeably. The thesis highlights that while researchers are experts in etiological theory, school personnel are experts regarding their community. Cognizant of this, researchers are encouraged to work together with school personnel to develop school-based resources malleable in content and design, but robust enough to sustain effectiveness when adapted to suit diverse school environments. While the findings add to the growing body of research supporting task-shifting facilitation of body image programs to teachers, findings suggest that a strong student-teacher relationship and perceived credibility and competence of facilitator can be as essential as content of program.

The thesis provides deeper insight into improving parental engagement in body image interventions delivered within the school context. Specifically, the findings emphasize the importance of tailoring the intervention to suit the needs of the parent group and suggest that the process of delivering a parent program is as important as the content of the intervention. Finally, the study reveals that providing an intervention to mothers alongside a classroom-based intervention for students enhances outcomes for daughters. Overall, the thesis supports the premise of extending classroom-based body image interventions to include parents, and identifies a number of recommendations for further research.

# Declaration

 "I, Jody Forbes, declare that the PhD thesis entitled "*Extending body image intervention from the classroom to the home: An evaluation of parallel school-based body image interventions for mothers and daughters in an independent school for girls*" is no more than 80,000 words in length including quotes and exclusive of tables, figures, appendices, bibliography, references and footnotes. This thesis contains no material that has been submitted previously, in whole or in part, for the award of any other academic degree or diploma. Except where otherwise indicated, this thesis is my own work". "I have conducted my research in alignment with the Australian Code for the Responsible Conduct of Research and Victoria University's Higher Degree by Research Policy and Procedures.
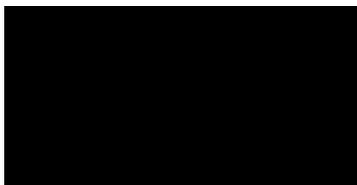
Signature:                                                                Date in full: 12th  October 2021

# Acknowledgment

of the project, either by facilitating the student intervention or supervising data completion. I especially extend my gratitude to Anne Ingram for her unwavering support, to Emma Lowry and Tara McLachlan for their ongoing encouragement and their assistance delivering the intervention to mothers. To Alix Vann, Lisa Manning, Jacinta Akers and the entire Student Care team, thank you for your ongoing positivity, humour and friendship. The regular "*how is the thesis going, have you finished yet*?" enquiries, while hopefully ending, have demonstrated your sustained interest and encouragement. To my oldest and best friend Abby McLeod, I will forever be grateful to you, not only for your ongoing friendship, but also for reading this thesis in full (you are one of the few), helping add clever sounding words, and providing realistic insights from your own PhD experience. You are one of the most generous, intelligent and strongest people I know.

To my family, Aaron, Bella and Lily, embarking on this project proved to be an all-consuming, somewhat selfish pursuit. Thus, I am eternally grateful for your tolerance, encouragement and patience. Bella and Lily, thank you for understanding why I spent so many of our weekends and holidays in front of a computer. I do not expect that you will ever read this thesis, but I hope that one day you will understand why it was important to me, and perhaps you will feel as proud of me, as I am of both of you. Aaron, when we met 20-years ago, you were writing your own PhD, which you seemed to knock over in a couple of weekends from what I recall. Although you are yet to offer any constructive feedback whatsoever (except to suggest that I learn *Endnote*, albeit some four years too late), you have never once wavered in your unconditional support, encouragement or pride for this selfish endeavor of mine. There is simply no way I could have achieved this without you.

As Zali likes to tell me, delivering a thesis is like having a baby (although, given she is the mother of twins, I am not sure our ideas of childbirth equate!). This 'baby' has taken 7-years, many sacrifices and quite a few tears. However, as I truly believe, 'it takes a village to raise a child'. Thus, completion of this thesis is testament to the strength and support of the village surrounding me.

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**List of Abbreviations**

1. ACT – Acceptance and Commitment Therapy

2. CBT- Cognitive Behavior Therapy

3. DCM – *Dove Confident Me*

4. HBM – *Happy Being Me*

5. HIP- *Healthy Image Partnership*

6. RCG- *Raising Confident Girls*

**OVERVIEW OF THESIS**

Body image, in particular body dissatisfaction, is a common problem for women and girls around the world. Body dissatisfaction is a key risk factor, for not only the onset of future eating disorders, but for a range of significant physical and psychological health concerns. Given the global magnitude of this challenge, research has called for a focus on prevention and early interventions that are etiologically based and have proven to be efficacious. In response to this call, the initial aim of this thesis was to investigate what would work to improve the body image of adolescent girls attending an independent girl's school in Queensland, Australia.

With over 25-years experience working with young people in my role as a psychologist, and having been employed at the intervention school since 2004, I felt behooved to explore effective prevention and early intervention approaches for positive body image for the students under my care. Further, my role within a school afforded me an opportunity to provide unique insights regarding conducting research within a real-life setting. The research project was conducted on a part-time basis, while working fulltime, and comprised two studies, initially commencing as a Masters project in 2015, before upgraded to a PhD degree in 2017. Study 1 involved investigating a classroom-based body image intervention with a 2016 cohort of Year 8 students. Study 2, conducted in 2018, both replicated and expanded Study 1, and involved examination of a modified classroom-based body image intervention with a cohort of Year 8 students, and a complimentary program developed for and delivered to a group of mothers of the Year 8 students in Study 2.

The thesis contains six chapters and begins with an overview of body image literature in Chapter 1, including the relevant theoretical models and main risk factors. Chapter 2 outlines Study 1, beginning with an introduction outlining the relevant literature regarding intervention approaches, followed by a method, results and discussion. The subsequent chapters focus on Study 2. Chapter 3 provides details of the replication of a modified classroom-based intervention, whilst Chapter 4 examines the complimentary program delivered to mothers of the Year 8 students in Study 2. Chapter

4 commences with an introduction reviewing the literature regarding the influence of parents, specifically mothers, and research pertaining to parental involvement in interventions. Both Chapter 3 and 4 include a method, results and discussion. Chapter 5 investigates outcomes for daughters whose mothers attended the parent intervention, while Chapter 6 concludes the thesis with an overall discussion of the project and a review of the major findings.

## CHAPTER 1 LITERATURE REVIEW

This chapter presents an overview of body image and body dissatisfaction, with a particular focus on its prevalence and consequences. It explores leading theoretical models of body image, including the dual pathway, objectification, sociocultural and biopsychosocial models, with a particular focus on the relevance of these models for adolescents and girls. Exploring each of these theoretical models enables the identification of key risk factors for the development of body image concerns, which in turn provides central insights into potentially effective prevention pathways.

**Body Image and Body Dissatisfaction**

*Definition and Prevalence*

Body image describes the attitude one holds towards their looks irrespective of actual appearance (Thompson et al., 1999). Best considered multidimensional, body image comprises thoughts, feelings and behavioural responses towards appearance (Thompson et al., 2004). Studies reveal that up to 70% of women report feeling unhappy with their bodies (Gravener et al., 2008; Jackson et al., 2014), 64% think about their weight on a daily basis (Gange et al., 2012) and 20% experience significant distress due to their levels of body dissatisfaction and disordered eating (Cash, 2002; Levine & Smolak, 2006; Ricciardelli & McCabe, 2001). Thus, in Western society, the prevailing view regarding body image, particularly for females, is one of disapproval, negativity or dissatisfaction (Grabe et al., 2008). Indeed, thirty years ago, the level of dissatisfaction women held towards their bodies was so extensive that it was coined 'normative discontent' (Rodin et al., 1984). Regrettably, decades later, this relationship has failed to improve with research suggesting body dissatisfaction continues to be pervasive among women, adolescents and preadolescent girls, (Carlisle et al., 2019; Clark & Tiggemann, 2006; Murnen, 2011; Smolak, 2011; Wertheim & Paxton, 2012). As such, body dissatisfaction continues to be a significant issue for the majority of females today, both young and old.

**Prevalence of Body Image Concerns in Adolescence**

Given the main developmental task of adolescence is identity formation this time is often rife with self-consciousness (Sebastian & Burnett et al., 2008). As girls struggle to understand who they are and begin to separate from their parents, body image becomes an important part of their identity (Erikson, 1968). This age group is particularly susceptible to the influence of appearance ideals and appearance pressures (Thompson & Stice, 2001) with over 70% of adolescent girls having reported feeling dissatisfied with their bodies and longing to be thinner (Lawler & Nixon, 2011; Smolak, 2012; Wertheim & Paxton, 2012).

The majority of adolescent girls not only desire thinness, but also adopt this as a personal aspiration (Carey et al., 2014). In 2019, the annual *Mission Australia* survey reported that girls between the ages of 15-19-years ranked body image as one of their top three concerns, with 42.8% indicating they were *extremely* or *very concerned* about it (Carlisle et al., 2019). Increasingly, adolescent girls are reporting to engage in disordered eating. In 2013, 41% of 13-17-year olds were estimated to have engaged in disordered eating (Sparti et al., 2019), rising to 51.7% of 13-year old girls in a 2020 study (Wilksch et al.,2020). Of particular concern is the trajectory of body image. Specifically, the finding that body dissatisfaction remains relatively stable from mid-adolescence to adulthood, suggesting that the severity of body dissatisfaction in adulthood is determined prior to mid-adolescence (Wang et al., 2019). Together, these findings highlight early adolescence as a critical period for body image development.

**Prevalence of Body Image Concerns in Childhood and Preadolescence**

There is clear evidence suggesting that body image concerns also preoccupy young minds. Close to 50% of preadolescent girls express dissatisfaction with their weight or shape, and a desire to be thinner (Clark & Tiggemann, 2006; Smolak, 2011; Wertheim et al., 2008; Wertheim & Paxton, 2012) and studies have revealed similar results in girls as young as 5-8-years old (Davison et al., 2000; Dohnt & Tiggemann, 2006a; Lowes & Tiggemann, 2003). Thus, it is proposed that the desire

for thinness emerges at around 6-years of age, coinciding with the second year of schooling (Davison et al., 2002; Lowes & Tiggemann, 2003; Slater & Tiggemann, 2016; Smolak & Thompson, 2009). However, when assessing 3-5-year old girls' emotional investment in the thin-ideal, Harriger et al. (2010) discovered that the preference for thinness was evident in girls as young as 3-years of age. Moreover, the researchers further discovered that young girls were more likely to attribute positive characteristics to thin body shapes when compared to both overweight body shapes and average sized body shapes, suggesting that weight stigmatization is evident in children as young as 3-years of age (Harriger, 2015; Harriger et al., 2010).

An early study by Abramovitz and Birch (2000) indicated that 34-65% of 5-year old girls had ideas and beliefs about dieting and could identify a variety of weight loss behaviours. This finding was supported by Lowes and Tiggemann (2003), who found that the majority of their 5-8-year old sample demonstrated an awareness that dieting was how one achieved the ideal body shape. Further evidence suggests that not only are young children aware of how to act on their body image concerns, but that from a young age an alarming number are engaging in weight loss behaviours (Damiano et al., 2015). Studies have reported that 25-50% of 12-year old girls engage in dieting (Neumark-Sztainer et al., 2011; Westerberg-Jacobson et al., 2012), while 34% of 5-year old girls participate in a moderate level of dietary restraint (Damiano et al., 2015).

Alarmingly, three decades later, 'normative discontent' appears to be thriving among both women and adolescent girls and is clearly relevant for young girls too. Given such discontent is not without significant negative consequence, the prevalence of body dissatisfaction invites serious concern.

*Consequences of Negative Body Image*

**Impact on Psychological and Physical Wellbeing**

Substantial evidence indicates that the extent of body dissatisfaction in Western societies is alarming. Psychological wellbeing and physical health are strongly linked with body image to the

extent that experts have described body dissatisfaction as a 'core aspect' of women's physical and mental health (Grabe et al., 2008). When preoccupied with her appearance, a female fails to engage mindfully with her life and may not reach her physical or cognitive potential (Halliwell et al., 2014; Neumark-Sztainer et al., 2006). Further, body dissatisfaction has been found to predict a number of serious physical and psychological health concerns including dieting, unhealthy weight control behaviours, reduced physical activity (Neumark-Sztainer et al., 2006), disordered eating (Bucchianeri et al., 2016; Dakanalis et al., 2016; Goldschmidt et al., 2016; Keery at al., 2004; Stice, 2002), low self-esteem, depression (Ferreiro at al., 2012; Goldschmidt et al., 2016; Paxton et al., 2006a; Sharpe et al., 2018; Tiggemann, 2005a), anxiety (Vannucci & Ohannessian, 2018) and suicide ideation (Brausch & Muehlenkamp, 2007; Rodríguez-Cano et al., 2006). In addition, a study by Bornioli et al. (2019) revealed that body dissatisfaction at age 14-years could predict smoking, cannabis use, high-risk drinking and deliberate self-harm in girls aged 21-years.

**Cognitive, Academic and Social Consequences**

Further examining the impacts of body dissatisfaction on wellbeing, a number of researchers have considered how body dissatisfaction impedes females cognitively, academically and socially. A United Kingdom report examining links between body dissatisfaction and future aspirations concluded that preoccupation with body image could disrupt a girl's academic performance and intellectual functioning (Halliwell et al., 2014). Studies have revealed that girls who feel dissatisfied with their bodies stay at home from school, lack engagement in class (Lovegrove & Rumsey, 2005), and have poorer school performance (Florin et al., 2011; Mikkila et al., 2003) compared to girls who feel positive about their appearance. In a study involving a small sample of Russian adolescents, girls with body dissatisfaction report looking more frequently in the mirror and avoiding going out because of their appearance (Zinovyeva et al., 2016). This study further reported associations between girls feeling dissatisfied with their bodies, withdrawing from social contact, feelings of loneliness, and considering themselves dependent, weak, passive, indecisive and lacking in self-control (Zinovyeva et al., 2016).

The above research suggests that the negative outcomes associated with body dissatisfaction are far-reaching and significant for many adolescent girls. A girl who withdraws from academic, ambitious or social pursuits due to body dissatisfaction, risks missing opportunities to build happiness and success via these avenues. From a young age, women in Western society are indoctrinated to believe that the most important thing about them is the way they look, and that beauty is synonymous with happiness and success. Thus, while in the mind of the girl who withdraws from social life her failure to reach happiness or success results from her appearance, it is in fact due to her lack of engagement. Unless we educate adolescent girls about these false messages and resultant patterns of behavior, they will likely continue to engage in avoidant cycles, reinforcing societal messages and deceivingly convincing themselves that it is their appearance, rather than their body dissatisfaction, that has encumbered them.

**Eating Disorder Consequences**

One of the most traumatic and frightening consequences of persistent body dissatisfaction is the development of serious disordered eating problems. Body dissatisfaction is one of the most consistent  precursors of  maladaptive eating patterns (Davison et al., 2002; Ohring et al., 2002), bulimic behavior (Duemm et al., 2003; Stice, 2001;Wertheim et al., 2001), disordered eating and eating disorders (Dohnt & Tiggemann, 2005; Grabe et al., 2008; Stice, 2002; Stice et al., 2011). A 10-year longitudinal study confirmed that adolescents who dieted and used unhealthy or extreme weight control behaviors, including diet pills and laxatives, were more likely to continue to engage in such behaviours in adulthood (Neumark-Sztainer et al., 2011). Both nationally and internationally, the prevalence of eating disorders is increasing (Hay et al., 2008). The number of girls aged 10-19 years admitted to hospital for an eating disorder between 2011 and 2013 increased by 42% in Canada (Ottawa Citizen, 2014).

A potentially life threatening eating disorder, bulimia nervosa can often fail to be detected by parents and peers as weight is usually maintained and behaviours are carefully concealed (NEDC, n.d). Thus, the illness can be enduring, and the physical and psychological consequences severe. A

recent Australian study reported that the lifetime prevalence for bulimia in females is 2.59% (Bagaric et al., 2020). Anorexia nervosa, a serious and complex disorder from which recovery can be fraught and painstakingly slow, is currently the third most common chronic illness for adolescent girls, following obesity and asthma (Yeo & Hughes, 2011). Studies suggest a relapse rate of between 30-40% after 18-mths (Berdends et al., 2016; Hetman et al., 2017) and over 50% after 5-years (Van Elberg, 2007). Anorexia nervosa remains the psychiatric disorder with the highest mortality rate (Jassogne & Zdanowicz, 2018; NEDC, 2013) and suicide is the second leading cause of death for people with anorexia nervosa (Smith et al., 2018). Individuals with anorexia nervosa are 18 times more likely to die by suicide (Smith et al., 2018) and one in five die prematurely due to suicide (Arcules et al., 2011).

While a focus on treatment for bulimia, anorexia and other eating disorders is vital, to turn the tide on prevalence rates for future decades, and curb subsequent health issues, it is imperative that attention be focused on the identification of effective options for prevention and treatment. This necessitates an understanding of the precursors to, and maintaining factors, of body dissatisfaction, including theoretical models that seek to explain the ways in which body image is formed, as outlined below.

**Theoretical Models of the Development of Body Dissatisfaction**

A number of theoretical models seek to explain the underlying mechanisms of the development of body dissatisfaction, disordered eating and eating disorders, including the dual pathway, objectification, sociocultural and biopsychosocial models, each of which will now be examined. Each model is evidence-based and provides insights regarding the risk factors for body dissatisfaction in the preadolescent and adolescent populations. An overview of the dual pathway model, including an explanation of thin-ideal internalization, will be followed by an outline of the objectification model. Next, the dominant sociocultural model, the tripartite influence model, including an explanation of appearance-based comparison, will be described. Finally, the biopsychosocial model will be explored.

Following this overview of major theoretical models, an examination of each of the sociocultural agents included in the tripartite influence model (parents, peers and the media) will be undertaken, with specific reference to appearance-based cultures, appearance-based comments and criticism, and appearance-based comparison.

### Dual Pathway Model

Stemming from research into the emergence of bulimia, Stice (1994) proposed the dual pathway model outlined in Figure 1.1 below. The model suggests that certain sociocultural influences, including family, peers and media, provide pressure to have a thin body, and as such, result in internalization of the belief that appearance, especially thinness, is critical to success and acceptance. As the thin-idealized image is typically one that is unobtainable for most females, the ensuing discrepancy between the idealized image and one's own body, results in body dissatisfaction. Given appearance is so important to women, Thompson and Stice (2001) propose that resulting body dissatisfaction leads to feelings of negativity. Together, this negative affect, and subsequent attempts at dieting to reach the idealized image, increase the risk for onset of bulimia (Stice & Agras, 1998). Specifically, negative affect invites comfort eating and eating to distract negative feelings, while dieting typically leads to bulimia due to the ensuing binge eating following restriction of calories.

**Figure 1.1**
**Dual Pathway Model of Bulimia**
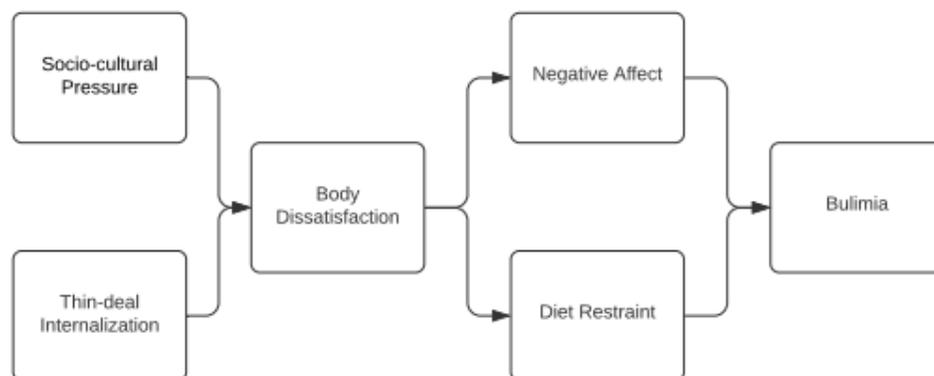


*Note.* Adapted from (Stice, 2001)

**Thin-ideal Internalization**

Central to the dual pathway model lies the concept of thin-ideal internalization, this being the

extent to which an individual subscribes to the socially defined ideals of thinness and engages in

behaviours to meet these ideals (Thompson et al, 1999; Thompson et al, 2004). In their critical review

of mass media, Levine and Murnen (2009) demonstrate that the ideal female body represented in the

media embodies the proposition that thin is normal and attractive. Further, the media not only links

thinness with beauty, but also pervasively promotes the idea that this is the only way to success,

happiness and desirability (Tiggemann, 2002). Moreover, interactions between peers and between a

girl and her parents can promote attaching more importance to the thin-ideal (Sands & Wardle, 2002).

It is not surprising that exposure to such a dominant message, alongside perceived pressure to

conform, whether from the media, parents (focusing on weight or dieting), or peers (engaging in

weight-based discussions or teasing) invites females to adopt and internalize such ideals themselves.

Yet, as the idealized images are typically digitally manipulated and thus unrealistic and unobtainable,

most females fail to conform. Consequently, feelings of dissatisfaction ensue following the observed

discrepancy between the desired thin-ideal and the reality. Of course, inciting dissatisfaction and

insecurity is in the interests of the weight loss and beauty industries, as they subsequently invite

females to purchase the numerous products they offer which promise to "fix" the appearance of

consumers (Luenendonk, 2020).

**Empirical Support for the Dual-Pathway Model in Adolescent Girls**

A number of studies have provided evidence to support the dual pathway model in the

adolescent girl population (Allen et al., 2012; Stice, 2001; Stice & van Ryzin, 2019). As an adolescent

girl begins to mature, her body shape and weight changes, with a necessary increase in weight

required to menstruate (O'Dea, 2007). At the same time, girls begin to increasingly identify with

female stereotypes (Bearmann et al., 2006) and engage in greater thin-ideal internalization (Stice &

Bearman, 2001). Thus, adolescence can be a particularly vulnerable time for the internalization of the

thin-ideal and ensuing body dissatisfaction. Numerous studies provide evidence of positive

associations between thin-ideal internalization and body dissatisfaction in adolescent girls (Jones, 2004; Rodgers et al., 2015; Smolak et al., 2001; Stice & Bearman, 2001, Stice & Whitenton, 2002). Further, internalization of the thin-ideal has been found to predict increased dieting (Stice, 2001; Vartanian, 2009), body dissatisfaction (Vartanian et al., 2016), negative affect (Stice, 2001) and onset of eating disorders (Stice & Shaw, 2002). Moreover, internalization of body-ideals, alongside perceived pressure to conform, has been found to predict body dissatisfaction, disordered eating and dietary restraint, in both preadolescent and adolescent girls (Cafri et al., 2005a; Evans et al., 2012; Nichols et al., 2018; Sands & Wardle, 2003; Stice & Bearman 2001).

Thus, internalization of the thin-ideal is not only evident in adolescent girls, but emerges as a clear risk factor for subsequent body dissatisfaction and resultant disordered eating attitudes and behaviours. As such, a closer examination of the societal dynamics contributing to thin-ideal internalization will follow the examination of the theoretical models.

### Self-Objectification Model

Stemming from the feminist perspective, objectification theory posits that in Western society the female body is subject to frequent sexual objectification. Bartky (1990, as cited in Szymanski et al., 2011) explains that objectification involves singling out the female body and treating it as an object viewed primarily for male sexual desire. Extending upon this, Fredrickson and Roberts (1997) suggest that females internalize the ubiquitous objectification of their bodies and begin to see themselves as objects existing solely to be inspected. Coined "self-objectification" (Fredrickson & Roberts, 1997), or objectified body consciousness (McKinley & Hyde, 1996), this practice is considered to stem mostly from the influence of the media, particularly magazines, music videos and social networking sites (Fardouly et al., 2015b; Grabe & Hyde, 2009; Harper & Tiggemann, 2008; Prichard & Tiggemann, 2012; Slater and Tiggemann 2015; Vandenbosch & Eggermont, 2012).

Self-objectification is not benign, with numerous studies indicating that it impedes women and girls physically, cognitively and emotionally (Fredrickson et al., 1998; Knauss et al., 2008; Tiggemann, 2013; Tiggemann & Slater, 2015). In a study of undergraduate students, Fredrickson et

al. (1998) demonstrated that self-objectification drains a females mental resources and can impede her capacity to perform cognitive tasks. Comparing men and women completing maths questions either wearing a sweater or a swimsuit, the researchers showed that stait self-objectification, produced by wearing the swimsuit, diminished math performance for women, but not men. The two main processes by which self-objectification inhibits females include body surveillance and body shame, both of which will be explored further below. The self-objectification model is outlined in Figure 1.2.

*Figure 1.2*
*Self-objectification Model*
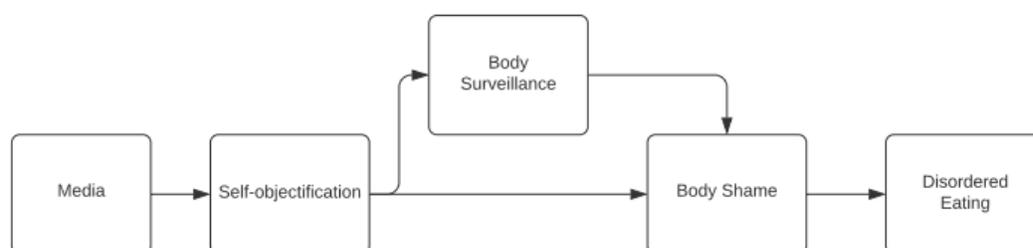


*Note.* Adapted from (Slater & Tiggemann, 2015)

**Body Surveillance and Body Shame**

Given females are objectified by the media more than males (Szymanski et al., 2011); the self-objectification model explains the higher levels of body dissatisfaction in females compared to males. Following self-objectification, once internalized, females who view themselves as objects feel increasingly self-conscious and begin to engage in a process of habitual surveillance, involving continuously assessing whether her body is meeting the prevailing appearance standard offered by the media (Schaeffer & Thompson, 2018). Given the unrealistic standards endorsed, most females discover that their bodies fall short of the internalized ideal, thus feelings of body shame arise (Fredrickson & Roberts, 1997).

Both body surveillance and the ensuing body shame, have been found to be core contributors to female body dissatisfaction (McKinley & Hyde, 1996), strong correlates of eating disorder

behavior (Streigel-Moore & Bulik, 2007; Schaeffer & Thompson, 2018; Tiggemann & Slater, 2001), depression, anxiety (Grabe et al., 2007), and associated with poor recovery from an eating disorder (Fitzsimmons-Craft et al., 2011). In a study of college women, self-objectification emerged as the strongest predictor for both future onset and cessation of clinically significant eating pathology (Dakanalis et al., 2016).

**Empirical Support for the Self-Objectification Theory in Adolescent and Preadolescent Girls**

Given the increasing sexualization and objectification of girls (American Psychological Association, 2007), they too are vulnerable to self-objectification, and several studies confirm its existence in preadolescent and adolescent girls (Grabe et al., 2007; Knauss et al., 2008; Lindberg et al., 2006; Slater & Tiggemann, 2002; Tiggemann & Slater, 2015). In fact, in their meta-analysis of the relationship between self-objectification and disordered eating, Schaeffer and Thompson (2018) suggest the relationship is just as strong in the adolescent population, as it is for women.

This population is at risk of self-objectification, not just due to their increased consumption of media, but also because of their regular engagement in appearance-based comments (Cruwys et al., 2016). Common among teenage girls and their friends, appearance-based comments occur more frequently among girls than boys (Jones et al., 2004). Slater and Tiggemann (2015) found that exposure to magazines, social networking sites and appearance-based compliments predicted levels of self-objectification in 12-16-year old girls, with similar results evident in preadolescent girls (Tiggemann & Slater, 2015). Once engaging in self-objectification, girls follow the same pathway outlined by the model as adult women. Further, self-surveillance in adolescent girls is reportedly associated with body shame and appearance anxiety, followed by disordered eating (Slater & Tiggemann, 2015). Consequently, researchers have confirmed that the objectification theory pathway, where self-objectification predicts body-shame, that in turn is associated with dieting and depressive symptoms, is relevant for girls as young as 10-years of age (Tiggemann & Slater, 2015).

*Sociocultural Influences Model*

Additional models to explain the development of body dissatisfaction focus on the role of sociocultural influences. Of these models, the tripartite influence model (Thompson et al., 1999) is the most dominant and has been strongly supported by empirical studies. The emergence of sociocultural influences as key contributing features towards the development of body dissatisfaction in different models, highlights their merit for potential inclusion in an etiological prevention program.

**Tripartite Influence Model**

The tripartite influence model (Thompson et al., 1999) posits that societal standards for female beauty are transmitted by powerful and persuasive sociocultural influences, namely the media, parents and peers. Promoting a culture where appearance is highly valued, as is evident in Western society; socializing agents convey standards, or ideals, for females regarding beauty and thinness. According to the tripartite model, the three primary sources of influence both directly impact body dissatisfaction, and are also mediated by internalization of the thin-ideal and appearance-based comparisons (Thompson et al., 1999). Figure 1.3 describes the interplay between sociocultural sources of pressure to conform to appearance ideals and thin-ideal internalization and appearance-based comparison and body dissatisfaction.

The archetypical female body is both narrow in diversity and physically unachievable for the majority of women. Nonetheless, due to sociocultural pressures, most females internalize the dominant thin-ideal and desire to meet it (Thompson et al., 1999). Sociocultural agents encourage not only internalization of the thin-ideal, but also social appearance-based comparison, inviting one to compare their appearance with that of their peers (Paxton & McLean, 2017). Once the internalized

*Figure 1.3*
*Tripartite Influence Model*
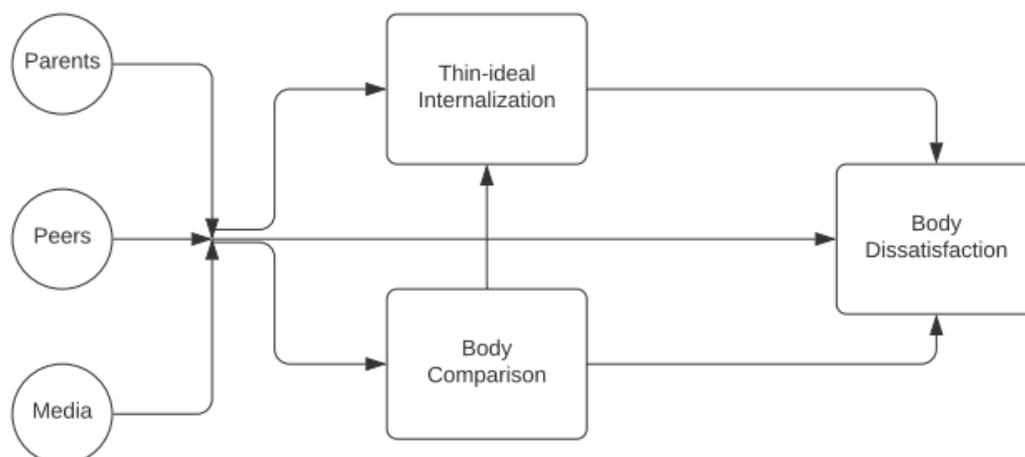


*Note.* Adapted from (Shroff & Thompson, 2006a)

thin-ideal is adopted as the epitomized standard of beauty, females are motivated to compare

themselves in order to determine whether they are able to meet the standard (Durkin et al., 2007;

Fitzsimmons-Craft et al., 2012; Rodgers et al., 2015). While the average body size for women has

increased over the decades, the idealized body standard endorsed by the media has not (Baskin et

al.2005). The discrepancy between the idealized female body, and the average female body, has

therefore widened, resulting in females being stuck in a dangerous and despondent spiral of trying

harder to meet the internalized, yet unachievable thin-ideal, and experiencing greater dissatisfaction

when their efforts do not succeed (Bozsik et al., 2018). Further, exposure to the idealized female body

has been shown to predict not only increased dieting, but also approval of surgical alteration (e.g.

liposuction and breast augmentation) (Harrison, 2003).

**Empirical Support for the Tripartite Model in Adolescent and Preadolescent Girls**

There is considerable evidence supporting the tripartite model in adolescent girls (Keery et

al., 2004; Rodgers et al., 2011; Rodgers et al., 2015; Shroff & Thompson, 2006a). Internalization of

the thin-ideal has been reported to mediate the relationship both media and peer influences have on

the body dissatisfaction of adolescent girls (Clark & Tiggeman, 2006). Durkin et al. (2007) found that

following exposure to idealized images, adolescent girls who internalize the thin-ideal are more likely

to engage in body comparison, that in turn was associated with a negative change in body satisfaction. A longitudinal examination of the tripartite model with Year 7 girls supported Durkin et al.'s (2007) study by reporting that media internalization, preceded and predicted, social appearance comparison, that in turn predicted body dissatisfaction (Rodgers et al., 2015).

Evidence further supports the relevance of the tripartite model in preadolescent girls (Blowers et al., 2003; Keery et al., 2004; Shroff & Thompson, 2006b). In a sample of students from Year 6-8, internalization of the thin-ideal and appearance-based comparison was reported to fully mediate the relationship between parental influence and body dissatisfaction, and partially mediate the relationship between both peer and media influence and body dissatisfaction (Keery et al., 2004). In a replication of this study, Shroff and Thompson (2006b) examined each socializing factor (parents, peers and media) separately. The researchers found similar mediation effects, but further identified that peer and media had more of an influence on body dissatisfaction than parents (Shroff & Thompson, 2006b). Further research supported the strong influence of media by examining the sociocultural attitudes towards appearance questionnaire-4-revised (SATAQ-4R) with girls aged 10-14-years (Schaefer et al., 2017). Results indicated medium to large correlations between internalization (thinness, general attractiveness, pressure from family, peers and media) with body dissatisfaction, drive for thinness, bulimia and low self-esteem, with the media subscale showing the stgrongest results (Schaefer et al., 2017).

The above findings suggest that the relationships between sociocultural influences, thin-ideal internalization, appearance-based comparison and body dissatisfaction are just as complex in young girls as they are in women. As such, when considering prevention programs, the evidence points towards inclusion of education regarding thin-ideal internalization and appearance-based comparison.

### Biopsychosocial Model

The biopsychosocial model, outlined in Figure 1.4, expands on the tripartite influence model by explicitly considering the role of both psychological and biological factors in body dissatisfaction

(Rodgers et al., 2014). According to this model, body dissatisfaction develops due to a combination of biological, psychological and sociocultural influences (Werthiem et al., 2004). Specifically, negative

*Figure 1.4*
*Biopsychosocial Model*
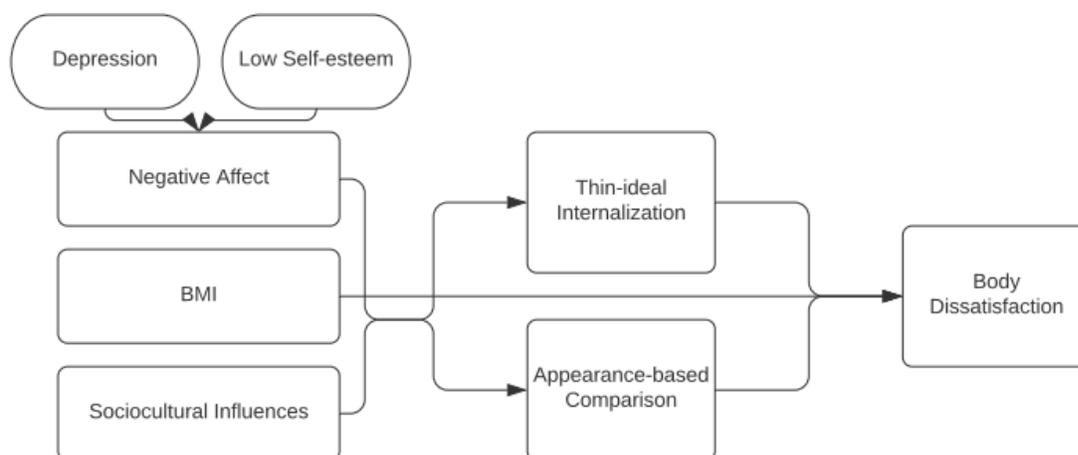


*Note.* Adapted from (Rodgers et al., 2014)

affect, comprising both depression and low self-esteem, body size, as measured by body mass index (BMI), and sociocultural influences, including parents, peers and media. Similar to the tripartite model, the biological, psychological and sociocultural impacts on body dissatisfaction are mediated by internalization of the thin-ideal internalization and appearance-based comparisons.

**Body Size**

Given the dominant thin-ideal permeating mainstream culture, it makes sense that the higher a female's weight, the more likely she would feel dissatisfied with her body. Research supports this, with young girls with higher weights (as measured by BMI) demonstrating increased desire for thinness and body dissatisfaction (Dohnt & Tiggemann, 2006). A higher body weight also predicts body dissatisfaction (Lawler & Nixon, 2011; Rodgers et al., 2014; Sim & Zeman, 2006) and disordered eating in adolescents (Jones, 2004; Paxton et al., 2006a; Stice & Whitenton, 2002). Davison et al. (2003) reported that girls, who were higher weight at age 5 and 7-years, reported

greater body dissatisfaction and dieting behavior aged 9-years and in Dohnt and Tiggemann' s (2006a) sample of girls, higher weight predicted the desire for thinness over a 12-month period. In their study of adolescent girls, Wojtowicz and von Ranson's (2012) found that higher weight was second to self-esteem, as the most potent risk factor in predicting body dissatisfaction.

**Negative Affect**

While negative affect, specifically low self-esteem and depression, is identified as an outcome of body dissatisfaction (Sharpe et al., 2018) the biopsychosocial model posits that so too is it a risk factor (Bearman et al., 2006; Rodgers et al., 2014). Thought to invite a negative processing bias, negative affect increases the risk that an individual may perceive their appearance as different from societal ideals (Rodgers et al., 2014; Rodgers et al; 2020). An 8-year longitudinal study with adolescent girls identified that depressive symptoms amplified the risk of future eating disorder in girls reporting high body dissatisfaction (Stice et al., 2011). Similarly, low self-esteem can increase the risk of body dissatisfaction (Paxton et al., 2006a; Wojtowicz & von Ranson, 2012) and disordered eating (Stice & Whitenton, 2002). In fact, low self-esteem has been demonstrated to be a more potent predictor of body dissatisfaction, than BMI, perfectionism, weight related teasing and thin-ideal internalization (Wojtowicz & von Ranson, 2012).

Recent studies examining varied trajectories of body dissatisfaction (Wang et al., 2019) and body esteem (Lacroix et al., 2020) across age groups provide further support for the influence of negative affect. Wang et al. (2019) report that symptoms of depression and low self-esteem during adolescence might serve as important predictors for the trajectory of chronic body dissatisfaction into adulthood, while Lacroix et al. (2020) suggested that low self-esteem and low positive affect could predict a trajectory of low body esteem, whereas high self-esteem predicts a trajectory of high body esteem. In fact, Lacroix et al. (2020) suggested that self-esteem and positive affect, together with dietary restraint and weight related teasing, are better predictors for body esteem trajectory than sociocultural risk factors.

**Empirical Support for the Biopsychosocial Model in Adolescent and Preadolescent Girls**

In their examination of the biopsychosocial model with a sample of Year 7 girls, Rodgers et al. (2014) provided support for the inclusion of low self-esteem, depression and higher weight in the model. Their findings indicated that negative affect was associated with both internalization of the thin-ideal and appearance-based comparison, while higher weight was directly linked with body dissatisfaction (Rodgers et al., 2014). Thus, the authors concluded that adolescent girls with low self-esteem and high levels of depressive symptoms may be particularly vulnerable to adopting societal standards as their own measure of self-worth, and may seek to evaluate themselves through social comparison. The study further reported that the relationship between sociocultural influences and body image concerns were fully mediated by both internalization of thin-ideal and comparison (Rodgers et al., 2014). Suggesting that prevention programs need to not only educate girls how to navigate sociocultural influences, but also to resist internalizing the ideals and engage in comparison.

More recently, Rodgers et al. (2020) examined application of the biopsychosocial model to social media use amongst adolescent boys and girls. The researchers found evidence to support the relevance of the model and reported that social media was associated with internalization, which in turn mediated the impacts of social media on appearance-based comparison, body dissatisfaction, dietary restraint and muscle building behaviours (Rodgers et al., 2020).

**Sociocultural Influences on the Development of Body Dissatisfaction.**

The tripartite and biopsychosocial models reinforce sociocultural agents and internalization of thin-ideal as risk factors for body dissatisfaction. Further, they highlight the significance of appearance-based comparison, in addition to biological and psychological factors. Given that sociocultural factors feature as significant contributors to the development of self-objectification, thin-ideal internalization, appearance-based comparison, and subsequent body dissatisfaction in adolescent girls, in order to understand the underlying mechanisms, each sociocultural agent will now be examined.

**Sociocultural Agents**

*Media*

One of the most powerful transmitters of sociocultural ideas is the mass media. Thought to function as a type of 'super peer' (Strasburger, 2005), adolescents perceive the media to be "cooler" than their parents and teachers, hence it acts as an alternative and more powerful educator (Coy, 2009). Yet, the wealth of dangerous and dominant messages portrayed by the media, particularly targeting females, is of significant concern, including the notion that despite all other accomplishments, the most important thing about a female is the way she looks. The media not only objectifies females but also sexualizes them as well (American Psychological Association, 2007). Levine and Murnen (2009) explain that media messages indoctrinate maturing girls and boys with the idea that being sexually attractive is of paramount importance. As girls explore and define their identities, media marketers promote the notion of "*girl power*" under the guise of empowerment, yet in reality "*girl power*" is about being hot, sexy and independent, a narrative that relies heavily on narrow and unobtainable standards of beauty (Gill, 2017). Thus contemporary media, while seeming to promote liberation and empowerment, continues to exert an insidious and dangerous influence on girls.

**Magazines and Television.**

A considerable amount of literature has demonstrated links between reading fashion magazines or watching television, body dissatisfaction and disordered eating (Dohnt & Tiggemann 2006a; Grabe et al., 2008; Jones et al., 2004; Tiggemann & Slater 2003). Exposure to music videos and teen or women's magazines has been associated with greater dieting awareness in girls 5-8-years old (Dohnt & Tiggemann, 2006a), while watching television has been associated with dietary restraint in 5-year old girls (Damiano et al., 2015) and increased disordered eating in preadolescent girls (Harrison & Hefner, 2006). Further, both adolescent and preadolescent girls who read fashion magazines or watch certain television genres, have been reported to have greater internalization of the

thin-ideal, increased knowledge of dieting, a stronger drive for thinness, body dissatisfaction and increased bulimic symptomology (Clarke & Tiggemann, 2007; Dohnt & Tiggemann 2006a; Jones et al., 2004., Levine & Murnen, 2009; Sands & Wardle, 2003; Tiggemann, 2005). Thus, it is clear that in regards to body image, the availability and content of traditional media presents a concern.

While frequency of reading fashion magazines has been correlated with body dissatisfaction, in regards to television, Tiggemann (2005) explains that rather than frequency, the critical factors are what adolescents are watching and why. Appearance-based television, including soap operas and music videos, appear to be a pertinent contributor to negative body image for adolescent girls. Studies indicate that adolescent girls who watch music videos report lower body esteem, greater dieting and increased feelings of anxiety (Grabe & Hyde, 2009), while girls who watch soap operas report greater internalization of the thin-ideal and an increased drive for thinness (Tiggemann, 2005). A longitudinal study by Dohnt and Tiggemann (2006a) confirmed that girls viewing appearance-focused television felt significantly less satisfied with their appearance when measured one year later. Moreover, girls consuming television to escape boredom or sadness, or to learn about life, report more negative body image compared to girls watching television for entertainment purposes (Tiggemann, 2005). So, rather than being passive recipients, adolescents are actively engaging with the media they are consuming, a particularly relevant finding given that different forms of media impact viewers in different ways. Contemporary forms of media, especially the internet, increasingly invite active engagement and heavily focus on appearance, thus the internet is of significant interest to proponents of the sociocultural model of body image.

**New Media**

Due to the rise in technology and the abundance of electronic devices, most individuals in modern society have permanent and readily available access to media. There are now a number of magazines marketed at young girls, even before they can read, and the emergence of the internet and pay TV provide children with access to an endless supply of both fictional and reality television programs at the click of a button. The current generation has the added task of navigating the internet.

Unlike traditional forms of media, the internet is interactive and can prove a more ominous influence on developing body image than traditional forms of media (Rodgers & Melioni, 2016).

A USA content analysis of popular adolescent websites revealed a dominance of internet advertising for cosmetic and beauty products reinforcing the thin and beauty ideals (Slater et al., 2012), predominately targeted at girls (Rodgers. 2016). Due to the interactive nature and positioning of advertisements, internet advertising is thought to have a stronger impact on young people than traditional media (Slater et al, 2012), being individualized and the surveillance of personal internet searches, which for adolescents typically involve diet, exercise and weight loss websites (Rodgers, 2016). Accordingly, internet advertising is more appearance focused than television advertising and narrower in its scope (Rodgers, 2016). In addition, the dominance of weight loss websites, availability of pro-eating disorder content and user encouragement to create visual profiles populated by photos, render the internet a significant contributor to girls' developing body image (Harmon & Rudd, 2019; Holland & Tiggemann, 2016; Rodgers & Melioni, 2016).

**Social Media: Exposure**

Involving both the media and peers, two factors contributing towards the development of body dissatisfaction, social media is a rising concern in body image research (Holland & Tiggemann, 2016). Adolescents are amongst the highest consumers of social media and teenage girls engage in more frequent use compared to teenage boys (Booker et al., 2018; Kelley et al., 2018). A 2018 report indicated that 95% of adolescents between the ages of 13-17-years own a smartphone, with *YouTube* and *Instagram* rated the top two social media sites for this age group (Anderson & Jiang, 2018). Australian adolescents (14-17-years) reportedly spend 3.3-hours each day on social media (Australian Psychological Society, 2017). Thus, researchers have increasingly questioned the impact of social media on adolescents socially, emotionally and physically. There is evidence to suggest associations between social media use and depression, on-line harassment, low self-esteem, reduced sleep and poor body image (Kelley et al., 2018). Further, high social media use when aged 10-years has been connected with poorer adolescent wellbeing outcomes for girls, but not boys (Booker et al., 2018).

Physical appearance proves a central feature of an adolescent's on-line presence, with photo-shopping and other features allowing users to exert a significant level of control and manipulation of their appearance (Rodgers & Melioni 2016). It is not surprising that a number of studies have demonstrated associations between social media use and negative body image outcomes for girls (Fardouly & Vartanian, 2016; McLean et al., 2015; Tiggemann & Miller, 2010; Tiggemann & Slater, 2013, 2014, 2017; Wilksch et al., 2020). The Australian *NetGirls* study found that time spent on the internet was significantly related to internalization of the thin-ideal, body surveillance and drive for thinness in adolescent girls (Tiggemann & Slater, 2013). Exposure to the internet, particularly social media platforms such as *Facebook*, is shown to be correlated with body dissatisfaction (de Vries et al., 2016), appearance-based comparison, weight dissatisfaction, drive for thinness (Tiggemann & Miller, 2010) and a desire for cosmetic surgery (de Vries et al., 2014) in adolescents. Time spent on *Snapchat* and *Instagram* has been associated with disordered eating behavior in adolescent girls (13.08-years) (Wilksch et al., 2020). In addition to the dominance of appearance-based photos, social media perpetuates the thin-ideal by offering users the ability to *like* or comment on posts (Rodgers & Melioni 2016). Thus, researchers have suggested that as the internet allows greater participation and control by the user, it may potentially be more dangerous than magazines and television.

Tiggemann and Slater (2014) examined the relationship between media exposure (magazines, television and the internet) and body image concerns in preadolescent girls aged 10-12-years old. While all forms of media exposure were correlated with body image concerns, time spent on the social media sites *Myspace* and *Facebook* demonstrated stronger correlations with internalization of the thin-ideal, body surveillance, dieting and lowered body-esteem. Of concern, is while the legal age for *Facebook* use is over 13-years, 43% of 10-12-year olds in this sample indicated that they had their own *Facebook* profile and spent more than 1.5 hours on the site each day (Tiggemann & Slater, 2014).

**Social Media: Photo Use and Selfies**

As with television, the way users engage with social media, rather than the amount of time spent engaging, impacts body image outcomes most significantly (Cohen et al., 2018; Meier & Gray, 2014; Tiggemann & Slater, 2017). Meier and Gray (2014) identified that photo use on *Facebook*, rather than *Facebook* usage itself, was associated with body image concerns in females 12-18-years old, while a separate study by Tiggemann and Slater (2017) found that number of *Facebook* friends, rather than time spent on *Facebook*, predicted increased drive for thinness in adolescents two years later. In their narrative review of selfies, McLean et al. (2019) highlighted the hazards involving viewing, engaging in social comparison and investment in peer feedback, while Cohen et al. (2018) similarly demonstrated that engagement in 'selfie' activity (rather than time spent on social media) was associated with body related concerns and disordered eating in young women. Interestingly, young women posting more selfies report higher body satisfaction, whereas those more invested in their selfies report negative body image outcomes (Cohen et al., 2018). This finding supports previous research with adolescents that has found photo manipulation and selfie sharing was associated with greater body dissatisfaction, dietary restraint and thin-ideal internalization in 13-year old girls (McLean et al., 2015).

**Social Media: Appearance Comparison**

Social media provides a unique platform for users to readily engage in appearance-based comparison with peers. While photos are often manipulated, because they are of peers not celebrities, they may seem more authentic to viewers, potentially creating a more toxic effect if young viewers don't examine the images with the same level of scrutiny they apply to celebrity posts (Hess, 2015). This proposition is supported by the work of Ho et al. (2016) who found that social comparison with peers on social media has a stronger relationship with body image disturbance and drive for thinness than comparison with celebrities.

Research has revealed that appearance-based comparison mediates the relationship between social media and a number of negative body image outcomes, including *Facebook* usage and body

image concerns (Fardouly & Vartanian, 2015), selfie posting and poor body confidence (Chang et al 2019) and *Instagram* exposure and depression (Weinstein 2017). In fact, Fardouly et al. (2017) suggest that engaging in appearance-based comparison on social media is not only widespread, but also particularly harmful. This study revealed that females used social media to compare themselves to others more than any other form of media (television, magazines and billboards) (Fardouly et al., 2017). Further, females were more likely to engage in upward appearance-based comparisons on social media, which are associated with less appearance satisfaction, less positive mood and greater thoughts of dieting and exercise, compared to appearance-based comparisons made in person.

In a preadolescent population (10-12-years), engaging in appearance-based comparisons on social media has been associated with poorer mental health outcomes (Fardouly et al., 2018). Experts have explained the above findings as being a culmination of the idealized representations on social media, in addition to the *likes* and comments included on the posts, creating a discrepancy so significant that these comparisons have the most detrimental impact on mood compared to any other context (Fardouly et al., 2017). Findings such as these highlight the need to acknowledge the internet as a potent source of influence on girls' body image and for its inclusion in media literacy programs.

### *Parents*

Parents, in particular mothers, play a substantial role in their children's developing body image (Shenaar-Golan & Walter, 2015; Wertheim et al., 2002), influencing their child's body image both directly and indirectly (Salci & Paxton, 2017). Direct influences include conversations, comments, criticism, teasing or encouragement to lose weight, whereas indirect influence involves modelling weight and shape attitudes and behaviours. Further information regarding parental influences, particularly indirect, will be provided in Chapter 4.

### Parental Comments and Criticism

Of concern are reports that receiving encouragement to diet, and being teased about weight by family, are not uncommon, with one study revealing that 45% of girls reported encouragement to diet

by their mothers and 58% disclosed teasing by a family member due to their weight (Neumark-Sztainer et al., 2010a). Studies have shown that parental pressure to be thin can predict body image disturbance (McCabe & Ricciardelli, 2003) and disordered eating in adolescents (Dunkley et al., 2001). Parental criticism, comments, or weight-related teasing have demonstrated strong associations with a higher BMI, binge eating, dieting, extreme weight control behaviours, body dissatisfaction and depressive symptoms in adolescents (Arroyo et al., 2017; Balantekin et al., 2014; Bauer et al., 2013; Berge et al., 2013; Berge et al., 2018; Helfert & Warschburger, 2011; Keery et al., 2005; Kluck, 2010; Neumark-Sztainer et al., 2010a; Phares et al., 2004; Wertheim et al., 2002). Adolescents who experienced parental encouragement to diet have been found more likely to experience lower body satisfaction 15-years later as adults and parents themselves (Berg et al., 2018). Even in the absence of direct comments, a daughter's perception of parental encouragement, criticism and comments are more predictive of body dissatisfaction and disordered eating outcomes than parental reports (Keery et al., 2006; Kicher & Crowther, 2001; Sniezek, 2006).

**Parental Weight Monitoring**

It is understandable that parents monitor and seek to guide their children's body shape (just as they do other developmental areas), yet unlike in the first few years of life - where attention and efforts are directed towards weight gain and growth - as children grow older the focus often becomes avoiding obesity (Budd & Hayman, 2008; Sahoo et al., 2015). Given increased concern and reports about the perils of obesity (World Health Organization, 2020), it is reasonable that parents feel responsible for ensuring their children maintain a healthy weight. However developmentally, adolescence is a time of rapid growth, when girls require substantial nutrients to prevent lifelong problems. O'Dea (2007) explains that for appropriate development, girls need to build a storage layer of body fat at around 10-years of age that will be used to fuel the rapid growth and height spurt most girls experience between the ages of 11-14-years. During these years, a girl can be expected to gain 4-5kgs a year as her height increases between 6-10cms annually (O'Dea, 2007). Thus, the developmental growth of a daughter may prove confronting for some parents surrounded by dominant

messages regarding the dangers of obesity, and they may feel pressure to supervise weight gain. Research indicates that even when parents do correctly identify that their child is overweight, it doesn't result in a greater investment in healthy behaviours, but rather, in more encouragement to diet (Neumark-Sztainer et al., 2008). Clearly, parents face a range of complexities as they attempt to balance concerns about obesity while preserving positive body image thoughts and behaviours in their children.

*Peers*

A considerable amount of literature has been published confirming the dominant influence of peers on body image (Jones et al., 2004; Paxton & McLean, 2017). Evidence points towards shared appearance norms, appearance-based conversations, appearance-based teasing and appearance-based comparison being the main mechanisms of peer influence (Carey et al., 2011, 2013; Jones & Crawford, 2006; Jones et al., 2004). As such, each of these concepts will be explored further below.

**Body Image in Peer Groups and Cliques**

Although reported in girls as young as 6-years (Davidson et al, 2000), adolescence is considered the peak time for emergence of body dissatisfaction (Webb & Zimmer-Gembeck, 2013). One of the main reasons for this is the influence of peers. During adolescence, as teens navigate the development of their identity and separate from their parents, they use their friendships with each other to discover who they are, independent from their family. Female friendships usually develop within a group setting and a girl uses her group to explore who she is, what she thinks about things, and how she interprets the world. So too with their physical development and maturation, adolescents draw upon peers for help making sense of their changing bodies. Just as female friends share common interests and behaviours, their levels of body dissatisfaction are comparable (Paxton et al., 1999; Rayner et al., 2013; Woelders et al., 2010). Studies reveal similar levels of dieting and use of extreme weight loss behaviours evident within friendship cliques of girls in Year 7 (Hutchinson & Rapee,

2007), Year 10 (Paxton et al., 1999), and within single-sex schools (Carey et al., 2013). In fact, for some friends, dieting can be akin to a group bonding activity (Carey et al., 2011).

It is possible to predict the frequency of dieting and use of appetite suppressants, diuretics, fasting, laxatives and vomiting for girls in Years 7 and 10, by examining their friends' scores on the same measure (Hutchinson & Rapee, 2007; Paxton et al, 1999).  A longitudinal study with a large sample, revealed an association between an adolescents' report of friends dieting at baseline, and chronic dieting, extreme weight control behaviours and binge eating, five years later (Eisenberg & Neumark-Sztainer, 2010). Thus, the importance a friend assigns to her own weight and eating is considered a major risk factor for an adolescent girl's development of  excessive weight concerns (Clark & Tiggemann, 2006; Shroff, & Thompson,  2006b; Thompson et al., 2007). Such findings suggest that befriending a girl who is unconcerned about her weight may serve as a protective factor against poor body image (Kenny et al., 2017). Accordingly, researchers have directed greater attention towards the influence peers have upon an adolescent's body image.

**Peer Related Perception**

What a girl believes her friend thinks and does regarding her own body, can have a significant influence on her. Even in the absence of any discussion or modelling, one of the strongest predictors of body dissatisfaction for a girl can be the mere perception she holds that her friend feels dissatisfied with her own body (Helfert & Warschburger, 2011; Dohnt & Tiggemann, 2006a). Perceived peer discussion regarding weight loss, perceived peer dieting, and perceived weight related teasing have all been associated with eating disturbance (Hutchinson & Rapee, 2007; Levine & Smolak, 1992; Levine et al., 1994; Matsumoto et al., 1999; Paxton et al., 1999; Paxton et al., 2006., Wertheim et al., 1997). Moreover, perceived peer pressure is considered a stronger influence on disordered eating and behavior than perceived pressure from family or the media (Matsumoto et al., 1999; Stice, 1998). In their study of girls between the ages of 5-10-years, Dohnt and Tiggemann (2006a) reported that if a girl perceived her friend felt dissatisfied with herself, this predicted an increased desire for thinness, reduced body satisfaction and lower self-esteem for the girl one year later. Thus, the researchers

concluded, that a perceived peer's desire for thinness could be considered a temporal antecedent to body satisfaction and self-esteem (Dohnt & Tiggemann, 2006a).

      **Peer Appearance-based Comparison.**

        According to Festinger's (1954) social comparison theory, when feeling uncertain, people have a need to evaluate their standing and draw conclusions about their own capabilities. This theory extends to appearance-based comparison. In the absence of any objective measure, people will compare themselves to others, including their peers (Festinger, 1954). While comparing appearance to models or celebrities is one avenue for appraisal, adolescents have at their disposal a ready supply of peers each day against whom to evaluate themselves. Females, in particular, evaluate their appearance by comparing themselves to others (Fardouly et al 2017; Leahey et al., 2007), perhaps because those females subscribing and subsequently internalizing the thin-ideal need a mechanism by which to determine their success. Rodgers et al.'s (2015) examination of the longitudinal relationships between internalization and comparison provides support for this concept by revealing that media internalization predicted social comparison in a sample of Year 7 girls. The authors argued that increased comparison with peers was an attempt to evaluate achievement of the thin-ideal following greater endorsement of media internalization (Rodgers et al., 2015). Further, in their investigation of body comparisons with both peers and models, Carey et al. (2014) found that while appearance comparisons mediated the relationship between endorsement of norms for thinness and body image concerns, this was significantly stronger for peers compared to models.

        Social comparison theory posits that individuals can engage in upward or downward social comparisons (Festinger, 1954). An example of an upward social comparison would be when a girl compares her body to another who is thinner than she is. Research indicates that females are more likely to engage in upward appearance-based comparisons than lateral or downward (Fardouly et al., 2017). While these upward appearance-based comparisons can prove neutral (Halliwell & Dittmar, 2005); or positive (Mills et al., 2002), they typically result in negative feelings, endorsement of the

thin-ideal and persistent body dissatisfaction in both adolescent girls and women (Durkin et al., 2007; Fardouly et al 2017; Jones, 2004: Leahey et al., 2007; Myers & Crowther, 2009; Schultz et al., 2002). Further, engaging in appearance-based comparison invites increased thoughts of dieting and exercise, and restricting food intake (Fardouly et al 2017). Leahey et al. (2007) found that females high in body dissatisfaction not only compared themselves more to others, but also engaged in greater upward comparisons compared with females low in body dissatisfaction. The researchers concluded that females who are dissatisfied with their bodies can be extremely preoccupied with how they look compared to others, particularly, "more attractive" others (Leahey et al., 2007).

**Peer Appearance-based Conversations**

As social beings, adolescents use their relationships with their peers to make sense of their worlds. Conversations about appearance, particularly emerging and changing bodies, permeate the interactions between teenage girls. Carey et al. (2011) found adolescent girls and their friends at school engage in frequent appearance focused conversation, gossiping and weight monitoring. These conversations are not benign. Appearance based conversations reflect and exacerbate body image disturbance either via contributing to the establishment of appearance cultures, or engaging in comparison, criticism or 'fat talk'(Arroyo & Andersen, 2016; Jones et al, 2004). These conversations occur not only in secondary school, but also in primary school. In a  study of 5-year old girls, Damiano et al. (2015) found that appearance-based conversations with friends was one of the strongest predictors of dietary restraint for this group. Appearance cultures, appearance-based conversations and 'fat talk' will be explored further below.

**Peer Appearance Culture**

Marrying both socializing agents of peers and media, the appearance culture model (Jones et al., 2004) describes the tendency for peers to discuss their exposure to appearance-based media. Following consumption of appearance-based media, peers engage in discussions about what they have read, seen or heard. Consequently, the appearance-ideals offered by the media are adopted by

adolescents and shared, thereby establishing a peer appearance culture. A study by Jones et al. (2004) with a sample of over 600 adolescent boys and girls indicated a significant relationship between magazine exposure and body dissatisfaction for girls only. The researchers suggested that the findings were a result of increased engagement in frequent conversations, or criticisms, about appearance with friends, and that this relationship was stronger for girls compared to boys (Jones et al., 2004). As most peer interactions occur within the school environment, Jones et al. (2004) propose that such environments contribute to an appearance culture, and evidence certainly supports the existence of appearance cultures within high schools (Carey et al., 2011, 2013; Jones & Crawford 2006). A study by Clark and Tiggemann (2006) also detected appearance cultures in preadolescent girls aged 9-12-years, with younger girls reporting regularly reading magazines and discussing the content with their peers at school. Such conversations mediated the relationship between appearance focused media and body dissatisfaction (Clark & Tiggemann, 2006).

**Peer Appearance-based Teasing or Criticism**

Mockery regarding weight is reported to be the most common form of teasing experienced by adolescents (Puhl et al., 2016). In their review of 15 years of research, Webb and Zimmer-Gembeck (2013) highlighted the consistent link between appearance-based teasing from peers or friends, and body dissatisfaction. Moreover, teasing or criticism regarding appearance has reliably been shown to be a strong predictor of distorted weight related outcomes (Neumark-Sztainer et al., 2010), body dissatisfaction, disordered eating, reduced self-esteem and depression (Helfert & Warschburger, 2011; Lampard et al., 2014; Thompson et al., 2007).  Further, a review by Puhl and Latner (2007) suggested that teasing and weight stigmatization mediate the relationship between high BMI and negative outcomes, and when controlling for weight-related teasing, BMI has little association with negative affect (Eisenberg et al., 2006; Eisenberg et al., 2003; Harriger & Thompson, 2012). While the review by Webb and Zimmer-Gembeck (2013) suggested that the association between weight-based teasing and body dissatisfaction was stronger for boys compared to girls (Barker & Galambos, 2003; Eisenberg et al., 2003; Lawler & Nixon, 2011; Paxton et al., 2006), a recent examination revealed

girls had heightened vulnerability to the effects of weight-based teasing when this was perpetrated by males (Valois et al., 2019).

**Fat talk Among Peers**

‘Fat talk’, a form of appearance-based criticism, is prevalent among females. These conversations among peers involve negative, self-critical comments about weight, shape, appearance, food intake, exercise, or fears of being overweight (Martz et al., 2012; Ousley et al., 2007). While one might assume that females struggling with weight would be more likely to engage in fat talk, there is no correlation between higher body weight and frequency of fat talk (Salk & Engeln- Maddox, 2011). Females use fat talk or body talk in an attempt to reduce body dissatisfaction and seek affirmation from peers (Lydecker et al., 2018). Yet, paradoxically, engaging in fat talk promotes and reinforces both the importance of appearance, and internalization of the thin-ideal (Jones et al., 2004). Further, engagement in fat talk has been shown to reduce satisfaction with one's weight (Shomaker & Furman, 2007; Stice et al., 2003). Studies show that engagement in fat talk is associated with heightened body dissatisfaction (Webb & Zimmer-Gembeck, 2013), impaired self-confidence, disturbed eating behaviours (Arroyo et al., 2017; Mills & Fuller-Tyszkiewicz, 2016; Sharpe et al., 2013), and depressive symptoms (Arroyo & Hardwood, 2012; Chow & Tan, 2014; Chow & Tan, 2018). Hence, rather than a benign way to bond with peers, vent feelings of guilt, or seek affirmation, fat talk is an insidious, dangerous behavior that undermines the self-worth of those both speaking and listening.

**Summary**

The above literature review provides an overview of key theories and themes in body image research, with particular reference to adolescent and preadolescent girls. Research regarding the prevalence of body dissatisfaction and subsequent impacts on physical and mental health proves alarming, as is the fact that for over 30 years, it has been considered normal for females to hate their bodies. Girls as young as 6-years of age know that a thinner figure is more desirable, and that dieting is the way to achieve this. To circumvent such despair, effective interventions and prevention, tested

in the real world, are urgently needed. Contemporary intervention calls for an etiological approach, designed to address and reduce known risk factors for a given condition.

The review has examined the leading theoretical models for body image disturbance and provided empirical support for each theory in respect to the adolescent population. Together, the above studies identify the importance of sociocultural sources of influence, including parents, peers and media. The research highlights the importance of considering the degree to which girls internalize these messages, and the extent to which they engage in appearance-based comparison. Further, the findings demonstrate how sociocultural influences not only provide messages, but also reinforce them via the mechanisms of appearance-based conversations, criticism and comparison. As such, when considering etiological prevention, it is clear that interventions comprising medial literacy skills, strategies to challenge internalization of the thin-ideal, and education regarding assistance to resist engaging in appearance-based conversation and appearance-based comparison are likely to be most beneficial in the promotion of positive body image.

The following chapter will review the research on preventative approaches, specifically, classroom -based body image prevention for adolescent girls.

**CHAPTER 2**

**STUDY 1: INITIAL REPLICATION OF DOVE CONFIDENT ME**

**OVERVIEW**

This chapter outlines Study 1, conducted in 2016. It provides an overview of the study, its methods and results, and concludes with a discussion of key findings.

The major objective of Study 1 was to independently investigate whether a selective Australian school-based body image program (*Happy Being Me*), remodeled for universal co-educational audiences in the United Kingdom (*Dove Confident Me*), remained an effective intervention when delivered by teachers to Year 8 girls attending a single-sex Australian school.

The following introduction expands upon the general literature review provided in Chapter 1 by examining the research on eating disorder prevention programs, and in particular, classroom-based body image programs. First, it explores the practicalities of prevention design, followed by an examination of the evidence on promising program approaches. The importance of independent replication, including ensuring that interventions are successfully adapted to suit real-life settings, is discussed, after which the *Dove Confident Me* (DCM) and *Happy Being Me* (HBM) programs, and their underpinning research trials, are introduced. The introduction will then highlight gaps in the research field and propose a number of research questions, before concluding with an outline of the current study, research aims and design.

**INTRODUCTION**

**Prevention Research**

Initial research regarding universal prevention for eating disorders was discouraging. While universal prevention encompasses all members of a population, selective prevention comprises only those individuals who manifest a risk of developing a specific condition (Gordon, 1983). In their

review of preadolescent body image prevention programs, Holt and Ricciardelli (2008) suggested that apart from improved knowledge, there was limited evidence that interventions effectively enhanced self-esteem or reduced body dissatisfaction, dieting or eating problems. Further, a 2010 *National Eating Disorder Collaboration* review of universal prevention for adolescents highlighted media literacy as the only intervention approach with demonstrated success (NEDC, 2017). As such, Neumark-Sztainer et al. (2006a) concluded that research in the field of universal prevention had not progressed at a comparable rate to that of selective prevention.

In contrast, the past decade has witnessed greater interest in prevention research, combined with effective implementation and evaluation of prevention approaches (Ciao et al., 2014; Schwartz et al., 2019). Alongside such interest, prevention approaches have progressed, as have delivery options and sample composition (Buerger et al., 2019; Diedrichs et al; 2015; Dunstan et al; 2017; Sharpe et al, 2013; Wilksch, 2015). To enable successful dissemination and ensure prevention programs are applicable to real-world replication, researchers have considered delivery by endogenous presenters and remodelled selective programs for universal and mixed-gender audiences (Diedrichs et al., 2020; Dunstan et al., 2017). Consequently, systematic reviews highlight a number of successful prevention approaches, including media literacy, cognitive behavioural, cognitive dissonance and healthy weight interventions (Ciao et al., 2014; NECD, 2017).

**Practicalities of Prevention Design**

Prevention research within the body image field has embraced various design options including delivery to both universal and selective populations, within and outside of the school setting, and delivery by experts, teachers, or via the internet. Despite research recommendations, when endeavouring to achieve wide-scale dissemination in real-life settings, the reality can involve juggling the competing demands of convenience versus requirements to ensure effectiveness. For example, not all schools have the resources to provide expert-delivered interventions to students, nor the capacity to replicate lab-based trials by providing weekly sessions to small groups of selective

students. As such, designing prevention programs suitable for endogenous delivery to universal co-educational classes is appealing.

However, while cost and time effective, one cannot assume that universal or selective body image prevention programs can be used interchangeably, including between single sex and co-educational settings. Heeding this warning, the following section considers the impacts of program design, specifically in relation to the gender of audience participants, school environment and teacher delivery.

*Gender of Sample*

**Mixed-gender Vs Single-sex**

Historically, the inclusion of males in body image interventions was discouraged due to concerns that males could inhibit contributions from females and prevent self-disclosure (Phelps et al., 1999). A review of 16 school-based body image programs for adolescents completed by Yager et al. (2013) found no mixed-gender school-based intervention to be successful in improving body image outcomes for both girls and boys. On the other hand, programs that specifically targeted either girls or boys did demonstrate effectiveness. Accordingly, the authors recommended delivery of single-sex programs, tailored to gendered appearance-ideals and developmental differences between boys and girls (Yager et al., 2013). Further supporting the appropriateness of single-sex programs, girls experience different body ideals and sociocultural pressures compared to boys (Tatangelo & Ricciardelli, 2013), with boys typically desiring strength and muscularity, while girls favour slimness (Cafri et al., 2005; Ricciardelle et al., 2003). In fact, gendered ideals regarding body image have been reported to be evident in children from the age of 8 years (Ricciardelli et al., 2003; Tatangelo & Ricciardelli, 2013).

When delivering selective interventions to mixed-gender audiences, researchers have acknowledged the need to modify programs to accommodate the differences between body-ideals for girls and boys (Dunstan et al., 2017). For example, Holt and Ricciardelli (2008) suggest that

interventions include specific information regarding sociocultural pressure and muscular-ideal for boys, if the intent is to impact boys, alongside girls. McCabe et al. (2017) provided a unique illustration of acknowledging the gender differences in appearance-ideal. Their study involved delivery of an intervention in a co-educational school by offering separate gender specific programs for girls and boys. Both genders had significantly higher muscle esteem at the post-intervention and recap session, and higher body esteem at the recap, with no changes regarding perceived pressure from peers, parents or media (McCabe et al., 2017). By resisting traversing both genders within the intervention, the researchers in this study provided a customized program suitable for both genders.

In contrast, Agam-Bitton et al. (2018) suggest the superiority of mixed-gender compared with single-sex groups for universal prevention programs. Their study, evaluating a universal wellness program with a sample of Israeli adolescents separated into girls-only, mixed-gender and control group, reported significant improvements in body image outcomes for girls in the mixed-gender group only (Agam-Bitton et al., 2018). Further, 91% of girls in the mixed-gender group rated the program as "*good*" or "*excellent*" compared with 79% of the girls in the girls-only group. However, upon closer examination, it could be argued that the outcomes may have been affected by the fact that the girls assigned to the girls-only group did not enjoy the experience as much as girls in the mixed-gender group did. The boys from the classes assigned to the girls-only condition participated in a game activity, while the girls participated in the intervention, so it is possible these girls resented doing the intervention due to feeling something was wrong with them or preferring to be outside of the classroom and playing, as their male classmates were.

**Mixed-gender Intervention Outcomes for Males**

Emerging literature offers contradictory findings regarding the benefits to males of mixed-gender participation in body-image interventions. A study by Kilpela et al. (2016) comparing the *Body Project* intervention with female-only, mixed-gender and a waitlist control group, reported positive improvements in male college students. A similar study by Verzikl (2018) demonstrated that adolescent boys reported improvements in the mixed-gender group and not the male-only group

following participation in the *Body Project High School* program. Further, media literacy

interventions with mixed-gender samples have proved successful in reducing over-evaluation of shape

and weight for boys (Wilksch & Wade, 2009). Thus, Espinoza et al. (2012) suggests there is value in

including boys in media literacy programs alongside girls. However, additional studies report boys

participating in mixed-gender interventions demonstrate either no change (Golan et al., 2014) or

experience significantly higher weight related teasing post-intervention (Atkinson et al., 2017;

Wilksch et al., 2015). In the Agam-Bitton et al. (2018) study, there were no outcomes evaluated for

boys. Yet a previous evaluation of the same intervention with a mixed-gender sample indicated

improvements in self-esteem and body image for girls, but no change in boys (Golan et al., 2014).

**Mixed-gender Intervention Outcomes for Females**

Examination of the impact of mixed-gender participation on females reveals similarly

conflicting results. Whereas the male college students reported positive improvements in the Kilpela

et al. (2016) study, females in both the mixed-gender and female-only groups failed to demonstrate

improvements compared to the control group. Given substantial previous success of the *Body Project*

with females, these results proved surprising. The authors suggested inclusion of males likely reduced

the perspective of social injustice in females, as well as dampened female's willingness to talk

(Kilpela et al., 2016). Further, the researchers speculated that inclusion of males in the intervention

reduced the opportunities for vicarious dissonance for women. Firstly, by inhibiting women's desire

to talk during the intervention and secondly by male group members' counter-attitudinal behaviors

failing to resonate with women (Kilpela et al., 2016). In contrast, adolescent girls in both single-sex

and mixed-gender groups reported improved body satisfaction following participation in the *Body

Project High School* study (Verzikl, 2018). However, similar to Kilpela et al. (2016) girls in neither

group reported the usual reductions in thin-ideal internalization following participation in the *Body

Project*.

The above research suggests selective interventions require modification in order to be effective for mixed-gender audiences. As such, one may consider whether universal interventions similarly require modification in order to be as effective with single-sex, selective populations.

*School Environment*

Pre-existing literature demonstrates that school environment plays a role in a number of adolescent risk behaviours, including exposure to and prevalence of tobacco, alcohol and illicit substance use (Kumar et al., 2002; O'Malley et al., 2006), and increased rates of depression (Goodman et al., 2003). Further, a mismatch between student faith and school denomination is reportedly associated with a student being two to four times more likely to engage in self-harm or attempt suicide (Young et al., 2011). It is suggested that school environment intensifies wider cultural beliefs regarding the importance of beauty and thinness via the formation of appearance cultures that in turn contribute toward the development of body image concerns (Hutchinson & Rapee, 2007; Jones et al., 2004; Paxton et al., 1999). Thus, the school environment is pertinent to body image development, and as such questions arise with respect to whether appearance-related pressures differ between single-sex and co-educational schools. If so, specifically tailored prevention and intervention programs would be best delivered to single and mixed-gender schools independently.

**Girls' Schools and Appearance Cultures**

Given its gender composition, a girls' school offers many opportunities to engage in appearance-based conversations and make body comparisons (Spencer et al., 2013), both of which have been identified as contributors to the development of body dissatisfaction (Jones et al., 2004; Myers & Crowther 2009; Webb & Zimmer-Gembeck, 2013). Furthermore, within the single-sex school, appearance cultures and similarities among female friendship cliques may operate in a way that emphasize appearance related pressures for girls educated in these environments (Carey et al., 2011; Hutchinson & Rapee, 2007; Paxton et al, 1999). Although, limited to one school, Carey et al. (2011) found a pervasive and prominent appearance culture existed within an all-girls' school. The

Western ideals regarding thinness and beauty were absorbed into the peer culture of this school and expressed by appearance conversations, group dieting and compliance with weight standards. Girls within friendship cliques at both single-sex and co-educational schools have been reported to share similar levels of body image concern, dieting restraint and the use of extreme weight loss behaviours (Hutchinson & Rapee, 2007; Paxton et al, 1999). However, when Carey et al. (2013) compared friendship cliques between girls attending both a single-sex and co-educational school, they reported that only the cliques in the single-sex school shared similar levels of body image concerns and dieting behaviours, providing support for the suggestion that the gender composition of a single-sex girls' school may influence the development of appearance cultures.

**School Type and Body Image Findings**

Previous research suggested that girls educated in single-sex compared to co-educational schools report concerning levels of body dissatisfaction (Davey et al., 2011; Dyer & Tiggemann, 1996; Granleese & Joseph, 1993). In their comparison of Year 11 girls attending a co-educational school with girls attending a single-sex school, Dyer and Tiggemann (1996) found girls attending the single sex-school weighed less, yet reported greater body dissatisfaction and a higher drive for thinness compared to their co-educational peers. Yet, attempts to replicate this finding with both adolescent girls (Tiggemann, 2001) and university-aged women (Spencer et al., 2013) have not proved successful. More recently, Chongwatpol and Gates (2016) reported that Thai male and females from single-sex schools were at greater risk of developing body dissatisfaction and reported higher body dissatisfaction than those in mixed-gender schools. In addition, an examination of young women in Sweden, found that a girl was more likely to develop an eating disorder if she attended a school with a higher proportion of girls, or a higher proportion of highly educated parents (Bould et al., 2016). However, this study utilised data from patients who had sought treatment for eating disorders and as such, the authors cautioned that educated parents may be better at identifying eating disorders and be more likely to seek intervention for their daughters (Bould et al., 2016). In contrast, a study of UK students found no evidence to suggest that body dissatisfaction was related to school type for 14-

year-old girls (Bould et al., 2018). However, the same study reported that in 16-year-old girls, higher rates of disordered eating behaviours was associated with attending a single-sex girl school, and a school with lower academic achievement (Bould et al., 2018). Consequently, the researchers concluded that an academic school environment might prove protective against disordered eating behaviours.

Attending a single-sex school may be associated with positive outcomes in the body image domain. There is, for example, research to suggest that this environment may buffer the impacts of internalization on self-esteem (Cribb & Haase, 2016). Further, there is evidence to suggest that mixed-gender school environments contribute to body image issues in adolescent girls, due to their emphasis on the importance of thinness in regards to attractiveness and popularity with boys (Gondoli et al., 2011; Paxton et al., 2005; Wertheim et al., 1997). Gondoli et al. (2011) identified that a girl's level of involvement with boys while in Year 6 predicted her degree of perceived peer pressure to be thin when in Year 7, which in turn predicted her level of body dissatisfaction in Year 8. Yet, the above findings have been challenged by Delfabbro et al. (2011), who concluded that the differences between single-sex and co-educational schools is minor. This Australian study failed to find that school type moderated the relationship between body dissatisfaction and self-esteem for adolescent girls. Rather, the authors concluded both single and mixed-gender schools reported similar levels of body dissatisfaction. Yet, the study did find that students from single-sex schools were more likely to consider themselves overweight compared to those from co-educational schools. According to Delfabbro et al. (2011) extroversion, close friends, and greater family support were the factors associated with better body image outcomes. Similarly, a large US study with over 18,000 students by Austin et al. (2103) reported that the variation between schools in disordered weight control behaviours is due to individual student differences rather than type of school. The researchers suggested that peer relationships likely proved more influential on eating disorder symptoms, particularly of girls, than did type of school (Austin et al., 2013).

**Characteristics of Girls' Schools**

Notwithstanding the findings reported above, girls' schools boast unique characteristics. Girls attending single-sex schools have been shown to place greater emphasis on intelligence and professional success, compared to girls attending co-educational schools (Tiggemann, 2001). Paradoxically, there is evidence that an emphasis on intelligence and achievement may be associated with body dissatisfaction and a desire for thinness (Dyer & Tiggemann, 1996; Tiggemann, 2001). Furthermore, conflicting gender role messages, where girls are encouraged to maintain traditional feminine values regarding appearance while pursuing non-traditional academic ambition have been considered risk factors for disordered eating (Messinger et al., 2007; Steiner-Adir, 1986). While girls in receipt of conflicted gender messages have been identified in both single-sex and co-educational schools (Messinger et al., 2007), such messages are considered more apparent in single-sex girls schools (Drury et al., 2012; Messinger, 2001, 2005). Interestingly, Charles (2010) explored the constructions of girlhood and femininity amongst young women attending an elite, single-sex, private school in Australia. She found that while these elite-school girls possessed a need to be successful in education and work, they also felt the importance of looking attractive and sexy. In demonstration of the existence of conflicting gender roles, these students embodied self-determination, responsibility and hard work, alongside the desire to look "hot" at the same time (Charles, 2010).

The above studies suggest that school environment can influence the development and maintenance of body image concerns. These findings provide support for the idea that prevention design should remain cognizant of both the school environment and the school gender. As such, the question emerges whether interventions that have demonstrated effectiveness for students in a co-educational school will be as effective for in a single-sex school.

*Teacher Delivery of School-based Interventions*

Regardless of environment, the school context offers a valuable opportunity to engage in prevention and early-intervention strategies for a plethora of pertinent social and emotional issues (Tully, 2007). Nonetheless, as the expectations on schools to teach social and emotional skills

increases, space within school timetables narrows. Schools, therefore, are seeking to adopt brief, but effective, body image programs that can be readily incorporated into timetables and delivered by classroom teachers. However, due to the uniqueness of the classroom setting, it must not be assumed that programs will be as effective when delivered in this environment, as they are elsewhere (Yager, et al, 2013). Further, those programs that have proved effective may be cumbersome for schools. A review of 16 universal school-base body image programs revealed that half of the programs required six or more sessions for completion, seven needed an hour or more to deliver each session, and only four programs were delivered by school staff (Yager et al., 2013). Obtaining six hours within the crowded timetable of most schools to cover one topic can prove challenging.

Predominantly, school-based programs have been trialed with expert-led delivery (e.g., researchers or psychologists) (Richardson & Paxton, 2010; Sundgot-Borgen et al., 2019; Wilksch & Wade, 2009) and this can prove a barrier to sustainable and widespread dissemination. As such, delivery approaches need to extend beyond the commonly used specialist-led model (Raviola et al., 2019). One strategy involves task-sharing or task-shifting from external 'expert' to other professional. Task-shifting the delivery of social and emotional early intervention programs from expert to teachers has been successfully achieved for a range of school-based programs. A meta-analysis of 213 universal social and emotional learning programs concluded that classroom teachers could effectively deliver such programs (Durlak et al., 2011). An example is the universal early intervention program *FRIENDS* (Barret, 2005). Research has demonstrated that teacher delivery of *FRIENDS* produced comparable reductions in anxiety and depression to that achieved when delivered by a trained clinical research team (Lowry-Webster et al., 2001), suggesting that effective teacher delivery of social and emotional programs, including those involving promotion of body image, is possible.

**Prevention and Early Intervention Approaches**

Systematic and meta-analytic reviews have shown that the most promising approaches for selective audiences are multi-sessional, interactive and etiological (Ciao et al., 2014; Schwartza et al.,

2019; Stice & Shaw, 2004; Yager et al, 2013). The inclusion of psychoeducation about eating disorders, or sharing personal experiences, is not advised (Ciao et al., 2014; Yager et al, 2013). Many different approaches to prevention and early intervention of body image issues and eating disorders have been trialed with adolescents. A brief overview of the most promising prevention and early-intervention approaches follows, including cognitive-behavioural, cognitive dissonance, mindfulness and media literacy interventions.

### Cognitive-Behavioural Approaches

Recognized for its effectiveness with a number of social and emotional concerns, the cognitive-behavioural approach has been widely adopted in adolescent populations both as an individual (Oar et al., 2017) and a group (Keles & Idsoe, 2019) based intervention. In regard to the promotion of positive body image, one UK study evaluated the cognitive-behavioural approach with a sample of Year 9 girls. The program, when delivered by researchers, successfully reduced dietary restraint, eating pathology and weight/shape concerns (Stewart et al., 2001). However not all outcomes were maintained at the 6-month follow-up (Stewart et al., 2001). While a more recent meta-analytic review of stand-alone body image interventions identified support for cognitive-behavioural techniques, few of the studies included in the review involved adolescents (Alleva et al., 2015a), yet this was likely due to the strict eligibility criteria including randomized-control design, pre-test- post-test measure and body image being the central focus.

### Cognitive Dissonance Approaches

Cognitive dissonance (Festinger, 1957), an approach demonstrating considerable success in university-age, selective populations, has been adapted and is showing promise with the adolescent population. The approach centers on creating a feeling of dissonance within participants by asking them to engage in counter attitudinal activities, such as challenging the thin-ideal (Stice et al., 2001b). The Body Project, a 3-session cognitive dissonance based program, was found to significantly reduce thin-ideal internalization, body dissatisfaction, dieting, negative affect and eating disorder pathology

when delivered by research staff to older adolescent girls (17-years) with pre-existing body dissatisfaction (Stice et al., 2006). Further, a 2-3-year follow-up indicated a reduction in eating disorder pathology (Stice et al., 2008). Demonstrating success with a universal sample of younger girls was a brief school-based cognitive dissonance program that reduced body dissatisfaction and internalization of the thin-ideal in girls aged 12-13-years (Halliwell & Diedrichs, 2014). However, as with the cognitive-behavioural and mindfulness approaches, this study involved delivery by experts. While The *Body Project* has demonstrated success when delivered by non-experts (peers, college counsellors, nurses, teachers), the optimal structure has been described as eight participants and two facilitators (Stice et al., 2012) and as such, may hinder wide-scale dissemination in schools.

### Mindfulness-based Approaches

While gaining momentum, mindfulness-based interventions for eating disorder prevention in adolescent populations have shown mixed results. Mindfulness involves developing awareness through the deliberate practice of paying attention in a non-judgmental way, to the present moment (Kabat-Zinn, 2013). An evaluation of a 3-session mindfulness intervention reported reductions in weight/shape concerns, dietary restraint, thin-ideal internalization, eating disorder symptoms and psychosocial impairment in adolescent girls when delivered by an expert facilitator (Atkinson & Wade, 2015). However, a separate study incorporating a mindfulness-based exercise into a universal body image prevention program reported no improvement in weight/shape concerns and significantly poorer outcomes compared to controls on eating concerns and perceived pressure to be thin (Wilksch et al., 2015). Researchers in the later study suggested that the mindfulness eating activity may have inadvertently invited focus on eating behaviours (due to the attention drawn to it), and thus increased participants reported eating concerns. Moreover, best practice cautions that teaching mindfulness successfully involves teachers embodying and practicing the mindfulness practice themselves (Albrecht et al., 2012). Thus, the feasibility of incorporating mindfulness approaches effectively into classroom-based body image interventions requires further investigation.

*Media Literacy Approaches*

Media literacy regards understanding the media's focus on the appearance ideal, and developing skills to critically evaluate messages received by the media (Silverblatt, 2001). Wilksch and Wade's (2009) trial of *Media Smart*, supports the merit of media literacy as an effective school-based universal approach with adolescents. In their study, Year 8 students reported significant improvements following the media literacy intervention, maintained up to 2.5 years, in weight/shape concerns, dieting, body dissatisfaction, feelings of ineffectiveness and depression (Wilksch & Wade, 2009). While researchers delivered the intervention, teacher-led trials of *Media Smart* have demonstrated significant improvements in weight-related peer teasing, but not weight/shape concerns (Wilksch, 2015). A further study comparing *Media Smart* with two other interventions (*Life Smart* and HELPP) reported at one year follow-up that girls participating in *Media Smart* had half the rate of concerns about weight/shape compared to girls in the control group (Wilksch et al., 2015). Notably, however, *Media Smart* also contains components addressing peer interactions and thus it is not clear which components contributed to the positive effect.

In further support of a media literacy approach, a universal school-based media-literacy program delivered to Spanish adolescents, revealed significant improvements in eating attitudes and behaviours (Raich et al., 2008). Researchers delivered the program, trialed with/without a nutritional component, and both versions produced significant reductions in perceived pressure to be thin and improved eating attitudes in girls, regardless of the presence or absence of eating disorder risk factors at baseline (Raich et al., 2010). Further, the intervention was reported to reduce eating disorder pathology, aesthetic body-ideal and body problems, while improving body satisfaction, for both boys and girls up to a 30-month follow-up (Espinoza et al., 2012; González et al., 2011). Thus, media literacy is a school-based approach possessing considerable support.

In light of the likely role of sociocultural pressures to attain appearance ideals, especially pressures from media, described in theoretical models in Chapter 1, media literacy emerges as a logical prevention approach. Yet, while media literacy interventions have offered impressive results

(Le, Barendregt et al., 2017; Watson et al., 2016; Wilksch & Wade, 2009; Yager et al, 2013), evidence exists that internalization of the thin-ideal and appearance-based comparison mediate the relationship between sociocultural influences and body dissatisfaction (Rodgers et al., 2014). Therefore, researchers have proposed interventions extend beyond media literacy to target not just the source of sociocultural influence, but also the degree to which girls internalize messages and engage in social comparison (Durkin et al., 2007; McLean et al., 2013). Thus, programs including media literacy, as well as education and strategies aimed at reducing the additional risk factors of thin-ideal internalization, appearance-based comments, criticisms and comparisons, have been advised. One such program is *Dove Confident Me*.

**Development of Dove Confident Me**

Established in 2004, the *Dove Self-Esteem Project* is a global education initiative by the *Unilever* brand, Dove, aiming to improve the self-esteem of girls and women. The project develops resources for girls, parents and schools and widely disseminates them on their website. Dove asserts to have reached 20 million young people across 139 countries worldwide and claims to be the biggest provider of self-esteem education of its kind (Unilever, 2021). Initially, Dove produced the *BodyThink* program that was widely disseminated in the UK and Australia (Eating Disorders Association & Lever Faberge Limited, 2006). However, an independent research evaluation indicated that the program had minimal impact on the body image of young girls and boys (Richardson et al., 2009). Thus, in 2013, researchers from the *Centre for Appearance Research* at the University of Western England started working with the *Dove Self Esteem Project* to improve effectiveness of the resources they were disseminating, including by looking at the effectiveness of other programs.

A review of body image programs in secondary schools (Yager, et al, 2013) found that *Happy Being Me* (HBM) (Richardson, et al, 2007), a 3-session, etiologically driven classroom-based intervention program developed by researchers at La Trobe University in Australia, demonstrated the most promising results for girls. Incorporating etiological theory, the program focuses on reducing

known causal risk factors for body dissatisfaction including internalization of the thin-ideal, body comparison, appearance-focused conversations and appearance related teasing. In addition, the program incorporates a self-esteem component. As such, the researchers working with Dove selected HBM and remodeled it to suit both boys and girls between 11-13 years of age. The creators of DCM adopted a community-participation approach utlising input from the HBM authors, adolescents, teachers and educational experts to alter the HBM program into DCM. The changes to HBM included adding content relevant for boys (e.g. video scenarios in a male locker room, appearance ideals for males) and content relating to contemporary adolescent media consumption (Diedrichs et al., 2021). The new program, titled *Dove Confident Me* (DCM), comprised two versions, a 90 minute single-session intervention (*Dove Confident Me –Single Session*), and a 5-session intervention (*Dove Confident Me*). Both interventions focus on targeting the same risk factors, and incorporate activities similar to the original HBM, but DCM has a co-educational focus, and has been updated to appeal to adolescents in 2016. The 5-session intervention, targets recognised risk factors for body dissatisfaction, including appearance ideals, media literacy, appearance-based comparisons, and appearance-based conversations/teasing, and promote 'body activism'. The program consists of a detailed teacher manual, classroom-based discussion, small group activities, worksheets, power point slides and videos.

### *Happy Being Me Research Trials*

Richardson and Paxton (2010) evaluated HBM with Grade 7 girls attending two separate secondary schools in Australia. Delivered by the researchers, the intervention took place in the classroom setting, and results were compared against a control group. Girls in the intervention group reported significant decreases in body dissatisfaction, internalization of the thin-ideal, body comparison, appearance conversations and dietary restraint, alongside significant improvements in body satisfaction, topic knowledge and self-esteem, compared to a control group at both post-intervention and 3-month follow up (Richardson & Paxton, 2010). No significant differences in appearance-related teasing or bulimic symptoms were reported.

Further refined, HBM was trialed in the UK with a preadolescent co-educational sample (Bird et al., 2013). Children aged 10-11-years from two primary schools participated in the program presented by the researcher. Results indicated significant improvements in body satisfaction and topic knowledge, and significant decreases in body comparison, appearance conversations, restrained eating and emotional eating, for the intervention group of girls immediately post-intervention. There were no improvements found regarding internalization of appearance-ideal, self-esteem or appearance-related teasing. At the 3-month follow-up, only improved body satisfaction was maintained. For boys, significant improvements in internalization of appearance-ideal and appearance comparisons were found post-intervention, yet neither of these findings were sustained at the 3-month follow-up.

Wilksch et al. (2015) evaluated an expanded version of HBM (HELPP) with Year 7 and 8 girls in predominantly mixed-gender settings (10 co-educational schools and 2 single-sex girls' schools). Results indicated no improvement in shape/weight concerns against controls, and significantly poorer outcomes compared to controls on eating concerns and perceived pressure to be thin (Wilksch et al., 2015). However, more recently, Dunstan et al. (2017) evaluated a 6-session version of HBM specifically modified for co-educational audiences (HBM Co-ed). The researchers compared Year 7 girls in single-sex groups and mixed-gender groups. Results indicated that girls in both the co-ed and single-sex groups demonstrated significant improvements compared to the control group in body dissatisfaction, internalization of the thin-ideal, appearance comparison, and self-esteem, with but body dissatisfaction being maintained at the 6-month follow-up (Dunstan et al., 2017). As with previous trials of HBM, the intervention was delivered by researchers.

### *Dove Confident Me – Single Session Research Trial*

The impact of *Dove Confident Me – Single Session* was evaluated in the UK with a large sample (n=1707) of 11-13-year old boys and girls who were assigned to either a control group, intervention-researcher led or intervention-teacher led condition (Diedrichs et al., 2015). The researchers aimed to investigate whether *Dove Confident Me- Single Session* improved body image in both boys and girls, and if teacher delivery was comparable to expert delivery (Diedrichs et al., 2015).

At immediate post-intervention, significant improvements were reported for girls in both intervention groups (teacher and researcher delivery) for body esteem and dietary restraint, compared to the control group. Further, both genders across the two intervention groups reported significant improvements in negative affect, eating disorder symptoms, and life engagement compared to the control group. However, none of these results were maintained at follow up (7-weeks), indicating that the single-session intervention may result in short-term benefits only. Further, there were no improvements in body satisfaction, internalization of the thin-ideal, appearance comparison, appearance conversations/teasing or self-esteem, as there had been with the previous trials of the HBM program before it was remodeled into DCM (Bird et al., 2013; Richardson & Paxton, 2010). The researchers concluded that multi-session interventions provide the most substantial and sustained benefits, and that teacher delivery of that program was comparable to expert delivery (Diedrichs et al, 2015).

### *Dove Confident Me- 5 Session Research Trials*

The 5-session *Dove Confident Me* program was evaluated with a co-educational sample of students 11-13-years in the UK (Diedrichs et al, 2020). Students from six schools were randomised to receive either the 5-session intervention delivered once per week by teachers, or to a control group comprising of lessons as usual. Results indicated significant improvements for the co-educational sample in body-esteem at post-intervention, maintained to 2-month and 6-month follow up. Further, frequency of appearance-related teasing was significantly reduced for girls at 6-month, and 12-month. The authors suggested that the outcomes support the feasibility of task-shifting body image interventions to teachers, thus providing a viable route to dissemination on a large scale (Diedrichs et al, 2020).

Subsequent studies examining DCM report mixed findings, including an independent replication with a co-educational sample in Portugal (Torres et al., 2018), a UK cluster randomized trial of three interventions including DCM (Atkinson, 2020), and a second study in Portugal examining gender and year-level effects on DCM outcomes (Torres et al., 2021). Torres et al.'s

(2018) independent replication with a co-educational sample of 11-14-yr olds reported significant improvements in body esteem and positive affect in girls, and reduced internalization of athletic ideal in boys, while both genders demonstrated improved affectivity and disordered eating at post-test compared to a control group. However, the intervention group also reported a significant increase in appearance-based talk at post-test, while the remaining variables did not change (Torres et al., 2018). A follow-up study by Torres et al. (2021) examining gender and year-level differences on DCM, reported that while most variables improved, self-esteem was the only one to reach significance. Further, the improvements were mainly evident in the Year 7 and Year 9 cohorts, while the results for Year 8 declined (Torres et al., 2021). A UK study examining three teacher-led universal interventions (DCM, cognitive dissonance and mindfulness) with a large sample of Year students (13-14-years) reported no improvement in any of the measurement outcomes for any of the interventions at post-test or at 6 and 12-month follow-up (Atkinson, 2021). Floor effects, inadequate teacher training and inconsistent delivery between multiple schools has been suggested as possible explanations for the modest findings (Atkinson, 2021; Torres et al., 2021; Torres et al., 2018)

**Summary**

The above studies suggest that multi-session interventions provide the most substantial and sustained improvements in participant body image. Examining the HBM multi-session trials, the Richardson and Paxton (2010) and Dunstan et al. (2017) studies report greater outcomes for female participants following participation in the HBM and HBM-Coed programs. These girls reported significant improvements in multiple body image outcomes, which were sustained to the 6-month follow-up for internalization of the thin-ideal, appearance comparison and self-esteem (Dunstan et al., 2017). While the 5-session DCM program, delivered to co-educational populations, has reported significant improvements in body esteem (Torres et al., 2018) maintained to 6-months (Diedrichs et al., 2020), significantly reduced appearance-related teasing in girls maintained to 12-months (Diedrichs et al., 2020), and significantly improved self-esteem (Torres et a., 2021), affectivity and

disordered eating (Torres et al., 2018) in both genders. Conversely, Atkinson (2021) reported no significant outcomes following examination of the 5-Session DCM program with Year 9 students. Further, the positive outcomes reported by Bird et al. (2013), using the original HBM with a co-ed population of UK primary school children, did not demonstrate sustained improvements, with the exception of body satisfaction, at the 3-month follow-up.  In addition, there were no improvements in body image following an evaluation of an expanded version of HBM with girls in predominantly mixed-gender settings (Wilksch et al., 2015).

It is important to note that the above trials involved different versions of the original selective HBM program. Further, the interventions were delivered to participants in different countries, at both secondary and primary schools, and involving single-sex and co-educational samples. Thus, comparing findings between the studies must be done with caution, and it is impossible to draw any firm conclusion on conflicting findings. These findings, however, raise questions about the impact age and country may have on outcomes and highlight the complexities involved when using selective and universal programs interchangeably. The following section further examines the research trials in order to reveal gaps within the field and guide identification of the final research questions.

**Gaps in the Research Field**

*Evaluating Universal and Selective Programs with Selective and Universal Populations*

While there are clear benefits to modifying body image interventions suitable for delivery to mixed-gender audiences, one must be mindful of mitigating the positive outcomes that selective programs have demonstrated. Originally, HBM was a selective intervention designed for adolescent girls, who are considered a high-risk group for body image concerns (Richardson & Paxton, 2010). With the exception of Dunstan et al. (2017), independent replication and modified trials of the HBM program have not produced the same degree of success as the initial study (Bird et al., 2013; Wilksch et al., 2015). This suggests that HBM is of most benefit when delivered to selective populations and that universal and selective interventions are not necessarily interchangeable. Further, it is consistent

with Richardson and Paxton's (2010) caution that while there are advantages in developing programs for co-educational populations, making interventions more suitable for boys may result in reduced effectiveness for girls.

Following their evaluation, Dunstan et al. (2017) concluded that the modified program (HBM-Coed), delivered by experts, was an effective intervention for girls in mixed-gender samples, while remaining effective for girls in the single-sex context. However, DCM is yet to be evaluated with a selective group of adolescent girls. As such, it is not yet clear whether a single-sex girl's school environment will affect the efficacy of this co-educational universal intervention. Given, the program has shown promise, and many girl's schools will likely be attracted to body-image interventions, DCM is expected to appeal to a number of single-sex girl's schools in Australia. Therefore, evaluating the effectiveness of this program in a number of real-life settings, including a single-sex girl's school, is essential.

### *Researcher Delivery vs Teacher Delivery*

Brief, effective body image programs appropriate for easy integration into schools are lacking. Thus, the appeal of DCM is its brevity, in addition to its materials. Five sessions, able to be delivered by teaching staff, with the necessary resources, including facilitator manual, student presentation and worksheets that are readily available and free, is an appealing proposition to most schools. To date research is mixed regarding the success of endogenous delivery of body image programs within schools. A randomized controlled study by Sharpe et al. (2013) with adolescent girls in the UK, reported that teacher delivery of school-based body image interventions had positive impacts on students body esteem. However, other teacher-led studies have failed to demonstrate positive improvements on student's body image (Ghaderi et al., 2005; McVey et al., 2007; Phelps et al., 2000).

As yet, HBM has not been evaluated with teacher delivery. In contrast, the single session DCM program has been shown to be delivered effectively, and produce better results, by teachers compared to researchers (Diedrichs et al., 2015). Yet, the superior results achieved by teacher delivery

compared with researchers were only evident immediate post-intervention and were not maintained at the follow-up (Diedrichs et al, 2015). Torres et al.'s (2018) independent replication of DCM delivered by teachers demonstrated positive results in a number of body image factors. However, Atkinson (2021) found minimal intervention effects following teaching delivery of DCM. Recently, Diedrichs et al.'s (2020) examination of the 5-session DCM program reported the longest sustained improvements in body image outcomes for students following a school-based program delivered by teachers. This study involved a universal co-educational sample from the UK, thus while there is evidence supporting the use of teachers as facilitators of DCM, further research is warranted.

### *Independent Replication Prior to Wide-scale Dissemination.*

To date, the effectiveness of DCM has not been examined outside of the UK or Portugal. It is often assumed that individuals in one Western country will respond to an intervention in a similar way to those in another Western country. However, cross-cultural research reveals a range of differences in psychological constructs between cultures that may affect the way that people respond to intervention materials (Gattario et al., 2015). Thus, it is necessary to evaluate the impact DCM has on Australian adolescents, rather than assuming that they will be directly comparable to the results obtained in the Europe.

Wilksch (2014) suggested that researchers should work with corporations to provide high quality evaluations of prevention programs prior to wide-scale dissemination. Given Dove is a global company, in possession of significant marketing dollars and an established brand, global dissemination of the DCM is likely. Thus, it is critical that the effectiveness of DCM is determined through independent replication in diverse real-life settings utilizing endogenous facilitators.

### *Independent Replication*

Dissemination has been described as the 'ultimate endpoint of the research process whereby effective interventions are sustainably implemented in real-world settings' (Marchand et al., 2011, *p*33). Yet, an examination of prevention research suggests that effective dissemination is complex.

While crucial, identifying risk factors and designing an etiologically based intervention is only the first step. Given the influence of audience, facilitator and environment, one could argue that unless an appropriate facilitator, within the recommended environment, can deliver the intervention in the prescribed way, to the relevant audience, the effectiveness of the intervention remains at the mercy of the design. Further, one can reasonably assume that school-based programs, especially those delivered by teachers, are vulnerable to some form of variation due to the realities school life, highlighting the importance of rigorous evaluation of programs employing various designs.

Schmidt (2016) has highlighted the importance of independent replication to confirm evidence within the empirical sciences. However, researchers have described a scarcity of replication, specifically within eating disorder prevention programs (Becker & Stice, 2017; Ioannidis et al., 2014). In support of thorough evaluation of intervention programs, Wilksch's (2014) "call-to-action", criticized research into universal prevention, and suggested energy be directed towards methodical and comprehensive evaluations of existing programs, rather than developing new interventions. Wilksch further suggested that future directions for universal research include independent replication, evaluation in different countries, and effectiveness trials with endogenous program presenters (Wilksch, 2014). Ciao et al. (2014) who support rigorous, large, well-controlled, randomized trials to assess efficacy for eating disorder prevention, have echoed Wilksch's sentiments and suggest that researchers focus on continued evaluation of programs under real-world conditions. Marchand et al. (2011) further propose that rigorous scientific evaluation is crucial to engage funding agencies, community stakeholders and participants in adopting and promoting prevention programs.

The current study therefore seeks to contribute to the field by focusing on one classroom-based body image intervention program and evaluating it under diverse conditions. Specifically, the research will conduct an independent replication of the universal classroom-based program *Dove Confident Me*, delivered by teachers, to a selective population of Australian adolescent girls. Further, the study endeavors to provide insights into the implications of traversing country, culture and gender with wide-scale disseminated universal prevention programs.

**The Current Study**

Body dissatisfaction is a significant issue with severe consequences (Bornioli et al., 2019; Bucchianeri et al., 2016; Dakanalis et al., 2016; Goldschmidt et al., 2016). Prevention and early intervention approaches are crucial and must be grounded in evidence to ensure effectiveness. Key risk factors to be targeted in intervention programs include media literacy, thin-ideal internalization, appearance-based conversation, criticism and comparison (Durkin et al., 2007; McLean et al., 2013; Wilksch & Wade, 2009; Yager, et al, 2013). One intervention that aims to target these risk factors is *Dove Confident Me*. Successful wide-scale dissemination requires rigorous and repeated evaluation of existing programs under diverse conditions in order to determine intervention robustness. As *Dove* intends this program to be disseminated worldwide, it is critical that the effectiveness of DCM is determined through independent replication in locations in which it will be disseminated. Accordingly, this project offers to contribute critical information towards this unique and worthy endeavor. As previously discussed, one must not assume that selective programs are suitable for universal samples or vice versa. As DCM was developed for a universal co-education population in the UK, the current study aims to examine whether the program will be as effective when delivered to a selected population of adolescent girls attending an Australian single-sex girls' school. One of the barriers to wide-scale dissemination of evidence-based programs is the lack of specialized human resources. As such, delivery by endogenous facilitators, such as teachers, is a solution. The present study will add to the mounting research investigating whether school-based programs are suitable for delivery by teaching staff as opposed to researchers.

This current study will evaluate the school-based body image intervention DCM, adopting a quasi-experimental research design. Teachers will deliver the program to Year 8 students attending an independent girls' school in Australia. The control group will include Year 8 adolescent girls attending a similar separate independent girls' school.

*Research Aims*

The research aims are to-

1. Evaluate the effectiveness of the universal school-based body image program *Dove Confident Me* delivered by teachers to a selective population of Year 8 girls attending an independent girls' school in Australia, in improving participants' body-esteem, body appreciation, internalization of thin-ideal, perceived sociocultural pressures, social comparison, appearance conversations, appearance teasing, self-esteem, dietary restraint, negative affect, life engagement and future plans.

2. Examine participant acceptability and feedback on DCM regarding their ratings of enjoyment, helpfulness, comfortableness and importance of program.

3. Examine teacher feedback on DCM regarding delivery, training, resources and perception of student engagement.

*Hypotheses*

1. Hypothesis 1 – At post-intervention, Year 8 girls participating in DCM, compared to Year 8 girls who did not participate, will report significant increases in body-esteem, body appreciation, self-esteem and future plans alongside a significant decrease in internalization of thin-ideal, negative affect, perceived pressure, social comparison, appearance-based conversations, appearance-based teasing, barriers to life engagement and dietary restraint.

2. Hypothesis 2- These improvements will be maintained at 3-month follow-up.

**METHOD**

**Design**

The project employed a quasi-experimental research design to conduct a pragmatic, controlled replication of the DCM program with Year 8 girls attending an independent girls' secondary school in Australia. As our intention was to replicate within the girls-only setting, but in a

real-life environment, we adopted non-random allocation with separate control schools. The intervention school was the independent girls' school where the researcher is employed as a school psychologist. A control group comprising Year 8 students from three other, comparable girls' schools was used for this study.  In order to match the size of the Year 8 cohort ($n$=198) at the intervention school, three Year 8 cohorts at separate independent girls' schools combined to form the control group ($n$= 208). Using students from different schools is recommended as it minimises flow-on effects between the two groups (Richardson & Paxton, 2010). This research design has been used with many other school-based interventions (Graeff-Martins et al, 2008; Richardson et al, 2009; Richardson & Paxton, 2010), including the DCM research trials that the current study is replicating (Diedrichs et al, 2015; Diedrichs et al., 2020).

At times, and in this case, research conducted in real-life settings does not allow randomization to condition. As DCM was trialed with the entire Year 8 cohort at the intervention school, and the program was delivered within pre-existing timetabled classes, it was not feasible to randomly allocate participants to either the intervention or control group. Systematic reviews have indicated minimal difference between effect sizes when comparing trials involving randomized allocation or not (Stice et al.,2006). Therefore, a non-randomised trial is considered to be appropriate for the current study. Teachers in pastoral care classes delivered the DCM program to students fortnightly. The teachers delivering the program held a significant pastoral care role within the school and had experience delivering social and emotional programs. Endogenous providers were used because this is what occurred in the original trial that the current study is replicating (Diedrichs et al 2020). Given the high costs and lack of availability of experts, researchers have supported the use of endogenous facilitators within the community (Olmstead et al., 2011). However, while there is evidence to suggest DCM can effectively be delivered by teachers (Diedrichs et al 2015; Diedrichs et al., 2020) other teacher-led studies have failed to demonstrate positive improvements on student's body image (Ghaderi et al., 2005; McVey et al., 2007; Phelps et al., 2000). Thus, more research is needed to support this approach.

**Participants**

Participants were Year 8 students (*n*= 406) attending one of four independent girls' schools in Queensland, Australia.  All participants were aged 12-15-years. Year 8 students were chosen as it is advised that body image interventions be implemented prior to the development of eating disorders (Paxton, 1993; Wilksch, 2014), which usually develop between 14-15-years (Stice & Van Ryzin, 2019). Participants attended either the intervention school or one of three control schools.

**Procedure**

*Recruitment*

The intervention was delivered to Year 8 students in the school where the researcher is employed as a School Psychologist. After obtaining Victoria University ethical approval (HRE16-088), the School Principal was approached for authorisation of the intervention and data collection and approval was obtained. To recruit the control schools, principals of nine independent schools in South East Queensland were sent the *Principal Information Sheet* (Appendix A), with three agreeing to participate. At their request, the researcher provided a presentation to Year 8 cohorts at two of the control schools after the data collection period.

*Consent*

Following consent from principals, passive informed consent was sought from each student and her parent/guardian prior to student completion of research questionnaires. Passive consent was requested by the principal from the intervention school to avoid any confusion among participants or parents due to the schools' involvement in other research projects throughout the year (that had adopted passive consent), as well as to reduce administrative burden on staff and parents. The Victoria University Human Research Ethics Committee (HRE16-088) approved this request.

At each school, parents and students were emailed an invitation to participate in the research from a senior member of the school staff (e.g. Principal, Deputy Principal, Head of Wellbeing, Year 8 Coordinator). The email outlined the research project and provided *Participant* and *Parent*

*Information Sheets* as well as links to contact the researcher to ask any questions (Appendix B).

Parents were asked to contact the school if they wished to withdraw consent for their daughter's

participation in the research project. Students were advised via the *Participant Information Sheet,*

instructions provided by the teacher at data collection, and at the start of each survey, that their

participation was voluntary and that they could withdraw at any time. In addition, the survey included

the question "*Do you wish to continue with the survey*" at commencement and students were required

to select "*yes or no*". Skip logic was embedded within the survey to redirect those who selected "*no*"

to the end of the survey. At each data collection time point the above process was followed and

students were advised they could withdraw from the project at any time, even if they had already

completed one or more of the previous surveys.

In the intervention school, all Year 8 students participated in the DCM program regardless of

whether they consented to participate in the research project as DCM had been incorporated into the

pastoral care program for Term 4, 2016. However, questionnaires were provided only to students who

had not opted-out of the research project prior to data collection. One student opted out of the project

prior to data collection. This student was in one of the control schools and she did not receive the link

to the survey. Other students opted out during the data collection by answering "*no*" to the question at

the commencement of the survey "*Do you wish to continue with this survey*", (*n*=5) or by not

completing the survey. Other students who were absent from school at the time of data collection did

not complete surveys on the days where data collection took place.

### *Data Collection*

All surveys were completed at school on-line using students' own devices. Surveys were

created and delivered via Qualtrics survey software and data matching took place via two

mechanisms. Each school provided the researcher with a list of de-identified student email addresses.

An ID code was assigned to each email address to identify condition. Email addresses were then

uploaded to the Qualtrics software system and a link to access the survey was sent to each student,

except for students who had not consented to participate. At the start of each survey, participants were

also asked to create a unique code using their names, birth date and eye colour to enable survey

matching across each data collection period. All student responses to the survey were anonymized via

the Qualtrics system and participants were identified via an anonymous code.

During Term 4, 2016, the intervention group completed the Time 1 survey (pre-test- T1)

between 4-8 days prior to delivery of Session 1 of the DCM program. The control groups completed

the Time 1 (T1) survey at the start of Term 4, depending upon availability and scheduled lessons. The

intervention group completed all three surveys during their morning rollcall classes, while two of the

control groups completed the pre-test survey as a cohort during a pastoral care lesson and the

remaining control group completed the pre-test survey in separate class groups during their pastoral

care lessons. The supervising teacher read out the instructions provided (Appendix C) and students

were asked to work quietly and independently. The survey took approximately 15 minutes to

complete. Table 2.1 outlines details regarding survey administration.

**Table 2.1.**

*Details of survey administration*

| Group | Supervisor | Context | Time 1 Term 4 | Time 2 Term 4 | No of weeks between T1- T2 | Time 3 Term 1 2017 | No of weeks between T2- T3 |
|---|---|---|---|---|---|---|---|
| Intervention | Teacher | Roll Call Class | Week 1 | Week 9 | 8 | Week 7 | 16 |
| Control A | Researcher & Teacher | Cohort Pastoral Care Lesson | Week 1 | Week 9 | 8 | Week 5 | 13 |
| Control B | Researcher & Teacher | Cohort Pastoral Care Lesson | Week 2 | Week 8 | 6 | Week 5 | 14 |
| Control C | Teacher | Separate Pastoral Care Lesson | Week 2 | Week 7 | 5 | Week 5 | 15 |

Post-test surveys were completed in the same manner as described above, with the exception

of the intervention group. For the post-test survey, the intervention group completed the survey during

a pastoral care lesson, rather than during their morning roll call class. The post-test survey included

additional questions regarding whether the student had spoken to a counsellor, or participated in any

body image interventions since pre-test. The intervention group was also asked questions about their

impressions of the DCM program. Three-month follow up data collection occurred the following year

in 2017, when students entered Year 9. Supervising teachers were asked to consult the same

instructions used for Time 1 and Time 2 data collection.

*Measures*

As this study was designed as a replication of the Diedrichs et al. (2020) study, the same measures

were utilized. Aside from two measures constructed specifically for Diedrichs et al. (2020) all scales

were standardized and have been validated and widely used with adolescents. Table 2.2 outlines the

measures used including internal consistencies on each measure for the current sample.

**Table 2.2.**

*Self-report scales used in study and cronbach's alpha for current sample*

| Outcome | Measures/Scales | Cronbach's alphas |
|---|---|---|
| Participant characteristics | Self-reported age, country of birth, language other than English spoken at home. | |
| *Body Image* | | |
| Body esteem | **Body Esteem Scale for Adolescents & Adults** (Mendelson et al., 2001), Weight and appearance subscales combined, 18 items, mean score, range 1-5 | .95 |
| Body appreciation | **Body Appreciation Scale** (Avalos et al., 2005). 8 items, mean score, range 1-5 | .95 |
| *Risk factors* | | |
| Internalization of appearance ideals | **Sociocultural Attitudes Towards Appearance Questionnaire-3** (Thompson et al., 2004), General internalization subscale, 8 items, mean score, range 1-5. | .95 |
| Sociocultural pressures | Purpose-built measure derived from existing scales of sociocultural pressures (Stice & Bearman, 2001a; Thompson et al., 2004), 12 items, mean score, range 1-5. | .90 |

| Social comparisons | **Social Comparison to Models and Peers Scale** (Jones, 2001), 8 items, mean score, range 1-5. | .89 |
| Appearance teasing | **Project EAT-III Teasing Scale** (Neumark-Sztainer et al., 2007) adapted to assess frequency & degree of upset, 4 items, mean score, range 1-5. | .77 |
| Appearance conversations | Appearance conversations with friends subscale of the culture among friends **Appearance Conversation Scale** (Jones et al, 2004), 5 items, mean score, range 1-5. | .89 |
| *Psychosocial & disordered eating related measures* | | |
| Negative affect | **Negative affect subscale** (Ebesutani et al., 2012), 10 items, mean score, range 1-5. | .88 |
| Self-esteem | **Rosenberg Self-esteem Scale** shortened (Neumark-Sztainer et al., 2007; Rosenberg, 1965), 6 items, mean score, range 1-4. | .82 |
| Dietary restraint | **Dutch Eating Behaviour Questionnaire**, (van Strien et al., 1986), Restraint subscale, 10 items, mean score, range 1-5. | .94 |
| Life engagement | Purpose-built measure (Diedrichs et al, 2015), 10 items, mean, score range 1-4. | .87 |
| Future plans | Purpose-built measure (Diedrichs 2020a), 7 items, mean score, range 1-5. | .82 |

**Participant characteristics**. Self-reported age, country of birth and language other than English spoken at home was asked at baseline. Body mass index (BMI) was not requested, as it was considered too confronting for participants and expected to reduce the number of students willing to participate. Further, as this was a replication study, BMI was not included as it was not analysed in previous trials of DCM due to less than 9% of girls self-reporting their weight and height (Diedrichs et al., 2015). Details of the standardized scales used are provided below.

**Body esteem**. Two subscales of the *Body Esteem Scale* (Mendelson, et al., 2001), appearance and weight satisfaction, were used to assess body esteem. In this study the appearance and weight subscales were combined to create an 18-item scale evaluating appearance and weight satisfaction ("*I like what I look like in photos, I am happy with my weight"*). The items were rated from 1 = *never* to 5 = *always* and averaged with negatively phrased items being reverse coded. Higher scores reflected greater body esteem. This scale has been used in previous research with children and adolescents. It has been found to be both valid and reliable (Diedrichs et al., 2015; Diedrichs et al, 2020; McCabe et

al., 2017; Mendelson et al., 2001), and had very good internal consistency in the current study (Cronbach's alpha =.95).

**Body appreciation.** A modified version of the *Body Appreciation Scale* (BAS: Avalos et al., 2005) was used to assess body appreciation. The modification was made to make to scale more suitable for adolescents (Diedrichs et al., 2015; Diedrichs, 2020a; Diedrichs et al., 2020) such that the final scale comprised 8-items measuring appreciation of one's body ("*I feel good about my body*"). The modification involved removal of five items, and minor wording changes. These changes were made prior to the publication of the BAS-2 (Tylka & Wood-Barcalow, 2015a), which was a modified version that has been validated with children 9-11 years (Halliwell et al., 2017). Participants responded to items on a Likert scale from 1 = *never* to 5 = *always*. Scores on the 8-items were averaged with higher scores reflecting greater body appreciation. Internal consistency in the current study was very good (Cronbach's alpha =.95).

**Internalization of the thin-ideal.** The internalization of the media ideal subscale of the *Sociocultural Attitudes Towards Appearance Questionnaire* (SATAQ: Thompson et al, 2004) was used to measure internalization of the thin-ideal. The 8-item scale asked participants how much they agreed with an internalization statement ("*I would like my body to look like the bodies who are on TV"*) on a scale from 1 = *totally disagree* to 5 = *totally agree*. Scores are averaged with higher scores reflecting greater internalization of the thin-ideal. Well established for use with adolescents, (Diedrichs et al., 2020; Diedrichs et al., 2015; McLean et al., 2013) internal consistency in the current study was very good (Cronbach's alpha =.95).

**Perceived sociocultural pressures on appearance**. The Perceived Sociocultural Pressures scale, constructed by Diedrichs et al. (2015) and used in previous trials of DCM, was derived from the existing scales of sociocultural pressures (Stice & Bearman, 2001a; Thompson et al., 2004). This scale assessed perceived pressure to lose weight, change body shape, or change appearance, from mother/friends/media. It also assessed feelings related to the perceived pressure. The scale includes 12-items and requested participants to rate how much pressure they felt from 1= *never* to 5 = *a lot*,

("*I've felt pressure to lose weight"),* as well as how upset they felt by this pressure ("*How upset are you by this pressure to lose weight?"*) 1 = *not upset* and 5 = *very upset*. Scores were averaged and higher scores indicated greater perceived pressure and increased feeling of upset. Previous research with children and adolescence has found this measure to have good internal consistency (Diedrichs et al., 2020; Diedrichs et al., 2016). Internal consistency in the current study was good (Cronbach's alpha =.90).

**Social comparison**. The *Social Comparison to Models and Peers Scale* (Jones, 2001) was used to measure comparisons about weight, body shape/build, face, and fashion sense/style to celebrities and people in the media, and peers. The scale includes 8-items ("*How often do you compare your face to….")* that participants rated 1 = *never* to 5 = *very often*. Scores were averaged with higher scores reflecting greater social comparison. Well established for use with adolescents (Carey et al., 2013; Carey et al., 2014; Diedrichs et al., 2015; Diedrichs et al., 2020) the internal consistency in the current study was good (Cronbach's alpha =.89).

**Appearance teasing.** Frequency of teasing regarding appearance, and degree of upset regarding teasing, during the past two weeks, was measured by the *Project EAT-III Teasing Scale* (Neumark-Sztainer et al., 2007). Adapted by Diedrichs et al. (2015), the scale contains 2-items measuring frequency of teasing ("*How often have you been teased about your weight or body shape?")* and 2-items assessing how upset one felt about the teasing ("*How upset did you feel by this teasing?"*). Participants rated 1 = *never/not upset* to 5 = *always/very upset.* Scores were averaged for frequency and impact separately, with higher scores reflecting greater frequency of teasing and increased impact (feeling upset). The scale has good reliability in adolescent samples (Diedrichs et al., 2020; Diedrichs et al., 2015; Goldschmidt et al., 2015) and internal consistency in the current study was good (Cronbach's alpha =.77).

**Appearance conversations**. The *Appearance Conversation Scale* (Jones et al, 2004) measures frequency of appearance related talk. The 5-item scale asked participants to rate items 1 = *never* to 5 = *very often* ("*My friends and I talk about how our bodies look in clothes"*). Scores were

averaged, with higher scores reflecting greater frequency of appearance related talk among peers. Used in previous research with adolescents (Carey et al., 2013; Diedrichs et al., 2015; Shroff & Thompson, 2006a) internal consistency in the current study was good (Cronbach's alpha =.89).

**Negative affect.** The *Negative Affect Subscale for Children* (Ebesutani et al., 2012) measures negative affect (e.g. *sad, miserable, afraid*) over the past 2 weeks. The 10-item scale asks participants to rate 1 = *not at all* to 5 =*very much*. Positively phrased items were reversed coded and higher averaged scores indicate greater negative affect. The scale has demonstrated good reliability with this age group (Diedrichs et al., 2020; Diedrichs et al., 2015) and internal consistency in the current study was good (Cronbach's alpha =.88).

**Self-esteem**. The *Rosenberg Self-esteem Scale* (Neumark-Sztainer et al., 2007; Rosenberg, 1965) measures participant's self-esteem. A shortened 6-item version asks participants to indicate how much they agreed with statements on a 4-point scale, 1 = *totally disagree* and 4 = *totally agree* ("*On the whole I am happy with myself"*). Negatively phrased items were reversed coded and higher averaged scores indicated greater self-esteem. The scale has been used in previous research with adolescents (Carey et al., 2013; Diedrichs et al., 2020; Shroff & Thompson, 2006a), and internal consistency in the current study was good (Cronbach's alpha =.82).

**Dietary restraint.** The Restraint subscale of the *Dutch Eating Behaviour Questionnaire* (van Strien et al., 1986) measures dieting behaviours. The 10-item scale asked participants to rate from 1 = *never* to 5 = *very often*, how much they engaged in certain dieting behaviours ("*When you have put on weight do you eat less than usual*?"). Higher mean scores indicated higher levels of dietary restraint. Scores on this scale have shown very good reliability with adolescents (Diedrichs et al., 2015; Rodgers et al., 2014; Bearman et al., 2006) and internal consistency in the current study was very good (Cronbach's alpha =.94).

**Life engagement**. The Life Engagement measure designed by Diedrichs et al. (2015) was used to assess the extent that worries, or feeling bad about the way you look, prevented one from engaging in life activities. The 10- item scale asked participants to rate how much they have stopped

engaging in a range of activities during the past fortnight (e.g. *going to a social event, doing physical activity, giving an opinion, going to school*) due to feeling bad about themselves, 1 = *hasn't stopped me at all* to 4 = *stopped me all the time.* Higher averaged scores reflected less life engagement. This scale has been used in previous research with adolescents (Diedrichs et al., 2020; Diedrichs et al., 2015) and internal consistency in the current study was very good (Cronbach's alpha =.87).

**Future plans.** The Future Plans measure designed by Diedrichs et al (personal communication February 18, 2016) was used to assess participants perceptions of their future plans. The 7-item measure asked participants to indicate how much they agreed with statements about their future ("*I can do and be whatever I want in the future"*), 1 = *strongly disagree* and 5 = *strongly agree* with statements. Higher averaged scores reflected more positive plans for the future. Internal consistency in the current study was very good (Cronbach's alpha =.82).

**Program acceptability & feedback.** A measure designed for this study was used to rate participants' impressions of the DCM program at post-test. Students were asked to rate their enjoyment of the sessions, how helpful, comfortable and important the sessions were, and how well the program was taught, on a scale from 1 = *not at all* to 5 = *very much.*  Scores were averaged and higher scores indicated feedback that is more positive. Participants were also offered an opportunity to provide written comments and suggestions regarding what they liked most about the lessons and what they liked the least about the lessons.

**Fidelity measures.** As the DCM lessons were taught across 10 separate classes at the same time it was not possible to observe each teacher deliver the program. Thus, teacher fidelity to program content was measured via self-report. At the end of each session, teachers were asked to complete a checklist indicating the elements that they covered, in addition to providing any comments and feedback about the session (Appendix D). At the conclusion of the program, teachers were further asked to complete an evaluation sheet surveying their opinion of the training program, the layout and structure of the DCM resources, and the appropriateness of the activities (Appendix E). Teachers were

also asked to report on any body image content activities occurring between post-intervention and the 3-month follow-up data collection.

**Program Implementation.**

The 5-session DCM intervention was delivered to students at the intervention school during Term 4, 2016. As this was a 9-week school term and the pastoral care lessons occurred fortnightly, at the intervention school, there were only four lessons available for program delivery – Week 2, 4, 6 and 8 of Term 4. Thus, sessions 4 and 5 of the program were shortened and combined. This shortening of the DCM program reflects the reality of conducting research in a real-life setting, such as a school, and is representative of the way in which schools are likely to deliver DCM in real life conditions. Ten separate teachers delivered the program to ten separate classes and all lessons were scheduled at the same time. The control group participated in their usual pastoral care lessons during Term 4. Teachers from all control schools confirmed that the pastoral care lessons did not include any body image content during the research period

Prior to delivering the program, at the end of Term 3, teachers were provided with two hours of training. The training comprised body image psycho-education and DCM lesson plan familiarization, as was provided to teachers in the *Dove Confident Me-Single Session* evaluation (Diedrichs et al, 2015). The researcher, who is employed as the School Psychologist at the intervention school, delivered the training.

**Intervention Program**

The intervention was the *Dove Confident Me* 5-session program (DCM). The program is available to the public via the *Dove* website *Teacher Resources* (Unilever, 2021). Due to having only four lessons available for delivery of the program, Session 4 and Session 5 were reduced and combined. The final lesson combined both Session 4 and 5 by removing two additional videos of "How do we use body talk" from Session 4 (particularly those relating to male scenario's e.g. boys in a change room), and by removing the final activity sheet "How can we change our world" from

Session 5. Table 2.3 outlines the session topics and content of each session of the original DCM program.

      Teachers had a DCM manual and prior to each session, the researcher provided each teacher with the media presentation and activity sheets. At the end of the session, teachers completed a fidelity checklist detailing how closely they followed the session content and identifying any issues that were apparent. The control group in control schools participated in their usual pastoral care lessons, which included school administrative information, study information and other social and emotional topics as planned by each individual school. The lessons did not involve any body image content during the research project. A similar approach has been adopted by researchers assessing school-based interventions elsewhere (Sharpe et al., 2013).

**Table 2.3.**

*Dove Confident Me: 5 Session program content overview*

| Session | Session Topic | Content |
|---|---|---|
| Session 1 | Appearance Ideals | Nature and consequences of appearance ideals<br><br>• What are appearance ideals?<br>• What is the impact of appearance related pressures?<br>• What makes us unique?<br>• Be a champion for change |
| Session 2 | Media Messages | Media literacy<br><br>• How can images be manipulated?<br>• What is the impact of these messages?<br>• Can you decode messages in advertising?<br>• Can you decode media messages?<br>• Be a champion for change |
| Session 3 | Confront Comparisons | Appearance-related social comparisons<br><br>• How do we compare ourselves?<br>• What is the impact of these comparisons?<br>• How do you confront comparisons?<br>• Can you catch yourself?<br>• How will you change your script?<br>• Be a champion for change |

| Session 4 | Banish Body Talk | Appearance-based conversations and teasing |
|---|---|---|

- What is body talk?
- How do we use body talk?
- What is the impact of body talk?
- How can we challenge body talk?
- Be a champion for change

| Session 5 | Be The Change | Body activism |
|---|---|---|

- What makes us unique?
- How can we celebrate individuality?
- ~~How can we change our world~~? (removed in this trial)
- ~~Take action together~~ (removed in this trial)
- Be a champion for change

*Note: Intervention materials can be viewed at www.dove.com/self.esteem*

## Data Analysis and Preparation

Initial data preparation and analyses were conducted using SPSS (Version 24). Descriptive analyses were used to screen for outliers and normality. Of the dependent variables, self-esteem, body-esteem, body satisfaction and internalization of thin-ideal were normally distributed. The remaining variables were positively skewed, with the exception of future plans, which was negatively skewed, thus square root transformations were applied to positively skewed variables and log transformations were applied to negatively skewed variables to improve normality. An analysis of intervention effects was conducted on both the transformed and untransformed data. Results are presented using transformed data.

Intervention effects were analysed using longitudinal mixed models (LMM). LMM was selected due to the model's four principal strengths: (1) accommodating missing data points often encountered in longitudinal datasets; (2) not requiring the same number of observations per subject; (3) allowing time to be continuous rather than fixed; and (4) increased flexibility regarding the covariance structure (Chakraborty & Gu, 2009). Furthermore, when dealing with large amounts of missing data (10-20%), LMM is considered a more precise approach than multiple imputation or expectation-maximization (EM) algorithm (Von Hippel, 2007).

Preliminary analyses were conducted to determine the most appropriate LMM for each outcome variable. Four different models were considered for best fit, including: (1) no random effects; (2) random effect intercept and slope; (3) random effect slope; and (4) random effect for intercept. The best model, according to Akaike Information Criterion (AIC), (Hastie et al., 2009) was the model with the random effect for intercept. Thus, intervention effects were analysed using a mixed effects model that predicted each outcome as a function of Group (intervention and control) and Time (pretest, post-test and three-month follow-up), and the interaction between Group x Time. The control group and the pretest measure were chosen as the reference category in order to compare the effects of intervention across time.

As this was a pragmatic replication study, participant numbers in the intervention group were determined by the number of students at the school who agreed to take part in the research. A control group of a similar size was sought from three other similar schools. Post Hoc power analyses was therefore calculated according to Twisk (2003) guidelines using the equation provided below, due to its suitability for both longitudinal and cluster randomization studies. The equation was embedded into an Excel document and sample size was calculated assuming a 1:1 ratio between the compared groups$_{(r)}$, moderate intra-individual correlation between repeated measures coefficient of 0.5$_{(p)}$, a small effect size of Cohen's d .2$_{(v)}$, a setting power of .80$_{(1-β)}$ and a significance criterion of .05$_{(α)}$. The calculations were guided by previous research using mixed models analysis (Albers et al., 2018; Diedrichs et al., 2020; Sharpe et al., 2018).

$$N = \frac{(Z(1-α/2) + Z(1-β))^2\, σ^2\, (r + 1)[1 + (T − 1)ρ]}{v^2 rT}$$

The current study included 406 participants (intervention group = 198, control group = 208) across four school clusters. The basic sample size required to detect significance of small effects at the 5% level was 294 students per group. To account for school level clustering, an inflation factor

based on a conservative intra-class correlation coefficient (ICC) of .01 was applied. This increased the minimal sample requirements to 300 students per group. Therefore, this study is underpowered to detect small effects, but well powered to detect moderate effects (Cohen's $d = .5$, $n = 47$).

Participant attendance at DCM sessions was measured by including an additional question on the post-test survey for intervention students. Students were asked to indicate whether they *did* or *did not* attended each of the four sessions of DCM. A percentage of the total participant attendance rate at each session is provided in Table 2.7 in the Results section to follow. Teacher fidelity to DCM program content was measured by asking teachers to complete a checklist at the end of each session. Table 2.10 provides details regarding teacher fidelity to program manual.

*Figure 2.1.*
*CONSORT diagram of recruitment and data collection*



**Recruitment**

Schools approached (n=10)

☐ Schools did not respond (n=3 )
☐ Schools declined to participate (n= 3)
☐ Schools agreed to participate (n= 4)

Schools non-randomized (n=4)

**Allocation**

Allocated to intervention (n= 198)
School (n= 1)
Year 8 classes (n= 10)

Allocated to Control (n=208)
School (n=3)
Year 8 classes

**Pre-test**

Pre-test (n=188, 95%)

Pre-test (n=203, 97%)

**Intervention**

Dove Confident Me Program

Classes as usual

**Post-test**

Analysed (n=180, 91%)

Analysed (n=172, 83%)

**3-mth follow-up**

Analysed (n=181, 91%)

Analysed (n=165, 79%)

**RESULTS**

**Characteristics of Participants**

        The initial sample involved 210 students in the intervention group and 222 students in the control group. Any student who did not attempt to complete any of the three surveys by either responding "*no*" at the start of the survey, leaving the survey blank, or not opening the survey link, was removed from the sample. This involved 12 students from the intervention group and 14 students from the control group, so the final sample consisted of 198 students in the intervention group and 208 students in the control group. Descriptive data was obtained at pre-test for 393 participants and is outlined below in Table 2.4. It was assumed that the students who did not complete the pre-test measure ($n$= 13), were absent from school on the day of data collection as these students completed the subsequent data collection measures. Two students, one from the control group and one from the intervention group, completed the descriptive questions on the T1 survey, but did not answer any other T1 survey questions. However, both students did complete T2 and T3 surveys, so their data was included in the analysis.

        Participants were aged between 12-15-years with an average age of 13.3-years ($SD$=.49). The majority of students spoke English at home (77.6%). Languages other than English spoken at home included Chinese (2%), Japanese (1.2%), Mandarin (1.2%), Indonesian (1%), Greek (1%), Vietnamese (.9%), Marathi (.7%), Urdu (.7%), Sinhala (.7%) and French (.7%). Overall, 21.7% of students were born in a country outside of Australia, including Asia (Japan, China, Hong Kong, Singapore, Malaysia, Vietnam) (4.4%), New Zealand (3.2%), the UK (2.9%), USA (.9%), PNG (.6%), South Africa (.5%), Russia (.5%), Brazil (.2%), Indonesia (.2%), Sudan (.2%), The Netherlands (.2%), Sri Lanka (.2 %), Poland (.2%), Pakistan (.2%), New Caledonia (.2%), Uganda (.2%) and Cook Islands (.2%).

**Table 2.4.**

**Baseline participant characteristics. Values are (n, %).**

|  |  | Intervention<br>n= 198 | Control<br>n= 208 | Total<br>n=406 |
|---|---|---|---|---|
| Age | 12yrs | 1 (0.5%) | 2(1%) | 3 (0.7%) |
|  | 13yrs | 133 (67.2%) | 127 (61.1%) | 260 (64.0%) |
|  | 14yrs | 55 (27.8%) | 74 (35.6%) | 129 (31.8%) |
|  | 15yrs | 0 | 1 (0.5%) | 1 (0.2%) |
| Born in Australia |  | 156 (78.7%) | 162 (77.8%) | 318 (78.3%) |
| Language other than English spoken at home |  | 32 (16.2%) | 42 (20.1.5%) | 91 (22.4%) |
| Missing data |  | 9 (5.1%) | 4 (1.9%) | 13 (3.4%) |

**Attrition**

As shown in Table 2.5, 3.7% of data were missing across the groups at pre-test. Missing data

at post-test was 13.3% (*n*= 54), which increased slightly to 14.78% (*n*=60) at the 3-month follow-up.

Missing data was due to students being absent from school on the day of assessment, or a student

deciding to not complete the survey. Missing data were examined using Little's Missing Completely

at Random test (MCAR; Little, 1988) and results indicated that the data were not missing at random,

*x2* (597) = 730.67, *p*=<.001. Closer inspection of the patterns of missing data revealed an increase in

missing data for those variables positioned towards the end of the questionnaire, in addition to more

missing data in the control group compared to intervention group. Between 17-22 participants failed

to complete either T2 or T3 survey within the intervention group and 36-43 students did not complete

the T2 or T3 surveys from the control group. Overall, only 14 students did not complete both T2 and

T3 (e.g. dropped out after baseline) with three being from the intervention group and the remaining 11

from the control group.

A series of independent t-tests of the baseline data identified that students who dropped out

after baseline reported significantly greater internalization of the thin ideal, perceived sociocultural

**Table 2.5.**

*Frequency of students completing data collection and attrition rates at each Time.*

|              | n   | Pre-Test      | Post-Test      | 3-Month Follow-Up |
|--------------|-----|---------------|----------------|-------------------|
| Intervention | 198 | 188 (5.06%)   | 180 (9.09%)    | 181 (8.59%)       |
| Control      | 208 | 203 (2.41%)   | 172 (17.31%)   | 165 (20.68%)      |
| Total        | 406 | 391 (3.7%)    | 352 (13.30%)   | 346 (14.78%)      |

pressures, social comparison, appearance-based talk, dietary restraint and barriers to life engagement, alongside significantly less self-esteem, body esteem and body satisfaction, compared to those students who proceeded with further data provision. An analysis of the intervention effects was conducted both including and excluding the students who dropped out after baseline. As there was no difference in any outcomes, results are presented using the included students who dropped out after baseline data.

**Attendance Rates for Intervention Program**

Table 2.6 provides details of the intervention group's attendance rates for each of the four DCM sessions. Over 94% of the intervention group attended each session.

**Table 2.6.**

*Participant attendance for each DCM session*

|                                  | Attended | Did Not Attend |
|----------------------------------|----------|----------------|
|                                  | %        | %              |
| Session 1: Appearance Ideals     | 95.58%   | 4.42%          |
| Session 2: Media Messages        | 95.03%   | 4.97%          |
| Session 3: Confront Comparisons  | 94.48%   | 5.52%          |
| Session 4: Banish Body Talk      | 94.48%   | 5.52%          |

**Baseline Comparison of Scores of Intervention and Control Groups**

Table 2.7 displays the means and standard deviations of untransformed data at pre-test, post-test and 3-month follow-up time for both the control and intervention group for each outcome variable. A series of independent t-tests found significant differences between the intervention and control groups at baseline on a number of variables. Specifically, the control group reported greater social comparison (*d*= .45), appearance-based talk (*d*=.38), sociocultural pressure (*d*=.32) and impairment in life engagement (*d*=.33) compared to the intervention group.

**Table 2.7**

*Means, standard deviation, minimum and maximum of outcome variables by Time and Group*

| | Intervention | | | | | Control | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | *n* | *M* | *SD* | *Min* | *Max* | *n* | *M* | *SD* | *Min* | *Max* | *t*(df)*p* |
| **Self esteem** | | | | | | | | | | | |
| Pre-test | 188 | 2.76 | .59 | 1.33 | 4.00 | 203 | 2.71 | .59 | 1.17 | 4.00 | .87(389),p=.05 |
| Post | 178 | 2.82 | .58 | 1.33 | 4.00 | 172 | 2.82 | .64 | 1.17 | 4.00 | |
| 3-mth | 181 | 2.88 | .59 | 1.50 | 4.00 | 165 | 2.83 | .63 | 1.00 | 4.00 | |
| **Body esteem** | | | | | | | | | | | |
| Pre-test | 188 | 3.31 | .88 | 1.11 | 4.94 | 201 | 3.14 | .96 | 1.06 | 5.00 | 1.74(387),p=.08 |
| Post | 178 | 3.35 | .85 | 1.17 | 5.00 | 170 | 3.29 | .95 | 1.00 | 5.00 | |
| 3-mth | 181 | 3.45 | .80 | 1.00 | 5.00 | 165 | 3.35 | .93 | 1.00 | 5.00 | |
| **Body appreciation** | | | | | | | | | | | |
| Pre-test | 187 | 3.61 | .84 | 1.63 | 5.00 | 197 | 3.51 | .89 | 1.75 | 5.00 | 1.13(382),p=.25 |
| Post | 178 | 3.62 | .85 | 1.38 | 5.00 | 168 | 3.64 | .90 | 1.38 | 5.00 | |
| 3-mth | 181 | 3.66 | .80 | 1.50 | 5.00 | 165 | 3.65 | .89 | 1.50 | 5.00 | |
| **Internalization** | | | | | | | | | | | |
| Pre-test | 188 | 2.75 | 1.18 | 1.00 | 5.00 | 203 | 2.98 | 1.10 | 1.00 | 5.00 | -1.95(389),p=.05 |
| Post | 179 | 2.59 | 1.18 | 1.00 | 5.00 | 172 | 2.81 | 1.15 | 1.00 | 5.00 | |
| 3-mth | 181 | 2.56 | 1.09 | 1.00 | 5.00 | 165 | 2.67 | 1.14 | 1.00 | 5.00 | |
| **Social comparison** | | | | | | | | | | | |
| Pre-test | 188 | 2.37 | .81 | 1.00 | 4.92 | 201 | 2.76 | .88 | 1.00 | 4.83 | -4.49(387),p<.01 |

| | N | Mean | SD | Min | Max | N | Mean | SD | Min | Max | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Post | 178 | 2.36 | .81 | 1.00 | 4.00 | 169 | 2.60 | .90 | 1.00 | 4.67 | |
| 3-mth | 181 | 2.33 | .83 | 1.00 | 5.00 | 165 | 2.49 | .96 | 1.00 | 5.00 | |
| **Appearance Teasing Frequency** | | | | | | | | | | | |
| Pre-test | 187 | 1.51 | .80 | 1.00 | 5.00 | 200 | 1.65 | .90 | 1.00 | 5.00 | -.21(116),$p$=.83 |
| Post | 180 | 1.52 | .83 | 1.00 | 5.00 | 171 | 1.56 | .86 | 1.00 | 5.00 | |
| 3-mth | 181 | 1.37 | .67 | 1.00 | 4.00 | 165 | 1.56 | .92 | 1.00 | 5.00 | |
| **Appearance Teasing Impact** | | | | | | | | | | | |
| Pre-test | 187 | 1.10 | 1.31 | 1.00 | 5.00 | 200 | 1.41 | 1.57 | .00 | 5.00 | -.06(115),$p$=.95 |
| Post | 180 | 1.29 | 1.52 | 1.00 | 5.00 | 171 | 1.26 | 1.45 | .00 | 5.00 | |
| 3-mth | 181 | .88 | 1.06 | 1.00 | 4.00 | 165 | 1.43 | 1.48 | .00 | 5.00 | |
| **Appearance talk** | | | | | | | | | | | |
| Pre-test | 187 | 2.00 | .98 | 1.00 | 5.00 | 197 | 2.39 | 1.04 | 1.00 | 5.00 | -3.76(382),p<.01 |
| Post | 178 | 2.07 | .97 | 1.00 | 5.00 | 168 | 2.37 | 1.09 | 1.00 | 5.00 | |
| 3-mth | 181 | 1.97 | .99 | 1.00 | 5.00 | 165 | 2.30 | 1.06 | 1.00 | 5.00 | |
| **Dietary restraint** | | | | | | | | | | | |
| Pre-test | 187 | 2.15 | 1.0 | 1.00 | 5.00 | 195 | 2.31 | 1.08 | 1.00 | 5.00 | -1.52(380),p=.12 |
| Post | 178 | 2.05 | .99 | 1.00 | 5.00 | 165 | 2.17 | 1.06 | 1.00 | 5.00 | |
| 3-mth | 181 | 1.90 | .87 | 1.00 | 4.80 | 165 | 2.21 | 1.11 | 1.00 | 5.00 | |
| **Perceived Sociocultural pressure** | | | | | | | | | | | |
| Pre-test | 187 | 1.91 | .86 | 1.00 | 4.50 | 200 | 2.22 | 1.04 | 1.00 | 4.83 | -3.22(379.5),p<.01 |
| Post | 178 | 1.99 | .91 | 1.00 | 4.75 | 168 | 2.07 | 1.02 | 1.00 | 4.67 | |
| 3-mth | 181 | 1.76 | .81 | 1.00 | 5.00 | 165 | 2.01 | 1.01 | 1.00 | 5.00 | |
| **Negative affect** | | | | | | | | | | | |
| Pre-test | 187 | 2.16 | .80 | 1.00 | 4.70 | 196 | 2.14 | .79 | 1.00 | 4.80 | .24(381),p=.80 |
| Post | 178 | 2.18 | .78 | 1.00 | 4.50 | 167 | 2.05 | .83 | 1.00 | 4.60 | |
| 3-mth | 181 | 2.24 | .78 | 1.00 | 5.00 | 165 | 2.09 | .81 | 1.00 | 4.30 | |
| **Life engagement** | | | | | | | | | | | |
| Pre-test | 187 | 1.31 | .45 | 1.00 | 3.20 | 195 | 1.48 | .55 | 1.00 | 3.60 | -3.33(372.1),p<.01 |
| Post | 178 | 1.33 | .52 | 1.00 | 3.30 | 165 | 1.44 | .61 | 1.00 | 4.00 | |
| 3-mth | 181 | 1.25 | .46 | 1.00 | 3.60 | 165 | 1.37 | .55 | 1.00 | 3.90 | |
| **Future plans** | | | | | | | | | | | |
| Pre-test | 186 | 4.36 | .66 | 1.57 | 5.00 | 192 | 4.32 | .70 | 1.57 | 5.00 | .44(376),p=.65 |
| Post | 176 | 4.34 | .76 | 1.57 | 5.00 | 163 | 4.38 | .68 | 1.57 | 5.00 | |
| 3-mth | 181 | 4.29 | .75 | 1.57 | 5.00 | 165 | 4.33 | .75 | 1.57 | 5.00 | |

**Effects of the Intervention**

*Body Image and Self-esteem*. As shown in Table 2.8, results indicated a significant change across Time for self-esteem, body-esteem and body appreciation. Specifically, self-esteem, body-esteem and body appreciation were significantly greater at post-test compared to pre-test for both the intervention and control groups. Further, at the 3-month follow up, self-esteem, body-esteem and body appreciation were also significantly greater, compared to pre-test, for both the intervention and control group. There was no significant change across Group for the body image or self-esteem outcome variables. The interaction between Time x Group was not significant for self-esteem, body-esteem or body appreciation, indicating that these variables did not improve in the intervention group in comparison to the control group.

**Table 2.8**

*Effects of Group on body image and self-esteem outcomes across Time*

| Predictors | Self-esteem | | | Body-esteem | | | Body appreciation | | |
|---|---|---|---|---|---|---|---|---|---|
| | $\beta$ | SE | $p$ | $\beta$ | SE | P2 | $\beta$ | SE | $p$ |
| Intercept | 2.71 | .04 | <.001 | 3.13 | .06 | <.001 | 3.49 | .06 | <.001 |
| Group (Treatment)[a] | .05 | .06 | .397 | .16 | .08 | .067 | .10 | .08 | .223 |
| Time (Post)[b] | .11 | .03 | <.05 | .12 | .04 | <.05 | .11 | .05 | <.05 |
| Time (Follow-up)[b] | .10 | .03 | <.05 | .17 | .04 | <.001 | .12 | .05 | <.05 |
| Group x Time (Treatment x Post)[ab] | -.05 | .04 | .242 | -.08 | .06 | .160 | -.09 | .07 | .185 |
| Group x Time (Treatment x Follow-up)[ab] | .01 | .05 | .946 | -.02 | .06 | .672 | -.06 | .07 | .369 |
| Random effect for intercept (Variance) | .25 | .02 | | .62 | .04 | | .52 | .04 | |

*Note: Reference category[a] = Control, Reference category[b] = Pre-Test*

*Risk Factors, Life Engagement & Future Plans*. As shown in Table 2.9, at baseline, the intervention group reported significantly less internalization, social comparison, sociocultural pressure, appearance-based talk and barriers to life engagement compared to the control group. Results indicated a significant change across Time for internalization, sociocultural pressure, social comparison, dietary restraint and life engagement. Specifically, internalization, sociocultural pressure,

**Table 2.9**

*Effects of Group on risk factors, life engagement & future plans across Time*

| Predictors | Internalization | | | Social comparison | | | Sociocultural pressure | | |
|---|---|---|---|---|---|---|---|---|---|
| | $\beta$ | SE | $p$ | $\beta$ | SE | $p$ | $\beta$ | SE | $p$ |
| Intercept | 2.99 | .07 | <.001 | 1.64 | .01 | <.001 | 1.45 | .02 | <.001 |
| Group (Treatment)[a] | -.22 | .11 | <.05 | -.11 | .02 | <.001 | -.10 | .03 | <.05 |
| Time (Post)[b] | -.13 | .06 | <.05 | -.04 | .01 | <.05 | -.04 | .02 | <.05 |
| Time (Follow-up)[b] | -.25 | .06 | <.001 | -.08 | .01 | <.001 | -.06 | .02 | <.001 |
| Group x Time (Treatment x Post)[ab] | -.04 | .09 | .663 | .04 | .02 | .082 | .07 | .02 | <.05 |
| Group x Time (Treatment x Follow-up)[ab] | .05 | .09 | .546 | .06 | .02 | <.05 | .01 | .02 | .636 |
| Random effect for intercept (Variance) | .90 | .07 | | .05 | .01 | | .07 | .01 | |

| Predictors | Appearance talk | | | Teasing-Frequency | | | Teasing-Impact | | |
|---|---|---|---|---|---|---|---|---|---|
| | $\beta$ | SE | $p$ | $\beta$ | SE | $p$ | $\beta$ | SE | $p$ |
| Intercept | 1.51 | .02 | <.001 | .16 | .01 | <.001 | .25 | .02 | <.001 |
| Group (Treatment)[a] | -.13 | .03 | <.001 | -.03 | .02 | .079 | -.06 | .03 | .088 |
| Time (Post)[b] | -.01 | .02 | .790 | -.01 | .01 | .291 | -.02 | .03 | .557 |
| Time (Follow-up)[b] | -.01 | .02 | .400 | -.02 | .01 | .083 | -.01 | .03 | .599 |
| Group x Time (Treatment x Post)[ab] | .02 | .03 | .388 | .01 | .02 | .386 | .06 | .04 | .106 |
| Group x Time (Treatment x Follow-up)[ab] | .00 | .03 | .909 | -.00 | .02 | 758 | -.06 | .04 | .130 |
| Random effect for intercept (Variance) | .07 | .01 | | .02 | .01 | | .03 | .01 | |

| Predictors | Negative affect | | | Life engagement | | | Future plans | | |
|---|---|---|---|---|---|---|---|---|---|
| | $\beta$ | SE | $p$ | $\beta$ | SE | $p$ | $\beta$ | SE | $p$ |
| Intercept | 1.44 | .02 | <.001 | 1.20 | .01 | <.001 | .19 | .01 | <.001 |
| Group (Treatment)[a] | .01 | .02 | .826 | -.06 | .02 | <.001 | -.01 | .02 | .817 |
| Time (Post)[b] | -.03 | .02 | .079 | -.01 | .01 | .252 | -.01 | .01 | .545 |
| Time (Follow-up)[b] | -.01 | .02 | .407 | -.04 | .01 | <.001 | -.01 | .01 | .666 |
| Group x Time (Treatment x Post)[ab] | .03 | .02 | .180 | .02 | .02 | .311 | .01 | .02 | .934 |
| Group x Time (Treatment x Follow-up)[ab] | .04 | .02 | .083 | .02 | .02 | .297 | .02 | .02 | .390 |
| Random effect for intercept (Variance) | .05 | .01 | | .03 | .01 | | .02 | .01 | |

| Predictors | Dietary restraint | | |
|---|---|---|---|
| | $\beta$ | SE | $p$ |
| Intercept | 1.49 | .02 | <.001 |
| Group (Treatment)[a] | -.06 | .03 | .067 |
| Time (Post)[b] | -.04 | .02 | <.05 |
| Time (Follow-up)[b] | -.05 | .02 | <.05 |
| Group x Time (Treatment x Post)[ab] | .01 | .02 | .709 |
| Group x Time (Treatment x Follow-up)[ab] | -.02 | .02 | .391 |
| Random effect for intercept (Variance) | .07 | .01 | |

*Note: Reference category[a] = Control, Reference category[b] = Pre-Test*

social comparison and dietary restraint were significantly lower at post-test compared to pre-test for both the intervention and control group. Further, internalization, sociocultural pressure, social comparison and dietary restraint were also significantly lower at the 3-month follow-up compared to pre-test across both groups. There was also a significant change across Time for life engagement. At the 3-month follow-up, barriers to life engagement had significantly decreased across both groups compared to pre-test. There was a significant Time x Group interaction for social comparison and perceived sociocultural pressure. Compared to the control group, students in the intervention group reported significantly greater levels of sociocultural pressure at post-test compared to pre-test ($d$ =.30). Further, compared to the control group, students in the intervention group reported significantly less reduction in social comparison at 3-month follow-up compared to pre-test ($d$ =.20). There were no significant Time, Group, or Time x Group interactions for future plans, negative affect or appearance-based teasing frequency/impact.

**Fidelity**

Table 2.10 provides details of teacher fidelity ratings. At least six out of 10 teachers returned the fidelity checklists for each session. Those checklists that were returned indicated that most of the session content was covered with the exception of Session 5. In the final session, one teacher did not tick any boxes for Session 5, however it is not clear whether this is due to not understanding this checklist was on the other side of the page, or whether she did not have time to cover any of the content.

**Table 2.10**

*Teacher fidelity ratings*

| Session | Responses returned | Return % | Completion of Session Content |
|---|---|---|---|
| 1 | 6 | 60% | 60-100% |
| 2 | 7 | 70% | 85-100% |
| 3 | 6 | 60% | 100% |
| 4/5 | 6 | 60% | Session 4- 100% |

**Program Feedback**

*Student Feedback – Acceptability*

Table 2.11 and Figure 2.2, provide the acceptability ratings obtained at Time 2 from the

intervention group (*n*=181) in regards to level of enjoyment, helpfulness, comfortableness and

importance of the DCM program, in addition to how well it was taught. Participants rated moderate to

high acceptability regarding comfort (*M* = 3.15, *SD* = 1.41) and teacher effectiveness (*M* = 3.10, *SD* =

1.40), moderate acceptability in regards to importance (*M* = 2.91, *SD* = 1.41), and low to moderate

acceptability regarding enjoyment (*M* = 2.22, *SD* = 1.14) and helpfulness (*M* = 1.90, *SD* = 1.14) of the

DCM intervention.

**Table 2.11**

*Intervention group acceptability ratings for DCM program (1-5)*

|  | Not at all | A little | Some | Much | Very Much | M | SD |
|---|---|---|---|---|---|---|---|
| How much did you enjoy these lessons? | 33.15% | 31.49% | 19.89% | 11.60% | 3.87% | 2.22 | 1.14 |
| How much did the lessons help you to feel better about yourself? | 51.38% | 21.55% | 16.57% | 6.63% | 3.87% | 1.90 | 1.14 |
| How comfortable did you feel taking part? | 19.34% | 12.15% | 24.86% | 20.99% | 22.65% | 3.15 | 1.41 |
| How well were the lessons taught by your teacher? | 16.57% | 19.34% | 24.31% | 16.57% | 23.20% | 3.10 | 1.40 |
| How important do you think it is for young people to take part in lessons like these? | 22.10% | 19.89% | 20.99% | 18.78% | 18.23% | 2.91 | 1.41 |

*Note: n=181*

*Figure 2.2*
*Student acceptability ratings.*
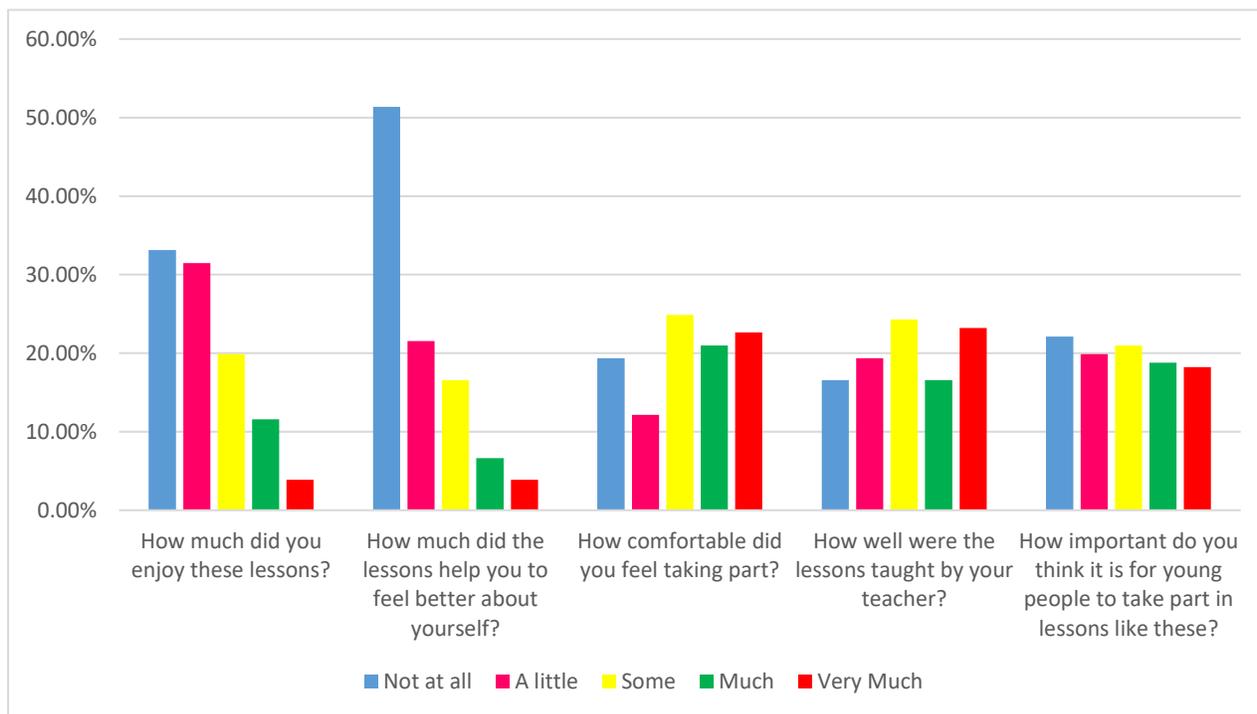


### Student Feedback – Liked most/least

Table 2.12 and Table 2.13 provide details of a thematic analysis performed on the feedback comments provided by participants at Time 2 from the intervention group. Participants were asked what they liked the "most" and what they liked the "least" about the DCM program. As suggested by Nowell et al. (2017) the thematic analysis began by reading the raw data a number of times in order to become fully familiar with it, before being coded and subsequently combined into a number of themes. The process followed was recommended by Nowel et al (2017) to enhance trustworthiness of the data.

**Table 2.12**

*Intervention group feedback "What did you like most about the DCM program"*

| | n | % | Example comments |
|---|---|---|---|
| Left blank | 41 | 21% | |
| Nothing | 25 | 13% | *"Nothing"* |
| **Program** | | | |
| Activities | 7 | 4% | *Group activities and watching videos.* |
| | | | *The role plays.* |
| | | | *Examples of real life situations.* |
| | | | *I also liked the lessons where we would act out scenarios because it showed a fun and interactive way of understanding the concepts.* |
| Videos | 28 | 14% | *I liked the videos they showed in the class because I believe that some of them directly related to students in some ways.* |
| | | | *The videos we watched were very interesting.* |
| | | | *The videos were also cool and interesting* |
| | | | *That we watched videos showing different scenarios. These were helpful as sometimes it is easier to see how the situation pans out.* |
| | | | *We got to watch short videos and do interactive things.* |
| Interaction/ sharing /discussion | 37 | 19% | *How open everyone was to discussion instead of the teacher talking all the time.* |
| | | | *Knowing that everyone is in the same boat and there are lots of teenagers that feel the same way as I do and have the same views. Also knowing that I am not being judged and I am around people who care about me.* |
| | | | *I liked that the opinions of others can always be voiced. In our class, we had controversy and everyone had a chance to give an opinion on the lesson, topic or conflict.* |
| | | | *That we could talk about how we thought on the topic and were able to speak our minds and our opinions.* |
| | | | *They were helpful to hear if other girls had the same problems as you.* |
| | | | *Learning about how others feel and what you say can affect them.* |
| | | | *The group work or talking to a partner.* |
| **Learnt** | | | |
| Media literacy | 6 | 3% | *We got to see how much effort really goes into a poster advertising something for example. The amount of behind the scenes makeup, hair, lighting and photoshop that is done is astounding.* |
| | | | *It showed us what people look like before and after a photoshoot* |

| | | | |
|---|---|---|---|
| | | | *and it showed us what people think about themselves.* |
| Comparisons | 6 | 3% | *They taught us that we don't need to compare ourselves to other people in magazines etc. because no one is perfect and even models and movie stars take ages to perfect along with changes on photoshop.* |
| Acceptance | 9 | 5% | *They showed that you should just be yourself.* |
| | | | *That they showed that you are beautiful just the way you are.* |
| Information/strategies | 13 | 7% | *I liked the different aspects of the lessons, the different tactics they used to teach us* |
| | | | *I liked the way that it addressed the issues. The program did not "sugar coat" what some people think of themselves* |
| | | | *The program also highlighted that some girls or boys feel obliged to look or do certain things.* |
| | | | *That the topics that I don't like to talk about are being confronted* |
| | | | *Good to learn something unique and that is a big issue for some people in the world* |
| Improved self-confidence | 3 | 2% | *That they encourage you to think right about yourself, and disregard others that bring you down.* |
| | | | *Confidence building.* |

**Delivery & Experience**

| | | | |
|---|---|---|---|
| Teacher | 7 | 4% | *An enjoyable teacher that is easy to talk to.* |
| | | | *We had a good teacher* |
| | | | *How fun my teacher made it but also made it serious at the same time* |
| Relaxing | 18 | 9% | *That it was very relaxed and a comforting environment.* |
| | | | *That it was chill and we didn't actually have to do work.* |
| | | | *That they were a break from the other subjects which we actually did work in. (it was really chill).* |
| | | | *They were really relaxing.* |
| | | | *It was more relaxed than other lessons and my teacher was really good and nice.* |
| | | | *The lessons themselves were pretty relaxing.* |
| Fun/enjoyable | 7 | 4% | *Fun activities.* |
| | | | *They were fun.* |
| Atmosphere/ felt safe | 16 | 8% | *I liked that it was a comfortable space and I felt like I wouldn't be judged on my opinions. I felt safe.* |
| | | | *I liked that we could all share in an environment where no one would be rude or hurtful to one another.* |

*I liked that the conversations were open and no one was judgmental.*

*The lessons where not all personal and it was a safe environment.*

*Note. n=195. %=percent of comments provided*

**Table 2.13**

**Intervention group feedback "What did you like least about the DCM program"**

| | n | % | Example comments |
|---|---|---|---|
| Left blank | 45 | 24% | |
| Nothing | 8 | 4% | *"Nothing"* |
| Everything | 15 | 8% | *"Everything"* |
| **Program** | | | |
| Boring/ Repetitive | 56 | 29% | *It got boring because we were taught basically the same principles in every lesson.* |
| | | | *The lessons could be slightly boring and the videos/powerpoints were not very attention grabbing.* |
| | | | *I didn't learn much and it was really boring and not many people got benefits out of it.* |
| Activities | 2 | 1% | *The role plays.* |
| Worksheets | 16 | 8% | *Having to write things down in the booklets.* |
| | | | *Filling out worksheets* |
| Didn't learn anything new | 7 | 4% | *It's all stuff that we have been told before. Since we're older now, telling us to just stop talking about our bodies isn't going to work.* |
| | | | *It was pointless.* |
| | | | *Standard facts we've all heard before that don't make an impact on me* |
| Approach/content | 16 | 8% | *The examples were so cheesy and unrealistic.* |
| | | | *That people compare themselves to fake images.* |
| | | | *They weren't very helpful because despite what anyone has to say about body confidence it isn't gonna change how i feel about myself.* |
| | | | *What I liked the least about the lessons was that it didn't really help me accept my body more, it was kind of boring. And when writing on the diagrams on what we would like to have on our body, that just reminds us that we don't have those attributes on your body and for me, that made me more miserable and self - conscious and isn't that the opposite to what these lessons should be teaching young people? Personally, the way the message of self - acceptance was preached was not the best way I think. It delivered the message in a non useful way.* |

| | | | |
|---|---|---|---|
| Videos | 1 | .5% | *Videos were very fake* |

**Delivery**

| | | | |
|---|---|---|---|
| Teacher | 14 | 7% | *She did not know what she was talking about and was saying it's no good to be skinny.* |
| | | | *How the teacher thought she knew everything about it but she didn't.* |
| | | | *The teacher treats it like it's compulsory and is important for every person and thinks that it applies to everyone.* |
| | | | *How annoying the teacher was and how she pushed her stupid views on people.* |
| | | | *It was uncomfortable talking to the teacher - get a senior student to hold lessons.* |

**Body image topic**

| | | | |
|---|---|---|---|
| Having to talk about body image | 21 | 11% | *It was a bit awkward to think about the things you don't like about yourself and think of things that you liked.* |
| | | | *Having to be open and expected to take part, even if you felt uncomfortable - "penalised" for the stereotypes of other teenagers. No choices on whether you want to participate or not - Did not help at all.* |
| Made me feel worse | 11 | 6% | *I felt that the lessons weren't very affective with helping us deal with the problems covered. Sometimes, I even thought that the lessons were making the problems worse.* |
| | | | *They made me feel worse about myself about how i want to lose weight by getting 'stop losing weight, be happy' shoved down my throat didn't help. I hate talking about my body or just weight in general since it just makes me feel even worse about myself and it's just annoying.* |
| | | | *It made me feel self-conscious about myself.* |
| | | | *This program made me feel bad about my body and made me have to pick out flaws in your body and in yourself and it dug up some old insecurities that I thought I had gotten over and made me feel extremely bad about myself and it made me feel really stupid and worthless. So i think this program is stupid and makes students feel uncomfortable about their body and the flaws in their body.* |
| Assumptions | 12 | 6% | *The fact that makeup and other aesthetics are portrayed solely as bad even though I do not wear makeup or special clothes people shouldn't be judged just because they do.* |
| | | | *I felt they were untrue about a lot of people and made a lot of assumptions.* |
| | | | *The assumption that all of us were unhappy about our bodies* |

*Note. n=195, %=percent of comments provided*

Several themes emerged including program content, delivery, atmosphere and the experience of discussing body image. While 13% of comments said they did not like anything about the program, 21% described the experience as "*fun, relaxing* and *safe*". Close to a third of the comments (29%) described the program as "*boring* and *repetitive*" and 17% detailed feeling uncomfortable about discussing body image and felt the program was a negative experience. The emerging themes regarding program content suggested students enjoyed the videos and the opportunity to share thoughts and interact with their peers during the lessons, but they disliked completing the worksheets. Strength of relationship with the teacher emerged as an important theme with students indicating this was their most liked or least liked part of the program.

### *Teacher Feedback- Ratings*

Teacher feedback ratings about the DCM program obtained at Time 2 is presented in Table 2.14. While teachers agreed the training was adequate, they felt confident delivering the lessons, and the material was developmentally appropriate, close to a third suggested the program was neither engaging nor effective.

**Table 2.14**

*Teacher feedback ratings about DCM program*

| | Strongly disagree | Disagree | Neutral | Agree | Strongly agree |
|---|---|---|---|---|---|
| The training was adequate in preparing me to teach the program | | 14% | | 57% | 29% |
| I felt confident in delivering the lessons | | | 14% | 71% | 14% |
| The format of the lesson plans was easy to use | | 14% | 14% | 57% | 14% |
| The material was developmentally appropriate for Yr 8 girls | 14% | | | 43% | 43% |
| The program was engaging for the students | 14% | 14% | 14% | 43% | 14% |
| The program was effective in enhancing body image in students | | 29% | 29% | 29% | 14% |
| The program was the appropriate length | | | 29% | 71% | |
| I think the school should implement the program again | 14% | 14% | 14% | 43% | 14% |
| I would teach this program again | | 14% | 14% | 57% | 14% |

| | | | | |
|---|---|---|---|---|
| I would recommend this program | 29% | 14% | 43% | 14% |

*Note: n=7*

### *Teacher Feedback- Comments*

Feedback comments obtained from teachers at Time 2 are provided in Table 2.15. A number of themes emerged regarding the resources, engagement of students and delivery. Teachers described the manual as complex, suggested the program was difficult to complete in the timeframe allocated and advised modifications to enhance student engagement.

**Table 2.15**

***Teacher feedback comments regarding DCM program.***

| **Manual/Resources** |
|---|
| *The manual was very long* |
| *The manual was too complex/not user friendly* |
| *The lesson plans contained too much information-a simplified version would suit me* |
| *I found the lesson plans were wordy but I think they had to be. I enlarged the font to make them easy to follow* |
| *There was a lot of information to get through which restricted good discussion* |
| *There was a lot to cover in some lessons and I found it difficult to get to everything* |
| *The length of the individual sessions was a real challenge as there was a bit too much to get through* |
| *If the program was any longer, it would be too much* |
| *The training was held too far in advance of teaching the sessions* |

| **Engagement** |
|---|
| *My class found it boring* |
| *The program was not interactive and not engaging* |
| *Some sessions were engaging, but not all* |
| *The message was understood but too repetitive* |
| *I would recommend running a program like this with girls this age but an improved, more engaging version. All the ideas are very good there is just the need to make it more appealing to students.* |
| *There was not a lot of variety in activities. I felt I needed to supplement the program.* |

*I would not recommend the program. It needs updating. The Dove clips on Youtube are so helpful, but they are not utilized.*

*I think the dynamics of the group had a significant impact on engagement levels*

*I would do the program again but with modifications/enhancements or a change of conditions. The ideas are good and it is relevant to the girls.*

**Delivery**

*I think the program raised the issue of body image and invited the girls to start thinking about it and be more self-aware*

*The program would be more effective if taught to a class the teacher knew*

*One lesson a fortnight meant that girls had often forgotten what was discussed in the previous lesson*

*Students tended not to be too invested in the "champion for change" activities*

*The class I taught was very challenging and did not always engage appropriately with the course*

*The students were restless by the last session (although that may have been due to the end of the Term/Year). Maybe running the program earlier in the year would help and with students who you already know and have a good relationship with.*

**DISCUSSION**

The study conducted an independent replication and evaluation of *Dove Confident Me*, a globally distributed universal classroom-based body image program developed for co-educational populations. Heeding calls for rigorous and independent evaluation of existing programs under varied conditions, the study sought to determine the effectiveness of DCM with a population likely to be attracted to its implementation. The first evaluation of DCM with a selective population outside of the UK, the study sought to contribute to the mounting research investigating the feasibility of school-based body image programs being delivered by teaching staff as opposed to researchers.

Overall, the findings did not support the hypothesis that DCM effectively improved body image or eating disorder risk factor outcomes for participants at post-test or follow-up compared to a control group. These findings are consistent with those recently reported by Atkinson (2021). Results revealed that following the intervention, self-esteem, body-esteem and body appreciation were

significantly greater in both the intervention and control groups. Further, across both groups, internalization of the thin-ideal, perceived sociocultural pressure, social comparison and dietary restraint were significantly less at both post-test and 3-month follow up, while barriers to life engagement was significantly reduced across both groups at the 3-month follow up compared to pre-test. There were significant intervention effects for social comparison and sociocultural pressure, but not in the direction hypothesized. Although improvements in both intervention and control groups are not an uncommon trend in research (Baranowski & Hetherington, 2001; McVey et al., 2003a, 2003b; Smolak & Levine, 2001b; Smolak et al.,1998a, 1998b), the current findings are somewhat inconsistent with the initial research trials. Initial evaluations of DCM with co-educational samples from the UK reported significant improvements in body esteem following participation in the both the single-session (Diedrichs et al., 2015) and 5-session programs (Diedrichs et al., 2020), while the DCM replication conducted in Portugal reported significant improvements in body esteem for girls at post-test (Torres et al., 2018). Although, the positive improvements in body esteem reported in these trials were associated with relatively small effect sizes, they were maintained to the 7-week follow-up for the single-session DCM version (Diedrichs et al., 2015) and 6-month follow-up in the 5-session DCM version (Diedrichs et al., 2020). Further, while the 5-session DCM trial reported girls demonstrated significantly less appearance-based teasing at 6-months, maintained at the 12-month measure (Diedrichs et al., 2020), the current study revealed less frequency of appearance-based teasing from pre-test to 3-month follow-up and less impact in the DCM participants, yet it did not reach significance. A longer follow-up measure may have revealed results consistent with Diedrichs et al. (2020). The single-session DCM trial reported significant reductions in negative affect, dietary restraint and barriers to life engagement at post-test maintained at 7-week follow-up (Diedrichs et al., 2015). Contrary to Diedrichs et al. (2015), the current study's significant reduction in life engagement from pre-test to 3-month follow-up, and dietary restraint from pre-test to post-test maintained at 3-month follow-up, occurred across both the intervention and control groups, and as such, are not considered an outcome of participation in DCM.

Unexpectedly, similar to that reported by Torres et al. (2018), the findings revealed a result in the opposite direction to that hypothesized. Participants in the intervention reported significantly greater levels of perceived sociocultural pressure at post-test, compared to the control group. Interestingly, a similar result has been reported previously in the literature by Diedrichs et al. (2015) and Wilksch et al. (2015) using the same scale to evaluate the single-session DCM intervention and modified HBM. Akin to the current study, Diedrichs et al.'s (2015) effect sizes were small and the finding was not maintained at follow-up. The researchers suggested that the sociocultural pressure scale used was in fact measuring an awareness of sociocultural pressures, rather than feelings of distress (Diedrichs et al., 2015). Thus, as the current study used the same scale, the finding may be a result of increased participant awareness of sociocultural pressures following participation in DCM, due to the program's focus on teaching students to recognize these appearance-based pressures.

Of interest, is the finding of significantly less social comparison in the control group compared to intervention group at both post-test and 3-month follow-up. However, closer examination reveals that this finding was likely due to a marked decrease in social comparison in the control group rather than a significant increase in overall levels of social comparison in the intervention group. In fact, both groups demonstrated a significant decrease in social comparison across time, yet the control group had significantly greater levels at baseline compared to the intervention group. Thus, there was likely more capacity for reduction in the control group compared to the intervention group.

Acceptability of the DCM program with the selective population of Australian Year 8 girls and their teachers was mixed. Intervention group feedback indicated that while the majority of students felt comfortable participating in the program (68.5%) and felt their teacher had taught it well (64.1%), half of the students (51.3%) did not feel the lessons helped them feel better about themselves, and 64.6% indicated minimal to no enjoyment participating in the program. Overall, teacher feedback was positive, however, teachers did provide suggestions for enhancing the materials and delivery. Both teacher and student feedback highlighted the importance of a strong student-

teacher relationship to successful implementation of body image programs. Participant feedback

regarding teachers appeared polarized, with students providing feedback that was either very positive

or highly critical. As such, relationship with teacher emerged as an important contributor in respect to

participant's experience of the program. Despite this, participants indicated moderate to high

acceptability regarding both teacher effectiveness ($M = 3.10$) and comfortability ($M = 3.15$), so this

may not have had a significant impact on overall results.

Student engagement with the intervention program appeared limited. Participant feedback

comments offer some insight into possible reasons for this. The most frequent comment (29%)

involved participants describing the program as "boring" or "repetitive". Teachers verified this lack of

student engagement. While 57% of teachers rated the program as engaging for students, their

feedback comments indicated that students found the program "boring" and "repetitive", and that

students appeared restless towards the end of the academic school year. There are noticeable

discrepancies when comparing the current acceptability findings with those obtained by Diedrichs et

al. (2020). Participants in the Diedrichs et al. (2020) study rated DCM moderate to high in regards to

enjoyment ($M =3.04$), effectiveness ($M =2.91$) and importance (*likelihood to recommend the*

*intervention to friends*) ($M =3.91$), whereas participants in the current study rated enjoyment ($M

=2.22$), effectiveness ($M =1.90$) and importance ($M= 2.91$), as low to moderate.

Aspects of the intervention participants reported to enjoy included having a "relaxing" lesson,

watching the videos and having the opportunity to interact with their peers, both sharing their views

and hearing that of their classmates. Despite this, students were critical of the worksheets and the way

some of their teachers delivered the program. While many students commented that the environment

felt "safe, relaxing and comfortable", others provided feedback describing feeling pressured by the

teacher and finding the experience negative. Thus, it appeared that some students felt uncomfortable

engaging with their teacher in relation to the program content. Over 30% of participant comments

related to feeling "uncomfortable", "worse" or more "self-conscious" regarding their body image due

to feeling the programs' content or delivery was judgmental, made assumptions, or had an unhelpful approach. While there has been previous debate regarding the potential dangers of school-based eating disorder prevention programs (Carter et al., 1996; Cohn & Maine, 1998; Mann & Burgard, 1998), we must continue to mindful of possible iatrogenic effects. Close examination of the body esteem, body satisfaction and self-esteem variables indicates that each one increased within the intervention group at both post-test and 3-month follow-up. Thus, there was no evidence that the intervention resulted in harm (Sharpe et al., 2013). However, participant feedback comments provide insights that may have been missed if relying on quantitative data alone. As such, current findings highlight the importance of providing careful follow-up for those participants who may require it after engaging in interventions focusing on body image topics.

The findings add to the expanding field of research involving teacher-led delivery of school-based body image programs. Despite outcomes not supporting the hypotheses, 85% of teacher feedback indicated they felt confident delivering the intervention and 71% agreed they would teach it again. While there were issues regarding student-teacher relationship, participants rated teacher effectiveness as moderate to high (*M*= 3.10). Teacher feedback comments mostly related to the complexity of the manual, the length of the lesson, or timetabling issues. There was no indication that teachers felt a lack of ability to teach body image content, yet despite their self-reported confidence with the program, it is evident from participant feedback that some teachers may not have fully understood the etiological approach embedded within DCM (e.g. "*She (teacher) did not know what she was talking about and was saying it's no good to be skinny"*). Thus, additional training and/or ongoing monitoring and support throughout the implementation period appears beneficial.

**Explanation of Findings**

There are a number of possible explanations for the lack of positive outcomes following participation in the intervention program including age of participants, floor effect, lack of fidelity and poor engagement with the intervention.

Participants in the current study had a mean age of 13.3 years, which is 1-2-years older than participants used in the initial trials (Diedrichs et al., 2020; Torres et al., 2018). While closer in age to typical onset of an eating disorder (Stice & Van Ryzin, 2019), when delivering school-based universal interventions, a focus on younger students 12-13-years has been suggested (Yager et al., 2013). Thus, the failure to provide consistent results with previous evaluations may indicate that the DCM program is more suitable for younger students. Support for this is evident in the null findings reported by Atkinson (2021) when examining DCM with 13-14-year old students. The discrepancy in acceptability ratings between the current sample and the Diedrichs et al. (2020) trial provides further support for this explanation. Wilksch et al. (2015) reported a similar outcome in their trial of a modified HBM intervention. The researchers suggested that their failure to produce consistent results with the previous evaluations of HBM (Richardson & Paxton, 2010; Bird et al., 2013) might have been due to using an older sample of participants (Wilksch et al., 2015). Further, there is evidence to suggest a stable trajectory of body dissatisfaction and body esteem from mid-adolescence to adulthood, proposing a critical period for malleability, or intervention and prevention being prior to the age of 11-years (Lacroix et al., 2020; Wang et al., 2019). Therefore, the current sample may not have produced the same improvements in body esteem as previous trials due to their older age. Moreover, the previous trials have involved state-funded schools, with an average or below national average portion of students with special educational needs. Whereas, the intervention school is a private independent school with a strong academic focus and is one of the top performing academic schools in the state. Thus, it could be that the program was too simplistic for students in the final Term of Year 8 and this may have contributed to their poor engagement with the intervention

Examination of the baseline measurements in the current study revealed that many participants scored within the normal range on a number of measures. Therefore, there may have been a floor effect occurring and consequently, participants had little scope to improve their scores. This is not uncommon in prevention research when using a selective or universal population (Schwartza et

al., 2019; Torres et al., 2021; Watson et al., 2016). Moreover, while the current sample was selective, the finding supports evidence that universal programs are more effective when participants have higher baseline levels of pathology than for the overall sample (Stice et al., 2007; Wilksch, 2014).

The current study limited the follow-up period to 3-months. However, Diedrichs et al. (2020) conducted 6, 12, 24 and 36-month follow-up measures, and reductions in the risk factor of appearance-based teasing frequency was not revealed until 6-months. Had the current study conducted longer follow-up measures, intervention impacts may have been revealed. However, as the study was conducted in the final Term of Year 8, the follow-up data collection occurred at the start of the following school year, when students were in Year 9. Therefore, extending follow-up measures would have required accessing participants throughout Year 9 and this may have proved problematic as results indicated there was more missing data evident in the control group at the 3-month data collection (20.68%) compared to the intervention group (8.95%). Further, the discrepancy between missing data at the 3-month follow-up time point, was not considered to be missing at random. While this was likely due to differences in organizational demands between the intervention group (one school) and control group (three schools), it highlights a potential obstacle regarding retention with long-term follow-up measures.

A lack of engagement with the DCM program may have contributed to poor outcomes in the current study. Engagement appeared hindered by poor student-teacher relationships as well as by both program content and delivery. Firstly, in regards to the student-teacher relationship, it was not possible for teachers to deliver the intervention to students they had a relationship with. While some students were very positive about their teachers, a number provided quite negative comments regarding their teachers' delivery of DCM. Due to a timetable issue, teachers were assigned to classes that included students they had never met, nor taught previously prior to the first session of DCM. Educational experts suggest that strong student-teacher relationships facilitate increased engagement and learning (Hattie, 2009; Martin & Collie, 2016). Thus, the lack of student-teacher relationship for a portion of students in the study appears to have inhibited engagement with the program. This

explanation appears endorsed by teacher feedback, with one commenting, "the program would be more effective if delivered to students I knew". Thus, while highlighting an effect of conducting research in a real life setting, it can be avoided in future.

Secondly, student engagement may have been hindered by both the content and delivery of the program. The intervention was scheduled into the final Term of the school year. One teacher commented that students appeared "restless". Further, in previous trials, DCM was delivered on a weekly basis, whereas in the current study the program was delivered fortnightly. The extended length of time between each session may have prevented students from engaging. Further, due to constraints with the timetable, only four sessions were available to deliver the 5-session program. Thus, session 4 and 5 needed to be shortened and condensed. Consequently, it was not possible to deliver the intervention in its entirety.

Participant feedback indicated that 33% of student feedback comments indicated that the content was "boring" or "repetitive" and they did not learn anything new. Participants said they enjoyed the classroom discussion, but criticized the worksheets. It is possible that some participants may have struggled to engage with the program due to the requirement to complete worksheets. The program was designed for a UK audience and as such, some of the content included in the videos and visuals may not have resonated with Australian adolescent girls. For example, the videos, while enjoyed by the students, included strong UK accents. The visuals included representations of Caucasian and black British girls and boys, whereas the intervention school comprised of predominately Australian Caucasian, Asian and South Asian populations. Given the DCM program involves body image, it is possible thinking about this topic while viewing visuals representing a different gender and race to oneself, may inhibit one's capacity to engage with the core concepts.

As the ten lessons were taught at the same time, it was not possible for the researcher to observe delivery of lessons to measure teacher fidelity. While fidelity measures indicated teachers adhered to most of the content, less than 70% of teachers returned the checklists. Further, on the final

feedback survey a number of teachers reported running short of time while delivering the program and thus not being able to complete all activities. Thus, the lack of positive outcomes may be due to a lack of teacher fidelity to program. Of concern, is that one teacher commented she had to "supplement" the program due to a lack of variety. It is unknown what this specifically involved, however teacher fidelity to program content is questionable.

Students indicated that the most enjoyed aspect of the program was the opportunity to share and discuss thoughts about body image with their peers. This is a common teaching approach embedded within the intervention school and research supports that peer interaction is conducive to learning, particularly in girl's schools (Younger, 2016). However, when considering fidelity to a manualized program, the approach, whilst preferred by students, likely creates significant variation between classrooms and potential deviation from the prescribed program manual. Given some teachers indicated that they ran out of time to complete lesson content, some classes might have become sidetracked with discussion, and thus not adhered closely enough to manual content to see a reduction in eating disorder risk factors.

**Implications**

The current study provides insight into the implications of global dissemination of school-based programs by examining a universal co-educational intervention under diverse delivery conditions. While the results suggest that the DCM intervention did not effectively improve body image or reduce eating disorder risk factors in a selective population of Australian Year 8 girls, it did provide some additional understanding about the practicalities of delivery of a widely disseminated program by teachers and suggest future directions in regards to utilizing universal interventions under diverse conditions. Such findings help us to understand the potential difficulties with traversing country and culture in regards to wide-scale disseminated universal prevention programs.

The comparatively reduced participant engagement with DCM highlights the importance of creating interventions that resonate with the audience and further provide insight into the impact

culture and gender may have on outcomes. Diedrichs et al. (2020) explained that DCM was co-created in collaboration with adolescents themselves. Given cross-cultural research indicates a number of differences in psychological constructs between cultures (Gattario et al., 2015) one cannot assume that Australian adolescents will be the same as those from the UK. Thus, one of the implications emerging from the current findings is that DCM requires modification in order to better suit a selective sample of Australian girls. Prior to dissemination, it may be necessary to conduct co-design procedures with each new population to ensure the effectiveness of the intervention.

The results add support to task-shifting delivery of school-based body image programs to teachers. This is important given the obstacles to wide-scale dissemination of expert-delivered programs. However, the findings draw attention to the importance of facilitator competence and richness of student-teacher relationship. While teachers felt confident and capable of delivering the DCM intervention, participant feedback highlighted the importance of teachers possessing a competent understanding regarding the etiological theory behind DCM. The implications of this suggest that teachers who deliver body image programs may require additional monitoring, training or support in order to ensure that the intervention's messages do not become lost in delivery. Interestingly, since the initial DCM trial by Diedrichs et al (2020), additional teacher training videos have been developed in order to provide more comprehensive support and training for teacher facilitators. The strength of student-teacher relationship also made a significant contribution to participant enjoyment of the program, thus highlighting the need for teachers delivering DCM to have a pre-existing relationship with their students.

While there was no evidence to suggest participation in the intervention was harmful, feedback comments revealed the importance of ensuring participants had ongoing support should they need it. Body image can be a sensitive topic, particularly within a selective group. Further, given the propensity for participants to engage in classroom discussion, and perhaps veer off manual, there is

potential for some students to become distressed. As is best practice in most schools when covering wellbeing content, it is important that participants have avenues for follow-up support available.

**Strengths and Limitations**

The current study has multiple strengths. Firstly, it provides a pragmatic program delivery and study replication responding to calls within the field for independent replication of interventions prior to wide-scale dissemination, trialed in different countries and using endogenous presenters (Ciao et al., 2014; Wilksch, 2014). The fact that the researcher was based at the intervention school provided unique insights throughout this study to the complexities of marrying research recommendations with real-life restrictions. Further, the study fills gaps in the literature concerning the utility of implementing universal intervention programs with diverse populations and contributes to the growing research on engaging endogenous facilitators for body image prevention programs. The extent of participant feedback obtained and analysed is a strength of the study as it provided unique insights regarding participant's experience, which would not have otherwise been captured.

The study also has a number of limitations in regards to program delivery and data collection. Firstly, with respect to program delivery, it was not possible to comprehensively evaluate teacher adherence to program content as fidelity measures relied on teacher report rather than researcher observation and assessment. While up to 70% of teachers indicated they adhered to the manual, it is possible that teacher fidelity was not adequate across all ten teachers. Teachers agreed they felt confident delivering the lessons, however the provision of DCM teacher training was conducted five weeks prior to implementation of the intervention. Hence, the delay between training teachers to deliver the program and implementation may have compromised teacher delivery. Given a number of teachers indicated that the manual was wordy, complex and difficult to follow, ongoing teacher training and support during the implementation phase may have enhanced teacher delivery competence. Finally, the delivery of the program may have been hampered by fortnightly lessons instead of weekly and the restriction of only having four sessions available, instead of the prescribed

five. While this is illustrative of conducting research in real-life settings (Atkinson, 2021), it does add a limitation to conducting an independent replication of the effectiveness of DCM.

Secondly, in regards to data collection, there were inconsistencies regarding missing data at the 3-month follow-up period. Specifically, more missing data was evident from the control group compared to the intervention group. This may have been a consequence of the control group comprising three different schools and subject to more organizational variables than the intervention group. However closer scrutiny of the date revealed that Control Group C, had the most missing data at Time 3 data collection. The fact that the researcher did not travel to Control Group C to assist with the data collection, may provide an explanation for the discrepancy. Atkinson (2021) has discussed the issues regarding real-word conditions and the difficulties with managing multiple schools, including fortnightly lessons and untrained substitute teachers delivering DCM, thus these can be common issues experienced in real-life contexts. Finally, study was well powered to detect medium effects, but slightly underpowered to detect small effects. Research examining universal school-based interventions for anxiety have reported small effect sizes at the 12-month follow-up (Waldron et al., 2018). Therefore there may have been smaller, but still significant changes on outcome measures in the current study that did not emerge clearly due to insufficient participant numbers to confirm the changes.

**Recommendations**

In light of the findings, a number of recommendations emerge that could enhance the independent replication and evaluation of the effectiveness of DCM with this population-

1. The intervention could be delivered to younger students, perhaps in Year 7, or earlier in Year 8. Introducing the program earlier in the academic year may have the added benefit of reducing the student restlessness observed in Term 4, possibly enhancing engagement.
2. Ensuring teachers deliver the program to students with whom they have a relationship would likely enhance student engagement and learning, while overcoming a major design flaw.

3. Improving teacher competence with delivery of the intervention via repeated practice and ongoing guidance and support is likely to facilitate increased adherence to the program content.

4. Modifying the program to better suit an Australian audience of adolescent girls may enhance enjoyment and engagement. Suggested modification might include reducing reliance on worksheets and including visuals and video content from Australia that may resonate more with female participants.

**Conclusion**

The study aimed to evaluate the DCM program delivered by teachers to a selective population of Australian Year 8 girl's. Specifically, the aim was to determine whether a universal intervention designed for a UK based co-educational audience, remained effective when delivered to girls in a single-sex Australian school. Further, the study sought to independently replicate and extend upon previous trials of DCM to provide support for its wide-scale dissemination. While there were a number of improvements, most occurred across both the intervention and control groups. As such, the findings failed to support the hypotheses that Year 8 girls participating in DCM would report significant increases in a number of body image outcomes, alongside significant decreases in eating disorder risk factors compared to a control group.

The results, while discouraging, highlight the complexities of wide-scale dissemination in real-world settings. Due to a number of limitations, including lack of teacher competence, lack of student engagement, insufficient student-teacher relationship and underpowered sample size, the reasons behind the null outcomes remain unclear. Thus, further research is recommended in order to clarify the requirements of successful dissemination of DCM within a variety of contexts and countries.

**CHAPTER 3**

**STUDY 2: REPLICATION OF A MODIFIED VERSION OF *DOVE CONFIDENT ME***

**OVERVIEW**

This chapter introduces the first phase of Study 2, conducted in 2018. Chapter 3 will provide an overview of Study 2, followed by a description of the methods and results, before concluding with a discussion of the findings. The second phase of Study 2 is outlined in Chapter 4, with the cumulative impact of both phase one and two of Study 2 explored in Chapter 5.

**The Current Study**

The findings obtained in Study 1 (outlined in Chapter 2), indicated minimal improvement in body image following participation in the universal classroom-based body image program *Dove Confident Me* (DCM) by a select group of Year 8 students at a girls' school. Following teacher and participant feedback from Study 1, slight modifications were made to DCM in order to better suit the students in the school where the study was conducted. Thus, Study 2 expands on previous research conducted in Study 1 by re-examining a modified version of DCM for Year 8 girls. In addition, Study 2 expands upon Study 1 by complimenting delivery of the modified DCM with a specific initiative for mothers, the aims, methods and results of which are discussed in the following chapter (Chapter 4).

In Study 1, participant acceptability ratings in regards to enjoyment and effectiveness of the DCM program were low. Further, both teacher and participant feedback indicated limited engagement with the program as evidenced by comments describing DCM as "*boring*" and "*repetitive*". Participants reported they did not like completing the worksheets but did enjoy the opportunity to engage in discussion with peers. Teachers said the manual was complex and they found it difficult to cover the material in each lesson. As the DCM visuals and videos were developed for a co-educational UK audience, some did not appear to resonate with Australian adolescent girls. Thus, teachers suggested that the program be updated and enhanced, before being delivered again, to enhance its appeal to students. The modifications suggested by teachers included increased variety,

updated video content and prioritising student interaction over worksheet completion. It was thought that the low acceptability ratings, together with reduced participant engagement and a lack of student-teacher relationship might have contributed to the null findings in Study 1. Thus, there was justification to modify the DCM program and repeat the study after addressing such concerns.

By modifying the DCM program, the current study further acknowledges the way schools are likely to use globally disseminated classroom-based programs. Teachers differentiate curriculum, including wellbeing curriculum, to suit the needs of the students in their class. In reality, few schools can implement wellbeing interventions exactly as prescribed by researchers. Unfortunately, timetables, class sizes, external assessments, school camps, teacher illness and even fire drills present daily, often unpredictable obstacles, for teachers. Thus, schools require short-term easily implemented interventions that they are able to mold to the needs and culture of their own students.

The major objective of the current study is to determine whether a modified version of DCM will be effective within the real life setting of an Australian girl's school. Further, student engagement with the intervention, in addition to acceptability of enjoyment, helpfulness and importance of the program will be examined. Thus, Study 2 will build upon Study 1 by endeavoring to provide insights firstly, to research considering global dissemination of school-based body image programs, and secondly to schools deciding on which programs to implement and how to do so.

### *Research Aims*

1. Evaluate the effectiveness of a modified version of the universal school-based body image program *Dove Confident Me* delivered by teachers to a selective population of Year 8 girls attending an independent girls' school in Australia, in improving participants' body esteem, body satisfaction, internalization of thin-ideal, perceived maternal pressure, perceived sociocultural pressure, social comparison, appearance conversations, self-esteem and dietary restraint.

2. Examine participants' acceptability ratings of the modified version of DCM regarding enjoyment, helpfulness, comfortableness and importance of program.

*Hypotheses*

1. Hypothesis 1 – At post-intervention, Year 8 students participating in the modified version of DCM, compared to Year 8 girls who did not participate, will report a significant increase in body esteem, body satisfaction and self-esteem alongside a significant decrease in internalization of the thin-ideal, perceived sociocultural pressure, social comparison, appearance conversations, dietary restraint and perceived maternal pressure.

2. Hypothesis 2- These improvements will be maintained at 3-month follow-up.

3. Hypothesis 3 – Year 8 students participating in the modified version of DCM will report increased ratings of enjoyment, helpfulness, comfortableness and importance of the program compared to that reported in Study 1.

## METHOD

**Design**

The findings from Study 1, together with student and teacher feedback, led to a number of research recommendations. In light of the recommendations, Study 2 involved a repeat and expansion of the Study 1 replication to determine whether student outcomes changed. Firstly, the DCM program underwent slight alteration to better fit the single-sex Australian audience. Such modification to classroom-based programs is not unusual, as teachers are expected to regularly differentiate curriculum to suit differing student needs. Thus, the modifications reflect the reality of a real-life study within the school context. Secondly, Study 2 expanded to include the examination of an intervention developed for Year 8 mothers. The intervention school endorsed a comprehensive parent engagement strategy comprising seminars and educational opportunities. School personnel were interested in understanding whether extending classroom-based interventions to parents was a valuable use of school resources. Thus, Study 2 further examined the implementation and outcomes of the intervention for mothers as outlined in Chapter 4.

The modified version of DCM was evaluated with a 2018 cohort of Year 8 students at the same intervention school used in Study 1 in 2016. A new control group of Year 8 students was included for Study 2, comprising pupils from two comparable girls' schools in the local area that were not involved in Study 1. In order to accurately measure the outcome of modifying the DCM program, Study 2 used similar research design and procedures to those of Study 1. Thus, random allocation was not used in Study 2 for the same reasons outlined in Study 1.

**Participants**

Participants were Year 8 ($n$=596) students attending one of three independent girls' schools in Queensland, Australia.  All participants were aged 11-14-years. Year 8 students were chosen as it is advised that body image interventions be implemented prior to the development of eating disorders (Paxton, 1993; Wilksch, 2014), which usually develop between 14-15-years (Stice & Van Ryzin, 2019). Participants attended either the intervention school or one of two control schools.

**Procedure**

*Recruitment*

The intervention was delivered to Year 8 students in the school where the researcher is employed as a School Psychologist. After obtaining Victoria University ethical approval (HRE17-211), the School Principal was approached for authorisation of the intervention and data collection and approval was obtained. To recruit the control schools, Principals of ten independent schools in South East Queensland were sent the *Principal Information Sheet* (Appendix A), including the three schools which had participated in Study 1. Four of the ten schools contacted agreed to participate. Two of the four schools that agreed to participate were selected for the control group, as they were closest in size and location to the intervention school. Neither of the two schools comprising the control group were the same that had been involved in Study 1.

*Consent*

Following consent from Principals, passive informed consent was sought from each student and her parent/guardian in order for the student to complete any research questionnaires. Passive consent was requested by the Principal from the intervention school in order to avoid any confusion among participants or parents due to the schools' involvement in other research projects throughout the year (that had adopted passive consent), as well as to reduce administrative burden on staff and parents. The Victoria University Human Research Ethics Committee (HRE17-211) approved this request.

At each school, parents and students received an email inviting then to participate in the research from a member of the school staff. This email outlined the research project and provided the *Participant and Parent Information Sheets* (Appendix B) and links to contact the researcher to ask any questions. Parents were asked to contact the school if they wished to withdraw consent for their daughter to participate in the research project. Students were advised via the information sheet, instructions provided by the teacher at data collection, and at the start of the survey, that their participation was voluntary and they could withdraw at any time. In addition, the survey included the question "*Do you wish to continue with the survey*" at the start and students were required to select "*yes or no*". Skip logic was embedded within the survey to redirect those who selected "*no*" to the end of the survey. At each data collection time point the above process was followed and students were reminded they could withdraw from the project at any time, even if they had already completed one or more of the previous surveys.

In the intervention school, all Year 8 students participated in the DCM program regardless of whether they consented to participate in the research project, as this had been incorporated into the Year 8 pastoral care program for Term 2 in 2018. No students opted out of the project prior to data collection, so research questionnaires were provided to all students. A number of students opted out during the data collection by answering "*no*" to the question at the commencement of the survey "*Do*

*you wish to continue with this survey*", or by not finishing the survey. Other students who were absent from school at the time of data collection did not complete surveys.

### Data collection

All surveys were completed at school on-line using students' own devices. Surveys were created and delivered via Qualtrics survey software. Each school provided the researcher with a list of de-identified student email addresses. An ID code was assigned to each email address to identify condition. Email addresses were then uploaded to the Qualtrics software system and a link to access the survey was sent to each student, except for students who had consented to participate. At the start of each survey participants were asked to create a unique code using their names, birth date and eye colour in order to match surveys across data collection period. All student responses to the survey were anonymized via the Qualtrics system and participants were identified via an anonymous code.

During Term 2, 2018, the intervention group completed the Time 1 (T1) survey (pre-test) five days prior to delivery of Session 1 of the DCM program. Both control groups completed the Time 1 (T1) survey at the start of Term 2. The intervention group completed all three surveys during their morning roll classes, while the control groups completed the surveys during their scheduled pastoral care lessons. Time 2 (T2) surveys (post-test), were completed in the final weeks of Term 2. The intervention group completed the T2 survey the day after completing Session 4 of DCM. The post-test survey included additional questions regarding whether the student had spoken to a counsellor, or participated in any body image interventions since pre-test. The intervention group was also asked questions about their impressions of the DCM program.

Time 3 (T3) surveys (3-month follow-up), were completed during Term 3. The time between surveys varied between schools for unavoidable and practical timetabling reasons. Table 3.1 provides details of specific times each group completed each survey and the time difference between survey completion.

**Table 3.1**

*Details of survey administration*

| Group | Supervisor | Context | Time 1 Term 2 | Time 2 Term 2 | No of weeks T1- T2 | Time 3 Term 3 | No of weeks T2- T3 |
|---|---|---|---|---|---|---|---|
| Intervention | Teacher | Roll Call Class | Week 3 | Week 10 | 7 | Week 9 | 12 |
| Control A | Teacher | Life Skills Lessons | Week 1 | Week 10 | 9 | Week 6 | 9 |
| Control B | Teacher | Personal Development Lessons | Week 1 | Week 11 | 10 | Week 3 | 5 |

*Measures*

As this study was designed as a replication of the Diedrichs et al. (2020) study, the same measures were utilized as in Study 1 with some modifications. In order to reduce the overall length of the survey, scales measuring *Life Engagement, Future Plans, Appearance-Based Teasing* and *Negative Affect* were removed. Study 1 indicated that these scales provided limited insights, thus the measurement in Study 2 focused on measures more pertinent to risk factors. As Study 2 involved an additional intervention with mothers (described in Chapter 4), a scale measuring *Perceived Maternal Pressure* was included. The measure for internalization of the thin-ideal was changed from the *Sociocultural Attitudes Towards Appearance Questionnaire (SATAQ)* used in Study 1 to the *Ideal Body Stereotype Scale (IBSS)*. While both measures have been used interchangeably to assess thin-ideal internalization, the IBSS is thought to capture a less personalized desire for thinness and instead focuses on the awareness of sociocultural ideals (Thompson et al., 2018). Further, it was felt that the sample would not relate as well to the inclusion of questions referencing TV, magazines and movies in the SATAQ given the change to adolescent media consumption. All measures are standardized and have been validated and widely used with adolescents. Table 3.2 outlines the measures used including internal consistencies on each measure for the current sample.

**Table 3.2**

*Self-reported measures and cronbach's alpha for each scale*

| Outcome | Measures/Scales | Cronbach's alphas |
|---|---|---|
| Participant characteristics | Self-reported age, country of birth, language other than English spoken at home and ethnicity | |
| *Body Image* | | |
| Body esteem | **Body Esteem Scale for Adolescents & Adults** (Mendelson et al., 2001), Weight and appearance subscales combined, 18 items, mean score range 1-5 | .96 |
| Body satisfaction | **Body Appreciation Scale** (Avalos et al., 2005). 8 items, mean score range 1-5 | .90 |
| *Risk factors* | | |
| Internalization of appearance ideals | **Ideal-Body Stereotype Scale – Revised (IBSS-R;** Stice et al., 1996**)** 8 items, mean score range 1-5. | .93 |
| Sociocultural pressures | Purpose-built measure derived from existing scales of sociocultural pressures (Stice & Bearman, 2001a; Thompson et al., 2004), 12 items, mean score range 1-5. | .93 |
| Perceived maternal pressure | **Maternal Pressure Scale** (Corning et al., 2010). 9 items, mean score range 1-4. | .79 |
| Social comparisons | **Social Comparison to Models and Peers Scale** (Jones, 2001), 8 items, mean score range 1-5. | .90 |
| Appearance conversations | **Appearance Conversation Scale** (Jones et al., 2004), 5 items, mean score range 1-5. | .90 |
| *Psychosocial & disordered eating related measures* | | |
| Self-esteem | **Rosenberg Self-esteem Scale** shortened (Neumark-Sztainer et al., 2007; Rosenberg, 1965), 6 items, mean score range 1-4. | .82 |
| Dietary restraint | **Dutch Eating Behaviour Questionnaire**, (van Strien et al., 1986), Restraint subscale, 10 items, mean score range 1-5. | .94 |

**Participant characteristics**. Self-reported age, country of birth and language other than English spoken at home was asked at baseline. Body mass index (BMI) was not requested, as in Study 1, it was considered too confronting for participants and expected to reduce the number of students

willing to participate. Further, while BMI was used in initial trials of DCM, it was not included in the analysis due to only 9% of girls self-reporting their weight and height (Diedrichs et al., 2015).

**Body esteem.** Two subscales of the *Body Esteem Scale* (Mendelson, et al., 2001), appearance and weight satisfaction, were used to assess body esteem. In this study the appearance and weight subscales were combined to create an 18-item scale evaluating appearance and weight satisfaction ("*I like what I look like in photos, I am happy with my weight"*). The items were rated from 1 = *never* to 5 = *always* and averaged with negatively phrased items being reversed coded. Higher scores reflected greater body esteem. This scale has been used in previous research with children and adolescents and has been found to be both valid and reliable (Diedrichs et al., 2015; Diedrichs et al, 2020; McCabe et al., 2017; Mendelson et al., 2001), and had very good internal consistency in the current study (Cronbach's alpha =.96).

**Body satisfaction**. A modified version of the *Body Appreciation Scale* (BAS: Avalos et al., 2005) was used to assess body satisfaction. The modification was made to make to scale more suitable for adolescents (Diedrichs et al., 2015; Diedrichs, 2020; Diedrichs et al., 2020) such that the final scale comprised 8-items measuring appreciation of one's body ("*I feel good about my body*"). The modification involved removal of five items, and minor wording changes. These changes were made prior to the publication of the BAS-2 (Tylka & Wood-Barcalow, 2015a), which was a modified version that has been validated with children 9-11 years (Halliwell et al., 2017). Participants responded to items on a Likert scale from 1 = *never* to 5 = *always*. Scores on the 8-items were averaged with higher scores reflecting greater body appreciation. Internal consistency in the current study was very good (Cronbach's alpha =.90).

**Internalization of the thin-ideal.** The *Ideal-Body Stereotype Scale – Revised* was used to measure how much each participant internalized the thin-ideal. Participants are asked to rate how much they agree with 8-statements ("*Slim women are more attractive"*). The items were rated from 1 = *strongly disagree* to 5 = *strongly agree.* This scale has been used in previous research with

adolescents (Trost, 2006) and internal consistency in the current study was very good (Cronbach's alpha =.93).

**Perceived sociocultural pressures on appearance**. The Perceived Sociocultural Pressures scale, constructed by Diedrichs et al. (2015) and used in previous trials of DCM, was derived from the existing scales of sociocultural pressures (Stice & Bearman, 2001a; Thompson et al., 2004). This scale assessed perceived pressure to lose weight, change body shape, or change appearance, from mother/friends/media. It also assessed feelings related to the perceived pressure. The scale includes 12-items and requested participants to rate how much pressure they felt from 1= *never* to 5 = *a lot*, ("*I've felt pressure to lose weight"),* as well as how upset they felt by this pressure ("*How upset are you by this pressure to lose weight?"*) 1 = *not upset* and 5 = *very upset*. Scores were averaged and higher scores indicated greater perceived pressure and increased feeling of upset. Previous research with children and adolescence has found this measure to have good internal consistency (Diedrichs et al., 2020; Diedrichs et al., 2016). Internal consistency in the current study was good (Cronbach's alpha =.93).

**Perceived maternal pressure**. The *Maternal Pressure Scale* (Corning et al., 2010) assesses daughters' perception of appearance-related pressures from their mothers ("*My mum encourages me to watch my weight"*), comprising 9-items, rated from 1= *totally disagree* to 4 = *totally agree*. Scores were averaged with higher scores reflecting greater maternal pressure. This scale has shown reliability with adolescents (Trost, 2016) and internal consistency in the current study was good (Cronbach's alpha =.79).

**Social comparison**. The *Social Comparison to Models and Peers Scale* (Jones, 2001), was used to measure comparisons about weight, body shape/build, face and fashion sense/style to celebrities and people in the media, and peers. The scale includes 8-items ("*How often do you compare your face to…."*) that participants rated 1 = *never* to 5 = *very often*. Scores were averaged with higher scores reflecting greater social comparison. Well established for use with adolescents

(Carey et al., 2013; Carey et al., 2014; Diedrichs et al., 2015; Diedrichs et al., 2020) the internal consistency in the current study was good (Cronbach's alpha =.90).

**Appearance conversations**. *The Appearance Conversation Scale* (Jones et al, 2004) is a 5-item measure that assesses frequency of appearance related talk. Participants rated items 1 = *never* to 5 = *very often* ("*My friends and I talk about how our bodies look in clothes"*). Scores were averaged, with higher scores reflecting greater frequency of appearance related talk among peers. Used in previous research with adolescents (Carey et al., 2013; Diedrichs et al., 2015; Shroff & Thompson, 2006) internal consistency in the current study was good (Cronbach's alpha =.90).

**Self-esteem.** The *Rosenberg Self-esteem Scale* (Neumark-Sztainer et al., 2007; Rosenberg, 1965) measures participant's self-esteem. A shortened 6-item version asked participants to indicate how much they agreed with statements on a 4-point scale, 1 = *totally disagree* and 4 = *totally agree* ("*On the whole I am happy with myself"*). Negatively phrased items were reversed coded and higher averaged scores indicated greater self-esteem. This has been used in previous research with adolescents (Carey et al., 2013; Diedrichs et al., 2020; Shroff & Thompson, 2006) and internal consistency in the current study was good (Cronbach's alpha =.82).

**Dietary restraint**. The Restraint subscale of the Dutch Eating Behaviour Questionnaire (van Strien et al., 1986) measured dieting behaviours. The 10-item scale asked participants to rate 1 = *never* to 5 = *very often* how much they engaged in certain dieting behaviours ("*When you have put on weight do you eat less than usual*?"). Higher mean scores indicated higher levels of dietary restraint. Scores on this scale have shown very good reliability with adolescents (Diedrichs et al., 2015; Rodgers et al., 2014; Bearman et al., 2006) and internal consistency in the current study was very good (Cronbach's alpha =.94).

**Program feedback.** A measure designed for this study was used to rate participants' impressions of the DCM program at post-test. Students were asked to rate their enjoyment of the sessions, how helpful, comfortable and important the sessions were, and how well the program was taught, on a scale from 1 = *not at all* to 5 = *very much*. Scores were averaged and higher scores

indicated feedback that is more positive. Participants were also offered an opportunity to provide written comments and suggestions regarding what they liked most about the lessons and what they liked the least about the lessons.

**Fidelity measures.** As the DCM lessons were taught at the same time it was not possible to observe each teacher deliver of the program. Thus, teacher fidelity to program content was measured via self-report. At the end of each session, teachers were asked to complete a checklist indicating the elements that they covered, in addition to providing any comments and feedback about the session (Appendix D). Teachers were also asked to report any notable changes in the girls at 3-month follow-up data collection, and to report on any body image content activities occurring between post-intervention and the 3-month follow-up data collection.

**Program Implementation**

The 5-session DCM intervention was delivered to students at the intervention school during Term 2, 2018. Due to timetabling and public holidays, there were four lessons available for program delivery – Week 4, 6, 8 and 1. Thus, as in Study 1, sessions 4 and 5 of the program were shortened and combined. This shortening of the DCM program is representative of conducting research in a real-life setting, such as a school, and representative of how schools are likely to deliver DCM in real life conditions. Nine separate teachers delivered the program at the same time in their usual pastoral care lessons. The control group participated in their usual pastoral care lessons during Term 2. Teachers from both control schools confirmed that the pastoral care lessons did not include any body image content during the research period.

In Study 1 in 2016, teachers at the intervention school were provided with two hours of training prior to delivering the DCM program. The training comprised body image psycho-education and DCM lesson plan familiarization, comparable to that which was provided in the *Dove Confident Me-Single Session* evaluation (Diedrichs et al., 2015). The researcher, who is employed as the School Psychologist at the intervention school, delivered a face to face version of this training to the teachers

in 2016. Teachers at the intervention school delivered DCM to Year 8 students in 2017 within their pastoral care lessons. Thus, Study 2 was the third time the teachers had delivered DCM. In 2018, prior to delivery of DCM in Study 2, the researcher, who continued her employment at the school as the School Psychologist, provided a one hour of face-face training to teachers highlighting modifications to the DCM program and revisiting the four lesson plans.

**Program Modification**

*Modifications to Materials*

Following the feedback and findings from Study 1, the researcher made a number of modifications made to the DCM program materials. Considering teacher comments regarding the presentation of the program, slight adjustments were made to the colour, font and pictures with the aim of increasing their appeal to the audience. An example of the modification is demonstrated in Appendix F. Participant and teacher feedback indicated that the UK accents and scenarios in some of the videos, particularly the one involving a boy's locker room, were difficult for the Australian girls to relate to or understand. In order to provide more relevant and appealing content, Study 2 sourced videos with Australian content. The first video, produced by *Be Real-Get Real* (S, Paxton, personal communication, 2017) (Appendix G) was shown in Session 2 (Media Messages). The video includes Australian adolescents discussing how media images pressure young people to aspire to the appearance-ideal. The second part of the video shows adolescents discussing how they challenge the appearance ideal on social media. The video is no longer available to access publically. The second video was a clip about Turia Pitt from the Australian *Embrace* documentary (Brumfitt, 2016) included in Session 4. A well-known young Australian woman, Turia experienced burns to 64% of her body after being caught in a bushfire while running a marathon. Prior to her injury, Turia had a career as an Engineer, worked as a model and was an elite athlete, positioning her as an appealing voice for this sample of students. Turia talks about overcoming her physical injuries and not being defined by her appearance.

*Modifications to Implementation*

Implementation of DCM was modified by altering the timetable so to minimize student restlessness and enhance the student-teacher relationship. To address the reported restlessness of students, delivery of the program was moved from the end of the school year (Term 4) to earlier in the year (Term 2). Moving the program earlier in the year had the additional benefit of participants being six months younger than in Study 1. Participants in Study 1 had an average age of 13.3-years, which was 1–3-years older than previous studies with *Happy Being Me* and DCM (Bird et al., 2013; Diedrichs et al., 2015; Diedrichs et al., 2020; Richardson & Paxton, 2010; Torres, 2018). Evidence suggests that classroom-based programs for body image are most effective when delivered to younger participants (Paxton, 1993; Wilksch, 2014; Yager, et al, 2013). As the sample in Study 1 study was at the upper end of the suggested age range 11-13-years, it was felt that Term 2 was a better time for delivering the intervention in Study 2, as the students would be slightly younger. Due to timetabling issues, in Study 1 DCM was delivered to classes by teachers who did not know all of the students. Educational experts testify to the importance of strong student –teacher relationships and the impacts this has on engagement and learning (Hattie, 2009; Martin & Collie, 2016). Thus, Study 2 was designed so that teachers delivered DCM to classes comprising students whom they had known for over a year.

**Intervention Program**

The intervention was the modified *Dove Confident Me* 5-session program (DCM). The program is currently available to the public via the *Dove* website [*Teacher Resources*](#) (Unilever, 2021). In response to both the acceptability ratings and the student and teacher feedback obtained in Study 1, slight modifications were made to the DCM intervention for Study 2 as outlined above. The modifications were made in recognition of the diversity of schools and the way teachers regularly differentiate curriculum in order to meet the needs of their students. Thus, modifiying the intervention in the current study mirrored the types of changes that a school psychologist or teacher might make to

ensure material is contextually relevant and able to fit within the logistic requirements of their school. This is further demonstrated by reducing and combining Session 4 and Session 5, due time rstraints with the timetable at the intervention school. Table 3.3 provided details of the original DCM content and the modified content used in the study.

**Table 3.3**

*Dove Confident Me: 5 Session program content overview*

| Session | Original DCM Content | Modified DCM Content | Reason for Modification |
|---|---|---|---|
| Session 1<br><br>Appearance Ideals | Nature and consequences of appearance ideals<br><br>• What are appearance ideals?- Activity sheet<br>• How are appearance ideals changing?- Video<br>• Can we match appearance ideals?<br>• Where do we learn about appearance ideals?<br>• What appearance related pressures do we face – think, pair share & Activity sheet<br>• What is the impact of these appearance pressures? – Class discussion<br>• What else can we value? - Activity sheet | Nature and consequences of appearance ideals<br><br>• What are appearance ideals?- Activity sheet<br>• How are appearance ideals changing -Pictures<br>• Can we match appearance ideals?<br>• Where do we learn about appearance ideals?<br>• What appearance related pressures do we face – think, pair share & ~~Activity sheet~~<br>• What is the impact of these appearance pressures? – Class discussion<br>• What else can we value? - Class discussion | Pictures were substituted for the animated video to illustrate appearance ideals and pictures facilitated more interaction among the students, they also included cultural appearance ideals.<br><br>Class discussions replaced activity sheets as feedback from Study 1 indicated that students preferred class discussions rather than completion of worksheets. |
| Session 2<br><br>Media Messages | Media literacy<br><br>• What do we mean by media?<br>• How can images be manipulated? - Video & Activity sheet<br>• Why is media created this way?- Class discussion<br>• How would it feel to have your image manipulated?<br>• What is the impact of media messages – Video<br>• Can you decode media messages? - Activity sheet | Media literacy<br><br>• What do we mean by media?<br>• How can images be manipulated? – Video & Class discussion<br>• Why is media created this way?- Class discussion<br>• How would it feel to have your image manipulated?<br>• What is the impact of media messages – ~~Video~~<br>• Can you decode media messages? – Class discussion and Extension Activity Sheet - decode a media advertisement.<br>• Be Real, Get Real videos | Class discussions replaced activity sheets for the same reason outlined above.<br><br>The two-part *Be Real, Get Real* video was included as they involved Australian adolescents and discussed media manipulation, promotion of the appearance ideal, the influence of the media, how it makes you feel, and how adolescents can challenge the fake images they see on social media. |

| | | | |
|---|---|---|---|
| | • What is the influence of social media?<br>• How can we remix our response to the media? | • What is the impact of social media?<br>• How can we remix our response to the media? | |
| Session 3<br><br>Confront Comparisons | Appearance-related social comparisons<br><br>• What ideals are portrayed by the media?<br>• How do we compare ourselves to people around us?- Video & Class discussion<br>• How do we compare our looks?<br>• What happens when people compare their looks? – Activity sheet<br>• What is the impact of these comparisons? – Activity sheet<br>• The whirlpool of comparison<br>• What can we do instead?<br>• Can you catch yourself?- Role play<br>• How will you change your script? - Activity sheet<br>• Be a champion for change | Appearance-related social comparisons<br><br>• What ideals are portrayed by the media?<br>• How do we compare ourselves to people around us?- Video & Class discussion<br>• How do we compare our looks?<br>• What happens when people compare their looks? – Class discussion<br>• What is the impact of these comparisons? – Class discussion<br>• The whirlpool of comparison<br>• What can we do instead?<br>• Can you catch yourself?- Role play<br>• How will you change your script? - Class discussion<br>• Be a champion for change | Class discussions replaced activity sheets for the same reason outlined above. |
| Session 4<br><br>Banish Body Talk | Appearance-based conversations and teasing<br><br>• How do we talk about appearance? – Class discussion<br>• What is body talk?<br>• How do we use body talk?- Videos, Activity sheet & Class discussion.<br>  • Conversations with Friends<br>  • Conversations with the Team<br><br>  • Conversations with the mirror<br>• What is the impact of body talk? - Video<br>• How can we challenge body talk?- Role play<br>• Be a champion for change | Appearance-based conversations and teasing<br><br>• How do we talk about appearance? – Class discussion<br>• What is body talk?<br>• How do we use body talk?- Videos, ~~Activity sheet~~ & Class discussion.<br>  • Conversations with Friends<br>  • ~~Conversations with the Team~~ Conversations on social media - Instagram and body talk<br>  • Conversations with the mirror<br>• What is the impact of body talk?- Video<br>• How can we challenge body talk?- Role play<br>• ~~Be a champion for change~~ | Session 4 and 5 were combined and shortened due to limited time available in timetable<br><br>Class discussions replaced activity sheets for the same reason outlined above.<br><br>Replaced the *Conversations with the Team* (boys locker room) video with a discussion about *Conversations on Instagram* as this was a more relevant situation for the students.<br><br>Turia Pitt video replaced the Champion for Change videos as it was thought she would resonate more with the students. Students considered how they would be a *Champion for Change* by watching Turia's story, reviewing the strategies |

| Session 5 | Body Activism | Body Activism | learnt from Sessions 1-4, and ideas for taking action. |
|---|---|---|---|
| Be The Change | • How can we celebrate individuality? – Activity sheet<br><br>• Be a body confidence champion- Activity sheet<br><br>• Champion change in our world- Video<br><br>• How can we change our world?- Activity sheet<br><br>• Take action together | • ~~How can we celebrate individuality? – Activity sheet~~<br><br>• Be a body confidence champion- Class discussion<br><br>• Champion change in our world- Turia Pitt Video<br><br>• How can we change our world?- Class discussion<br><br>• Take action together- Brief class discussion | |

*Note: Additional/substituted content highlighted in blue. Content removed noted by ~~strike out~~*

Nine teachers delivered the program to their individual classes. Each teacher had experience delivering DCM previously during the past two years and had attended training in 2016 and a refresher in 2018. Prior to each session, the researcher provided the teacher with the updated presentation, embedded videos, activity sheets and session manual. In order to measure fidelity, teachers completed a checklist at the end of each lesson, detailing how closely they followed the session content and identifying any issues that arose.

The control group in each of the two schools participated in their usual pastoral care lessons. In School A, these lessons were called *Life Skills* and were scheduled weekly throughout Term 2. In School B, the lessons were called *Personal Development* and were also scheduled weekly. The content of the lessons included school administrative information, study information and other social and emotional topics. The researcher confirmed with both control schools that the lessons did not involve any body image content during the time period over which data was being collected at the school.

**Data Analysis and Preparation**

Initial data preparation and analyses were conducted using SPSS (Version 24). Descriptive analyses were used to screen for outliers and normality. Of the dependent variables, self-esteem, body-esteem and internalization of thin-ideal were normally distributed. The remaining variables were positively skewed, with the exception of body appreciation, which was negatively skewed, thus

square root transformations were applied to positively skewed variables and a reflect and square root

transformation as applied to body appreciation  to improve normality. An analysis of intervention

effects was conducted on both the transformed and untransformed data. Results are presented using

transformed data.

Intervention effects were analysed using longitudinal mixed models (LMM). LMM was

selected due to the model's four principal strengths: (1) accommodating missing data points often

encountered in longitudinal datasets; (2) not requiring the same number of observations per subject;

(3) allowing time to be continuous rather than a fixed; and (4) increased flexibility regarding the

covariance structure (Chakraborty & Gu, 2009). Furthermore, when dealing with large amounts of

missing data (10-20%), LMM is considered a more precise approach than multiple imputation or

expectation-maximization (EM) algorithm (Von Hippel, 2007).

Preliminary analyses were conducted to determine the most appropriate LMM for each

outcome variable. Four different models were considered for best fit, including: (1) no random

effects; (2) random effect intercept and slope; (3) random effect slope; and (4) random effect for

intercept. The best model, according to Akaike Information Criterion (AIC) (Hastie et al., 2009), was

the model with the random effect for intercept. Thus, intervention effects were analysed using a

mixed effects model that predicted each outcome as a function of Group (intervention and control)

and Time (pretest, post-test and three-month follow-up), and the interaction between Group x Time.

The control group and the pretest measure were chosen as the reference category in order to compare

the effects of intervention across time.

The sample size was calculated according to Twisk (2003) using the Excel document with

embedded algorithm created for Study 1. Unlike the previous study, Study 2 had only three school

clusters. There were 596 participants in Study 2 (intervention group = 242 and control group = 354).

The basic sample size required to detect significance at the 5% level was 294 students per group. To

account for school level clustering, an inflation factor based on a conservative intra-class correlation

coefficient (ICC) of .01 was applied. This increased the minimal sample requirements to detect small

effects to 298 students per group. Therefore, this study is slightly underpowered to detect small effects, but well powered to detect moderate effects (Cohen's $d = .5$, $n = 47$).

Participant attendance at DCM sessions was measured by including an additional question on the post-test survey for intervention students. Students were asked to indicate whether they *did* or *did not* attended each of the four sessions of DCM. A percentage of the total participant attendance rate at each session is provided in Table 2.7 in the Results section to follow. Teacher fidelity to DCM program content was measured by asking teachers to complete a checklist at the end of each session. Table 3.10 provides details regarding teacher fidelity to program manual.

*Figure 3.1*
*CONSORT diagram of recruitment and data collection*

**Recruitment**

Schools approached (n=11)

- ◆ Schools did not respond (n=5 )
- ☐ Schools declined to participate (n= 1)
- ☐ Schools agreed to participate (n= 5)

Schools non-randomized (n=3)

**Allocation**

Allocated to intervention (n= 242)
School (n= 1)
Year 8 classes (n= 9)

Allocated to Control (n=354)
School (n=2)
Year 8 classes

**Pre-test**

Pre-test (n=233, 96%)

Pre-test (n=300, 85%)

**Intervention**

Dove Confident Me Program

Classes as usual

**Post-test**

Analysed (n=195, 81%)

Analysed (n=268, 76%)

**3-mth follow-up**

Analysed (n=195, 81%)

Analysed (n=272, 77%)

**RESULTS**

**Characteristics of Participants**

The final sample consisted of 242 students in the intervention group and 354 students in the

control group. Descriptive data were obtained at pre-test for 533 participants. It was assumed that the

students who did not complete the pre-test measure (*n*= 63), were absent from school on the day of

data collection as these students completed the subsequent data collection measures. Participants were

aged between 11–14 years with a mean age of 12.8-years (*SD*=.39). The majority of students spoke

English at home (75.5%). There were over 20 different languages other than English spoken at home,

the most prominent including Mandarin (1.1%), Cantonese (.6%), French (.6%), Greek (.5%), Italian

(.5%), Korean (.5%), Vietnamese (.5%), Filipino (.4%), Spanish (.4%), Urdu (.4%) and Sinhalese

(.4%). Overall, 7.7% of students were born in a country outside of Australia, including the UK(3.2%),

Asia (Japan, China, Hong Kong, Tokyo, Philippines, Singapore), (1.5%), New Zealand (.5%), Europe

(Italy, Greece), (.4%), Canada (.3%), Columbia (.3%), UAE (.2%), Fiji (.2%) and South Africa (.2%).

There were significant differences across the conditions in relation to country of birth and

proportion of students who spoke a language other than English at home at baseline. The intervention

**Table 3.4**

*Baseline participant characteristics. Values are (n, %).*

|  |  | Intervention | Control | Total |
|---|---|---|---|---|
|  |  | n= 242 | n= 354 | n=596 |
| Age | 11yrs | 1 (.4%) | 0 | 1 (.2%) |
|  | 12yrs | 31 (12.8%) | 42 (11.9%) | 73 (12.2%) |
|  | 13yrs | 194 (80.2%) | 254 (71.8%) | 448 (75.2%) |
|  | 14yrs | 7 (2.9%) | 4 (1.1%) | 11 (1.8%) |
| Born in Australia |  | 205 (84.7%) | 281 (79.4%) | 486 (81.5%) |
| Language other than English spoken at home |  | 46 (19%) | 37 (10.5%) | 83 (13.9%) |
| Missing data |  | 9 (3.7%) | 54 (15.2%) | 63 (10.5%) |

group had significantly more participants born in Australia compared to the control group $t(418)$ =2.47, $p$=.01. Further, the control group had significantly more participants who spoke languages other than English at home compared to the intervention group $t(445) = -2.29$, $p = .02$. Table 3.4 outlines participant characteristics.

**Attrition**

As shown in Table 3.5, 10.5% of data were missing across the groups at pre-test. Missing data at post-test was 22.3% ($n= 70$), which decreased slightly to 21.6% ($n=66$) at the 3-month follow-up. Missing was due to students being absent from school on the day of assessment, or a student deciding to not complete the survey. Missing data were examined using Little's Missing Completely at Random test (MCAR; Little, 1988) and results indicated that the data were missing completely at random, $x2 (489) = 508.62$, $p$=.260.

**Table 3.5**

***Frequency of students completing data collection and attrition rates at each time.***

|  | $n$ | Pre-Test | Post-Test | 3-month Follow-Up |
|---|---|---|---|---|
| Intervention | 242 | 233 (3.7%) | 195 (19.4%) | 195 (19.4%) |
| Control | 354 | 300 (15.2%) | 268 (24.2%) | 272 (23.1%) |
| Total | 596 | 533 (10.5%) | 463 (22.3%) | 467 1.6%) |

**Baseline Comparison of Scores**

Table 3.6 displays the means and standard deviations of untransformed data at pre-test, post-test and 3-month follow-up time points for both control and intervention groups for each outcome variable. A series of independent t-tests found no significant differences on pre-test measures with the exception of social comparison and appearance conversation. The intervention group reported significantly less social comparison ($d= .22$) and appearance conversation ($d= .25$) at baseline compared to control. Results for the independent t-tests are included in Table 3.6.

**Table 3.6**

*Means, Standard Deviation, Minimum and Maximum of Outcome Variables by Time and Group*

| | Intervention | | | | | Control | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | *n* | *M* | *SD* | *Min* | *Max* | *n* | *M* | *SD* | *Min* | *Max* | *t*(df)*p* |
| **Self esteem** | | | | | | | | | | | |
| Pre-test | 233 | 2.72 | .62 | 1.33 | 4.00 | 300 | 2.81 | .67 | 1.17 | 4.00 | -1.65(530), *p*=.09 |
| Post-test | 195 | 2.81 | .67 | 1.17 | 4.00 | 268 | 2.85 | .65 | 1.00 | 4.00 | |
| 3- month | 195 | 2.79 | .67 | 1.33 | 4.00 | 272 | 2.87 | .69 | 1.00 | 4.00 | |
| **Body esteem** | | | | | | | | | | | |
| Pre-test | 233 | 3.40 | .89 | 1.00 | 5.00 | 300 | 3.42 | .94 | 1.00 | 5.00 | -.23(530), *p*=.81 |
| Post-test | 195 | 3.52 | .85 | 1.44 | 5.00 | 266 | 3.46 | .89 | 1.00 | 5.00 | |
| 3- month | 192 | 3.45 | .91 | 1.00 | 5.00 | 271 | 3.41 | .93 | 1.00 | 5.00 | |
| **Body appreciation** | | | | | | | | | | | |
| Pre-test | 231 | 3.76 | .77 | 1.63 | 5.00 | 299 | 3.78 | .83 | 1.00 | 5.00 | -.03(528), *p*=.96 |
| Post-test | 195 | 3.72 | .87 | 1.50 | 5.00 | 265 | 3.77 | .85 | 1.38 | 5.00 | |
| 3- month | 191 | 3.64 | .88 | 1.50 | 5.00 | 263 | 3.68 | .86 | 1.00 | 5.00 | |
| **Internalization** | | | | | | | | | | | |
| Pre-test | 230 | 2.80 | .89 | 1.00 | 4.83 | 296 | 2.81 | .89 | 1.00 | 5.00 | -.68(524), *p*=.49 |
| Post-test | 195 | 2.86 | .90 | 1.00 | 5.00 | 265 | 2.68 | .94 | 1.00 | 5.00 | |
| 3- month | 191 | 2.89 | .93 | 1.00 | 5.00 | 260 | 2.73 | .94 | 1.00 | 5.00 | |
| **Maternal pressure** | | | | | | | | | | | |
| Pre-test | 232 | 1.72 | .53 | 1.00 | 3.11 | 298 | 1.69 | .55 | 1.00 | 4.00 | .26(528), *p*=.53 |
| Post-test | 195 | 1.75 | .58 | 1.00 | 3.44 | 266 | 1.66 | .57 | 1.00 | 4.00 | |
| 3- month | 192 | 1.76 | .63 | 1.00 | 4.00 | 263 | 1.64 | .57 | 1.00 | 4.00 | |
| **Social comparison** | | | | | | | | | | | |
| Pre-test | 230 | 2.23 | .78 | 1.00 | 4.67 | 297 | 2.44 | .86 | 1.00 | 5.00 | -2.76(525), *p*<.01 |
| Post-test | 195 | 2.26 | .76 | 1.00 | 4.33 | 265 | 2.34 | .84 | 1.00 | 5.00 | |
| 3- month | 191 | 2.29 | .93 | 1.00 | 5.00 | 260 | 2.40 | .93 | 1.00 | 5.00 | |
| **Appearance conversations** | | | | | | | | | | | |
| Pre-test | 230 | 1.87 | .92 | 1.00 | 5.00 | 296 | 2.10 | .96 | 1.00 | 5.00 | -3.02(524), *p*<.01 |
| Post-test | 195 | 1.88 | .87 | 1.00 | 4.80 | 265 | 1.99 | .95 | 1.00 | 5.00 | |
| 3- month | 190 | 1.97 | 1.02 | 1.00 | 5.00 | 260 | 2.02 | .93 | 1.00 | 5.00 | |
| **Dietary restraint** | | | | | | | | | | | |
| Pre-test | 229 | 2.16 | .94 | 1.00 | 4.90 | 295 | 2.28 | .93 | 1.00 | 5.00 | -1.64(522), *p*=.10 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Post-test | 195 | 2.08 | .91 | 1.00 | 4.70 | 264 | 2.14 | .89 | 1.00 | 5.00 | |
| 3- month | 189 | 2.08 | .95 | 1.00 | 5.00 | 257 | 2.14 | .93 | 1.00 | 5.00 | |
| **Sociocultural pressure** | | | | | | | | | | | |
| Pre-test | 229 | 1.85 | .83 | 1.00 | 5.00 | 294 | 1.97 | .94 | 1.00 | 4.83 | -1.38(521), *p=*.16 |
| Post-test | 195 | 1.85 | .77 | 1.00 | 4.50 | 265 | 1.85 | .91 | 1.00 | 5.00 | |
| 3- month | 188 | 1.91 | 1.00 | 1.00 | 5.00 | 257 | 1.88 | .90 | 1.00 | 5.00 | |

### Attendance rates for Intervention Program

Table 3.7 provides details of the intervention group's attendance rates for each of the four DCM sessions. Over 93% of the intervention group attended each session.

**Table 3.7.**

*Participant attendance for each DCM session*

| | Attended | Did Not Attend |
|---|---|---|
| | % | % |
| Session 1: Appearance Ideals | 95.92% | 4.08% |
| Session 2: Media Messages | 94.39% | 5.61% |
| Session 3: Confront Comparisons | 93.33% | 6.67% |
| Session 4: Banish Body Talk | 94.90% | 5.10% |

### Effects of the Intervention

*Body Image and Self Esteem*. As shown in Table 3.8, there was a significant change across Time for the self-esteem and body appreciation variable. Specifically, self-esteem was significantly greater at post-test compared to pre-test, while body appreciation was significantly lower at 3-month follow up, compared to pre-test, across both groups. Time did not produce a significant outcome for body-esteem. There was no significant change across Group for the body image or self-esteem outcome variables. The interaction between Time x Group was not significant for self-esteem, body-esteem or body appreciation, meaning that these variables did not improve in the intervention group in comparison to the control group over time.

**Table 3.8**

*Effects of group on self–esteem and body image outcomes across time*

| Predictors | Self-esteem | | | Body-esteem | | | Body appreciation | | |
|---|---|---|---|---|---|---|---|---|---|
| | β | SE | p | β | SE | p | β | SE | p |
| Intercept | 2.81 | .03 | <.001 | 3.44 | .05 | <.001 | .31 | .01 | <.001 |
| Group (Treatment)[a] | -.09 | .05 | .092 | -.04 | .07 | .582 | .01 | .01 | .310 |
| Time (Post)[b] | .070 | .03 | <.05 | .017 | .03 | .606 | .01 | .01 | .799 |
| Time (Follow-up)[b] | .049 | .03 | .103 | -.03 | .03 | .220 | .02 | .01 | <.001 |
| Group x Time (Treatment x Post)[ab] | .01 | .04 | .955 | .06 | .04 | .180 | .01 | .01 | .877 |
| Group x Time (Treatment x Follow-up)[ab] | .01 | .04 | .776 | .04 | .04 | .310 | -.01 | .01 | .636 |
| Random effect for intercept (Variance) | .32 | .02 | | .71 | .04 | | .02 | .01 | |

*Note: Reference category[a] = Control, Reference category[b] = Pre-Test*

***Risk Factors***. As shown in Table 3.9, in comparison to the control group, students in the intervention group reported significantly greater levels of internalization at both post-test ($d$ = .20) and 3-month follow-up ($d$= .20) compared to pre-test. Secondly, compared to controls, students in the intervention group reported significantly greater levels of sociocultural pressure at post-test compared to pre-test ($d$=.30)

Sociocultural pressure was significantly less at post-test compared to pre-test irrespective of group. Dietary restraint was significantly less at post-test and 3-month follow-up compared to pre-test, irrespective of group. There were no significant differences between Group for any of the body image risk factor outcomes with the exception of social comparison and appearance talk. At baseline, the intervention group reported significantly less social comparison and less appearance talk compared to the control group. Final model results for the body image risk factors are reported in Table 3. 9.

**Table 3.9**

*Effects of group on body image risk factors across time*

| Predictors | Social comparison | | | Sociocultural Pressure | | | Internalization | | |
|---|---|---|---|---|---|---|---|---|---|
| | $\beta$ | SE | p | $\beta$ | SE | p | $\beta$ | SE | p |
| Intercept | 1.53 | .01 | <.001 | 1.36 | .01 | <.001 | 2.82 | .050 | <.001 |
| Group (Treatment)[a] | -.05 | .02 | <.05 | -.03 | .02 | .226 | -.05 | .07 | .513 |
| Time (Post)[b] | -.02 | .01 | .120 | -.03 | .01 | <.05 | -.09 | .04 | .062 |
| Time (Follow-up)[b] | .01 | .01 | .795 | -.01 | .01 | .269 | -.06 | .04 | .201 |
| Group x Time (Treatment x Post)[ab] | .03 | .01 | .062 | .04 | .02 | <.05 | .16 | .07 | <.05 |
| Group x Time (Treatment x Follow-up)[ab] | .01 | .01 | .548 | .04 | .02 | .051 | .14 | .07 | <.05 |
| Random effect for intercept (Variance) | .05 | .01 | | .07 | .01 | | .51 | .03 | |

| Predictors | Appearance talk | | | Dietary restraint | | | Maternal Pressure | | |
|---|---|---|---|---|---|---|---|---|---|
| | $\beta$ | SE | p | $\beta$ | SE | p | $\beta$ | SE | p |
| Intercept | 1.41 | .01 | <.001 | 1.47 | .017 | <.001 | 1.27 | .01 | <.001 |
| Group (Treatment)[a] | -.07 | .02 | <.05 | -.03 | .02 | .202 | .03 | .01 | .066 |
| Time (Post)[b] | -.02 | .01 | .095 | -.03 | .01 | <.05 | .01 | .01 | .695 |
| Time (Follow-up)[b] | -.01 | .01 | .619 | -.02 | .01 | <.05 | -.01 | .01 | .936 |
| Group x Time (Treatment x Post)[ab] | .04 | .02 | .104 | .01 | .01 | .513 | -.01 | .01 | .830 |
| Group x Time (Treatment x Follow-up)[ab] | .04 | .02 | .063 | .01 | .01 | .508 | .01 | .01 | .368 |
| Random effect for intercept (Variance) | .07 | .01 | | .07 | .01 | | .03 | .01 | |

*Note: Reference category[a] = Control, Reference category[b] = Pre-Test*

**Table 3.10**

*Teacher fidelity ratings*

| Session | Responses returned | Return % | Completion of Session Content |
|---|---|---|---|
| 1 | 9 | 100% | 65-100% |
| 2 | 9 | 100% | 80-100% |
| 3 | 8 | 90% | 85- 100% |
| 4 | 5 | 55% | 80- 100% |

**Fidelity**

Teacher fidelity ratings are provided in Table 3.10. With the exception of Session 4, there was a

high rate of fidelity checklist return from teachers. Fidelity measures indicated that most teachers

delivered the majority of content in each session.

**Program Feedback**

*Student Feedback – Acceptability*

Table 3.11 provides details obtained at Time 2 from the intervention group (*n*=196)

regarding their ratings of enjoyment, helpfulness, comfortableness and importance of the DCM

program, in addition to how well it was taught. Students rated moderate to high acceptability

regarding comfort (*M* = 3.23, *SD* = 1.21), importance (*M* = 3.35, *SD* = 1.31), and teacher effectiveness

(*M* = 3.71, *SD* = 1.21), and moderate acceptability in regards to enjoyment (*M* = 2.67, *SD* = 1.12) and

helpfulness (*M* = 2.19, *SD* = 1.09) of the program. Figure 3.2 outlines the comparison of student

acceptability ratings between Study 1 and Study 2.

**Table 3.11**

*Intervention group acceptability ratings for DCM program (1-5)*

| | Not at all | A little | Some | Much | Very Much | *M* | *SD* |
|---|---|---|---|---|---|---|---|
| How much did you enjoy these lessons? | 17.35% | 26.02% | 34.18% | 16.84% | 5.61% | 2.67 | 1.12 |
| How much did the lessons help you to feel better about yourself? | 33.67% | 29.08% | 25.00% | 9.18% | 3.06% | 2.19 | 1.09 |
| How comfortable did you feel taking part? | 9.18% | 18.88% | 28.57% | 26.02% | 17.35% | 3.23 | 1.21 |
| How well were the lessons taught by your teacher? | 5.61% | 13.27% | 17.86% | 31.12% | 32.14% | 3.71 | 1.21 |
| How important do you think it is for young people to take part in lessons like these? | 10.71% | 15.31% | 29.59% | 17.35% | 27.04% | 3.35 | 1.31 |

*Note: n=196*

Figure 3.2 and Table 3.12 compare the student acceptability ratings between Study 1 and

Study 2. A series of independent t-tests found significant differences on all measures of acceptability

with the exception of comfortableness. Specifically, the students in Study 2 rated significantly higher

acceptability of DCM in regards to enjoyment, helpfulness, teacher effectiveness and importance.

Results for the independent t-tests are included in Table 3.12.

**Table 3.12**

*Comparisons between Study 1 and Study 2 student acceptability ratings, including means, standard deviation and T-test comparisons.*

| | Study 1 | | | Study 2 | | | |
|---|---|---|---|---|---|---|---|
| | *n* | *M* | *SD* | *n* | *M* | *SD* | *t(*df*)p* |
| How much did you enjoy these lessons? | 181 | 2.22 | 1.12 | 196 | 2.67 | 1.14 | 3.93(375), *p*=<.01 |
| How much did the lessons help you to feel better about yourself? | 181 | 1.90 | 1.13 | 196 | 2.19 | 1.09 | 2.50(375), *p*=<.01 |
| How comfortable did you feel taking part? | 181 | 3.15 | 1.41 | 196 | 3.23 | 1.20 | .59(375), *p*=.55 |
| How well were the lessons taught by your teacher? | 181 | 3.10 | 1.39 | 196 | 3.71 | 1.20 | 4.50(375), *p*<.01 |
| How important do you think it is for young people to take part in lessons like these? | 181 | 2.91 | 1.41 | 196 | 3.35 | 1.31 | 3.09(375), *p*<.01 |

**Student Feedback– Liked most/Least about DCM.**

Table 3.13 and Table 3.14 provide thematic analysis of the feedback comments provided by

students in the intervention group. The thematic analysis followed the same process outlined in Study

1 as suggested by Nowell et al. (2017). Students were asked what they liked the "most" and what they

liked the "least" about the DCM program.

*Figure 3.2*
*Comparisons between Study 1 and Study 2 student acceptability ratings*
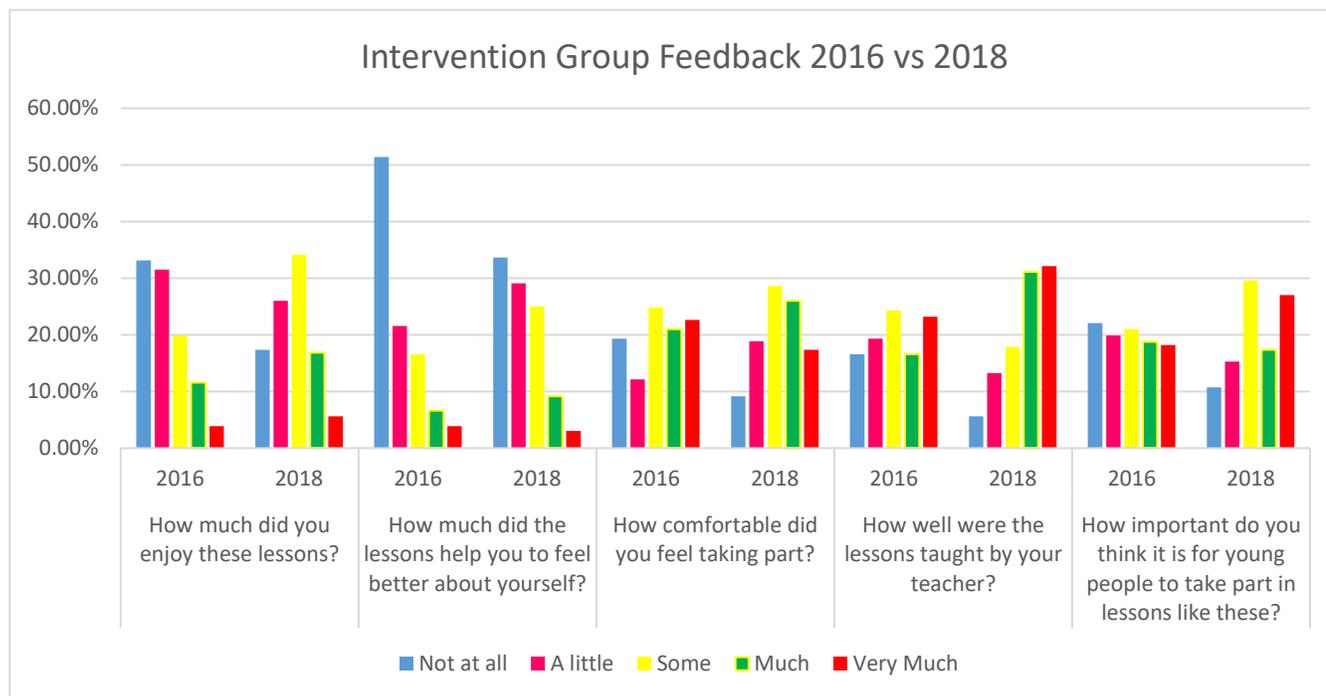


**Table 3.13**

*Intervention Group Feedback "What did you like most about the DCM program"*

|  | *n* | *%* | *Example comments* |
|---|---|---|---|
| Left blank | 36 | 18% |  |
| Nothing | 18 | 9% | *"Nothing"* |
| **Program** | | | |
| Activities | 10 | 5% | *Doing group activities and interactive stuff.* |
| Videos | 28 | 14% | *The videos that allowed us to see real life examples of the different ideas, and body comparison and how everybody feels about their bodies. The real life girls our age telling us about their experiences.* |
|  |  |  | *They had some pretty cool information and videos which I enjoyed.* |
|  |  |  | *I liked the thought-provoking videos.* |
| Interaction/ sharing | 28 | 14% | *The discussions during class and people's different opinions about the topic were interesting.* |
|  |  |  | *How we were free to contribute anything and it was such a welcoming space.* |

| Learnt | | | |
|---|---|---|---|
| Media literacy | 7 | 3% | *They taught that body ideals presented by the media are not realistic.* |
| Appearance ideal | 5 | 2% | *Engaging in class discussion and learning about appearance ideals, and how they are not realistic.* |
| Interesting /helpful | 29 | 14% | *They provide facts and inform students about the unhealthy ways of thinking.* |
| | | | *Provided a deeper insight on how to manage your own ideas with your own body.* |
| | | | *They encouraged me to feel better about my body and to build confidence in myself.* |
| | | | *It talks about problems that happens with young people these days.* |

| Delivery & Experience | | | |
|---|---|---|---|
| Teacher | 8 | 4% | *Our House Teacher taught us so she was really good and nice.* |
| | | | *I love having my House Teacher and my House class with me.* |
| | | | *The lessons were pretty fun and my teacher didn't make it awkward at all.* |
| | | | *That our teacher is willing to teach us and I enjoy it because we can be honest.* |
| | | | *That the teachers were really stepping into the shoes of young teenaged girls.* |
| | | | *That our teacher taught us the importance of being comfortable in ourselves* |
| Relaxing/comfortable | 6 | 3% | *It was a space where no one could judge anything that you said or did* |
| Fun/enjoyable | 7 | 3% | *They were fun and we got to take part in various activities.* |
| Classmates | 19 | 9% | *How it was our House class and we were comfortable talking about it with each other because we were all really good friends.* |
| | | | *I like being comfortable to discuss these topics because there is much support from my friends because we are all in the same boat about it.* |
| No homework | 3 | 1% | *That we didn't get homework* |

*Note. n=202*

**Table 3.14**

*Intervention Group Feedback "What did you like least about the DCM program"*

|  | n | % | Example comments |
|---|---|---|---|
| Left blank | 48 | 24% |  |
| Nothing | 18 | 9% | *"Nothing"* |
| Everything | 7 | 3% | *"Everything"* |

<div align="center">

**Program**

</div>

|  | n | % | Example comments |
|---|---|---|---|
| Boring/ | 32 | 16% | *Sometimes the lessons would be boring.* |
| Repetitive |  |  | *It was very repetitive and sometimes not needed.* |
| Appearance-ideals | 1 | .5% | *It wasn't very open to different kinds of ideals. Like what you like may make you feel like you need to follow a certain ideal.* |
| Body talk | 1 | .5% | *I didn't like when we talked about banishing body talk role play.* |
| Videos | 1 | .5% | *Watching the sad videos* |
| Media | 2 | 1% | *Teachers and parents just think we care about our looks from the media and I don't care what the media look like at all, its mainly just friends and family. I think the program should be more about how to deal with that or how to have body confidence or just more confidence in general because I know many girls lack that.* |
| Comparisons | 2 | 1% | *I didn't particularly enjoy learning about comparisons.* |
| Power point | 4 | 2% | *Going through the power points.* |

<div align="center">

**Delivery/Experience**

</div>

|  | n | % | Example comments |
|---|---|---|---|
| Approach | 20 | 10% | *I would have liked to get more information on how to prevent it and to let everyone know how people can feel.* |
|  |  |  | *I think it was a little bit too anti-positivity, I think it was a bit too much of just ignore all this, and maybe should've been like accept who you are because that's better than the fake beauty of these pictures and also a bit more positive to positive compliments.* |
|  |  |  | *That everything was blamed on the media, when in fact literally no one compares themselves to models and the media because we know it is unrealistic and it's just common sense. The most pressure comes from peers, but not because they are mean, just because you might want to look like them. Also the media is turned into the devil, like we were told that spending 3mins on the 'social media' leads to depression. Sometimes the problem is in real life and the media is and escape.* |
|  |  |  | *They highlighted thing that was not true at least for me especially was when someone compliments my hair for example on photo day I had it straightened, I don't feel like people hate my old hair and that I look bad without it straightened. I felt like a lot of it was based on adults making assumptions.* |

| | | | |
|---|---|---|---|
| Talking | 5 | 2% | *Sometimes we ended up taking up too much of the lessons with discussion that caused us to rush at the end.* |
| My class | 1 | .5% | *Some girls in our class always snickering and judging.* |
| Survey | 2 | 1% | *The surveys.* |
| Teacher | 2 | 1% | *The teacher asking if any of the things applied to the class.* |

| **Body image topic** | | | |
|---|---|---|---|
| Uncomfortable | 26 | 13% | *The fact that there were some topics that I did not expect.* |
| | | | *Some were a bit confronting for some people.* |
| | | | *I felt uncomfortable in these lessons because I eat less because of my weight but it is a good topic to talk about with others.* |
| Made me feel worse | 18 | 9% | *I wouldn't have thought about these things before these lessons and now I feel worse.* |
| | | | *They made me more aware of issues that I hadn't even considered in my day to day life, and made me more uncomfortable rather than less.* |
| | | | *I didn't even think about it and now I do. It doesn't interest me and it was a waste of a lesson. Why do we talk about body talk to reduce it? I don't think we should do it.* |
| | | | *How it made me question my body image and made me watch my weight more than I used to.* |
| Didn't relate | 7 | 3% | *Nothing really, I found it boring and not entertaining in any way. At the beginning of the year I didn't care what I look like, and still don't.* |
| | | | *That people think they help. We already know about what they teach us, and it does not change the fact that slim figures are ideal.* |
| | | | *Views were very one sided. No offence but I feel fine with myself and am only concerned with being healthy not what I look like so it didn't really do anything for me. I am not influenced by the media so for me most of that was pointless (though it would have been very good for lots of girls).* |
| | | | *hat they kind of assume that we all do these things on a day to day basis, which I do not and I'm sure others don't as well* |
| Felt judged (skinny) | 3 | 1% | *I hated the lessons. The lessons focused about people who have a big build and also who are heavy to not lose weight. I myself am very skinny and these lessons don't really talk about people who are underweight.* |
| | | | *I am insecure about my weight because I weigh less than most people my age and height, however these lessons kept telling us to not be skinny, that being skinny and tall was bad and that you should avoid looking like how the media wants you to look like. After every lesson I felt really bad about my body and that I shouldn't try and look like a model.* |

| Empathy for others | 5 | 2% | *The fact that people are actually not happy with themselves and this makes me a bit sad.* |
| | | | *I felt like the topics covered were very close to the heart, and it was difficult to listen to other girls my age going through the same thoughts about their body.* |
| | | | *Some people don't like the way they look and its sad because I wish I could give them some of the positive attitude I have about my weight to them.* |

*Note. n=202*

Several themes emerged including program content, delivery, atmosphere and the experience of discussing body image. While 9% of students indicated there was "*nothing*" they liked most about the program, equally 9% said there was "*nothing*" they disliked most about the program. The main features students described liking most, included videos (14%), interacting with their peers (14%) and learning interesting/helpful things (14%). Students particularly appeared to enjoy participating in the program within their pastoral care class (9%) and being taught by their pastoral care teacher (4%). In contrast, 16% of students described the program as "*boring* and *repetitive*" while 22% said they felt uncomfortable discussing body image or felt the program was a negative experience. By comparison, in Study 1, 29% described the program as "*boring* and *repetitive*" and 17% said they felt uncomfortable discussing body image or felt the program was a negative experience. Emerging themes suggested that while students enjoyed the videos and the opportunity to share thoughts and interact with their peers, a number of students were critical of the program content and message. For example, some students described feeling that the program, or teachers delivering it, made inaccurate assumptions about their feelings and actions. Further, students suggested a greater focus on body positivity, prevention, or the influence of peers, would be a beneficial intervention approach.

### *Teacher Feedback- Comments*

Feedback comments obtained from teachers are provided in Table 3.15. A number of themes emerged regarding the resources, engagement of students and delivery. Teachers provided positive feedback regarding resources, student engagement and teaching their pastoral care classes. While

there were comments regarding limited time, fidelity checklist measures indicated that the majority of

classes managed to complete most, to all, of the content in each session.

**Table 3.15**

*Teacher Feedback Comments Regarding DCM Program.*

| **Manual/Resources** |
| --- |

*Appearance ideals*

*Videos were relevant and students liked the Australian accents.*

*Girls loved the variety of changing appearance ideals over time – it could be a nice cut & paste activity in chronological order.*

*Students noted that the appearance ideals often restrict women from doing what they want to do, and are often set by men.*

*Girls loved the photos of ideals through the ages/cultures.*

*Students loved drawing about today's appearance ideals.*

*Media Messages*

*The clips were relevant and engaging. The students particularly liked the before/after images and were shocked by the amount of enhancement.*

*Went really well and the best comment was at the end when a student said she will comment on things friends do/say/represent, rather than how they look.*

*This group were incredibly resistant to the ideas presented and disagreed regularly with the messages but were at a loss to explain their opinion when asked, "why do you think that".*

*Lots said they did not do social media, but at least half were on for more than one hour a day on average.*

*Some off-topic comments, but overall very thoughtful.*

*Confront Comparison*

*Lesson could have had more activities as it was a little short.*

*More time for activities would have been good.*

*"How good are we at seeing ourselves" video- wonderful/powerful, girls reacted well/very worthwhile/ we loved this video/ excellent as it bought the whole session together and made the purpose of the discussion clear.*

*Banish Body Talk*

*The group has decided to try to avoid body talk and focus on personality.*

*Girls enjoyed the role- play activity.*

*Role-play was light and silly but girls enjoyed it and got the message.*

*Video was quite powerful.*

| **Engagement** |
| --- |

*The lesson went very well. The students were super receptive and enjoyed the material.*

*This was a great lesson and the girls really enjoyed it. Lots of thoughtful class discussion.*

*Went well, students engaged well.*

*Lots of talk – students were glowing at the end of the lesson – very affirming.*

*Students seemed very engaged.*

*Girls are having great discussions and are quite thoughtful.*

*Lesson went well and we had great discussions*

*Good discussion, related to previous lessons.*

*Class responded with interest and maturity.*

### Delivery

*This lesson moved along at a good pace.*

*Ran out of time, but had a valuable discussion about ideals.*

*The lesson went very fast and I managed to get through the whole thing.*

*Although we worked through the whole lesson, it still felt rushed.*

*I am enjoying teaching this to my House class- much more effective.*

## DISCUSSION

This chapter reports on a second independent replication and evaluation study of a modified version of the universal classroom-based body image program *Dove Confident Me* (DCM). Following low acceptability ratings in the initial replication, and a timetabling issue that resulted in a lack of student-teacher engagement, the intervention program was slightly modified to better suit a selective sample of Year 8 students in an Australian single-sex girl's school. Modifications were made in alignment with the usual adaptations that teachers and school psychologists might make to programs prior to implementation. For example, changing the presentation of material to make it appeal to their students, and changing the format of the lessons to fit the timetable and class time available. Further, careful timetable planning in Study 2 allowed teachers to deliver the program to students with whom they had a pre-existing relationship. According to the scale assessing acceptability, the modified program received significantly higher participant scores in regards to helpfulness, enjoyment,

importance and being well taught, compared with Study 1. Further, results revealed significant improvements in both self-esteem and dietary restraint from Time 1 to Time 2. However, as these improvements occurred across both the intervention and control groups, they are not considered an outcome of the intervention. Therefore, despite the modifications, overall, the findings did not support the hypothesis that the modified DCM intervention would effectively improve the body image or reduce eating disorder risk factor outcomes of participants compared to a control group.

Results revealed that following the intervention, self-esteem was significantly greater in both the intervention and control group, whereas body appreciation and dietary restraint had significantly reduced across both groups. Further, compared to the control group, participants who completed the intervention reported a significant increase in both internalization of the thin-ideal and perceived sociocultural pressure at post-test. Yet this was only maintained at the 3-month follow-up for internalization of the thin-ideal. Similar findings were reported in Study 1 for both self-esteem and dietary restraint. In contrast to the current findings, body appreciation improved across both groups in Study 1 whereas it reduced in Study 2. Further, the current findings do not support previous research trials as self-esteem and body satisfaction improved following participation in *Happy Being Me* (Richardson & Paxton, 2010) and *Happy Being Me –Co-ed* (Dunstan et al., 2017).

Unexpectedly, the results revealed a finding in the opposite direction to that hypothesized for internalization of the thin-ideal and perceived sociocultural pressure. Intervention participants reported significant increases in both variables compared to control from pre-test to post-test. Further, these results were maintained at the 3-month follow-up for internalization, but just failed to reach significance ($p = .51$) at follow-up for sociocultural pressures. Increases in perceived sociocultural pressure by intervention participants at post-test have previously been reported in the literature (Diedrichs et al., 2015; Wilksch et al., 2015), and Study 1 produced a similar finding. Diedrichs et al. (2015) suggests that the increase in sociocultural pressure may be a reflection of the scale's measure of awareness of sociocultural pressure, rather than feelings of distress. As such, the current finding

may demonstrate the DCM program's focus on increasing participant's ability to recognize certain sociocultural pressures.

Of particular concern is the reported increase of internalization of thin-ideal in the intervention group following participation in the DCM program. This finding, evident at post-test and maintained at the 3-month follow-up, is inconsistent with both Study 1 and previous research trials. However, it is important to note that the scale used in the current study to measure internalization was the IBSS, which was different from the SATAQ used in Study 1 and the research trials. While not as commonly used with the adolescent age group as the SATAQ, the current finding is also inconsistent with similar studies using the IBSS measure with a comparable population (Stice et al., 2003b; Trost, 2006). According to Thompson et al. (2018), the questions comprising the IBSS capture a less personalized desire for thinness and instead focus on the awareness of sociocultural ideals. Thus, this finding too may highlight enhanced participant awareness of sociocultural ideas, rather than increased desire for thinness, resulting from DCM's focus on teaching students to recognize these appearance-based pressures. Yet, a note of caution is warranted. Close to 10% of feedback comments indicated that participants were not conscious of their body image prior to DCM and they felt the intervention left them feeling worse about their body image. While such comments are comparable to those received in Study 1, the current study also reported a significant reduction in body appreciation, albeit across both the intervention and control groups. It is therefore important to consider the possibility that the intervention may have had an adverse effect on some participants' internalization of the thin-ideal and perceived sociocultural pressures.

As in Study 1, a number of findings in the current study are inconsistent with the initial research trials. The initial evaluations of DCM with co-educational samples from the UK indicated significant improvements in body esteem following participation in the both the single-session (Diedrichs et al., 2015) and 5-session programs (Diedrichs et al., 2020; Torres et al., 2018). Further, previous trials resulted in significant reductions in a number of eating disorder risk factors. In

particular, Diedrichs et al. (2020) reported significantly less appearance-based teasing at 6-months and 12-months, while the single-session DCM trial reported significant reductions in negative affect, dietary restraint and barriers to life engagement at post-test (Diedrichs et al., 2015). In comparison to these previous trials, the current study did not examine barriers to life engagement, negative affect or appearance-based teasing, as was done in Study 1, due to a desire to reduce the length of the survey and include a measure of maternal influence.

In regards to suitability of the modified program, examination of the acceptability ratings and feedback comments from both participants and teachers suggests that modification of the intervention was successful in increasing engagement. The modified intervention received moderate to high acceptability ratings from participants with 71.9% of students reporting that they felt comfortable participating in the program and 81.1% reporting that the program was well taught by their teacher. Approximately half of the participants (56.6%) said they enjoyed the lessons and just over a third (37.2%) indicated the lessons helped them to feel better about themselves. Teacher feedback provided support for the modified program by noting a high level of engagement, thoughtfulness and responsiveness from their students. Yet, some difficulties completing sessions within the lesson timeframe were noted. Overall, participants in Study 2 rated the modified DCM intervention significantly higher in regards to enjoyment, helpfulness, importance, and teacher effectiveness, compared to students completing the original DCM program in Study 1. Further, unlike Study 1, the current acceptability ratings were comparable to those from participants in Diedrichs et al. (2020), suggesting that the modified program was a better fit for the selective group of Australian Year 8 girls.

**Explanation of Findings**

There are several possible explanations for Study 2 results including age and ability of participants, body satisfaction at baseline, and that modifying the intervention may have reduced its effectiveness.

Participants in the current study had a mean age of 12.8 years, which although 6-months younger than Study 1, is still 1-2 years older than participants used in the initial research trials (Diedrichs et al., 2020; Torres et al., 2018). The appropriate age for delivering school-based interventions has been suggested to be 12-13 years (Yager et al., 2013). While the current sample falls within this suggested age range, it is important to note that the students attend a school with a strong academic focus, and internal benchmark testing indicates the population skews to the upper level of ability. Therefore, despite the current students being younger compared to Study 1, the modified intervention may still be too simplistic for them due to their high level of ability.

Examination of the baseline measurements revealed that intervention participants had significantly less social comparison and appearance-based talk compared to the control group. This was also evident in Study 2, which comprised of completely different cohorts and different control group schools. Further, a number of participants appeared to score within normal range at baseline on a number of measures, some more so compared to Study 2. Consequently, participants may have had little scope to further improve their scores. Twelve percent of intervention participant feedback comments indicated they did not find the intervention relevant, or they felt "worse" following participation, suggesting that the null outcomes may be reflective of these students experiencing adequate body satisfaction prior to the program, and as such, not warranting the intervention. While longer follow-up measures, such as those used by Diedrichs et al. (2020), may have provided clarification and revealed possible preventative effects, the study was not designed to examine this.

Following feedback received by participants and teachers in Study 1, slight modifications were made to the DCM intervention to better suit the population of the current study. The changes made in this study are similar to what other teachers and school counsellors might do to adapt materials to their specific context. While the acceptability of the program was significantly strengthened, modifying the intervention could have contributed to the null findings. Given both the single session and 5-session trials of DCM reported positive outcomes (Diedrichs et al., 2020; Diedrichs et al.,

2015), the null findings of the current study are concerning. It is possible that the removal of worksheets, shortening of Session 5 and substitution of Australian videos, may have weakened the effectiveness of the program. Session 5 involves an activism component asking students to make a commitment to engage in promoting positive body image behaviours and actions among themselves and others. While this content was included, it needed to be condensed to fit into Session 4. The worksheets, while criticized by many students in Study 1, may have ensured increased fidelity to manual content instead of the class potentially becoming sidetracked with preferred discussion. Thus, condensing of both Session 5 and removal of the worksheets could explain the inconsistent outcomes between the current study and previous trials.

**Implications**

This study examined a modified globally disseminated, universal, body image intervention, designed for co-educational audiences. The aim was to provide real-life insight regarding effectiveness and acceptability with a selective group of Australian Year 8 girl's. Thus, the findings build upon those learned in Study 1 and offer a valuable contribution to researchers considering global dissemination of school-based body image programs, and to schools considering program implementation.

Initially, the findings from Study 1 suggested that failure to improve body image and reduce eating disorder risk factors might have related to lack of engagement with the DCM program due to specific cultural idiosyncrasies evident within the videos and visuals of the program, coupled with a weak student-teacher relationship and limited teacher competence with delivery. After conducting targeted modifications to DCM, rectifying the timetabled class issue, and allowing teachers additional practice at delivering the program, Study 2 reported significant improvements in program acceptability ratings and student engagement. Despite these improvements however, there remained a lack of positive body image outcomes. This has implications for those developing interventions, as

researchers may need to specify the importance of not removing or adapting any content, thus restricting modification of programs. Further research would be required to clarify this.

A second possible implication may be that DCM, both in the original and modified form, is not effective in improving body image or reducing eating disorder risk factor outcomes in a selective population of Australian girls attending a single-sex school. More generally, this implication would suggest that selective and universal programs might not be successfully used interchangeably. Consequently, the influence of school environment, gender and country could prove a hindrance to successful global dissemination. As such, attempts to develop one universal intervention, effective for worldwide delivery, might prove too ambitious. The present study raises the possibility that a number of programs are required, to suit both universal and selective audiences, as well as co-educational and single-sex populations, across the three key age groups in secondary school (12-13, 14-15, and 16-18-years).

As demonstrated in both Study 1 and Study 2, teachers can often face unpredictable obstacles preventing them from implementing wellbeing interventions exactly as prescribed by researchers. For example, a teacher in the current study reported that due to technology failure, she was unable to deliver the power point or video in one session. Therefore, such findings not only behoove researchers to continue their work in developing brief, effective programs, that readily fit into school timetables, but to also be cognizant of how teachers themselves engage with interventions. Moreover, the role of a teacher is to know how each of their students learn. Teachers are required to differentiate the curriculum in order to reach every student in their class. Thus, expecting teachers to follow a prescribed manualized program and not differentiate social and emotional curriculum to suit the needs of their students, may be unrealistic. In recognition of the way schools typically modify available programs in order to suit their individual needs, the current findings support the need for researchers to develop flexible and robust interventions.

Creating school-based resources, malleable in content and design, yet robust enough to sustain effectiveness, may seem like the utopia of intervention design. However, failure to do so could result in researchers continuing to painstakingly develop, and trial, evidence-based programs, yet have their success hampered by the often less than ideal conditions within real-life school settings. While there are clear benefits to modifying programs to suit students, there are also risks in removing content or adapting activities. Ideally, researchers may provide interventions that include options for modification, or will work with schools to create tailored interventions suitable to specific populations.

**Strengths and Limitations**

Comprising a number of strengths, the current study extended upon Study 1 by responding to the call for independent replication prior to wide-scale dissemination of universal intervention programs (Ciao et al., 2014; Wilksch, 2014). Specifically, Study 2 conducted a replication of a modified intervention that provided insights regarding the malleability of universal school-based programs. In addition, Study 2 contributed to the growing research on engaging endogenous facilitators to deliver body image prevention programs.

A unique strength of the current study was the opportunities afforded to the researcher due to her position within the intervention school. This provided the researcher with unique knowledge, experience and access to teacher resources and expertise, in order to best modify the intervention specifically to suit the students targeted by the intervention. Further, the current study benefited from the knowledge obtained from Study 1, together with the researcher's role within the school. For example, organizing timetable changes to allow teachers to deliver DCM to classes they know and scheduling the intervention to occur during Term 2, rather than Term 4, which required the entire Year 8 camp timetable to be rescheduled, something that would have been difficult to achieve as a researcher negotiating for the timing of the program from outside of the school context.

A particular strength of the current study lies in the comprehensive student feedback obtained providing insight and understanding regarding implementing body image programs within schools. While in research it is not uncommon to obtain participant feedback, the current study extends this by examining both the acceptability rating scores and freeform feedback comments provided by all student participants, and comparing these between Study 1 and Study 2. As such, it provides evidence to support the hypothesis that a strong student-teacher relationship benefits student engagement with wellbeing interventions, as it does for academic learning (Hattie, 2009; Martin & Collie, 2016). Further, the feedback illustrates how targeted modifications made to school-based intervention programs can enhance their acceptability with a selective audience. Finally, a strength of Study 2 was that it was the third time teachers had delivered DCM to Year 8 students. Commonly, research using endogenous providers involves evaluating their first delivery of an intervention program. Thus, the level of experience, confidence and competence teachers held regarding the DCM resource highlights a unique strength.

The study also has some limitations. Similar to Study 1, teachers delivered DCM at the same time and as such, fidelity measures relied on teacher report rather than observations of practice. While fidelity checklists suggested moderate to high adherence, the preference for peer discussion may have meant that while some classes covered the prescribed content there was also additional erroneous content included in some of the lessons. Again, the study was restricted to fortnightly sessions, instead of weekly and the Term only allowed for four sessions, rather than the prescribed five. Further, baseline analyses revealed significant difference between the intervention and control group in regards to country of birth and proportion of students who spoke a language other than English at home. The intervention group had significantly more participants born in Australia compared to the control group and significantly less participants who spoke languages other than English at home compared to the control group, suggesting less cultural diversity in the intervention group. It has been reported that Asian-American girls have higher body dissatisfaction compared to other racial groups

(Bucchianeri et al., 2016), however the differences between body dissatisfaction and racial groups is considered negligible (Bucchianeri et al., 2016). Therefore, the difference regarding cultural diversity between the intervention and control groups is not likely to have impacted on the findings. Finally, as in Study 1, the sample size in the current study was underpowered to detect small effects.

**Recommendations**

The findings of the current study invite a number of recommendations for both researchers and schools considering future implementation of school-based body image programs. First, while the findings contribute support for task-shifting delivery of body image programs to teachers, the study highlights the importance of a strong student-teacher relationship. It is recommended that only teachers whom students have a pre-existing positive relationship with, teach wellbeing interventions, particularly those involving body image content.

Secondly, when teaching topics relating to body image, the credibility of the facilitator is as essential as program content. Despite an improvement in student-teacher relationship, there were feedback comments suggesting that some participants resented their teachers delivering the program, and felt 'the adults' were making assumptions. Given DCM involves reducing eating disorder risk factors, it is possible that some participants may have felt they were being told what not to do (e.g. engage in body talk, compare self to others) and this may have provoked feelings of rebellion or resentment. Therefore, a peer-led delivery approach may be suitable for body image content as participants are likely to feel that an older peer may relate to their situation more so than a teacher. The use of peer-led facilitation has proved effective in university populations in regards to the cognitive dissonance intervention, the *Body Project* (Becker et al., 2010; Stice et al, 2013b). The intervention school is increasingly adopting this model as a teaching approach for a number of wellbeing topics, including cyber-safety and anti-bullying. Stemming from the peer-mentoring model, older students within the school assist teachers and school psychologists to deliver wellbeing curriculum to the younger cohorts. While it requires careful scaffolding for peer facilitators, the

intervention school has found this approach well received by younger students, and it further provides additional leadership opportunities for senior students. Given the growing body of evidence within the research field support task-shifting delivery of body image interventions to teachers, a recommended future direction for research is to examine the feasibility of task-shifting to peer-leaders.

Finally, shifting the focus of school-based body image intervention to include a more body positive approach may reduce participant reports of feeling uncomfortable, reduce any potential negative outcomes due to increasing awareness of body image, and support contemporary approaches within the field of women's body image interventions. Self-compassion, the art of being kind with oneself, is one such approach and avoids the need to discuss bodies or appearance at all. With evidence to support its use in improving body satisfaction in university students and women (Albertson et al., 2014; Waslylkiw et al., 2012), self-compassion is considered a protective factor against body dissatisfaction (Braun et al., 2016). Interventions focusing on the promotion of positive body image have demonstrated considerable evidence of their benefits with populations of women (Alleva et al., 2015; Alleva et al., 2018; Albertson et al., 2014; Mulgrew et al., 2017; Guest et al. 2019). Research indicates that body appreciation is a distinct construct, separate from body dissatisfaction (Tylka & Wood-Barcalow, 2015b), hence it is possible to both appreciate your body, while feeling dissatisfied with parts of it. Thus, while the war is yet to be won in regards to the prevalence of body dissatisfaction among teenage girls, a strategic approach may be to direct energy toward bolstering the appreciation, positivity and self-care girls demonstrate towards their developing bodies.

**Conclusions**

Study 2 extended upon Study 1 by attempting to rectify a number of limitations and conducting a second replication in order to determine the effectiveness and acceptability of DCM with a sample of Year 8 girls attending a single-sex Australian school. While the findings demonstrated significant improvements in regards to acceptability, contrary to expectations, there was no

improvement in body image outcomes or eating disorder risk variables. It is unclear whether the null

findings indicate that DCM is not an effective body-image intervention for girls attending a single-sex

Australian school, or that modifying the intervention rendered it less effective. However, the study

offers insight into the complexities of developing interventions for global dissemination, the

importance of recognizing how schools implement programs in real-life, and the impact student-

teacher relationship has on engagement with interventions.

**CHAPTER 4**

**STUDY 2: EXAMINATION OF *RAISING CONFIDENT GIRLS***

**OVERVIEW**

The past two decades have seen an increasing commitment by researchers to developing etiologically based body image promotion programs for children. Systematic reviews have suggested that effective programs be multi-sessional, interactive and avoid psychoeducation about eating disorders, or the sharing personal experiences (Ciao et al., 2014; Stice & Shaw, 2004; Schwartza et al., 2019; Yager et al, 2013). Rather, it has been recommended that interventions include media literacy and focus on reducing known risk factors for eating disorders, including internalization of thin-ideal, social comparison and appearance-based conversations and criticism (Durkin et al., 2007; McLean et al., 2013, Yager et al., 2013). Further, given limited sustained improvements body image programs have had in reducing sociocultural pressures, researchers have suggested that interventions need to involve the wider community (McCabe et al., 2017; Taniguchi & Thompson, 2015). Accordingly, the next terrain in prevention program development is for researchers to adopt an ecological approach by extending interventions to consider the environment within which individuals live. Yet, despite the call in 1996 for the inclusion of parents in eating disorder prevention programs (Graber & Brooks-Gunn, 1996), progress has been startlingly limited (Hart et al., 2015).

The major objective of the current study is to determine how parents can best be included in a body image promotion program within the real life setting of an Australian girls' school. The findings obtained in Study 1 (outlined in Chapter 2), suggested minimal improvements in body image outcomes following participation by Year 8 students in the school-based program *Dove Confident Me* (DCM). Etiologically based and developed for delivery in classrooms, DCM addresses sociocultural factors including media literacy, peer relationships, comparison and communication. Yet, while the

program is mindful of the ecological context of the peer group within the school, the curriculum does not include parents.

The current chapter provides the theoretical context to support phase two of Study 2, an expansion of the research project to include the development and inclusion of an intervention program for mothers. Specifically, Chapter 4 details the development and evaluation of *Raising Confident Girls*, a 3-session intervention provided to mothers of Year 8 students, alongside student participation in a modified version of DCM. Analysis of modified DCM results was outlined in Chapter 3, whilst this chapter includes a literature review and an outline of the complementary program developed specifically for mothers, including method, results and a discussion of the findings

The introduction that follows and literature review is divided into three sections. Beginning with an examination of parental influences on children's body image, the focus then shifts to consider body image in women and mothers, before providing an overview of the inclusion of parents in eating disorder prevention. Finally, the introduction outlines the current study including research aims and hypotheses.

## INTRODUCTION

### Parental Influences

**Influence of Parents – Mothers and Fathers**

Parents serve as important sociocultural transmitters of messages for boys and girls, and influence the development of their children's body image both directly and indirectly (Salci & Paxton 2017). Direct influence involves comments, teasing, or criticism regarding weight and shape, or offering well-meaning encouragement to lose weight, while indirect influences involve parents influencing their children through modelling body-related attitudes and behaviours. Hence, direct

influence comprises deliberate body-related communication, whereas indirect influence, exerted more passively, involves modelling (Linville et al., 2011).

**Direct Influences - Comments, Criticism and Encouragement to Lose Weight**

*Comments and Criticism about Parent's Own Weight and Shape*

Even from a very young age, children are aware of parental body dissatisfaction, weight bias and dieting (Lowes et al., 2003; Spiel et al., 2016). This is likely due to parents underestimating the impact that their own comments and behaviours have on the children observing them, or perhaps parents being oblivious to how much they talk about their own body image with, or in front of, their children. Rodgers et al. (2019) revealed an association between mothers making comments regarding their own body shape or eating, and increased disordered eating in daughters aged 7 and 8 years. This study further demonstrated the longitudinal impact of such comments, by reporting that a mother directing a comment towards her daughters at age 7-years was associated with increased dietary restraint in the daughter at age 8-years (Rodgers et al., 2019). Further, it has been suggested that a daughter's perception of parental encouragement, criticism and comments is more predictive of body dissatisfaction and disordered eating outcomes than parental reports of such behaviours (Keery et al., 2006; Kicher & Crowther, 2001; Sniezek, 2006). Thus, parents can be unaware, or underreport, the impact of their direct influence.

An examination by Lydecker et al. (2018) discovered that over 70% of parents said they regularly made self-derogatory statements about their weight or shape in front of their child. One might argue that this occurs within the context of parents assuming that making such statements is without consequence. However, over half of the parents in this study also reported making a derogatory, or fat talk statement about a person with obesity, while 43% acknowledged making a fat talk statement about their own child, in front of him/her (Lydecker et al., 2018). Of concern, is the finding that maternal comments or criticism, regarding weight were not only recalled years later by daughters, but were also associated with disordered eating (Arroyo et al., 2017). Alarmingly, a

number of studies support the prevalence of parental weight-based teasing (Berg et al., 2016; Lydecker et al., 2018). Such communication has been associated with body dissatisfaction, dieting, depression and extreme weight control behaviours in children (Arroyo et al., 2017; Balantekin et al., 2014; Bauer et al., 2013; Berge et al., 2013; Berge et al., 2018; Helfert & Warschburger, 2011; Shaffer & Salafia, 2014). Further, there is evidence to indicate that children subject to teasing from parents were also more likely to be subject to teasing from a sibling (Keery et al, 2005; Shaffer & Salafia, 2014). Thus the impacts of this behavior can be far reaching.

### *Encouragement to Lose Weight*

Given societal pressure on parents to regulate children's diets as a means to reduce childhood obesity (Budd & Hayman, 2008; Sahoo et al., 2015) it is understandable that some parents may make well-meaning comments regarding their child's diet or weight. In a study by Winkler et al. (2018), it was revealed that 53% of the parents of 9-17-year olds, and 36% of the parents of 5-8-years olds engaged in discussions regarding their child's weight. Further, close to 20% of the parents in the Lydecker et al. (2018) study indicated that they told their child they had either gained weight and/or should not be eating fattening foods. Many parents may consider this appropriate or good parenting, especially if their child is overweight, or engaging in unhealthy eating. However, in their examination of the consequences of parents discussing diet and weight habits with their children, Berg et al. (2013) found that the specific content of the discussion was pivotal. The study revealed that adolescents whose parents engaged in conversations with them about weight loss only, were significantly more likely to engage in dieting, disordered eating and unhealthy weight control behaviours, compared to those whose parents focused on healthful eating (Berg et al., 2013). Further, this finding was evident in adolescents who were both overweight and of normal weight. Thus, even well-meaning comments by parents can be associated with disordered eating behaviours in children of a healthy weight. Interestingly, a later study by Berg et al. (2016) differentiated that mothers had a tendency to make more negative weight-based comments to their children focusing on food, whereas fathers tended to

focus on body parts. Moreover, a longitudinal study by Helfert and Warchburger (2011) found that parental encouragement regarding a child's weight and shape predicted greater body dissatisfaction than parent teasing by use of hurtful nicknames. Thus, well intentioned or not, certain conversations between parents and children regarding weight and diet can have a negative effect.

The above studies suggest many parents are navigating a complex web of responding to societal pressures to reduce obesity rates in their children, while risking inadvertently exacerbating disordered eating via their well-meaning attempts. Consequently, researchers have concluded that interventions with parents need to highlight the dangerous influence certain comments have on children (Lydecker et al., 2018). It is imperative to help parents understand the importance of nuanced conversations with their children, and the need to focus on health behaviours rather than criticizing or reducing weight (Berg et al., 2013). Finally, educating parents about the detrimental effects of fat talk is imperative. For whether it be a harmless taunt in jest from a father, or an attempt to bond by a mother, evidence suggests significant ramifications for daughters (Arroyo & Andersen, 2016) that may extend well into adulthood (Klein, 2016).

Although both parents influence the body image of children, there are inconsistencies evident in the literature regarding the dominance of mothers and fathers.

**The Influence of Fathers on Daughter's Body Image**

Given the difference in gender and body shape, a number of early studies suggested minimal modelling of body image attitudes and behaviours between fathers and daughters (Abramovitz & Birch, 2000; Attie & Brooks-Gunn, 1986; Ogden & Stewart, 2000; Steiger et al., 1996; Thelen & Cromier, 1995). However, associations between a father's body image related comments, attitudes and behaviours, and those of his daughter have been reported (Dixon et al., 1996; Field et al., 2001: Smolak et al., 1999). Early studies of primary school-aged children found that a father's complaints and concerns regarding his own weight were associated with less body esteem, more weight loss attempts and fear of getting fat from his daughter (Smolak et al., 1999). In addition, Dixon et al.

(1996) reported a father's encouragement to lose weight and modelling of dieting behavior was correlated with more dieting, purging and vomiting in adolescent daughters. Further, dieting in children was predicted both by how much a child perceived thinness was important to their father (Field et al., 2001), and perceived pressure to be thin from a separated or divorced father (Shisslak et al., 1998).

A more recent longitudinal study examining the impacts of parental dieting or comments about weight/eating during late adolescence on future body image, reported paternal comments predicted greater drive for thinness in women twenty years later (Klein et al., 2016). Interestingly, while this study reported that women recalled receiving more comments during adolescence from their mother, it was the paternal comments that predicted their future drive for thinness. Thus, while mothers offered more comments about eating or weight to their children, it was the paternal comments, although less frequent, that had a more potent effect twenty years later (Klein et al., 2016). Perhaps comments from a father resonate more with daughters than do those from her mother due to their infrequency. Yet the content of comments is also pertinent. One study of French adolescents revealed that daughters reported that their mothers provided more comments compared to fathers, but that comments from fathers were more negative (Rodgers et al., 2009). Further, in their evaluation of the impact of maternal and paternal criticism on body satisfaction, Biolcati et al. (2020) reported that maternal comments affected females aged 18-23-years, while paternal comments affected older females aged 24-28-years. The researchers suggested that as daughters mature, fathers prove more of an influence because they act as models for future partners, whereas during adolescence mothers are the dominant influencer due to the mother-daughter bond.

**Maternal Influences on Daughter's Body Image**

Mothers and daughters influence each other throughout childhood and adolescence. A mother can influence her daughters emerging body image directly, through comments and conversation, indirectly, through modelling, and emotionally, via the relationship they share.

Given they share gender, and often a similar body shape it is understandable that a girl's emerging body image is influenced by her mother. Early research found body dissatisfaction in children was related to perceived body dissatisfaction of mothers and not fathers (Lowes & Tiggemann, 2003), while greater drive for thinness in children was associated with mothers who diet (Wertheim et al., 2002). Using an older sample of adolescents 11-18-years, Field et al. (2005) found girls who believed thinness was important to their mothers, whether accurate or not, were significantly more inclined to think about being thin, and engage in more frequent dieting, compared to those who perceived thinness as unimportant to their mothers. Further, multiple studies posit that compared to fathers, it is mothers who predominately offer more body related messages (McCabe et al., 2006; Phares et al., 2004; Taniguchi & Aune, 2013; Thelen et al., 1995), are more concerned with establishing and enforcing appearance expectations (Kanakis & Thelen, 1995; Smetana, 1998), explicitly encourage their daughters to lose weight (Benedikt et al., 1998; Klein et al., 2016; Wertheim et al., 2002), offer more assistance with dieting, and are more critical of their daughter's bodies (Wertheim et al., 1999).

Thus, studies with young girls, adolescents, and adult women support the premise that a mother plays an integral role in shaping the attitudes and behaviour a daughter has regarding herself and her body (Shenaar-Golan & Walter, 2015). Given they are a dominant influence on their daughter's body dissatisfaction, so too it is likely that mothers could be a key prevention resource. In order to harness the pivotal influence of mothers, we must first understand further the dynamics of body image within the mother-daughter context.

### *Direct Influences - Fat Talk by Mothers*

According to the tripartite model (Thompson et al., 1999), mothers can act as important socializing agents for daughters and may reinforce societal pressures regarding thinness and appearance through their direct interactions (Linville et al., 2011). Direct influences include weight related conversations, comments, criticism, teasing or encouragement to lose weight. Further, even

praising a daughters' appearance or weight loss can inadvertently reinforce appearance ideals, and result in a daughter feeling that she did not look attractive previously (Rodgers, 2012).

For many mothers and daughters, engaging in appearance-based conversations, or fat talk, is a common occurrence and studies indicate that mothers and daughters share significantly similar levels of body talk (Arroyo & Andersen, 2016; Rogers et al., 2017). It is concerning that those who engage in more body talk report significantly greater body dissatisfaction (Arroyo & Andersen, 2016) and that while body talk may be akin to a bonding experience, research indicates that a mother's body talk is positively associated with bulimic behavior in young adult daughters (Arroyo & Andersen, 2016). In addition, in adolescents, greater eating pathology was reported by daughters whose mothers reciprocated their high levels of body talk, compared to daughters whose mothers did not reciprocate the same levels (Chow & Tan, 2018). The authors of that study therefore suggested that reciprocity of fat talk between a mother and daughter allows for transmission of maternal body image concerns and provides an opportunity to reinforce the internalization of appearance ideals. Further, as the reciprocity did not have the same detrimental effect on the level of eating pathology for the mother, the researchers concluded that adolescent girls are especially vulnerable to mutual body talk disclosure with their mothers (Chow & Tan, 2018).

### Indirect Influences - Modelling of Weight and Shape- Based Attitudes, Ideas and Behaviours

Social learning theory provides insight into why a girl adopts her mother's attitudes and behaviours regarding body image and weight loss. The theory postulates that children learn from watching or imitating others, particularly those most like him/her (Bandura, 1971). Since modified to social cognitive theory, in order to represent both the observational learning and cognitive processes involved, the theory suggests both positive and negative behavior can be socially learned (Bandura, 1986). Learning occurs, first by the observation of behavior, followed by four sequential cognitive processes: attention, retention, production and motivation (Bandura, 1971). Specifically, a child must

observe the model's behaviour, then attend to it, remember it, possess the skills to reproduce it, and finally, feel motivated to reproduce it.

Bandura (1971) proposed children are most likely to imitate powerful models, who are most like themselves. As parents are highly influential in children's lives, there seems little argument that the same-gender parent would serve as the most salient model for a child. Thus, a mother would serve as a highly credible source of influence to her daughters' development of beliefs, behaviours and attitudes. Accordingly, if a daughter observes her mother to engage in a discourse containing self-criticism and body talk, then so too may she seek to imitate this communication. Similarly, if a mother is modeling weight control behaviours, or avoidance of activities due to body shame, then her daughter may be inclined to believe that this is how a woman responds to such feelings, and if she reaches the final processing stage of the social cognitive theory, then she may reproduce these behaviours herself. For example, a mother's body shame and body surveillance has been associated with frequency of body surveillance in adolescent daughters (Katz-Wise et al., 2012). Contrastingly, if a daughter observes her mother engaging in body acceptance and appreciation, treating her body with respect and care, then she is more likely to follow this example.

Transmission of ideas from a mother to her daughter about eating habits and weight can begin from a very young age through modelling of attitudes and behaviours. In their investigation of 5-year old girls' ideas and beliefs about dieting, Abramovitz and Birch (2000) reported that mothers were a critical influence on daughters emerging ideas regarding dieting. Although there was minimal evidence to indicate existence of dieting in the 5-year old sample, the researchers did find significant associations between a mother's weight concern and dieting, and her daughter's weight concern and expression of ideas about dieting (Abramovitz & Birch, 2000). Lowes and Tiggemann (2003), reported associations in levels of body dissatisfaction between mothers and daughters aged 5-8-years. Even younger girls aged 3-5-years, have been reportedly influenced by their mother's body image (Spiel et al., 2016; Spiel et al., 2012). These studies found that daughters assigned more positive

characteristics to a thinner figure the more their mother internalized the thin-ideal (Spiel et al., 2012), and engaged in dietary restraint (Spiel et al., 2016).  However, a study of 5-year old girls by Damiano et al. (2015) found that a daughter's dietary restraint was not associated with maternal diet restraint or internalization of the thin-ideal, but rather exposure to media and peer influences. Thus, while transmission of ideas between mothers and daughters can occur at a young age, one must not underestimate the early influence of other socio-cultural influences.

While the above studies support the transmission of body image attitudes and ideas between mothers and daughters, as girls develop, they can begin to act on attitudes and concerns by engaging in weight restricting behaviours, often modelled by mothers. An earlier study by Hill et al. (1990) found correlations between mothers and daughters dietary restraint in girls aged 10-years. More recently, Rodgers et al. (2019) revealed a positive relationship between maternal dietary restraint and dietary restraint in daughters aged 8-years, while Hanford et al. (2018) found weight controlling behaviours modelled by a mother resulted in poorer body esteem, reduced consumption of sweets and increased problematic eating concerns in 8-12-year old girls. Although, Benedikt et al. (1998) found that body dissatisfaction, dieting and exercise in adolescent girls, could not be predicted by their mothers', they did discover that a mothers modeling of extreme weight loss behaviours could predict similar behaviours in her daughter.

Regardless of intent, it is evident that the way a mother feels about herself and her own body affects the way her daughter will feel about herself. As such, the above studies suggest that greater emphasis and education must be directed towards discouraging negative modelling behaviours among mothers as a means of prevention (Hanford et al., 2018), and that improving the way a mother feels about her own body is likely to positively impact daughters.

### *Impact of the Mother-Daughter Relationship on Daughter's Body Image*

Attachment theory, describes the relationship a baby has with their primary caregiver, usually his/her mother (Bowlby, 1969). According to the theory, the quality of the attachment is crucial, as it

creates an internal working model that will affect future relationships and experiences (Bowlby, 1969). Research has revealed that the quality of the initial attachment with the primary caregiver can influence an individual's vulnerability to certain health conditions, including eating disorders. (Dozier et al., Tasca, 2019). As such, Ogden and Stewart (2000) examined the relationship between mothers and daughters to determine whether it influenced body image. Their findings revealed that daughter enmeshment with her mother and a lack of autonomy is associated with increased body dissatisfaction (Ogden & Stewart, 2000). Further research has suggested that daughters who struggle with body dissatisfaction are more likely to describe their mothers as cold and overprotective (Calam et al., 1990; Smith et al., 2016).

Encouragingly, there is research to suggest that a positive mother-child relationship can contribute to greater body-esteem and less body shame (Katz-Wise et al., 2012) and less problematic eating attitudes or behaviour (Graber et al., 1994; Swarr & Richards, 1996) in adolescent girls. Shenaar-Golan and Walter (2015) reported that if a girl perceives she has a good relationship with her mother, this buffers the impact her negative body image has on her sense of wellbeing. Thus, the authors suggested prevention approaches include educating mothers about the benefits of a supportive relationship between her and her daughter.

There is little doubt that mothers are fundamental when considering early intervention and prevention for body dissatisfaction in adolescent girls. The above studies highlight the importance of not only educating mothers about the impact their own body image can have on their children, but also about the potential effects their relationship with their child can have on their child's body image.

## Body Image in Women and Mothers

### Prevalence of Body Dissatisfaction in Middle-Age Women

Research indicates evidence of significant body dissatisfaction (Davidson & McCabe, 2005; Gagne et al, 2012; Jackson et al, 2014; Lewis-Smith et al., 2015; McLean et al., 2010) and disordered

eating (Fairweather-Scmidt et al., 2015; Marcus et al., 2007; Midlarsky & Nitzburg, 2008; Slevec & Tiggemann, 2011) in middle age women. While national prevalence rates for body dissatisfaction in American women 18-65+ years of age have been reported to be between 13% - 50% (Becker et al., 2019; Fallon et al., 2014), other studies have indicated over 70% of women feel unhappy with their weight and desire a thinner body (Allaz et al., 1998; Gagne et al., 2021; Jackson et al., 2014). Disordered eating and weight-loss behaviours, including purging, dieting and laxative use, are reportedly prevalent among middle-age women (Ackard et al., 2013; Hay et al., 2008), with close to 60% of women reporting dieting at least once in their lifetime (Allaz et al., 1998) and approximately 5% experiencing a clinically significant eating disorder (Keel et al., 2010; Mangweth-Matzek et al., 2014). Similar to adolescent girls, body dissatisfaction in women as been correlated with a range of negative outcomes including unhealthy diet, poor sleep, reduced exercise, limited quality of life and impaired functioning (Becker et al., 2019). Further, the same study revealed that over 40% of women experiencing a negative body image reported to often feel upset, ashamed or guilty (Becker et al., 2019). It is therefore likely that mothers are navigating their own negative body image attitudes and behaviours, while attempting to prevent or manage similar concerns among their daughters.

**Body Image across the Lifespan**

*Body Dissatisfaction across the Lifespan*

In her review of body image across the lifespan, Tiggemann (2004) concluded that until a woman reaches her elderly years, body image remains relatively stable. However, this stability appears to be the result of continued body dissatisfaction, due to weight gain as a woman ages, counterbalanced with the decreased importance of this, with age (Tiggemann, 2004; Tiggemann & Lynch, 2001). Other studies have confirmed this finding, and conclude that body dissatisfaction is stable from mid-adolescence to adulthood (Wang et al., 2019), and across the lifespan (Tiggemann & McCourt, 2013). Thus, as advancing age widens the discrepancy between a woman's body and the

appearance-ideal, so too it provides other perspectives that shape the relationship women have with their bodies at this time, including appreciating one's body for its functionality.

### *Body Appreciation across the Lifespan*

An emerging area of interest in the field of body image is the focus on positive body image. That is, appreciating your body for what it can do, appreciating your body for its function, and accepting your body. More than merely the absence, or opposite, of negative body image (Tiggemann & McCourt, 2013; Tylka & Wood-Barcalow, 2015a), positive body image is considered a separate construct, distinct from negative body image (Tylka & Wood-Barcalow, 2015b). As such, women are able to experience both positive and negative body experiences simultaneously (Bailey et al., 2016; Tiggemann & McCourt, 2013). In their examination of body appreciation and body dissatisfaction in women 18-75yrs, Tiggemann and McCourt (2013) found that body appreciation increased as women aged, while confirming that body dissatisfaction remained stable. Thus, Tiggemann (2015) suggested that despite feeling dissatisfied with their bodies, older women can still find positive things to appreciate about their bodies and as such, are more accepting of their bodies than younger women.

### Body Dissatisfaction and Mothers

### *Post-partum Period*

The majority of research regarding the body image of mothers focuses on the postpartum period. There is to evidence suggest associations between pre-pregnancy body image concerns, and worry about weight (Skouteris et al., 2005) disordered eating (Zaman & Jami, 2016) and anxiety and depressive symptoms (Chan et al., 2020) in post-pregnancy. In fact, the post-partum period is considered a particularly vulnerable time for women in regards to body dissatisfaction (Lovering et al., 2018; Rodgers et al., 2018), specifically 6-months post-partum (Rallis et al., 2007). Given the significant physical and emotional changes occurring in a woman's body during pregnancy and post-birth, it is understandable that this would prove a challenging time, particularly for those women with pre-existing body image concerns. However, there is further evidence to suggest that pregnant women

are subject to strong sociocultural pressure regarding internalization of the thin-ideal and drive for thinness, from both the media, and from weight focused family members (Lovering et al., 2018). Increasingly, modern Western society appears unwilling to encourage new mothers to nurture their bodies, appreciate and celebrate them for their function, or to accept their new shapes post-birth. Rather, the dominant pressure on post-partum mothers is to kick the pregnancy kilos as soon as possible in order to be deemed a successful woman or in fact, a good mum (Roth et al., 2012).

### *"Hot mum"*

As mothers move beyond the post-partum period, they continue to face appearance-based pressures. Nunez and Tantleff-Dunn (2016) describe how contemporary society has amalgamated both motherhood and sexuality to sexually objectify mothers and create pressure on them to conform to the ideal of a "*hot mum*", that is a mum who has a toned, young and sexy body. Researchers have examined the pressure on mothers to be meet this standard. Nunez and Tantleff-Duff (2016) found that while many mothers viewed the ideal negatively, those that did desire to be a "*hot mum*" engaged in more body surveillance and disturbed eating. Further, mothers who felt pressured by partners to meet the ideal, reported significantly lower self-esteem than those who did not (Nunez & Tantleff-Duff, 2016), adding support to the theory that mothers are subject to significant sociocultural appearance-based pressure as are other females.

However, a recent study by Yager et al. (2020b) examining both mothers and women without children, suggested that motherhood may serve as a protective factor for prevalence of negative body image, dieting and self-objectification. The researchers found that mothers with young children (0-5-years) reported significantly less body shame, self-objectification and dietary restraint compared to women with no children (Yager et al., 2020b). Further, mothers of older children (6-10-years) reported significantly less self-objectification that women with no children (Yager et al., 2020). According to the researchers, mothers may be more inclined to engage in functional appraisal of their bodies and intuitive eating as a consequence of birthing and feeding their babies.

*Intergenerational Transmission of Body Image Concerns*

There is significant evidence to support the intergenerational transmission of body image concerns between mothers and daughters (Hart et al 2016; Katz-Wise et al., 2012; Shenaar-Golan & Walter, 2015; Spiel et al., 2016; Spiel et al., 2012). Thus, interventions have focused on educating mothers about the importance of role modelling positive body image behaviours (Bruning Brown et al., 2004; Hart et al., 2006; McVey et al., 2007; Sniezek, 2006). However, there is evidence to suggest that a mother's capacity to role model positive body image behaviours for her child can be dependent upon her own body image (Damiano et al., 2019). Mothers with higher levels of body appreciation are more inclined to role model positive body image behaviours for their children (Damiano et al., 2019). This finding suggests that when including mothers in interventions to improve the body image of daughters, such interventions should seek not only to educate mothers about role modeling behaviours, but also to improve a mother's own body image.

Given the prevalence and stability of body dissatisfaction in women, the following section examines interventions developed for this population. Beginning with therapeutic interventions designed for delivery to small groups of women, the section then focuses on programs developed to foster positive body image and self-compassion. Finally, universal awareness raising interventions, focusing on empowering and educating women and the wider community are outlined.

**Body Image Interventions for Women**

*Interventions for Non-clinical Disordered Eating among Adult Women*

Interventions to improve body dissatisfaction and disordered eating in adult women have adopted a number of approaches, including, cognitive-behavioural therapy (CBT), acceptance and commitment therapy (ACT), cognitive dissonance, body functionality and self-compassion. Lewis-Smith et al. (2015) conducted a systematic review of interventions for disordered eating in middle-aged women and identified three interventions that demonstrated sustained improvements in disordered eating and body image. The three interventions, including two 8-session CBT based

programs (McLean et al., 2011; Smith et al., 2001) and one 8-hr daylong ACT workshop (Pearson et al., 2012), were delivered to women with elevated levels of body dissatisfaction. While successful in improving body image and disordered eating, all interventions adopted a therapeutic approach and were limited to small groups of women including 5-15 participants. The systematic review led the authors to conclude that effective interventions are multi-sessional, group based, include between-session activities and are facilitated by trained experts (Lewis-Smith et al., 2015). However, to have an impact at the population level, implementing these interventions would be time and resource intensive. Thus, the next section will focus on other intervention approaches that could be utilized for adult women.

**The *Body Project* Intervention**

The dissonance-based intervention, The *Body Project* (Stice et al., 2001b), rigorously evaluated by numerous randomized trials with adolescent girls and young women, remains the most empirically supported eating disorder prevention program to date (Dakanalis et al., 2019) and the most effective program for selective audiences who have elevated levels of body dissatisfaction (Watson et al., 2016). Previous studies with university aged women have reported that the *Body Project* decreases thin-ideal internalization, body dissatisfaction, dieting, negative affect and bulimic symptoms (Stice et al., 2001b; Stice et al., 2015a; Stice et al., 2013b).

The intervention, based on the theory of cognitive dissonance posits that people align their attitudes and their behaviours to avoid discomfort (Festinger, 1957). When a discrepancy between an individual's attitude and behaviour emerges, this creates cognitive dissonance, which is uncomfortable. The *Body Project* uses a number of activities to provoke cognitive dissonance including role-plays challenging the thin-ideal, activities identifying the costs of the appearance-ideal and homework exercises comprising writing a letter to one's younger self advising avoidance of body dissatisfaction and looking in the mirror and listing positive characteristics.

*Interventions Promoting Body Appreciation*

While in its infancy compared to interventions focusing on reducing negative risk factors, the promotion of positive body image is gaining traction. In their systematic review of interventions for positive body image, Guest et al. (2019) highlighted the benefits of interventions focusing on body functionality. On-line interventions asking participants to engage in writing exercises have demonstrated positive impacts on appearance satisfaction, functionality satisfaction and body appreciation (Alleva et al., 2015; Alleva et al., 2018; Mulgrew et al., 2017). Further, brief self-compassion meditation interventions have also been shown to contribute to improved body image (Albertson et al., 2014).

Given research indicating that body appreciation is a distinct construct, separate from body dissatisfaction (Tylka & Wood-Barcalow, 2015b) that is known to increases with age (Tiggemann & McCourt, 2013), one could reason that it is sensible to incorporate such approaches into interventions with adult women. Furthermore, in light of social learning theory, equipping mothers with the tools to accept and appreciate their own bodies has the added potential to imbue such appreciation in their daughters. Thus the following section provides additional information on two body positive approaches, firstly self-compassion followed by an overview of the social impact documentary Embrace (Brumfitt, 2016).

**Self-compassion Interventions**

Self-compassion involves being patient and kind with oneself and providing comfort, rather than judgement or self-criticism in times of struggle (Neff, 2003). It is an approach that is increasingly being used to assist people to manage a number of health conditions including depression (Falconer et al., 2016; Haukaas et al., 2018), anxiety (Haukaas et al., 2018), chronic pain (Costa & Pinto-Gouveia, 2011) and smoking reduction (Kelly et al., 2010). Grounded in the notion of self-kindness and acceptance, self-compassion is the antithesis of body dissatisfaction. Albertson et al. (2014) explain, that being kind and accepting, rather than judgmental and critical towards oneself, "directly counters

the very root of body dissatisfaction" (*p*.445). Research supports the benefits of self-compassion both in relation to eating disorder treatment and improving body dissatisfaction. Self-compassion was reported to enhance treatment outcomes in eating disorder patients (Kelly et al., 2014) and assist in reducing binge eating (Kelly & Carter, 2015; Webb & Foreman, 2013). Further, self-compassion predicted fewer weight and shape concerns and less body preoccupation in university-aged women (Waslylkiw et al., 2012), and resulted in a reported reduction in body dissatisfaction and body shame by women who had engaged in a 3-week self-compassion intervention (Albertson et al., 2014).

Self-compassion is considered a protective factor against the impact that body comparison and appearance contingent self-worth have upon body appreciation (Homan & Tylka, 2015). In their systematic review of 28 studies supporting self-compassion as a protective factor for body image disturbance and disordered eating, Braun et al. (2016) proposed four ways self-compassion acts as a protective factor. These include, mitigating eating disordered related outcomes, preventing the occurrence of risk factors for negative body image outcomes, buffering the deleterious effects that risk factors can have on eating disorder outcomes, and augmenting the mediational pathway through which a risk factor operates (Braun et al., 2016). Consequently, researchers have suggested including protective factors, such as self-compassion, in interventions to cultivate women's positive body image (Siegel et al., 2020). In support of this, Tylka and Wood-Barcalow (2015b) suggest that limiting interventions to the reduction of negative symptoms, with no investment in enhancing positive body image, at best, may promote a neutral body image. Thus, in addition to reducing known negative risk factors for eating disorders, contemporary prevention is encouraged to also aim to enhance positive body image.

### *Embrace* Documentary

*Embrace* (Brumfitt, 2016) is a social impact documentary created and directed by the founder of the *Body Image Movement*, Taryn Brumfitt. Released in 2016, and seen by millions of people across the world, *Embrace* chronicles Brumfitt's efforts to understand the societal policing of

women's bodies. The film endeavours to create awareness and provoke discussion about body image, and is a unique resource that both educates viewers about the risk factors for body dissatisfaction, while promoting body positivity in an entertaining and empowering way. Recent evidence supports the value of the documentary as a body image intervention.

Yager et al. (2020a) examined the impact *Embrace* had on the body image and eating patterns of over 1500 women. Results indicated that women who viewed *Embrace* reported significantly higher body appreciation, and lower body shame, internalization of thin-ideal, self-objectification and dieting, compared to those women who had not viewed the film. Further, qualitative outcomes indicated that mothers who viewed the film reported greater awareness of the impact both body talk and role modelling had on their daughters. An exploration of perceptions of the film revealed that the majority of women expressed positive thoughts about the film (97.4%), with 46.4% of qualitative comments about the impact of the film indicating enjoyment, and 40.8% of open-ended comments indicating that they felt feeling emotionally responsive after watching the *Embrace* (Yager et al., 2020a). While the researchers concluded that *Embrace* was a useful intervention for improving the body image of women, they recommended further research, with both pre-and post-measurements, in order to accurately assess its impact as an intervention.

**Summary**

Despite the calls (Damiano et al., 2019; Yager et al., 2020b), there are few interventions currently available to educate mothers about supporting their daughter's body image, and even fewer that directly seek to improve a mother's own body image. Moreover, there is a sparsity of interventions for mothers of adolescents, perhaps due to the perception that parents are not as influential in regards to body image at this age. Research suggests that parents of children over the age of 10-years engage in less positive role modelling compared to parents of children under 10-years (Damiano et al., 2019). As such, interventions for mothers of adolescents are needed (Damiano et al.,

2019: Yager et al., 2020b). The following section focuses on the inclusion of parents in eating disorder prevention.

## Including Parents in Eating Disorder Prevention for Adolescents

Despite substantial and widespread agreement about the influence of parents on the developing body image of daughters, and a call some 25-years ago by Graber and Brooks-Gunn (1996) for parents to be included in eating disorder prevention research, to date only a small number of studies have included interventions for parents. A systematic review of prevention programs including parents identified twenty studies between 1992 and 2013, with only three studies reporting high-quality data regarding parental involvement (Corning et al., 2010; Sniezek, 2006; Trost, 2006). Of the three studies reported by Hart et al. (2015), one revealed positive impacts on children's body dissatisfaction (Corning et al., 2010), while two found no significant positive impacts on children following intervention with parent (Sniezek, 2006; Trost, 2006).

Research with parents has comprised interventions for parents and children, as well as interventions for parents only. Those delivered solely to parents, have been delivered from both ends of the intervention spectrum, including both intensive small group workshops for targeted populations (Corning et al., 2010; Trost, 2006) and brief web-based psycho-education (Diedrichs et al., 2016). Research involving delivering an intervention to both parents and children has mostly been limited to an internet (Bruning Brown et al., 2004) or pamphlet-based design (Sniezek, 2006), with one study offering monthly workshops and newsletter articles (McVey et al., 2007). Despite the paucity of such research, studies involving parents have demonstrated some promising benefits for children, including improved self-concept (Russell-Mayhew et al., 2007) and reduced perceived pressure to be thin and drive for thinness (Corning et al., 2010).

**Interventions Delivered Solely To Parents**

Interventions delivered solely to parents have shown positive impacts on daughters when delivery involves both targeted, small groups of mothers (Corning et al., 2010) and low-intensity internet based interventions (Diedrichs et al., 2016).

*Healthy Image Partnership Program*

In her examination of the *Healthy Image Partnership* (HIP) program with parents of daughters experiencing body image concerns, Trost (2006) delivered a 3-session intervention to small groups of 4-7 parents (*n*= 81). HIP focuses on educating parents about the thin-ideal and ways to positively communicate with their daughters. While the intervention improved body image outcomes in parents, the improvements did not extend to daughters. Building on the above study, Corning et al. (2010) evaluated a 4-session intervention modeled on the HIP program. Delivered to mothers of middle-school girls with body dissatisfaction, post-test results revealed that girls whose mothers attended the intervention reported less perceived pressure to be thin at post-test and 3-month follow-up, and lower drive for thinness at 3-month follow-up compared to control. However, the study involved a small sample size of thirty-one mothers and the intervention was delivered to small groups of four. Further, there were no outcome measures taken for mothers, thus it is not known if the program improved mother's own body image. While promising, the above studies used a targeted sample of girls with pre-existing body dissatisfaction and were of limited dissemination value given the small group (*n*= 4-7) format and need for expert facilitator.

*Dove Self Esteem Project Website for Parents*

In contrast to the above studies, Deidrichs et al. (2016) evaluated a low-intensity internet-based intervention with mothers. Utilising the *Dove Self Esteem Project Website for Parents,* the researchers examined 235 mother-daughter dyads to understand the impact on daughters when mothers navigated the website for a period of thirty minutes. Designed to develop a mother's body image, as well as help mother's foster positive body image among daughters, the *Dove Self Esteem*

*Project Website for Parents* address appearance-ideals, appearance conversations, appearance-related teasing, modeling, interpersonal relationships, and mothers respecting and looking after themselves. The content of the website used in the study was evidence-based and included similar subject matter to that used in the classroom-based DCM program. Results demonstrated that mothers who viewed the website reported higher self-esteem, higher weight-esteem, lower negative affect, and engaged in more conversations with their daughters about body image compared to a control group. Further, these findings extended to daughters who demonstrated reduced negative affect and higher self-esteem at the 6-week follow-up. The researchers suggested that future research focus on an additional intervention in order to strengthen the results. The positive outcomes following viewing the website, suggest that the resource is valuable, particularly for mothers. However, it seems to require more potency. Perhaps by delivering the content in a different manner, or delivering content to daughters alongside their mothers, the intervention may achieve longer-term benefits for both mothers and daughters.

**Interventions Delivered to Parents and Children**

Interventions including both parents and children have incorporated pamphlet and web-based designs (Bruning Brown et al., 2004; Sniezek, 2006), in addition to face-face workshops (McVey et al., 2007).

*Healthy Schools- Healthy Kids Program*

McVey et al. (2007) conducted a comprehensive 8-month school-based prevention program *Healthy Schools- Healthy Kids,* in one of the few universal interventions involving separate workshops for parents, teachers and children. Each month, a parental workshop was offered in addition to an article published in the school newsletter. However, while 982 students participated in the intervention, the authors reported that an average of eight parents attended each workshop (although it is unclear whether it was the same eight parents throughout the study, or 64 parents in total). Results of the study were positive, with students in high-risk groups demonstrating significant

improvements in internalization of media-ideals, body satisfaction and disordered eating. However, as no outcomes measurements were taken for parents it is not clear how the intervention served them, or whether their involvement impacted upon their children.

### *Student Bodies Program*

Given concerns regarding low parental involvement, researchers have considered whether on-line programs would more successfully engage parents. One of the first studies to investigate parental inclusion in an on-line parent-child eating disorder prevention program was that undertaken by Bruning Brown et al. (2004). In an evaluation of the web-based *Student Bodies* program with a school class, the researchers examined the efficacy of delivering a component to student's parents. While students participated in the 8-session CBT based program for an hour each week, their parents could use the web-based intervention focusing on communication, weight and shape attitudes and behaviours at any time over a 4-week period. While participation in the student program resulted in positive outcomes, and parent results indicated significant reductions in negative attitudes and criticisms, there did not appear to be any impact on daughters of parents participating in the parental program. Further investigation revealed that of the twenty-two parents in the intervention group, eleven logged on to the intervention and only eight reported to read over 80% of the content. Thus, the sample size was unfortunately limited (Bruning Brown et al., 2004).

Using a paper version of the materials, Sniezek (2006), examined both the parent component of *Student Bodies*, in addition to the relationship between parental criticism and eating disorder risk factors with a large sample of adolescent girls aged 14-16-years and their parents, including 136 mothers and 112 fathers. While mothers in the intervention group reported engaging in less criticism of their daughters, the results did not show a significant reduction across conditions. The findings did however provide greater insights into how parental criticism impacts on daughters. Specifically, Sniezek (2006) reported that general criticism from parents predicted perfectionism in daughters, while criticism regarding appearance predicted disordered eating.

**Gaps, Obstacles and Opportunities in the Research Field Involving Parents**

*Low Parent Engagement*

One of the most difficult barriers to wide scale implementation of parenting programs is poor engagement and participation by parents (Spoth et al., 2007; Spoth et al., 2000). In their systematic review of interventions involving parents, Hart et al. (2015) highlighted a "clear and current gap in our understanding of how parents can best be motivated to participate in prevention research" (*p*.167). As demonstrated by the above studies, interventions offered to both parents have resulted in a very low uptake. While Trost (2006) invited 1725 parents to participate in the HIP program, the final sample included eighty mothers and one father, which is less than 5% uptake. In the McVey et al. (2007) study, 982 students were involved and between 8-64 parents (less than 7%) attended workshops. Yet, the challenge is not limited to eating disorder prevention. Shochet et al. (2001) reported only 10% of parents attended all three parental sessions in their school-based *Resourceful Adolescent Program* study for preventing depression.

For practical reasons, often both parents are generally unable to be involved in face-to-face interventions, as one parent needs to be involved in care of the children, while the other attends the program. Bruning Brown et al. (2004) attempted to overcome this issue by offering a web-based intervention but found that less than half of the twenty-two parents involved actually viewed 80% of the on-line content. Thus, Hart et al. (2015) concluded, "small parent sample sizes are almost ubiquitous" and as such, "provide an enormous hurdle in understanding how parents can be effectively engaged in preventing body image and eating problems" (*p*.165). The authors suggested researchers develop engaging programs designed to suit the particular needs of parents. Consequently, providing a generic program suitable for both parents may result in it being less appealing to both mothers and fathers. Accordingly, researchers may have more success engaging parents to attend eating disorder prevention programs if they align the program with the theoretical pathways of influence, and develop and market it for that specific parent e.g. mothers only, as highlighted in the

Chapter 2 discussion regarding interventions developed for co-educational audiences not always adequately catering to the interests of all participants.

Aside from the practical issues, parents may attach stigma to eating disorder prevention program attendance. Particularly within the school context, some parents may avoid engaging with certain topics, for fear of exposure in front of other parents who they may be trying to impress. In response to the challenges of engaging parents, Hart et al. (2015) suggest embedding eating disorder prevention programs within general parenting and relationship building interventions. Thus, while transparency is important, if an intervention is holistic in nature, comprises both risk reduction and promotion of positive body image and is embedded in a general parenting program that encompasses relationship building and empowerment, it may be possible to meet the needs of both researchers and parents.

### *Delivery to Parents vs Delivery to Daughters*

Comparing the programs delivered to parents only, Deidrichs et al.'s (2016) web-based study reported positive outcomes for both mothers and daughters including reduced negative affect and higher self-esteem. The evaluation of the HIP program delivered to parents by Trost (2006), reported reduced thin-internalization, body dissatisfaction and dieting behaviours in parents; however, the outcomes did not extend to daughters. Corning et al.'s (2010) replication and expansion of the Trost (2006) study did report improvements in daughters; however, they used a small sample in a targeted population with pre-existing body dissatisfaction. Further, while the Deidrichs et al.'s (2016) study demonstrated the superiority of a tailored web-based approach for mothers, they advised the need for a supplemental intervention to extend outcomes to daughters.

Thus, one could argue that delivering universal interventions to parents only, may be as limiting as delivering universal interventions to adolescents only. Particularly in the adolescent age group, one must be mindful of the sociocultural influences of media, parents and peers. Just as reported in Chapter 2, where delivery of DCM did not include parents, providing an intervention to

parents alone, may not adequately capture the sociocultural influences of the media and peers for adolescent daughters. These considerations suggest that to adopt a truly ecological approach, we must deliver complementary, but individualized interventions to both mothers and daughters.

### *Web-based vs Face-face Group Delivery*

The systematic review by Guest et al. (2019) reported the superiority of group-based interventions for body image over individual interventions, with the authors suggesting that group membership likely enhanced outcomes. In support of this view, in their systematic review, Lewis-Smith et al. (2015) found that groups help foster cohesion and assist members to feel accepted and supported. The researchers suggested the superiority of outcomes demonstrated by face-face delivered group interventions compared to on-line interventions, is likely due to stronger connections between participants and more effective communication of empathy than is possible with on-line delivery (Lewis- Smith et al., 2015). Thus, while web-based designs prove convenient for many parents, they may not epitomize best practice in enhancing outcomes and can be difficult to monitor and ensure compliance.

Despite their advantage, the face-to-face group interventions trialed thus far may not lend themselves readily to wide-scale implementation within a school alongside a classroom-based intervention. The interventions delivered by Trost (2006) and Corning et al. (2010) involved very small groups of parents which would likely prove difficult to replicate in a universal study within the school setting with a large cohort. However, the workshop approach offered by McVey et al. (2007), while more conducive to including a larger group of parents, was not successful in engaging more than eight, perhaps marred by infrequency of sessions or lack of a structured enrollment process through which to build group rapport with parents. Consequently, a gap regarding the design and implementation of parent interventions is evident. Specifically, there is an absence of a proven face-face group intervention that lends itself to large-scale implementation within a school, which is both structured and frequent enough to enhance parental engagement.

*Treatment vs Psychoeducational Approach*

Negative body image can be an ongoing issue for women. In fact, while there is evidence to suggest increases in body appreciation as women age (Tiggemann & McCourt, 2013) body dissatisfaction continues to be a consistent concern for many women throughout their life span (Tiggermann, 2004; Wang et al., 2019). As such, researchers intending to include mothers in eating disorder prevention programs for adolescent girls must remain cognizant of the prevalence of body dissatisfaction among this population. Garbett and Diedrichs (2016) suggest that inclusion of mothers in body image prevention aims either to improve their own body image so they can be a positive body image role model for their daughters, or to teach techniques so they can facilitate a change in their daughter's body image. However, the current study proposes to achieve both. Being restricted to the approach of providing mothers with techniques to assist their daughters navigate body dissatisfaction is likely to be of limited success. So too, is simply educating mothers about the influence they themselves have on their daughters body image. Unless we improve the body satisfaction of mothers themselves, then their attempts will likely appear inauthentic and be unsustainable. Thus, the primary aim of Study 2 is to develop an intervention for mothers that has two fold benefits. First, by adopting a treatment approach, the aim is to improve a mother's own body image. Second, by equipping mothers with skills, confidence and information regarding body image, the aim is to enable her to more positively impact her daughter's level of body satisfaction.

**The Current Study**

*Research Aims and Design*

The current study seeks to determine the benefits of extending interventions for adolescent girls to include a complimentary parent program. Specifically, the study aims to examine an intervention developed to both improve the body image of mothers and equip mothers with education and skills to enhance the body image of their daughters. The design of the current project is unique and strives to address the gaps and challenges outlined above by developing and delivering a 3-

session intervention *Raising Confident Girls* (RCG) to mothers of students who will participate in DCM (outlined in Chapter 3). Specifically, the research design involves delivering a face-face, interactive and multi-sessional intervention to a large group of mothers within a school context. The intervention aims to be interactive, experiential, engaging and etiologically based. Content of the intervention includes both reducing known risk factors for body dissatisfaction and promoting positive body image to target and improve mothers' body image while being embedded in a general parenting program. The intervention will be delivered to mothers, alongside a parallel classroom-based intervention for daughters, and measurements will be conducted on both mothers and daughters to examine outcomes.

There were a number of practical and theoretical reasons why the study involved mothers only. Previous research involving body image interventions offered to both parents, have resulted in a very low uptake of parents. Further, in their systematic review of interventions for parents, Hart et al (2015), concluded that, "small parent sample sizes are almost ubiquitous" and as such, "provide an enormous hurdle in understanding how parents can be effectively engaged in preventing body image and eating problems" (*p*.165). Additionally, while Trost (2006) invited 1725 mothers and fathers to participate in the *Healthy Image Partnership Parents Program*, the final sample size included 80 mothers and only 1 father. Thus, it appears that engaging parents, particularly fathers, in such intervention programs can be difficult. Hart et al. (2015) has suggested that researchers develop engaging programs that are designed to suit the particular needs of parents. Thus, providing a generic program suitable for both parents, may result in it being less appealing to both mothers and fathers. The RCG intervention is aligned with the theoretical pathways of influence for mothers, and tailored, and marketed, to appeal to mothers only. The theoretical pathways supporting body image interventions for men and women differ and there is very little existing research regarding successful mechanisms for influencing men's body image and influencing fathers' capacity to build their girls body image. Thus, the theoretical frameworks used to develop RCG are gender specific. The

intervention is specifically designed to improve the body image of the mother, in order to support her indirect and direct influence on her daughter. The content of the intervention utilises theoretical frameworks that possess evidence of their effectiveness in enhancing body satisfaction in women.

### Research Aims

The research aims are to:

1. Evaluate the effectiveness of *Raising Confident Girls* on mothers body esteem, body satisfaction, internalization of thin-ideal, maternal pressure, social comparison, appearance conversations, self-esteem, dietary restraint, parenting knowledge, parent modelling and parenting skills & confidence.

2. Examine participant acceptability and feedback on *Raising Confident Girls* regarding their ratings of enjoyment, helpfulness, comfortableness and importance of program.
   Specifically, this study will further concentrate on the following research questions:

1. Does a face-face, interactive, multi-sessional intervention for mothers assist in improving the body image of mothers?

2. Do mothers who attend a school-based intervention report a significant improvement in parenting knowledge, parent modelling and parenting skills & confidence regarding raising a daughter and enhancing her body image?

3. Is it beneficial for schools to target resources towards parental interventions?

### Hypotheses

1. Hypothesis 1 –At post-test, mothers participating in *Raising Confident Girls*, compared to mothers in a control group, will report significant increases in body esteem, body satisfaction, self-esteem, parenting knowledge, parent modelling and parenting skills & confidence, alongside significant decreases in internalization of thin-ideal, maternal pressure, social comparison, appearance conversations and dietary restraint.

2. Hypothesis 2- These results will be maintained at 3-month follow-up.

**METHOD**

**Design**

Using a quasi-experimental design, Study 2 evaluated both the effectiveness of a modified

version of the *Dove Confident Me* (DCM) program with Year 8 girls attending an independent girls'

secondary school in Australia and the effectiveness of *Raising Confident Girls* (RCG), a program

developed for mothers of Year 8 students. Chapter 3 outlines the examination of the analysis of DCM

with student participants. The current Chapter focuses on examining the impact the RCG program had

on mothers. Chapter 5 will examine whether outcomes from DCM were enhanced in girls whose

mothers attended RCG.

Mothers participated in RCG at the intervention school during the same term that their

daughters completed the classroom-based DCM. While a randomized controlled trial would have

been the ideal, it was not possible to randomly allocate participants to either the intervention or

control group within the school context.

**Participants**

Participants were mothers of Year 8 students from the intervention school. All participants

($n$= 120) were aged between 30-59-years and had a daughter attending Year 8 at the school. Initially

71 participants registered for the intervention group and completed pre-test surveys. However, two of

these participants withdrew from RCG prior to the first session due to a scheduling conflict. Thus,

they agreed to move to the control group. The control group comprised of 51 participants and the final

total of the intervention group was 69 participants.

**Procedure**

*Recruitment.*

The intervention was delivered to mothers of Year 8 students at the school where the

researcher is employed as a School Psychologist. After obtaining Victoria University ethical clearance

(HRE17-211), the School Principal was approached for authorisation for the school to be involved in the research project.

To recruit the participants, the Deputy Principal emailed an invitation and *Participant Information Sheet* (Appendix H) to all Year 8 mothers (approximately *n*= 230) inviting them to participate in a 3-session seminar (RCG) delivered as a joint research project with Victoria University and forming part of the School Psychologist's PhD studies. As this was a parent engagement activity within the School, the researcher liaised with the School's Community Engagement department to seek assistance and advice on engaging with parents. The seminar was also advertised in the school newsletter.

The allocation of mothers to intervention or control group wan non-randomised. All mothers who volunteered to attend the RCG seminar were placed in the intervention group. Participation in the intervention group required mothers to attend the 3-session RCG program and complete the pre, post and follow-up data collection. Once recruitment to the intervention group was complete, the remaining Year 8 mothers were sent a second email by the Deputy Principal, inviting them to participate in the research project by comprising the control group. Participation in the control group required mothers to complete the pre, post and follow up data collection only. As an incentive for volunteering to be part of the control group, mothers were offered the RCG program booklets at the end of the data collection period. Participants were assured that they would receive the booklets, regardless of whether they had completed all surveys. Mothers not participating in RCG, but who volunteered to complete the data collection were placed into the control group.

### *Consent.*

Following registering interest in the research project, each participant was provided with details about the research, data collection and RCG seminar, and was given time to consider whether they still wished to participate. Participants communicated via email or phone directly with the researcher to ask questions. Passive informed consent was sought from each participant regarding attending the seminar and completing all three research questionnaires.

Participants were advised via the *Participant Information Sheet*, instructions emailed by the researcher at data collection, and details included at the start of the survey, that their participation was voluntary and they could withdraw from the RCG program and/or data collection at any time. In addition, the survey included the question "*Do you wish to continue with the survey*" at the commencement and participants were required to select "*yes* or *no*". Skip logic was embedded within the survey to redirect those who selected "*no*" to the end of the survey. At each data collection time point the above process was followed and participants were advised they could withdraw from the project at any time, even if they had already completed one or more of the previous surveys.

### *Data Collection*

Surveys were created and delivered via Qualtrics survey software. An ID code was assigned to each participant to identify condition. Email addresses were uploaded to the Qualtrics software system and a link to access the survey was sent to each participant. At the start of each survey participants were asked to create a unique code using their names, birth date and eye colour in order to match surveys between each data collection period. All responses to the survey were anonymized via the Qualtrics system and participants were identified via the anonymous code. The survey took approximately 10-15-mins to complete. Participants were asked to have completed the Time 1 (T1) survey (pre-test) before attending Session 1 of RCG. Paper copies of the survey were available prior to the start of Session 1 for any participant who was not able to complete the survey on-line. One participant chose to complete a paper version of the T1 survey 20 minutes prior to the start of Session 1 and the researcher imputed her responses.  All other participants completed the T1 survey on their electronic device prior to attending Session 1. Time 2 (T2) (post-test) and Time 3 (T3) (3-month follow-up) surveys were all completed on-line.

**Table 4.1**

*Data collection for mothers*

| Group | Context | Time 1 Term 2 | Time 2 Term 2 | No of weeks T1- T2 | Time 3 Term 3 | No of weeks T2 – T3 |
|---|---|---|---|---|---|---|
| Intervention | At home in own time | Week 3 | Week 9 | 6 | Week 6 | 10 |
| Control | At home in own time | Week 4 | Week 10 | 6 | Week 6 | 11 |

Participants in the control group were asked to complete the T1, T2 and T3 surveys in the same manner as the intervention group. As participants completed surveys online at home in their own time, the dates below indicate the release of the link for the survey, that remained open for a period of two weeks. Table 4.1 outlines details of data collection and the length of time between each survey.

*Measures*

Measurements were taken at pre-test (T1), and then repeated at post-test (T2) and 3-month follow-up (T3) to determine whether changes had been sustained. Most of the scales used for this study were selected as they mirrored those used with student sample outlined in Chapter 2 and Chapter 3. Two measures, *Parenting Knowledge* and *Parent Skills & Confidence* were constructed specifically for the study, while *Parent Modelling* was a relatively new scale developed prior to the study (Damiano et al., 2019). In order to reduce the length of the overall survey and to select a scale that was more suited to the age group of participants, the scale measuring *Social Comparison* was changed from that used with the student sample. All remaining measures were standardized and have been validated and widely used with adults. Table 4.2 outlines the measures used and internal consistencies obtained for the current sample.

**Participant characteristics**. Self-reported age, country of birth and language other than English spoken at home was obtained at baseline. Body mass index (BMI) was not requested, as

similar to the student sample, it was considered too confronting for participants and was not used for either the student or mother analyses.

**Body esteem**. Two subscales of the *Body Esteem Scale* (Mendelson, et al., 2001), appearance and weight satisfaction, were used to assess body esteem. In this study the appearance and weight subscales were combined to create an 18-item scale evaluating appearance and weight satisfaction ("*I like what I look like in photos, I am happy with my weight*"). The items were rated from 1 = *never* to 5 = *always* and averaged with negatively phrased items being reversed coded. Higher scores reflected greater body esteem. This scale has been used in previous research with adult women and has been found to be both valid and reliable (Jones & Buckingham, 2005; Modica, 2019), and had very good internal consistency in the current study (Cronbach's alpha =.96).

**Body appreciation**. A modified version of the *Body Appreciation Scale* (BAS: Avalos et al., 2005) was used to assess body appreciation. The modification was made to make to scale more suitable for adolescents (Diedrichs et al., 2015; Diedrichs, 2020; Diedrichs et al., 2020) such that the final scale comprised 8-items measuring appreciation of one's body ("*I feel good about my body*"). The modification involved removal of five items, and minor wording changes. These changes were made prior to the publication of the BAS-2 (Tylka & Wood-Barcalow, 2015a), which was a modified version that has been validated with children 9-11 years (Halliwell et al., 2017). Participants responded to items on a Likert scale from 1 = *never* to 5 = *always*. Scores on the 8-items were averaged with higher scores reflecting greater body appreciation. Internal consistency in the current study was good (Cronbach's alpha =.89), and although it was an oversight to use the adolescent modified version with the adult women, this did not seem to affect the psychometric performance of the scale.

**Table 4.2**

*Self-reported measures and internal consistencies (cronbach's alphas for current sample)*

| Outcome | Measures/Scales | α |
|---------|-----------------|---|
| Participant characteristics | Self-reported age, country of birth, language other than English spoken at home and ethnicity | |
| *Body Image* | | |
| Body esteem | **Body Esteem Scale for Adolescents & Adults** (Mendelson et al., 2001), Weight and appearance subscales combined, 18 items, mean score range 1-5 | .96 |
| Body appreciation | **Body Appreciation Scale** (Avalos et al., 2005). 8 items, mean score range 1-5 | .89 |
| *Risk factors* | | |
| Internalization of appearance ideals | **Ideal-Body Stereotype Scale – Revised (IBSS-R;** Stice et al., 1996) 8 items, mean score range 1-5. | .96 |
| Maternal pressure | **Maternal Pressure Scale** (Corning et al, 2010). 9 items, mean score range 1-4. | .82 |
| Social comparisons | **Physical Appearance Comparison Scale** (Thompson et al, 1991). 5 items, mean score, range 1-5. | .80 |
| Appearance conversations | **Appearance Conversation Scale** (Jones et al, 2004), 5 items, mean score range 1-5. | .87 |
| *Psychosocial & disordered eating related measures* | | |
| Self-esteem | **Rosenberg Self-esteem Scale** shortened (Neumark-Sztainer et al., 2007; Rosenberg, 1965), 6 items, mean score range 1-4. | .75 |
| Dietary restraint | **Dutch Eating Behaviour Questionnaire**, (van Strien et al., 1986), Restraint subscale, 10 items, mean score range 1-5. | .90 |
| *Parenting measures* | | |
| Parenting knowledge | Purpose built measure. 9 items, mean score, range 1-5. | .83 |
| Parent modelling | **Role Modelling of Body Image (Attitudes and Behaviors) Questionnaire** (RMBI-Q) (Damiano et al., 2019). 7 items, mean score, range 1-5. | .91 |
| Parent skills and confidence | Purpose built measure. 9 items, mean score, range 1-5. | .70 |

**Internalization of the thin-idea.** The *Ideal-Body Stereotype Scale* – Revised, (Stice et al., 1996), was used to measure how much each participant internalized the thin-ideal. Participants were asked to rate how much they agree with 8-statements ("*Slim women are more attractive"*). The items

were rated from 1 = *strongly disagree* to 5 = *strongly agree,* and higher scores reflected greater

internalization. Used in previous research with women, this scale has demonstrated good reliability

(Perez et al., 2018; Stice et al., 1996; Trost, 2006) and internal consistency in the current study was

very good (Cronbach's alpha =.96).

       **Perceived maternal pressure**. The *Maternal Pressure Scale* (Corning et al., 2010) assess

participant's perceptions of how much appearance-related pressure they apply to their daughters. The

scale includes 9-items ("*I encourage my daughter to watch her weight"*) that participants rated from

1= *often* to 4 =*never.*  Scores were averaged with higher scores reflecting greater maternal pressure.

Previous research with adults has found this measure to have good internal consistency (Trost, 2016).

Internal consistency in the current study was good (Cronbach's alpha =.82).

       **Social comparisons.** The *Physical Appearance Comparison Scale* (Thompson et al., 1991)

measures how much a participant compares their physical appearance with that of others. Comprising

5-items ("*At parties or other social events, I compare my physical appearance to the physical

appearance of others")*, participants rated 1 = *never* to 5= *always*. Scores were averaged, (Item 4 was

reverse coded) and higher scores indicated greater tendency to compare oneself to others. The scale

has demonstrated good internal consistency (Thompson et al., 1991; McLean et al., 2011) and the

internal consistency in the current study was good (Cronbach's alpha =.80).

       **Appearance conversations**. The *Appearance Conversation Scale* (Jones et al, 2004)

measures frequency of appearance related talk. The 5-item scale asked participants to rate items 1 =

*never* to 5 = *very often* ("*My friends and I talk about how our bodies look in clothes"*). Scores were

averaged, with higher scores reflected greater frequency of appearance related talk among peers. Used

in previous research with adults (Sharp et al., 2014) internal consistency in the current study was good

(Cronbach's alpha =.87).

       **Self-esteem.** The *Rosenberg Self-esteem Scale* (Neumark-Sztainer et al., 2007; Rosenberg,

1965) measured participant's self-esteem. A shortened 6-item version asks participants to indicate

how much they agreed with statements on a 4-point scale, 1 = *totally disagree* and 4 = *totally agree*

("*On the whole I am happy with myself*"). Negatively phrased items were reversed coded and higher averaged scores indicated greater self-esteem. Used previously with women, the scale demonstrates good internal consistency (Jones & Buckingham, 2005; Izydorczyk et al., 2019). Internal consistency in the current study was good (Cronbach's alpha =.75).

**Dietary restraint.** The Restraint subscale of the *Dutch Eating Behaviour Questionnaire* (van Strien et al., 1986) measured dieting behaviours. The 10-item scale asked participants to rate from 1 = *never* to 5 = *very often*, how much they engaged in certain dieting behaviours ("*When you have put on weight do you eat less than usual*?"). Higher mean scores indicated higher levels of dietary restraint. The scale has demonstrated very good internal consistency with women in previous research (McLean et al., 2011) and internal consistency in the current study was very good (Cronbach's alpha =.90).

**Parenting knowledge**. A scale designed by the researcher to measure typical parenting knowledge and skills included in the RCG program. Comprising of 9-items ("*I know how to help my daughter become a confident young woman*"). Participants were asked to indicate how much they agreed with each statement from 1= *strongly disagree* to 5= *strongly agree*. Scores were averaged and higher scores reflected greater parenting knowledge. To develop the scale, the researcher generated questions reflecting the main learning objectives of the program and sent them to body image experts for input. Internal consistency in the current study was good (Cronbach's alpha =.83).

**Parent modelling**. The *Role Modelling of Body Image* (Attitudes and Behaviors) Questionnaire (RMBI-Q) (Damiano et al., 2019) measured participant's perception of how they model body image for their daughters. Participants indicated their agreement with 7- statements, ("*I avoid talking about my body/appearance in a negative way in front of my daughter/s*"). Items were rated 1= *strongly disagree* to 5= *strongly agree*. Scores were averaged and higher scores reflected greater modelling of positive body image. Recently developed, the scale has demonstrated good internal consistency (Damiano et al., 2019) and internal consistency in the current study was very good (Cronbach's alpha =.91).

**Parent skills and confidence.** A scale developed by the researcher, measured degree of confidence and skills in parenting. The 9-item scale asked participants to indicate how often they engaged in certain parenting skills ("*I am able to respond to my daughter calmly without reacting to her distress*"). Each statement was rated from 1= *never* to 5= *always*. Scores were averaged and higher scores reflected greater skills and confidence. To develop the scale, the researcher generated questions reflecting the key skills taught in the program and sent to body image experts for input. Internal consistency in the current study was good (Cronbach's alpha =.70).

**Program acceptability**. A measure designed for this study was used to rate participants' impressions of the RCG program at post-test. Participants were asked to rate their enjoyment of the sessions, how helpful, comfortable and important the sessions were, and how well the program was taught, on a scale from 1 = *not at all* to 5 = *very much*.  Scores were averaged and higher scores indicated feedback that is more positive. The questions were a replication of those used in the student survey. Participants were also offered an opportunity to provide written comments and suggestions regarding their experiences of the RCG program.

**Attendance.** A purpose built measure included in the T2 survey for the intervention group only. The measure asked participants to indicate which sessions of RCG they attended. Participants were asked to indicate, "*Yes I attended*", "*No, I did not attend*" or "*No, I did not attend, but I read the booklet*" for each of the three sessions of RCG.

**Program implementation**

The RCG program was delivered to participants in the school's staff center during Term 2, 2018. As the intervention was designed to replicate the usual practice of schools, involving parent 'information evenings' or seminars, all mothers registered for RCG participated in the group together. The seminar was held each Tuesday evening in Weeks 4, 6 and 8 of the Term from 6pm- 8pm. Students participated in DCM during their pastoral lessons the following day in Weeks 4, 6, 8 and 10. The researcher delivered the program with the assistance of two colleagues, including a teacher and a

School Psychologist. Prior to each session, refreshments were provided and participants were given a session booklet to refer to and to take home. Participants were asked to complete homework each week.

**Intervention Program**

The intervention, *Raising Confident Girls* is a 3-session program developed by the researcher specifically for the purposes of the current study. The intervention intended to improve the body image of mothers (so that they can role model positive body image to their girls) as well as educate mothers about how best to promote body image in their daughters. The review of the literature found cognitive dissonance, body functionality and self-compassion approaches were effective in improving adult women's body image, and the *Health Image Partnership* (Corning et al., 2010; Trost, 2006) and the *Dove Self Esteem Project Website for Parents* were programs effective in improving parenting for body confidence. As such, these resources, in addition to the *Body Project* (Stice et al., 2001b) and the *Embrace* documentary (Brumfitt, 2016), were adapted and included in the RCG intervention. The expectation was for participants to adopt an experiential role, so mothers were asked to focus on their own body image and eating disorder risk factors, similar to what their daughters were doing with the *Dove Confident Me* (Unilever 2021) program in the classroom.

Divided into three sessions titled *Embrace, Educate* and *Empower,* the program consisted of videos, power point presentations, discussion and small group activities. Each session had an accompanying booklet including additional content and activities for mothers to read in-between sessions. The program incorporated two homework activities comprising modified dissonance-based exercises from the *Body Project* (Stice et al., 2012). The homework exercises were incorporated as evidence suggests that between-session activities can enhance intervention effectiveness (Ciao et al., 2014; Schwartza et al., 2019; Stice & Shaw, 2004; Yager et al, 2013). Designed to engage a large group of mothers, the intervention sought to build cohesive group rapport by offering refreshments and brief time for participants to socialize prior to the commencement of each evening session.

The intervention began with a viewing of the *Embrace* documentary. Given the evidence to support the value of *Embrace* in regards to enjoyment, provoking emotions and improving body image (Yager et al., 2020),  it was introduced into Session 1 with the aim of providing a thought provoking and educative experience that would be entertaining and moving, thereby promoting cohesion within the group. Session 2 aimed to equip mothers with the information and skills mirroring what their daughters were learning in the classroom-based DCM program. The session utilized similar material from the DCM manual, in addition to added content from the *Uniquely Me* parent resource provided by Dove. Finally, in order to provide a holistic intervention that would appeal to the general parent body of Year 8 mothers, Session 3 included information developed by the researcher regarding mother-daughter attachment, mother-daughter relationships, communication and parenting, adolescent development, and self-compassion and self-care for mothers. Table 4.3 outlines the RCG program and session content. Participants in the control group did not attend the RCG program but were provided with the three session booklets at the completion of data collection.

**Table 4.3**

*Raising Confident Girls: Session program content overview*

| Session | Session Topic | Content |
|---------|---------------|---------|
| Session 1 | Embrace | Welcome, introduction, overview |
| | | Body image: the landscape for girls and women |
| | | • Viewing of the *Embrace* Documentary |
| | | Power of mothers embracing for self |
| | | Homework: Mirror exercise |
| Session 2 | Educate | Overview of student program – *Dove Confident Me* |
| | | Understanding the risk factors and exploring strategies |
| | | • Appearance ideals |
| | | • Media messages |
| | | • Confronting comparisons |
| | | • Banish body talk |

|  |  | Power of mothers educating their daughters |
|  |  | Homework: Letter to my daughter |
| Session 3 | Empower | Understanding the adolescent girl- emotions and body |
|  |  | Encouraging a healthy lifestyle |
|  |  | Staying connected |
|  |  | Modelling well |
|  |  | Power of mothers empowering confidence |
|  |  | Wrap up and goodbye |

## Data Analysis and Preparation

Initial data preparation and analyses were conducted using SPSS (Version 24). Descriptive analyses were used to screen for outliers and normality. All dependent variables appeared normally distributed with the exception of maternal pressure, which was negatively skewed. A log transformation was performed on maternal pressure and an analysis of intervention effects was conducted on both the transformed and untransformed data. Results are presented using transformed data.

Intervention effects were analysed using longitudinal mixed models (LMM). LMM was selected due to the model's four principal strengths: (1) accommodating missing data points often encountered in longitudinal datasets; (2) not requiring the same number of observations per subject; (3) allowing time to be continuous rather than a fixed; and (4) increased flexibility regarding the covariance structure (Chakraborty & Gu, 2009). Furthermore, when dealing with large amounts of missing data (10-20%), LMM is considered a more precise approach than multiple imputation or expectation-maximization (EM) algorithm (Von Hippel, 2007).

Preliminary analyses were conducted to determine the most appropriate LMM for each outcome variable. Four different models were considered for best fit, including: (1) no random effects; (2) random effect intercept and slope; (3) random effect slope; and (4) random effect for intercept. The best model, according to Akaike Information Criterion (AIC) (Hastie et al., 2009), was

the model with the random effect for intercept. Thus, intervention effects were analysed using a mixed effects model that predicted each outcome as a function of group (intervention and control) and time (pre-test, post-test and three month follow-up), and the interaction between group x time. The control group and the pretest measure were chosen as the reference category in order to compare the effects of intervention across time.

Sample size was determined according to Twisk (2003) using the Excel document created for Study 1. Unlike the analysis with student analysis outlined in Chapters 2 and 3, the current study did not include school clusters, as all participants were mothers within the one school. Therefore, it was not necessary to apply an inflation factor. The study included 120 participants (intervention group = 69 and control group = 51). To detect significance of small effects at the 5% level the minimum sample size was 294 participants per group, and to detect moderate effects (Cohen's $d = .5$), 47 participants per group were required. Therefore, this study was underpowered to detect small effects but well powered to detect moderate effects.

## RESULTS

### Characteristics of Participants

The final sample consisted of 69 mothers in the intervention group and 51 in the control group aged between 30-59 years, with most falling between 40-49 years of age. Table 4.4 provides details of participants in each age range in both the intervention and control groups.

The majority of mothers spoke English at home (90%). Languages other than English spoken at home included Mandarin (2%), Filipino (1%), Cantonese (1%) and Korean (1%). Overall, 13% of particpants were born in a country outside of Australia, including the United Kingdom (8%), Asia (Japan, China, Malaysia, Philippines, Korea, Singapore), (8%), New Zealand (2%), United States (1%) and Nigeria (1%). There were no significant differences across the intervention effects for participants in relation to age, country of birth, or language other than English spoken at home.

**Table 4.4**

*Baseline participant characteristics. Values are (n, %).*

| Age | Intervention | Control | Total |
|---|---|---|---|
| 30-39 | 0 | 1 (2%) | 1(.8%) |
| 40-49 | 51 (73.9%) | 43 (84.3%) | 94 (78.3%) |
| 50-59 | 18 (26.1%) | 7 (13.7%) | 25 (20.8%) |
| Total | 69 | 51 | 120 |

**Attendance**

As shown in Table 4.5, attendance at the RCG program was moderate, with 68% of participants attending all three sessions. Seventeen participants (24%) attended two of the three sessions, while five (7%) attended only one session. Participants who missed a session were posted the booklet and asked to read it, and complete the affiliated homework, prior to the next session.

**Attrition**

As shown in Table 4.6, no missing data was observed across groups at pre-test. Missing data at post-test was 8% (*n*=10), which increased to 14% (*n*=118) at the 3-month follow-up. Missing data were examined using Little's Missing Completely at Random test (MCAR; Little, 1988) and results indicated the data was completely missing at random, $x^2$ (123) = 131.01, *p* = .290.

**Table 4.6**

*Frequency of participants completing data collection and attrition percentage rates at each time period*

| | Pre-Test | Post-Test | 3-Month Follow-Up |
|---|---|---|---|
| Intervention | 69 | 66 (4%) | 60 (13%) |
| Control | 51 | 44 (12%) | 42 (14%) |
| Total | 120 | 110 (8%) | 102 (14%) |

**Comparison of Scores of Intervention and Control Groups at Pre-test**

Table 4.7 displays the means and standard deviations of the untransformed data at pre-test, post-test and 3-month follow-up time points for both control and intervention groups for each outcome variable. A series of independent t-tests found no significant group differences on pre-test outcome measures, with the exception of parent knowledge. Specifically, participants in the control group demonstrated significantly higher parent knowledge ($d = .50$) at baseline compared to the intervention group.

**Table 4.7**

*Means, standard deviation, minimum and maximum of outcome variables by time and group*

| | Intervention | | | | | Control | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | *n* | *M* | *SD* | *Min* | *Max* | *n* | *M* | *SD* | *Min* | *Max* | *t*(df)*p* |
| **Self esteem** | | | | | | | | | | | |
| Pre-test | 69 | 3.09 | .47 | 2.17 | 4.00 | 51 | 3.09 | .42 | 2.17 | 4.00 | .01(118),p=.99 |
| Post-test | 66 | 3.11 | .48 | 2.00 | 4.00 | 44 | 3.12 | .41 | 2.33 | 4.00 | |
| 3-month | 60 | 3.15 | .48 | 2.17 | 4.00 | 42 | 3.09 | .41 | 2.33 | 4.00 | |
| **Body esteem** | | | | | | | | | | | |
| Pre-test | 69 | 3.43 | .78 | 1.72 | 4.72 | 51 | 3.44 | .76 | 1.50 | 4.94 | -.08(118),p=.93 |
| Post-test | 66 | 3.66 | .72 | 1.83 | 4.94 | 44 | 3.50 | .68 | 1.72 | 4.67 | |
| 3-month | 60 | 3.64 | .72 | 1.94 | 4.72 | 42 | 3.45 | .72 | 1.67 | 4.61 | |
| **Parent knowledge** | | | | | | | | | | | |
| Pre-test | 69 | 3.52 | .52 | 2.11 | 4.56 | 51 | 3.79 | .55 | 2.67 | 5.00 | -2.6(118)p=<.05 |
| Post-test | 66 | 4.05 | .45 | 2.89 | 5.00 | 44 | 3.78 | .44 | 3.11 | 5.00 | |
| 3-month | 60 | 4.08 | .51 | 3.00 | 5.00 | 42 | 3.81 | .46 | 2.89 | 5.00 | |
| **Parenting skills/confidence** | | | | | | | | | | | |
| Pre-test | 69 | 3.55 | .41 | 2.78 | 4.67 | 50 | 3.60 | .46 | 2.56 | 4.78 | -.66(117),p=.51 |
| Post-test | 66 | 3.84 | .51 | 2.78 | 4.89 | 44 | 3.61 | .47 | 2.67 | 4.67 | |
| 3-month | 59 | 3.89 | .46 | 2.89 | 5.00 | 42 | 3.58 | .46 | 2.67 | 4.67 | |
| **Body appreciation** | | | | | | | | | | | |
| Pre-test | 69 | 3.82 | .68 | 2.25 | 5.00 | 51 | 3.83 | .58 | 2.25 | 4.75 | -.08(118),p=.93 |
| Post-test | 66 | 4.00 | .68 | 2.50 | 5.00 | 44 | 3.81 | .55 | 2.38 | 4.63 | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 3-month | 60 | 3.91 | .67 | 2.38 | 5.00 | 42 | 3.75 | .59 | 2.13 | 4.88 | |
| **Internalization** | | | | | | | | | | | |
| Pre-test | 69 | 3.13 | .76 | 1.00 | 4.50 | 50 | 3.14 | .65 | 1.33 | 4.33 | -.06(115),p=.95 |
| Post-test | 66 | 2.96 | .91 | 1.00 | 4.67 | 44 | 3.07 | .72 | 1.83 | 4.33 | |
| 3-month | 59 | 2.94 | .89 | 1.00 | 4.83 | 42 | 3.12 | .65 | 1.17 | 4.00 | |
| **Maternal pressure** | | | | | | | | | | | |
| Pre-test | 69 | 1.56 | .48 | 1.00 | 2.89 | 51 | 1.55 | .55 | 1.00 | 3.44 | -.21(116)p=.83 |
| Post-test | 66 | 1.48 | .42 | 1.00 | 2.67 | 44 | 1.57 | .59 | 1.00 | 3.67 | |
| 3-month | 60 | 1.48 | .39 | 1.00 | 2.56 | 42 | 1.54 | .57 | 1.00 | 3.44 | |
| **Physical appearance comparison** | | | | | | | | | | | |
| Pre-test | 69 | 2.44 | .74 | 1.00 | 4.60 | 51 | 2.35 | .71 | 1.00 | 4.60 | .69(118),p=.49 |
| Post-test | 66 | 2.30 | .65 | 1.20 | 4.00 | 44 | 2.25 | .67 | 1.00 | 4.00 | |
| 3-month | 60 | 2.32 | .68 | 1.00 | 3.80 | 42 | 2.31 | .72 | 1.00 | 4.60 | |
| **Parent role modelling** | | | | | | | | | | | |
| Pre-test | 68 | 3.72 | .69 | 1.71 | 4.86 | 50 | 3.71 | .65 | 2.29 | 5.00 | .04(116),p=96 |
| Post-test | 66 | 4.11 | .58 | 2.29 | 5.00 | 44 | 3.70 | .72 | 1.71 | 4.86 | |
| 3-month | 59 | 4.02 | .72 | 1.43 | 5.00 | 42 | 3.88 | .64 | 1.86 | 5.00 | |
| **Appearance conversations** | | | | | | | | | | | |
| Pre-test | 69 | 2.19 | .78 | 1.00 | 4.40 | 51 | 2.21 | .65 | 1.00 | 4.00 | -.02(118),p=.87 |
| Post-test | 66 | 2.05 | .78 | 1.00 | 4.00 | 44 | 2.19 | .63 | 1.00 | 4.00 | |
| 3-month | 60 | 2.01 | .67 | 1.00 | 3.40 | 42 | 2.17 | .70 | 1.00 | 4.00 | |
| **Dietary restraint** | | | | | | | | | | | |
| Pre-test | 69 | 2.67 | .73 | 1.00 | 3.90 | 50 | 2.70 | .77 | 1.20 | 4.20 | -.78(117),p=.44 |
| Post-test | 66 | 2.50 | .62 | 1.10 | 4.70 | 44 | 2.78 | .70 | 1.30 | 4.20 | |
| 3-month | 59 | 2.48 | .54 | 1.10 | 3.60 | 42 | 2.70 | .72 | 1.50 | 4.30 | |

## Testing the Effects of the Intervention

*Body Image and Self-esteem.* As shown in Table 4.8 there was a significant Time x Group interaction for body esteem and body appreciation. Specifically, compared to controls, participants in the intervention group reported significantly higher levels of body esteem at post-test with ($d =.43$) and at 3-month follow-up ($d =.50$), compared to pre-test. Further, compared to controls, participants in the intervention group reported significantly higher levels of body appreciation at post-test ($d =.48$) compared to pre-test, but this was not maintained at follow-up.

All significant interaction effect sizes were medium (*d*s .43- .50). Figure 1 and Figure 2 show the changes in body esteem and body appreciation across Time for both the control and the intervention groups. There were no significant Time or Group interactions self-esteem, body esteem or body appreciation, nor was there a significant Time x Group interaction for self-esteem.

**Table 4.8**

*Effects of group on body image and self-esteem outcomes across Time*

| Predictors | Self-esteem | | | Body-esteem | | | Body appreciation | | |
|---|---|---|---|---|---|---|---|---|---|
| | $\beta$ | SE | $p$ | $\beta$ | SE | $p$ | $\beta$ | SE | $p$ |
| Intercept | 3.09 | .06 | <.001 | 3.44 | .10 | <.001 | 3.84 | .09 | <.001 |
| Group (Treatment)[a] | .00 | .08 | .997 | -.01 | .14 | .928 | -.01 | .12 | .935 |
| Time (Post)[b] | .01 | .05 | .826 | .05 | .05 | .345 | -.03 | .05 | .582 |
| Time (Follow-up)[b] | -.01 | .05 | .796 | .00 | .05 | .972 | -.09 | .05 | .100 |
| Group x Time (Treatment x Post)[ab] | .00 | .07 | .966 | .15 | .06 | <.05 | .18 | .07 | <.05 |
| Group x Time (Treatment x Follow-up)[ab] | .06 | .07 | .354 | .15 | .06 | <.01 | .13 | .07 | .059 |
| Random effect for intercept (Variance) | .15 | .02 | | .51 | .07 | | .36 | .05 | |

*Note: Reference category[a] = Control, Reference category[b] = Pre-Test*

**Figure 4.1.**
**Change in Body Esteem from pre- post -3-month follow-up for RCG participants**
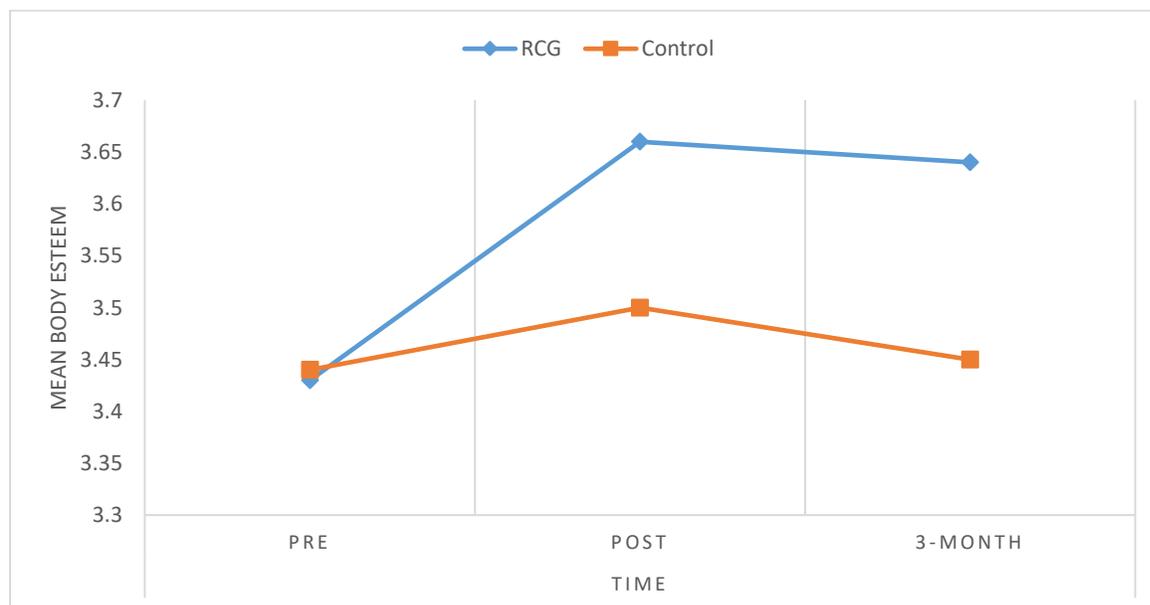
*Figure 4.2.*
*Change in Body Appreciation from pre- post -3-month follow-up for RCG participants*
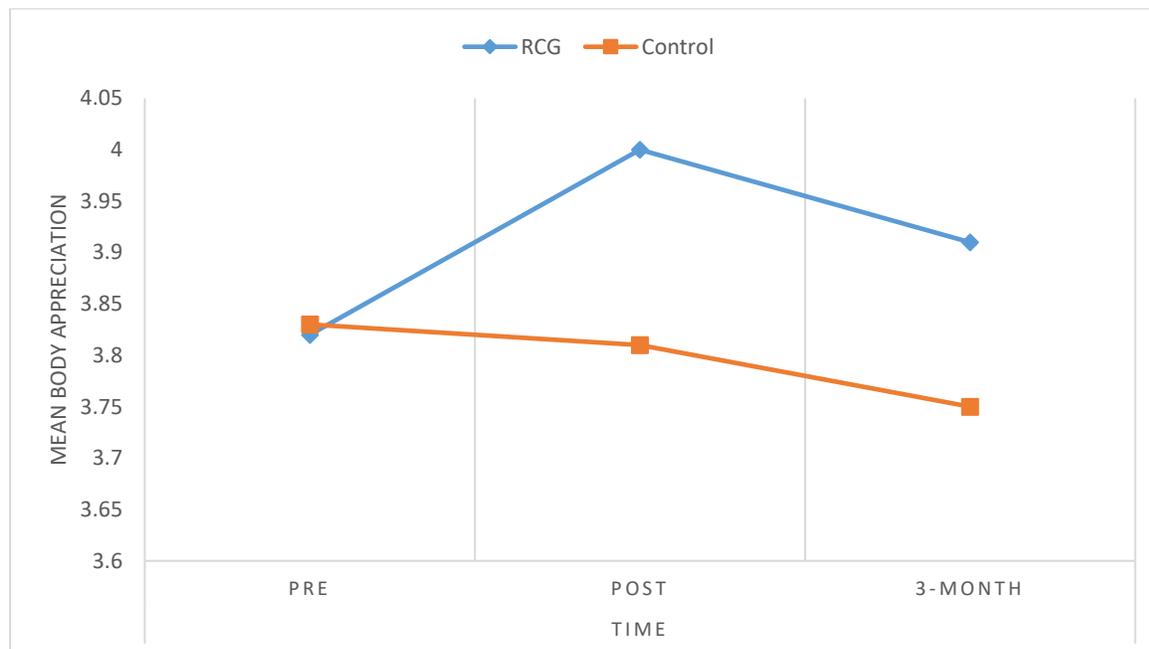


**Parenting Outcomes.** As shown in Table 4.9, there was a significant interaction between Time x Group for parent knowledge, parent skills and confidence, and parent role modelling. Compared to controls, participants in the intervention group reported significantly higher levels of parent knowledge and parent skills and confidence at post-test ($d$ =1.22 and $d$ =.68 respectively) and at 3-month follow-up ($d$ =.96 and $d$ =.81 respectively), compared to pre-test. Similarly, compared to controls, participants in the intervention group reported significantly higher levels of parent role modelling at post-test ($d$ =.79) compared to pre-test, however this was not maintained at the 3-month follow-up. All significant interaction effect sizes were medium to large ($d$s .68- 1.22).

There was no significant Group difference for any of the parenting outcomes with the exception of parent knowledge. Participants in the control group reported significantly more parent knowledge at baseline compared to the intervention group. Furthermore, there was no significant Time difference with the exception of parent role modelling. Specifically, parent role modelling was significantly greater at 3-month follow-up compared to pre-test, across both groups. There was no significant Time x Group interaction for maternal pressure.

**Table 4.9**

*Effects of Group on parenting outcomes across Time*

| Predictors | Parent knowledge | | | Parent skills & confidence | | | Parent role modelling | | | Maternal pressure | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *β* | *SE* | *p* | *β* | *SE* | *p* | *β* | *SE* | *p* | *β* | *SE* | *p* |
| Intercept | 3.79 | .07 | <.001 | 3.60 | .07 | <.001 | 3.72 | .09 | <.001 | .53 | .01 | <.001 |
| Group (Treatment)[a] | -.26 | .09 | <.05 | -.05 | .09 | .537 | .00 | .12 | .975 | -.00 | .01 | .980 |
| Time (Post) [b] | .01 | .06 | .825 | .01 | .06 | .800 | .00 | .08 | .987 | .01 | .01 | .075 |
| Time (Follow-up) [b] | .06 | .06 | .346 | -.01 | .06 | .878 | .18 | .08 | <.05 | .01 | .01 | .120 |
| Group x Time (Treatment x Post) [ab] | .50 | .08 | <.001 | .27 | .07 | <.001 | .38 | .11 | <.001 | -.01 | .01 | .328 |
| Group x Time (Treatment x Follow-up) [ab] | .44 | .08 | <.001 | .33 | .08 | <.001 | .10 | .11 | .365 | -.00 | .01 | .753 |
| Random effect for intercept (Variance) | .18 | .03 | | .15 | .02 | | .29 | .04 | | .01 | .01 | |

*Note: Reference category[a] = Control, Reference category[b] = Pre-Test*

The changes in parent knowledge, parent skills and confidence, and parent role modelling are shown respectively in Figures 3, 4 and 5 for both groups.

**Figure 4.3**
**Change in Parent Knowledge from pre- post -3-month follow-up for RCG participants**
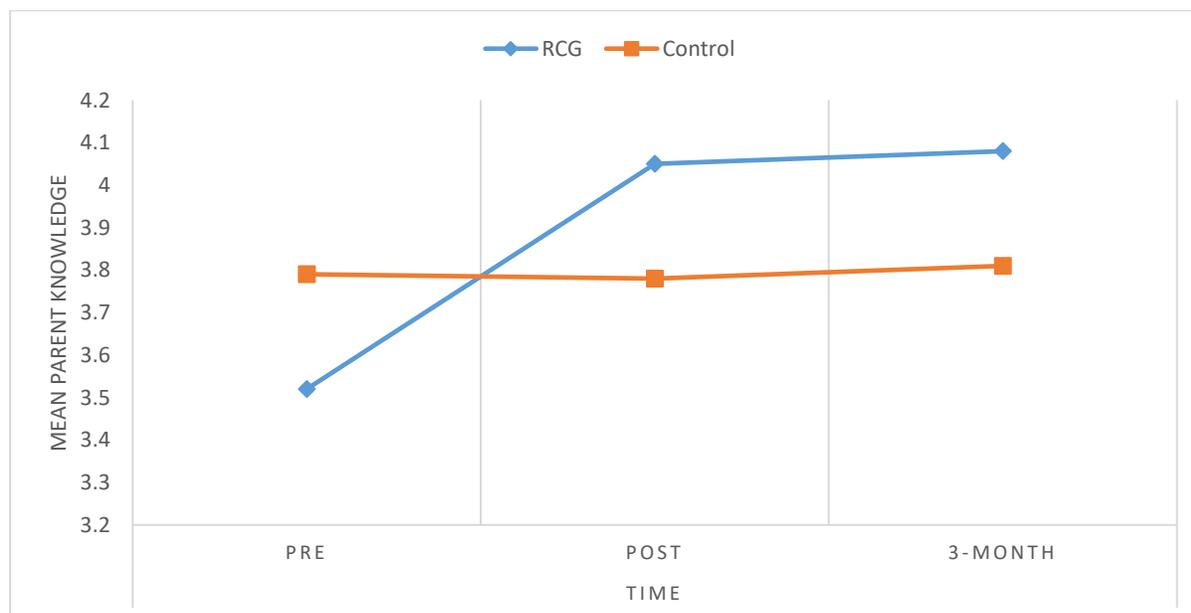
*Figure 4.4*
*Change in Parent Skills & Confidence from pre- post -3-month follow-up for RCG participants*
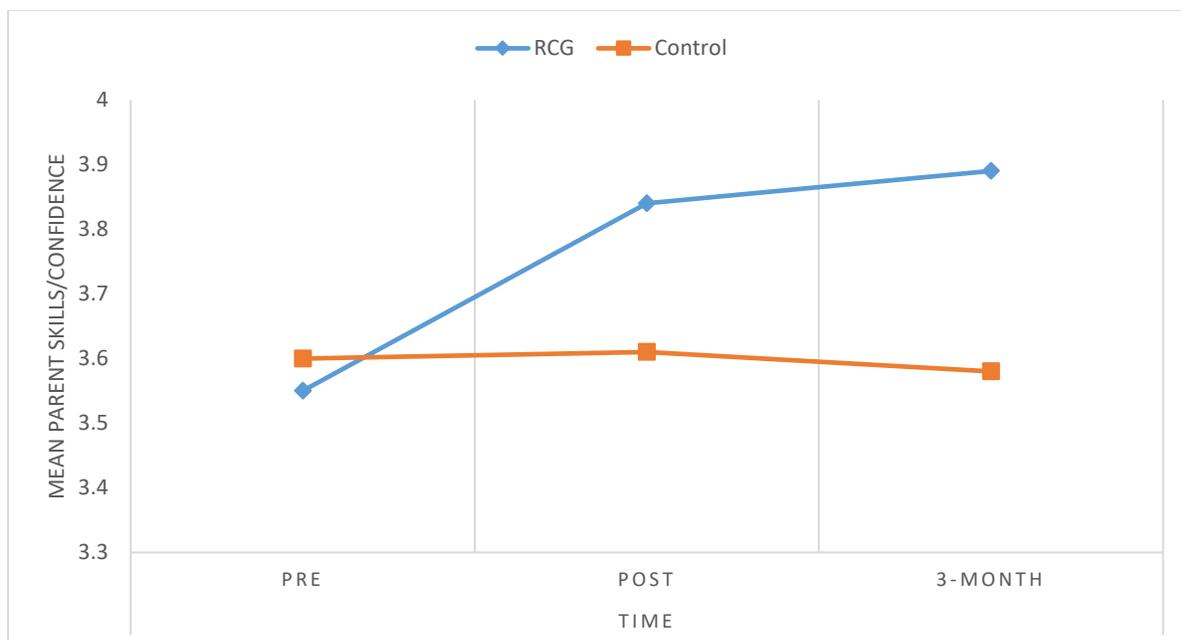


*Figure 4.5*
*Change in Parent Role Modelling from pre- post -3-month follow-up for RCG participants*
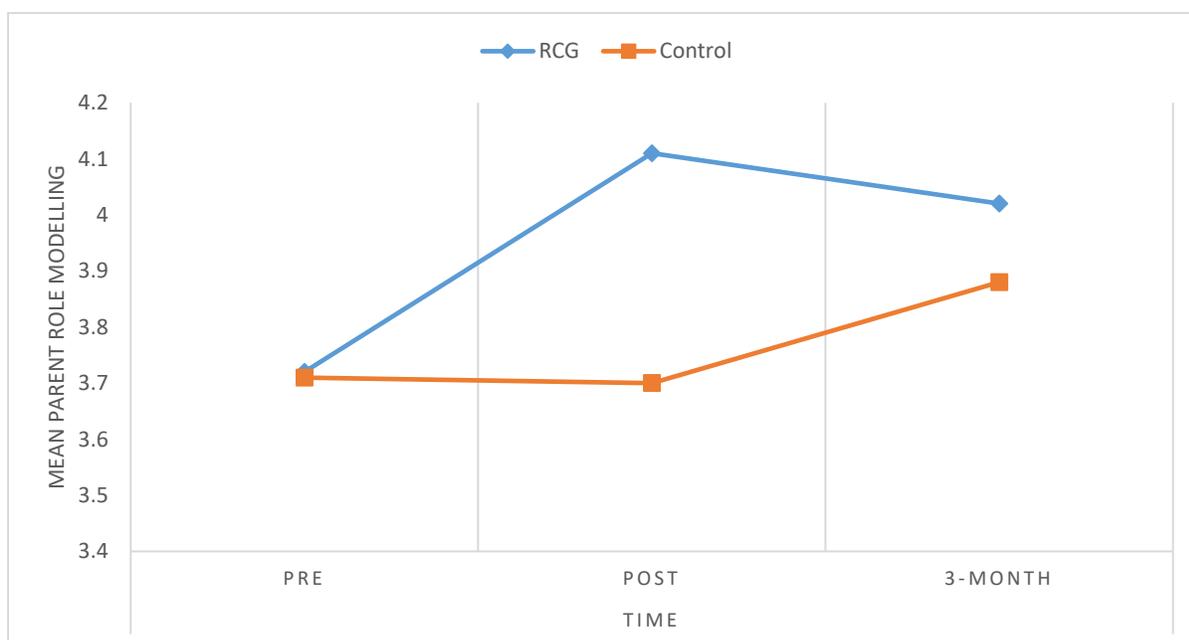
**Table 4.10**

*Effects of Group on body image risk factors across Time*

| Predictors | Internalization | | | Comparison | | | Appearance Talk | | | Dietary restraint | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $\beta$ | SE | p | $\beta$ | SE | p | $\beta$ | SE | p | $\beta$ | SE | p |
| Intercept | 3.15 | .11 | <.001 | 2.35 | .09 | <.001 | 2.22 | .10 | <.001 | 2.78 | .10 | <.001 |
| Group (Treatment) [a] | -.01 | .15 | .932 | .09 | .12 | .471 | -.02 | .13 | .864 | -.10 | .13 | .415 |
| Time (Post) [b] | -.08 | .09 | .392 | -.10 | .07 | .181 | -.03 | .08 | .720 | -.10 | .06 | .105 |
| Time (Follow-up) [b] | -.03 | .09 | .737 | -.05 | .07 | .481 | -.04 | .08 | .630 | -.10 | .06 | .120 |
| Group x Time (Treatment x Post) [ab] | -.09 | .11 | .428 | .02 | .09 | .864 | -.11 | .11 | .309 | -.05 | -.08 | .508 |
| Group x Time (Treatment x Follow-up) [ab] | -.13 | .12 | .255 | -.04 | .09 | .651 | -.15 | .11 | .172 | -.07 | -.08 | .369 |
| Random effect for intercept (Variance) | .44 | .66 | | .36 | .05 | | .36 | .05 | | .39 | .06 | |

*Note: Reference category[a] = Control, Reference category[b] = Pre-Test*

**Risk Factors**. As shown in Table 4.10, there were no significant differences for Group, Time or Time x Group for any of the body image risk factor outcomes, including internalization, comparison, appearance-based talk and dietary restraint, indicating that the intervention did not have an impact on these variables.

**Program Feedback**

Table 4.11 and Figure 1, provide the acceptability ratings obtained at Time 2 from the intervention group (*n*=66) in regards to level of enjoyment, helpfulness, comfortableness and importance of the RCG program, in addition to how well it was organized and presented. Participants rated very high acceptability regarding importance of seminars like RCG (*M* = 4.59, *SD* = .58) and presentation (*M* = 4.42, *SD* = .65), high acceptability regarding enjoyment (*M* = 4.09, *SD* = .87) and comfort (*M* = 4.00, *SD* = .85), and moderate to high acceptability in regards to helpfulness (*M* = 3.76, *SD* = 89) of the program.

**Table 4.11**

*Participant acceptability ratings for RCG program (1-5)*

|  | Not at all | A little | Some | Much | Very Much | M | SD |
|---|---|---|---|---|---|---|---|
| How much did you enjoy these lessons? | 1.52% | 1.52% | 19.70% | 40.91% | 36.36% | 4.09 | .87 |
| How much did the sessions help you in raising a confident daughter? | 0.00% | 6.06% | 36.36% | 33.33% | 24.24% | 3.76 | .89 |
| How comfortable did you feel taking part? | 0.00% | 4.55% | 22.73% | 40.91% | 31.82% | 4.00 | .85 |
| How well was the seminar organized and presented? | 0.00% | 0.00% | 9.09% | 39.39% | 51.52% | 4.42 | .65 |
| How important do you think it is for parents to take part in seminars like these? | 0.00% | 0.00% | 4.55% | 31.82% | 63.64% | 4.59 | .58 |

**Figure 4.6**
**Participant acceptability ratings for RCG program**
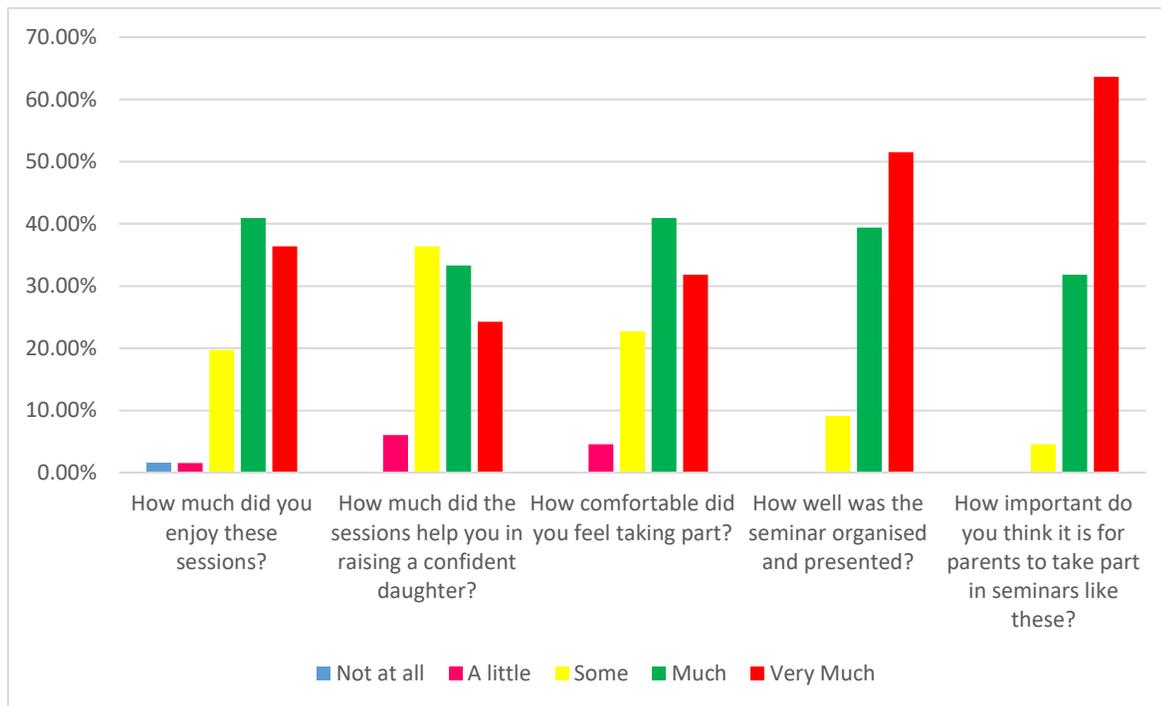
Table 4.12 provide details of a thematic analysis performed on the feedback comments provided by participants at Time 2. Participants were asked to provide any comments they wished to make regarding the RCG program. Participants provided feedback regarding both program content and their experience. The majority of comments were positive, however some participants described feeling uncomfortable regarding sharing their personal experiences in a group where they did not know the other women.  The participants mentioned the depth and value of the information included in the booklets, the quality of the presentation and the benefit of sharing with other mothers.

**Table 4.12**

*Participant feedback comments "Please provide any feedback or comments you wish about the RCG program"*

| n | Example comments |
|---|---|
| 25 | Left Blank |

| **Program** | |
|---|---|
| 19 | *The Embrace documentary really struck a chord with me and the material in the sessions complemented it. I would recommend it to everyone.* |
| | *The seminars were fantastic and I have had multiple opportunities to enlist some of the advice since the sessions started.* |
| | *I think it is important for people to understand that it is a 3-part process. I felt it all came together well after the three sessions. Just attending one or two sessions would not have the same impact.* |
| | *Very positive and engaging project. Has opened my mind to some unintentional body image messages that I may be giving my daughter.* |
| | *I really valued the presenter's delivery, down to earth approach and provision of good information booklets.* |
| | *Upon reflection, I'm thinking it may well have been good for participants to have read the sessions booklets prior to attending each session. Perhaps this would be too confronting for some, but there was much valuable data there that couldn't easily be covered in the session time length.  A deeper understanding of the topics may have aided understanding and discussion during the sessions.* |
| | *I really appreciated knowing what my daughter was being exposed to through the wellbeing program at school. This helps me to have a more relevant conversation with her, as she usually clams up about these lessons when questioned.* |
| | *Appreciate the very detailed Participant Workbook as a future reference and as we* |

*were not able to explore all the content in the sessions.*

## Experience

| 8 | *I enjoyed the seminars and the opportunity they afforded to discuss experiences with other mothers. I feel a little more prepared to deal with what may arise for my daughter during the next few teenage years.* |
| | *A smaller group may be more productive. There wasn't enough time to cover everything and allow everyone to participate, even in the table discussions.* |
| | *The session I attended was great and lots of open discussion.* |
| | *Very valuable sessions. Also great to meet other mums and share knowledge.* |
| | *Thank you for allowing me the opportunity to take part. I also found it helpful in sharing and connecting with other mothers- the same boat philosophy made me feel comfortable.* |

## Positive Comments

| 8 | *Thank you very much for the opportunity to participate in this seminar. I attended and enjoyed all three sessions - very well organised.* |
| | *I wish there would be more seminars similar to the Raising Confident Girls available to mothers in the future.* |
| | *The seminars were fantastic and I have had multiple opportunities to enlist some of the advice since the sessions started. I found the sessions very helpful and I welcome any opportunity offered by the school to learn from professionals and other parents.* |
| | *I have realised I have a lot to work on regarding my own body image and if I can help my daughter to never face such issues later in life then I will do all I can now.* |

## Negative Comments

| 3 | *I feel after the seminar series and particularly some of the exercises that I feel less confident in my appearance than I did. The exercise to name ten things about myself, including some aspects related to my body, was particularly uncomfortable and made me feel less positive about myself.* |
| | *My daughter said that since the series was conducted at school, her perception was that talk about body image was much more prevalent and that before the series she had never questioned how she looked. Personally, I think Grade 8 is too young for this series and rather than being preventative, it might actually accelerate body image issues for some girls who have never questioned it.* |
| | *Optimistic to think that a room full of women who do not know each are ready to share publically personal opinions and views about body image. As was recognised, the group was too large to get the outcomes presenters were seeking.* |
| | *Majority of mothers in the school community are tertiary educated and so information was at a pretty basic level, I was hoping to gain deeper & more insightful information.* |

| | **Other** |
|---|---|
| 3 | *I think it is very helpful for parents to be informed and educated about the teenage years as experienced in the 21st century, as I feel it is very different to when we were growing up. Much of our parenting is, understandably, based on our own...now outdated in many ways experience.* |

Note. *n* =66

## DISCUSSION

This chapter reports on an examination of the effectiveness and acceptability of *Raising Confident Girls* (RCG), a 3-session intervention designed by the researcher for delivery to Year 8 mothers, alongside the classroom-based program *Dove Confident Me* (DCM) delivered to Year 8 students. The RCG intervention was novel, in that it sought to both improve the body image of mothers in addition to providing skills and education to assist mothers to enhance the body image of their daughters. Further, while to date most parenting interventions have involved either intensive small group workshops for targeted populations (Corning et al., 2010; Trost, 2016), or brief web-based interventions (Bruning Brown et al., 2004; Diedrichs et al, 2016), the current study involved an etiologically-based face-face, interactive, multi-sessional intervention for a large group of mothers within a school context.

### Findings and Explanation

In line with the hypotheses, participants who attended RCG reported significantly greater body esteem and body appreciation at post-test compared to those participants in the control group. Further, the improvements in body esteem were maintained at the 3-month follow-up. While this finding is consistent with previous studies reporting improved body image outcomes for parent participants (Diedrichs et al., 2016; Trost, 2006), there are some notable differences. The scale measuring body esteem (*Body Esteem Scale*, Mendelson et al., 2001) comprises three subscales: appearance, weight and attribution. Adopting the same processes used in the student evaluation, the

current study measured two of the subscales (appearance and weight) and combined the scores to obtain a measure of body esteem (Diedrichs et al., 2020). However, other studies, such as Diedrichs et al.'s (2016) examination of the *Dove Self Esteem Project Website for Parents*, have reported separate scores for each of the subscales of the BES. In their examination of the appearance and weight scales of the body esteem measure, Diedrichs et al. (2016) reported that mothers who viewed a tailored version of the website, reported higher weight-esteem with a small- moderate effect size ($d$= .37) at 6-weeks compared to a control group, however this was not maintained at 12-months (Diedrichs et al., 2016). In contrast, the current study using a combined measure of appearance and weight esteem demonstrated a significant improvement in body esteem at both post-test ($d$ =.43) and at 3-month follow-up ($d$ =.50) with moderate effect sizes. Similar to the current study, Trost (2006) reported a significant improvement in body satisfaction both at post-test and at the 3-month follow-up after participation in the 3-session *Health Image Partnership* (HIP) program. The program, based on the *Body Project* intervention (Stice et al., 2001b), focused on educating small groups of 4-7 parents about the thin-ideal and enhancing positive communication between parents and daughters. Using the Body Dissatisfaction Scale (BDS; Stice & Shaw, 1994), Trost (2006) reported that parents who attended the HIP program demonstrated a significant improvement in body satisfaction compared to a control group at post-test (9.3% of variance explained), which was maintained at the 3-month follow-up (4.9% of variance explained). The current study, utilizing a measure of body appreciation (BAS; Avalos et al., 2005), noted a significant improvement in body appreciation ($d$= .48) at post-test, when delivered to a large group of mothers ($n$ =69), however it did not reach significance at the 3-month follow-up. Other studies including parent involvement in body image programs and eating disorder prevention, have either not conducted measurements for parents (Corning et al., 2010; McVey et al 2007), or restricted their examination to parental attitudes and criticism, rather than parental body satisfaction (Bruning Brown et al., 2004; Sniezek, 2006). Thus, RCG appears to be the first face-face, school-based intervention to demonstrate a significant improvement in the body appreciation and body esteem of a large group of mothers.

There are several reasons to explain why RCG successfully improved the body esteem and body appreciation of participants. First, inclusion of the *Embrace* documentary is likely to have contributed to improved body appreciation as previous research reveals that women who view *Embrace,* not only found the documentary enjoyable and emotive, but also reported a significant increase in levels of body appreciation (Yager et al., 2020). Consequently, while the evaluation to date on *Embrace* has involved a one-group post-test design, the findings obtained in the current study, utilizing a control group and pre-post measures, provide additional support that *Embrace* serves as an effective universal body image intervention for women. Second, RCG included a number of activities from the *Body Project* in order to provoke a feeling of cognitive dissonance within participants. The *Body Project* intervention has substantial research to support its effectiveness in improving body image outcomes in university-aged women (Stice et al., 2001b; Stice et al., 2015a; Stice et al., 2013b). A recent study by Verzijl et al. (2021) examining a modified version of The *Body Project* for middle age women demonstrated significant improvements in body dissatisfaction, eating disorder symptoms and health behaviours. While promising, this study was limited to 13 participants and lacked a control group (Verzijl et al., 2021). Thus, the current findings offer a valuable contribution regarding the suitability of cognitive dissonance based interventions (e.g. the *Body Project*) for middle-aged mothers.

As predicted, participation in RCG improved a mother's knowledge, confidence and skills parenting an adolescent girl, and improved her role modeling for her daughter with respect to body image. In regards to the field of general parenting programs, these findings appear promising. Chu et al. (2012) purports there is a lack of large-scale implementation of evidence-based general parenting programs. Thus, there is a dearth of comparative programs with which to compare the current findings. Although very different to the RCG, the *Triple P* parenting program (Sanders, 1999), which has achieved wide-scale implementation and a strong evidence base, provides a context to consider the current findings. The Australian developed multi-tiered *Triple P* program demonstrates consistent

improvement in parent-child relationships, parenting skills, and behavioral and emotional problems in children (Sanders et al., 2014; WHO, 2011). A meta-analytic review revealed that for over three decades, *Triple-P* consistently improved parenting satisfaction and efficacy with a moderate effect size (*d*= .51) (Sanders et al., 2014). Further, while most research of *Triple P* involves children, *Teen Triple P*, for parents of adolescents, demonstrates improved parental confidence and self-efficacy (Chand et al., 2013; Chu et al, 2015). Comparatively, the current study, by embedding a body image intervention within a general parenting program, revealed significant improvements in parenting confidence and skills with large effect sizes. At post-test, RCG participants reported significantly greater parent knowledge (*d* =1.22) and parent skills and confidence (*d* =.68) compared to the control group, which was maintained at the 3-month follow-up (*d* =.96 and *d* =.81 respectively). Further, compared to controls, parent role modelling significantly improved at post-test for the intervention group (*d* =.79). Given the *Triple P* group program involves up to 12 participants, a minimum of 8 hours and has been subject to extensive research and refinement for over three decades, the positive findings and large effect sizes obtained in the initial trial of RCG are encouraging.

In contrast to previous findings from body image interventions for parents, the improvements in parenting knowledge and competence revealed in the current study are promising. Trost (2006) reported that participation in the *Health Image Partnership* (HIP) program did not significantly improve family communication or perceived family pressures (Trost, 2006). Similarly, the *Student Bodies* intervention did not result in a reduction of the amount of criticism a mother directed towards her daughter (Sniezek, 2006). In contrast, Diedrichs et al (2016) reported that mothers in the web-based intervention significantly increased the frequency of mother-daughter conversations about body image. While this was considered a positive improvement, it is important to note that increased conversations was measured by a single-item question "how often do you speak with your daughter about body image" and the specific content of the conversation between mothers and daughters was not detailed (Diedrichs et al 2016). Thus, it is possible that mothers could have been talking more frequently to their daughters about body image in a negative way. In the current study, the use of the

parent role modelling scale, in addition to the parent knowledge, skills and confidence measures, attempts to build on this research by specifically examining the quality of relationship and communication style between mothers and daughters. The findings specifically reveal improved relationships and increased positive body-talk between mothers and daughters following participation in RCG.

The biopsychosocial model purports that thin-ideal internalization and appearance-based comparison mediate the relationship between negative affect (self-esteem and depression), BMI, sociocultural influences and body dissatisfaction (Rodgers et al., 2014). Thus, RCG targeted these variables within the intervention via the inclusion of *Dove Confident Me* (Dove, 2016) and *Dove Uniquely Me Parents Guide* (Dove, 2018) content. Although body satisfaction improved, contrary to hypotheses, mothers who attended RCG did not report a significant reduction in internalization of thin-ideal, appearance-based comparison, appearance related talk or dietary restraint. Further, participants failed to report a significant improvement in levels of self-esteem. Comparison of these findings with previous studies reveal some inconsistencies. For example, mothers in the tailored wed-based group of the Diedrichs et al. (2016) study reported significantly higher self-esteem at post-test and less negative affect at 12-month follow-up, while parents participating in the HIP intervention reported significantly less thin-ideal internalization at post-test and 3-month follow-up, and decreased dieting behavior at post-test (Trost, 2006). However, Trost (2006) did not find any impact on negative affect following participation in HIP, nor did Diechrichs et al. (2016) demonstrate any changes in thin-ideal internalization for mothers completing the web-based intervention. The mixed findings are likely due to differences in both the content and focus of parental programs. For example, Trost (2006) specifically focused on reducing thin-ideal internalization, and the intervention was based on the *Body Project*, thus explaining the reduction in thin-idealization in this study. Furthermore, while mothers in the current study were asked to engage with the DCM content in an experiential way, some may have instead preferred to approach it as education and awareness regarding the curriculum their daughters were learning. Moreover, these resources are yet to be evaluated with middle-age women,

so it is not clear whether the content is effective in reducing the eating disorder risk factors in this age group.

Given the current study aimed to directly focus on improving a mother's own body image and provide education and skills to enhance her daughter's body image, the fact that participant's body appreciation and body esteem improved despite the intervention failing to improve self-esteem, or reduce thin-ideal internalization and appearance-based comparison, is not unsurprising. The theory that body appreciation and body dissatisfaction are distinct constructs (Tylka & Wood-Barcalow, 2015b) could provide one explanation of these findings. Research reveals that women can experience both positive and negative body image simultaneously (Bailey et al., 2016; Tiggemann & McCourt, 2013; Tiggemann, 2015) and that body appreciation increases as women age, while body dissatisfaction tends to remains stable (Tiggemann & McCourt, 2013). As it is possible that participants can improve their body esteem and appreciation while continuing to engage in appearance-based comparison, body talk and thin-ideal internalization, interventions for this age group may prove more valuable when targeted towards improving body image, rather than prevention of eating disorders. The value of such interventions, focusing on body appreciation rather than reduction of eating disorders risk factors, is increasingly supported by contemporary research since the initial design of RCG in 2018.

Feedback from intervention participants indicated high acceptability ratings for the majority of the program. Over 95% of participants indicated interventions like RCG were important for parents to attend, while 90% rated the program well organized and well presented. Further, over 70% of participants described the intervention as enjoyable and comfortable and more than 50% of mothers said the program had helped them to raise a confident daughter. The high acceptability ratings suggest that the design of the intervention benefited from the researchers' position within the school. Understanding the dynamics of the participant group allowed RCG to be designed specifically to suit the population. For example, within the intervention school there are separate parental groups for

mothers and fathers. Over the years, the School has suggested combining these groups when hosting social and educative opportunities, yet both the mothers and fathers groups have resisted this idea. Thus, understanding this dynamic contributed to the decision to design RCG for delivery to mothers only.

Further, providing an opportunity to socialize with other participants, in addition to offering insights into their daughter's wellbeing curriculum, appears to have increased both engagement with the intervention and motivation of mothers. The attrition rates were low, and a comprehensive booklet posted to any participant who missed a session, thus sustaining engagement across the entire three sessions. Consequently, the positive feedback regarding program content, experience and delivery, suggests there is value in using the existing expertise within schools to tailor interventions to specific school contexts rather than utilizing external researchers to provide a 'one size fits all' approach.

**Implications**

There is abundant research highlighting substantial body dissatisfaction in women (Gagne et al, 2012; Jackson et al, 2014; Lewis-Smith et al., 2015; McLean et al., 2010) and demonstrating the significant influence mothers have on the body image of their daughters (Arroyo & Andersen, 2016; Klein et al., 2016; Rodgers et al., 2019; Shenaar-Golan & Walter, 2015; Taniguchi & Aune, 2013). Thus, the study sought to design an intervention that would effectively improve the body image of mothers, in addition to equipping mothers with skills, knowledge and confidence to enhance the body image of their daughters. The findings suggest that RCG was successful in achieving both goals.

Highlighting the importance of interventions focusing on celebrating and appreciating one's body, the present study raises the possibility that women can engage in thin-ideal internalization, appearance-based comparison and body-talk while simultaneously feeling good about their bodies. Therefore, it may not be necessary for a middle-aged woman to reduce her thin-ideal internalization, body-comparison and body-talk in order to improve her body appreciation and body esteem. Further, the current study found that increased body appreciation and body esteem was associated with more

positive role modelling in mothers attending RCG. These findings support those of Damiano et al. (2019) who reported mothers with greater body appreciation engaged in more frequent positive role modeling behaviours. The current findings suggest that improving body appreciation in mothers is more important that reducing thin-internalization, appearance-based comparison and body talk in regards to positive role modelling. Such findings have important implications as they support the idea that parent interventions can be developed to effectively target the body image of both mothers and daughters.

The feedback and high acceptability ratings suggest that RCG was a valuable and enjoyable experience for most mothers who attended. Given the consistent issues with engaging parents in prevention programs (Hart et al., 2015; Spoth et al., 2007), the current study provides insight into overcoming this problem. While researchers are experts in intervention content, school personnel are experts regarding their community. Thus, schools should be encouraged to work with researchers to modify or develop programs that will meet their parent's needs. Just as the student-teacher relationship was demonstrated to be integral to the success of classroom-based body image programs, as outlined in Chapter 3, it could be that pre-existing relationships between presenters and parents positively impacts on prevention programs targeting parents. Further, specific to this intervention, it may be that other aspects of the presenter's identity – such as being a mother of teenage daughters – further enhanced participant trust, relatedness, authority and comfort in the group.

Commencing the intervention with a viewing of *Embrace*, not only provided a solid foundation of knowledge regarding body image, but also created an emotional response that created cohesion among participants. This was important not only for sustaining engagement across the entire three-session program, but also for fostering intimacy and trust among the participant group, as evidenced by the high comfort ratings. Such feelings of trust and cohesion among participants were essential due to the *Body Project* interactive activities included in the intervention. However, despite high comfortability ratings, participant feedback comments revealed that a few mothers felt

uncomfortable regarding the interactive activities and they were not prepared to share personal details with strangers. This implies that not all participants will feel comfortable engaging in interactive activities, particularly regarding their body image. As such, additional relationship building activities may need to be incorporated into the intervention, albeit it is highly likely that regardless of program design, a small number of participants are always likely to express feelings of discomfort dealing with this highly sensitive issue. Participant comments regarding the large size of the group, further suggest the need to enhance relationship building when delivering interventions like RCG to large audiences. Such comments highlight the complexities of embedding body image prevention content within general parenting programs. While the findings corroborate the suggestions of Hart et al. (2015) to embed eating disorder prevention within general parenting programs, increased transparency regarding specific intervention content may be required to mitigate participants' discomfort.

Overall, the outcomes support extending classroom-based body image interventions to include parents, particularly in the private school setting. Utilizing evidence-based materials to tailor an intervention specifically for the intended audience is recommended. Further, embedding the intervention within an experience that offers entertainment, socialization and insight into their daughter's curriculum appears to enhance engagement.

**Strengths, Limitations and Recommendations**

A strength of the study lies in the fact that the research was driven by a quest to respond to a real-life problem experienced by school psychologists. Specifically, should school personnel spend valuable time designing and implementing programs for parents? Thus, a significant strength includes the researcher's employment at the school for 15-years. Possessing the expertise of a practiced psychologist, in addition to unique insight regarding the needs of Year 8 mothers, the researcher was able to utilize evidence-based resources within the body image field to design an intervention that specifically suited the population. The findings of the current study provide new insight into how parents can be engaged in school-based body image interventions and highlights the importance of

marrying existing expertise within the school setting with evidence-based material when designing an intervention. It is recommended that researchers consider the benefits of collaborating with school staff when conducting research. Engaging in a joint research projects between universities and schools offers many benefits compared to projects delivered solely by researchers. Unique insights into the culture of the school, the needs of the population, and on-the-ground expertise and influence over timetables and recruitment of participants can prove invaluable to school-based research projects.

While the study demonstrated a number of strengths, certain limitations must be mentioned. First, the generalisability of these results may be limited. The population involved mothers who had enrolled their daughters at a private, independent girls' school, possessing a strong academic focus. Further, although not measured within demographic data, one of the participant feedback comments noted that most participants held a tertiary qualification. Thus, the sample was likely educated and within a high socio-economic bracket. Given evidence suggests parents in the high socio-economic bracket are more likely to engage with parenting programs (Baker et al., 2010), the findings of the current study may be limited to this population. The intervention was delivered by the researcher employed by the school, and as such she could be considered an endogenous facilitator. However, as the researcher is a trained psychologist, the study essentially involved expert delivery. Further research is needed to determine whether RCG can effectively be delivered by other school psychologists not involved in further study in the area of body image, or by teachers at the school. Finally, while attrition rates were low, there was some participant feedback to suggest that the group size was too large. Future consideration is needed regarding the ideal group size.

**Conclusion**

The current study demonstrated that an etiological-based face-face interactive, multi-sessional intervention successfully improves body image and parenting outcomes when delivered to a large group of mothers within a school context. RCG is the first school-based intervention delivered to parents to demonstrate such significant improvements in body esteem and body appreciation of

participants. Despite the promising results, questions remain to whether providing RCG to mothers has any positive impact daughters. This will be examined in Chapter 5.

Additional research is needed to determine the generalizability of RCG and whether other school staff, such as teachers, can deliver it. Further, refining the program by improving transparency of content, limiting the size of the group or by incorporating an additional relationship building activity might reduce participant discomfort with the interactive activities. Overall, the results suggests that RCG is a suitable, viable and effective resource that would likely appeal to girls schools around the country. The findings not only support extending classroom-based body image programs to include parents, but further indicate that such a resource would be welcomed by parents.

**CHAPTER 5**

**STUDY 2: EXAMINATION OF IMPACTS OF RCG ON DAUGHTERS COMPLETING DCM**

**OVERVIEW**

The previous chapter revealed that mothers who participated in *Raising Confident Girls*

(RCG) reported significantly greater body esteem, body appreciation, positive parent role modelling,

parent knowledge, and parenting skills & confidence following the intervention compared to a control

group. Taking the next step, the current chapter seeks to examine whether the benefits of RCG extend

to Year 8 daughters. Specifically, Chapter 5 explores whether student outcomes following

participation in the classroom-based *Dove Confident Me* (DCM) program (described in Chapter 3) are

enhanced by having a mother attend a parallel body image intervention (e.g. RCG).

**Parent Interventions- Gaps in the Literature**

*Lack of Parent Interventions for Adolescents*

For over 25-years, researchers have been encouraged to include parents in prevention programs

for eating disorders (Graber & Brookes-Gunn, 1996). Despite such calls, a systematic review by Hart

et al. (2015) revealed that between 1992 and 2013 there were only 20 studies involving eating

disorder prevention programs for parents, with only six specifically targeting adolescents. Despite the

ongoing influence of parents during the adolescent developmental period, most parental interventions

target parents of young children (Chu et al., 2012; Yap et al., 2019; 2016). Those interventions that

are available for parents of adolescents typically involve selective or targeted populations and focus

on external behaviours including, oppositional problems, parent-adolescent conflict and substance

misuse (Burke et al., 2012; Chu et al 2015; Kumpfer et al., 2010; Omer & Lebowitz, 2016; Salari et

al., 2014; Stormshak & Dishion, 2009; Ennett et al., 2016; Prado et al., 2007). Yap et al.'s (2016)

meta-analysis of parental interventions designed to reduce risk factors for internalizing problems,

found that of the 51 studies identified, only three involved parents of adolescents, with only one of

these aimed at a universal population. Consequently, while there has been progress in the past 25-

years developing interventions for parents of children, specifically with externalizing behaviours, it has not proved as promising for parents of adolescents with internalizing problems or eating disorders.

### *Obstacles to Universal Parent Intervention*

Selected and targeted interventions have benefits, such as yielding stronger outcomes compared to universal programs (Stice et al., 2009, Teubert & Pinquart, 2011), yet they have less overall impact at the population level due to being restricted to a small group within the community (Chu at al., 2012; Rapee, 2013; Rose, 1992). Conversely, universal parenting programs have the potential to make a significant impact on the general population. Parent information evenings are relatively common practice in independent and public schools, and provide a valuable opportunity to intervene with parents. Firstly, however, parents need to engage with parenting interventions, and low parental participation and high attrition rates have proved consistent obstacles facing researchers (Butler & Titus, 2015; Chacko et al., 2016; Ozbeck et al., 2018; Spoth et al., 2007; Spooth et al., 2000). Thus, while effective, brief, low intensity interventions, deliverable to large groups of parents are needed (Chu at al., 2012), there are considerable gaps within the field.

### *Lack of High Quality Evaluation*

Very few researchers have extended beyond simple evaluation with parents to determine whether parental intervention outcomes transfer from parent to adolescent. The research field has been complicated by a lack of high-quality data regarding parental involvement (Hart et al., 2015) and inconsistent measurement approaches, specifically the failure to adopt a multi-informant approach. Some studies have relied on parent only report to determine child outcomes (Alfredsson et al., 2018; Dittman et al., 2020) whereas as others have restricted their measurements to children/adolescents only (McVey et al., 2007). Determining the effective transfer of parent intervention outcomes to child, via parental report only, can be fraught. For example, in their comprehensive meta-analysis of parental interventions for internalizing problems in children, Yap et al. (2016) examined outcomes

between multi-informant studies and parent informant studies. A multi-informant study involves both parent and child completing outcome measurements, whereas a parent informant approach describes when outcomes are measured by parent only. Significant outcomes were only reported by those studies using mother or parent informants of child outcomes, whereas studies relying on measures from father's or children themselves did not reach significance (Yap et al., 2016). Given parents can under-report a child's experience of anxiety and depression (De Los Reyes & Kazdin, 2005), Yap et al. (2016) suggests that children/adolescents themselves be the primary source to determine outcomes when examining the impact of parenting interventions on this population.

A number of studies adopting a multi-informant approach highlight the importance of obtaining measurements from both children and parents. For example, Leijten et al. (2012) examined the *Parent & Children Talking Together* program with parents of pre-adolescent children. Results revealed improved parental communication and problem solving reported by parents, yet the pre-adolescents at post-test reported no improvement in behaviour. Similarly, Chu et al. (2015) evaluated the long-term effects of the *Group Teen Triple P* program delivered to parents of adolescents. Results revealed significant improvements in parenting practices, parent confidence, family relationships and improved adolescent behavior and difficulties, as reported by mothers who participated in the intervention. However, while adolescents also reported improved family relationships at post-test, they did not corroborate the perceived improvements in their own behavior, nor the reduced difficulties, as reported by their mothers (Chu et al., 2015).

**Parent Interventions to Improve Body Image**

There is evidence to suggest that body image interventions targeted at parents only, including both intensive face-face small group sessions and brief web-based psycho-education, can successfully improve the body image of daughters with pre-existing body dissatisfaction (Corning et al., 2010; Deidrichs et al., 2016). Initially, Trost (2006) reported that educating parents about the thin-ideal and positive communication, improved the body image of parents, but outcomes did not extend to

daughters. However, Corning et al. (2010), extending upon Trost's research, found that girls whose mothers attended a similar intervention reported less perceived pressure to be thin at post-test and 3-month follow-up, and lower drive for thinness at 3-month, compared to control. Both of the studies involved a small group intervention delivered to mothers of daughters reporting pre-existing body dissatisfaction. Conversely, demonstrating an effective low intensity intervention, Deidrichs et al. (2016) revealed that daughters of mother's who viewed a web-based intervention, the *Dove Self Esteem Project Website for Parents,* for a period of 30-minutes, reported reduced negative affect and higher self-esteem at the 6-week follow-up. Similar to Corning et al (2010), the participants in the Diedrichs et al. (2016) study were mothers who had daughters with pre-existing body dissatisfaction. Despite this, the findings of both studies provide a promising step towards the development of a universal approach to parenting interventions for adolescent body image.

In contrast to parent only interventions, dual-component universal body image interventions (e.g. delivered to both parents and children/adolescents) have reported minimal impacts (Bruning Brown et al., 2004; Sniezek, 2006). Bruning Brown et al.'s (2004) examination of an intervention involving both parents and children involved students participating in an 8-session CBT based program for an hour each week, while their parents were offered a web-based intervention focusing on communication, weight and shape attitudes and behaviours. While participation in the student program resulted in positive outcomes for students, and parent findings indicated significant reductions in attitudes and criticisms directed towards children, there did not appear to be any impact on daughters of parents participating in the parental program (Bruning Brown et al., 2004). The study was replicated by Sniezek (2006) using a paper version of the materials, and again the findings suggested that parental involvement did not produce positive body image outcomes for daughters.

**The Current Study**

Adopting a pragmatic perspective, the current study seeks to understand whether schools should invest time and resources in parent interventions. *Raising Confident Girls* (RCG) was designed

to address the scarcity of interventions available for parents of adolescents and to overcome the obstacle of low parental engagement. Findings detailed in Chapter 4 suggested that RCG was successful in increasing parental uptake, improving body image outcomes of mothers, and enhancing their confidence and skills in parenting adolescent girls. While promising, the reality is that for schools, the primary focus must be student outcomes, and it is yet to be determined whether the RCG intervention has a positive effect on daughters. As the project adopted a multi-informant approach, obtaining measures from both mothers and daughters, the current chapter aims to determine whether the positive outcomes reported by mothers following participation in RCG, extended to positive outcomes for their daughters.

Specifically, this Chapter will concentrate on responding to the following research question:

1. Are the outcomes from *Dove Confident Me* enhanced in participants whose mothers attended the school-based intervention *Raising Confident Girls?*

### *Hypotheses*

1. Hypothesis 1 – At post-test, Year 8 students completing DCM, whose mothers attended RCG, compared to Year 8 students completing DCM whose mothers did not attend RCG, will report significant increases in body esteem, body appreciation and self-esteem, alongside significant decreases in internalization of thin-ideal, maternal pressure, social comparison, appearance conversations and dietary restraint.

2. Hypothesis 2- These results will be maintained at 3-month follow-up.


## METHOD

### Participants

Participants comprised of Year 8 ($n$=201) girls attending the intervention school. All students were aged 11-14 years and participated in *Dove Confident Me* (DCM) during wellbeing lessons. Of

the 201 student participants, 67 had mothers attending RCG (*Mo-Yes RCG*) and 135 had mothers who did not attend RCG (*Mo-No RCG*). The remaining students whose mothers comprised the RCG-Control group (*Mo- RCG Control*) (*n*=40) were not included in the analysis. All analyses were conducted at the group level and there was no dyad identification or analysis as it was felt this may inhibit recruitment within the school setting. Table 5.1 provides details of the student groups used in the current analysis.

**Table 5.1**

*Details of student intervention and control groups used in current analysis*

| Students | n | Current Study |
|---|---|---|
| Students with mothers in RCG  Intervention Group (*Mo-Yes RCG*) | 67 | Intervention Group |
| Students with mothers in RCG– Control Group (*Mo- RCG Control*) | 40 | Excluded |
| Students whose mothers not involved in RCG intervention/control group (*Mo-No RCG*) | 135 | Control Group |

**Procedures**

During Term 2, 2018 at the intervention school all Year 8 students participated in the DCM program. Students completed surveys at pre, post and 3-month follow-up. Details regarding survey administration for both mothers participating in RCG and students participating in DCM are provided in Table 5.2.

**Data Collection**

The school provided the researcher with a list of de-identified email addresses for students whose mothers had registered for the RCG intervention and control group. An ID code was assigned to each email address to identify condition. Email addresses were uploaded to the Qualtrics software system and a link to access the survey was sent to each student. At the start of each survey participants were asked to

create a unique code using their names, birth date and eye colour in order to match surveys between each

data collection period. All student responses to the survey were anonymized via the Qualtrics system and

participants were identified via the anonymous code.

**Table 5.2**

*Details of intervention and survey administration for mothers and students.*

|  | RCG Intervention- Mothers | DCM Intervention- Students |
|---|---|---|
| Pre-test Survey | Term 2- Week 3 | Term 2- Week 3 |
| Session 1 | Term 2- Week 4 | Term 2- Week 4 |
| Session 2 | Term 2- Week 6 | Term 2- Week 6 |
| Session 3 | Term 2- Week 8 | Term 2- Week 8 |
| Session 4 | n/a | Term 2- Week 10 |
| Post-test Survey | Term 2- Week 9 | Term 2- Week 10 |
| 3-mth F/U Survey | Term 3- Week 6 | Term 3- Week 9 |

**Measures**

All measures are standardized and have been validated and widely used with adults and

adolescents. Table 5.3 outlines the measures students completed including internal consistencies on

each measure for the current sample and details describing each measure is available in Chapter 3.

Chapter 4 outlines the measures completed by RCG participants and the internal consistencies for

each measure for the mother's sample.

**Table 5.3**

*Self-reported student measures and cronbach's alpha for each scale*

| Outcome | Measures/Scales | Cronbach's alphas |
|---|---|---|
| Participant characteristics | Self-reported age, country of birth, language other than English spoken at home and ethnicity | |
| *Body Image* | | |
| Body esteem | **Body Esteem Scale for Adolescents & Adults** (Mendelson et al., 2001), Weight and appearance subscales combined, 18 items, mean score range 1-5 | .96 |
| Body satisfaction | **Body Appreciation Scale** (Avalos et al., 2005). 8 items, mean score range 1-5 | .90 |
| *Risk factors* | | |
| Internalization of appearance ideals | **Ideal-Body Stereotype Scale – Revised (IBSS-R;** Stice et al., 1996) 8 items, mean score range 1-5. | .93 |
| Sociocultural pressures | Purpose-built measure derived from existing scales of sociocultural pressures (Stice & Bearman, 2001a; Thompson et al., 2004), 12 items, mean score range 1-5. | .93 |
| Perceived maternal pressure | **Maternal Pressure Scale** (Corning et al., 2010). 9 items, mean score range 1-4. | .79 |
| Social comparisons | **Social Comparison to Models and Peers Scale** (Jones, 2001), 8 items, mean score range 1-5. | .90 |
| Appearance conversations | **Appearance Conversation Scale** (Jones et al., 2004), 5 items, mean score range 1-5. | .90 |
| *Psychosocial & disordered eating related measures* | | |
| Self-esteem | **Rosenberg Self-esteem Scale** shortened (Neumark-Sztainer et al., 2007; Rosenberg, 1965), 6 items, mean score range 1-4. | .82 |
| Dietary restraint | **Dutch Eating Behaviour Questionnaire**, (van Strien et al., 1986), Restraint subscale, 10 items, mean score range 1-5. | .94 |

### Data Analysis and Preparation

Initial data preparation and analyses were conducted using SPSS (Version 24). A series of independent t-tests were conducted on the baseline measures between the group of students whose mothers did not attend RCG and the group of students whose mothers volunteered to be in the RCG

control group (also not participating in RCG seminar). This was done to determine whether both groups of students could be combined together to act as the control group for the current analysis. It was found that the group of students whose mothers comprised the control group for RCG had significantly higher self-esteem, body esteem and body appreciation at baseline compared to the group of students whose mothers were not involved in RCG. Given the two groups had significant differences, it was decided to not combine them and to only use the students whose mothers were not involved in RCG (either as an intervention or control) as the control groups for the current analysis.

Descriptive analyses were used to screen for outliers and normality. One outlier was removed from the student *Mo-RCG* group due to the participant answering "1" on all questions on the Time 3 survey. Of the dependent variables, self-esteem, body-esteem, body appreciation and internalization of thin-ideal appeared to be normally distributed. The remaining variables appeared positively skewed, thus square root transformations and log transformations were applied to improve normality. An analysis of intervention effects was conducted on both the transformed and untransformed data and there were no differences in the outcomes. Results are presented using transformed data.

Intervention effects were analysed using longitudinal mixed models (LMM). LMM was selected due to the model's four principal strengths: (1) accommodating missing data points often encountered in longitudinal datasets; (2) not requiring the same number of observations per subject; (3) allowing time to be continuous rather than a fixed; and (4) increased flexibility regarding the covariance structure (Chakraborty & Gu, 2009). Furthermore, when dealing with large amounts of missing data (10-20%), LMM is considered a more precise approach than multiple imputation or expectation-maximization (EM) algorithm (Von Hippel, 2007).

Preliminary analyses were conducted to determine the most appropriate LMM for each outcome variable. Four different models were considered for best fit, including: (1) no random effects; (2) random effect intercept and slope; (3) random effect slope; and (4) random effect for intercept. The best model, according to Akaike Information Criterion (AIC) (Hastie et al., 2009), was the model with the random effect for intercept. Thus, intervention effects were analysed using a

mixed effects model that predicted each outcome as a function of Group (intervention and control) and Time (pretest, post-test and three-month follow-up), and the interaction between Group x Time. The control group and the pretest measure were chosen as the reference category in order to compare the effects of intervention across time.

Sample size was determined according to Twisk (2003) using the Excel document created for Study 1. Similar to Chapter 4, the current study included participants from the one school and did not involve clusters. There were 201 participants (intervention group = 66 and control group = 135). The sample size required to detect a moderate effect size (Cohen's $d$ =.5) was 47 participants per group, and to detect small effects (Cohen's $d$ =.2), was 294 participants per group. Therefore, the study was underpowered to detect small effects but well powered to detect moderate effects.

## RESULTS

### Characteristics of Participants

There were 66 students with mothers attending RCG (*Mo-Yes RCG*) and 135 students whose mothers did not attend RCG (*Mo-No RCG*). Student participants were aged an average of 12.8-years (*SD*=.39). Most students (84.5%) were born in Australia and 19% indicated that their family spoke a language other than English at home.

### Attrition

As shown in Table 5.4 there was 3.5% (*n*= 7) of student missing data observed across the groups at pre-test. Student missing data at post-test was 18.9% (*n*= 36), and 19.9% (*n*= 38) at the 3-month follow-up. Data was assumed to be missing due to student absence from school on the day of assessment, or a student deciding they did not wish to complete the survey/participate in the research

study. Missing data were examined using Little's Missing Completely (MCAR; Little, 1988) and results indicated that the data was completely missing at random, $x2$ (256) = 288.77, $p$=.078.

For RCG participants, no missing data was observed across groups at pre-test. RCG missing data at post-test was 8% ($n$=10), which increased to 14% ($n$=118) at the 3-month follow-up. Missing data were examined using Little's Missing Completely at Random test (MCAR; Little, 1988) and results indicated the data was completely missing at random, $x^2$ (123) = 131.01, $p$ = .290.

**Table 5.4**

*Frequency of students completing data collection and attrition rates at each time-period for Mo-Yes RCG and Mo-No RCG*

|  | n | Pre-Test | Post-Test | 3-mth Follow-Up |
|---|---|---|---|---|
| Mo-Yes RCG | 66 | 66 | 55 (16.7%) | 55 (16.7%) |
| Mo-No RCG | 135 | 128 (5.2%) | 108 (20%) | 106 (21.5%) |
| Total | 201 | 194 (3.5%) | 163(18.9%) | 161 (19.9%) |

**Comparison of Scores of Intervention and Control Groups at Pre-test**

Table 5.5 displays the means and standard deviations on untransformed data at pre-test, post-test and 3-month follow-up time points for participants whose mothers attended RCG (*Mo-Yes RCG*) and those whose mothers did not attend the program (*Mo-No RCG*). A series of independent t-tests found a significant difference between the two groups for self-esteem and body appreciation. Specifically, the students whose mothers attended RCG had significantly higher self-esteem and body appreciation at baseline compared to the control group.

**Table 5.5**

*Means, standard deviation, minimum and maximum of outcome variables by time and group for students in Mo-Yes RCG and Mo-No RCG*

| | Participant with Mo-Yes RCG | | | | | Participant with Mo-No RCG | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | *n* | *M* | *SD* | *Min* | *Max* | *n* | *M* | *SD* | *Min* | *Max* | *t*(df)*p* |
| **Self esteem** | | | | | | | | | | | |
| Pre-test | 66 | 2.78 | .59 | 1.33 | 4.00 | 128 | 2.61 | .62 | 1.33 | 4.00 | -2.06(190), *p=<.05* |
| Post-test | 55 | 2.90 | .68 | 1.17 | 4.00 | 108 | 2.70 | .64 | 1.17 | 4.00 | |
| 3-mth | 55 | 2.91 | .68 | 1.50 | 4.00 | 106 | 2.66 | .66 | 1.33 | 4.00 | |
| **Body esteem** | | | | | | | | | | | |
| Pre-test | 66 | 3.49 | .91 | 1.33 | 4.94 | 128 | 3.27 | .87 | 1.00 | 5.00 | -1.57(190), *p=.12* |
| Post-test | 55 | 3.67 | .88 | 1.44 | 5.00 | 108 | 3.34 | .82 | 1.72 | 4.94 | |
| 3-mth | 55 | 3.57 | .98 | 1.33 | 5.00 | 103 | 3.35 | .87 | 1.00 | 5.00 | |
| **Body appreciation** | | | | | | | | | | | |
| Pre-test | 66 | 3.85 | .78 | 1.63 | 5.00 | 126 | 3.62 | .75 | 2.13 | 5.00 | -2.17(190), *p=<.05* |
| Post-test | 55 | 3.84 | .92 | 1.50 | 5.00 | 108 | 3.60 | .84 | 1.50 | 5.00 | |
| 3-mth | 55 | 3.75 | .93 | 1.50 | 5.00 | 102 | 3.60 | .83 | 1.50 | 5.00 | |
| **Internalization** | | | | | | | | | | | |
| Pre-test | 66 | 2.69 | .97 | 1.00 | 4.50 | 126 | 2.80 | .80 | 1.00 | 4.75 | .17(118.12), *p=.48* |
| Post-test | 55 | 2.70 | .98 | 1.00 | 5.00 | 108 | 2.91 | .86 | 1.00 | 5.00 | |
| 3-mth | 55 | 2.71 | .98 | 1.00 | 4.63 | 102 | 2.93 | .89 | 1.00 | 5.00 | |
| **Maternal pressure** | | | | | | | | | | | |
| Pre-test | 66 | 1.63 | .53 | 1.00 | 3.11 | 127 | 1.77 | .53 | 1.00 | 3.00 | 1.38(190), *p=.17* |
| Post-test | 55 | 1.59 | .55 | 1.00 | 3.44 | 108 | 1.84 | .59 | 1.00 | 3.22 | |
| 3-mth | 55 | 1.70 | .61 | 1.00 | 3.11 | 103 | 1.84 | .62 | 1.00 | 4.00 | |
| **Social comparison** | | | | | | | | | | | |
| Pre-test | 66 | 2.19 | .75 | 1.00 | 4.08 | 126 | 2.31 | .76 | 1.00 | 4.25 | 1.81(190), *p=.24* |
| Post-test | 55 | 2.18 | .76 | 1.00 | 3.83 | 108 | 2.33 | .74 | 1.00 | 3.92 | |
| 3-mth | 55 | 2.26 | 1.00 | 1.00 | 5.00 | 102 | 2.34 | .86 | 1.00 | 5.00 | |
| **Appearance conversations** | | | | | | | | | | | |
| Pre-test | 66 | 1.87 | .96 | 1.00 | 4.60 | 126 | 1.89 | .91 | 1.00 | 5.00 | .24(190), *p=.81* |
| Post-test | 55 | 1.85 | .80 | 1.00 | 4.00 | 108 | 1.92 | .87 | 1.00 | 4.80 | |
| 3-mth | 55 | 1.86 | .96 | 1.00 | 5.00 | 101 | 2.05 | 1.0 | 1.00 | 5.00 | |
| **Dietary restraint** | | | | | | | | | | | |
| Pre-test | 66 | 2.12 | .88 | 1.00 | 4.90 | 125 | 2.25 | .97 | 1.00 | 4.90 | .96(190), *p=.34* |
| Post-test | 55 | 2.16 | .84 | 1.00 | 4.40 | 108 | 2.15 | .95 | 1.00 | 4.60 | |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 3-mth | 55 | 2.11 | .94 | 1.00 | 4.80 | 100 | 2.13 | .97 | 1.00 | 5.00 | |
| **Sociocultural pressure** | | | | | | | | | | | |
| Pre-test | 66 | 1.75 | 80 | 1.00 | 4.80 | 125 | 1.92 | .83 | 1.00 | 5.00 | 1.44(190), $p=.15$ |
| Post-test | 55 | 1.70 | .71 | 1.00 | 3.17 | 108 | 1.95 | .78 | 1.00 | 4.50 | |
| 3-mth | 55 | 1.90 | 1.03 | 1.00 | 5.00 | 100 | 1.91 | .96 | 1.00 | 5.00 | |

## Testing the Effects of the Intervention

*Body Image and Self-esteem*. Final model results comparing the body image and self-esteem outcomes between students whose mothers participated in RCG (*Mo-Yes RCG*) and students whose mothers were not involved in RCG (*Mo-No RCG*) are reported below in Table 5.6. There was a significant difference across Group for the self-esteem variable. Specifically, self-esteem was significantly greater in the *Mo-Yes RCG group* pre-test compared with the *Mo-No RCG* group. No other Group, Time, or Time x Group interactions reached significance for any of the body image or self-esteem outcome variables, meaning that there were no improvements for student participants on these variables, irrespective of whether their mothers completed the RCG program.

**Table 5.6**

*Effects of Group on self-esteem and body image outcomes across Time for students in Mo-Yes RCG and Mo-No RCG*

| | Self-esteem | | | Body esteem | | | Body appreciation | | |
|---|---|---|---|---|---|---|---|---|---|
| Predictors | $\beta$ | *SE* | *p* | $\beta$ | *SE* | *p* | $\beta$ | *SE* | *p* |
| Intercept | 2.60 | .05 | <.001 | 3.28 | .08 | <.001 | 3.62 | 07 | <.001 |
| Group (Treatment)[a] | .22 | .09 | <.05 | .18 | .13 | .169 | .21 | .12 | .100 |
| Time (Post)[b] | .08 | .04 | .068 | .09 | .05 | .077 | -.01 | .05 | .786 |
| Time (Follow-up)[b] | .05 | .04 | .301 | .01 | .05 | .756 | -.04 | .05 | .404 |
| Group x Time (Treatment x Post)[ab] | -.01 | .08 | .934 | .01 | .08 | .925 | -.06 | .08 | .445 |
| Group x Time (Treatment x Follow-up)[ab] | .08 | .08 | .257 | .03 | .08 | .661 | -.12 | .08 | .147 |
| Random effect for intercept (Variance) | .29 | .03 | | .68 | .07 | | .56 | .06 | |

*Note: Reference category[a] = Control, Reference category[b] = Pre-Test*

**Table 5.7**

*Effects of Group on body image risk factors across Time for students in Mo-Yes RCG and Mo-No RCG*

| Predictors | Social comparison | | | Sociocultural Pressure | | | Internalization | | |
|---|---|---|---|---|---|---|---|---|---|
| | β | SE | P | β | SE | p | β | SE | p |
| Intercept | 1.49 | .02 | <.001 | 1.35 | .03 | <.001 | 2.82 | .08 | <.001 |
| Group (Treatment)[a] | -.03 | .04 | .495 | -.04 | .04 | .364 | -.11 | .14 | .399 |
| Time (Post)[b] | .02 | .02 | .235 | .03 | .02 | .193 | .10 | .07 | .167 |
| Time (Follow-up)[b] | .02 | .02 | .377 | .01 | .02 | .549 | .12 | .08 | .109 |
| Group x Time (Treatment x Post)[ab] | -.02 | .03 | .497 | -.02 | .03 | .565 | -.08 | .13 | .538 |
| Group x Time (Treatment x Follow-up)[ab] | -.01 | .03 | .676 | .02 | .03 | .590 | -.06 | .13 | .615 |
| Random effect for intercept (Variance) | .05 | .01 | | .07 | .01 | | .50 | .06 | |

| Predictors | Appearance talk | | | Dietary restraint | | | Maternal Pressure | | |
|---|---|---|---|---|---|---|---|---|---|
| | β | SE | p | β | SE | p | β | SE | p |
| Intercept | 1.34 | .03 | <.001 | 1.46 | .03 | <.001 | .23 | .01 | <.001 |
| Group (Treatment)[a] | .01 | .05 | .991 | -.02 | .05 | .619 | -.04 | .02 | .084 |
| Time (Post)[b] | .03 | .03 | .312 | -.02 | .02 | .306 | .01 | .01 | .295 |
| Time (Follow-up)[b] | .07 | .03 | <.05 | -.02 | .02 | .275 | .01 | .01 | .256 |
| Group x Time (Treatment x Post)[ab] | -.04 | .05 | .438 | .01 | .03 | .642 | -.02 | .02 | .166 |
| Group x Time (Treatment x Follow-up)[ab] | -.09 | .05 | <.05 | .02 | .03 | .551 | .01 | .02 | .741 |
| Random effect for intercept (Variance) | .06 | .01 | | .08 | .01 | | .01 | .01 | |

*Note: Reference category[a] = Control, Reference category[b] = Pre-Test*

***Risk Factors*.** As shown in Table 5.7 there was a significant change across Time for the appearance-based talk variable. Specifically, both groups reported significantly less appearance-based talk at the 3-month follow-up compared to pre-test. Further, there was a significant Time x Group interaction for appearance-based talk between pre-test and 3-month follow-up. Specifically, the *Mo-Yes RCG* group had less appearance-based talk compared to the *Mo-No RCG* group between pre-test and 3-month follow-up. The effect size for this outcome was small ($d$ =.20). No further changes across Time or Time x Group reached significance for any of the other body image risk factor outcomes. There were no significant changes across Group for any of the body image risk factor outcomes.

**DISCUSSION**

The present study examined whether, following participation in DCM, Year 8 students whose mothers attended RCG reported enhanced body image outcomes at post-test, compared to Year 8 students whose mothers did not participate in RCG. The results revealed a significant difference in appeareance-based talk from pre-test to 3-month follow-up between daughters whose mothers attended the RCG intervention and daughters whose mothers were not involved. Further, students whose mothers attended RCG had increased body esteem and self-esteem, along with decreased maternal pressure, sociocultural pressure and dietary restraint from pre-test to post-test. However, none of these differences reached significance.

The significant change in appearance-based talk at 3-month follow-up between the groups is novel compared to previous parenting research. Studies examining parenting interventions designed to improve adolescent body image (Bruning Brown et al., 2004; Trost, 2006; Sniezek, 2006), reduce adolescent risk of depression and anxiety (Yap et al., 2019) and improve adolescent behavior (Leijten et al., 2012;) have not reported any significant benefits for the adolescents involved. Further, the delay in detecting change in appearance-based talk at the 3-month follow-up point has similarly been reported by previous research where outcomes extending to children have not been detected until follow-up (Chu et al., 2015; Diedrichs et al., 2016).

In contrast, studies including mothers of daughters with pre-existing body dissatisfaction have reported significant outcomes for daughters (Corning et al., 2010; Deidrichs et al., 2016). Corning et al. (2010) revealed that daughters of mothers attending a small group intensive intervention focused on reducing the thin-ideal, reported less perceived pressure to be thin at post-test and 3-month follow-up, and lower drive for thinness at 3-month follow-up compared to control. Similarly, Deidrichs et al. (2016) reported that daughters of mothers viewing a web-based intervention demonstrated less negative affect and higher self-esteem at the 6-week follow-up compared to control. Unlike the

current study, both the Corning et al (2010) and Deidrichs et al. (2016) studies did not include a complementary intervention provided to the daughters alongside the parent intervention.

**Explanation of Findings**

The current study demonstrated that the RCG intervention engaged mothers, and effectively improved their body image, positive role modeling, parenting knowledge, and parenting skills and confidence. Further, RCG demonstrated a delayed benefit for daughters by reducing appearance-based talk at 3-months. There are several possible reasons for this result. First, while the Appearance Conversation Scale (Jones et al., 2004) measures frequency of appearance related talk among peers, it is possible that, following RCG, mothers engaged in less appearance-based talk with their daughters, and that this contributed to the finding. Daughters did not report a significant reduction in maternal pressure, yet the outcomes from mothers attending RCG indicated that they demonstrated a significant improvement in positive parent role modelling. The positive parent role modelling scale comprises questions regarding how much a mother engages in appearance-based talk to or around her daughter. Therefore, it is likely that following participation in RCG, mothers reduced their levels of appearance-based talk at home. Further, mothers may have explicitly encouraged their daughters to avoid appearance-based talk, and this too may have contributed to girls engaging in less talk with their peers. The findings could further be explained by considering whether the students, whose mothers attended RCG together, were in the same friendship group. Some of the mothers registering for RCG may have done so along with another mother whom they were friendly with via their daughters. Research has shown that cliques of female friends share similarities in regards to body dissatisfaction and dietary restraint (Paxton et al., 1999). According to social identity theory, conversations between friendship peers play a key role in communicating group norms and behaviours (Webb & Zimmer-Gembeck, 2013). Thus, if the students with mothers attending RCG were within the same friendship group, then the social relationship they shared with each other may have contributed to the change in appearance-based talk in this group.

Unfortunately, the remaining body image variables failed to improve. While this is disappointing, there are a number of possible explanations for the null results including restricted follow-up time, limited statistical power and likely floor effects. The current study utilized data from the student DCM investigation outlined in Chapter 3. Accordingly, the student post-test data was collected 2-weeks after the final RCG session and the follow-up measurement data was limited to 14-weeks post RCG. This may have proved insufficient to detect transmission of outcomes from RCG to daughters as the post-test period only allowed 2-weeks for mothers to use the learning from RCG with their daughters. Highlighting the importance of long-term follow-up measures, Wilksch (2014) suggests that low baseline scores, often evident in eating disorder prevention studies, means program effects may not be captured unless the follow-up measure extends across the entire peak risk period for development of an eating disorder. Feedback comments from RCG participants revealed that a number of mothers felt their daughters were too young for the DCM intervention, yet indicated that the intervention had equipped them with skills to navigate the challenges laying ahead. Chu et al. (2015) have suggested that parenting skills learnt during an intervention require at least a 6-month follow-up measure in order to have a detectable effect on adolescents. The researchers found that mothers participating in the *Group Teen Triple P* parent program reported significant improvements in their adolescent's behavior and difficulties at post-test, yet the adolescents themselves did not report these findings until the 6-month follow-up measurement (Chu et al., 2015). Sandler et al. (2011) theorized that parental interventions improve child outcomes, firstly because of improved parenting skills, enhanced parental efficacy and reduced parental psychopathology. Following these improvements, a child can begin to experience improvements within themselves (e.g. enhanced emotional regulation), followed by improved relationships with their peers (Sandler et al., 2011). Due to the length of time this process may require, it is likely that the 3-month follow-up measure in the current study did not accurately capture the latent effect of the RCG intervention on daughters.

The students in the current study represented a selective sample, as girls are at greater risk of body dissatisfaction compared to boys (Carlisle et al., 2019) however, examination of the baseline

scores revealed many students scored within the normal range on a number of the body image measures. Consequently, there may have been a floor effect occurring, meaning participants had little scope to improve their scores. Chapter 3 revealed that approximately 10% of student feedback comments included participants saying they were not conscious of their body image prior to the DCM intervention, with similar sentiments echoed by some mothers in the RCG participant feedback outlined in Chapter 4. Comparatively, the two studies reporting positive outcomes extending from parental intervention to daughters (Corning et al., 2010 & Deidrichs et al., 2016), both involved daughters identified to have pre-existing body dissatisfaction. As evidence supports that universal or selective programs are more effective when participants have higher baseline levels of pathology (Stice et al., 2007; Yap et al., 2016; Wilksch, 2014), the lack of pre-existing body dissatisfaction and prospective floor effects, could be a further explanation why the outcomes failed to reach significance.

Finally, limited statistical power and the decision to analyze findings at a group level rather than within dyads may have had an impact on the findings. The study was well powered to detect moderate effects, however the sample was undersized to detect small effects. Results revealed an improvement from pre-test to post-test for a number of variables within the intervention group, however they failed to reach significance. Had the study involved a larger sample size, these findings may have reached significance. Studies reporting positive outcomes on daughters have analyzed outcomes via mother-daughter dyads (Corning et al., 2010 & Deidrichs et al., 2016). However, the current study, similar to Bruning Brown et al. (2004) and Sniezek (2006), adopted a group design for the analysis. This was done as it was thought that the group design would provide a greater sense of anonymity for mothers participating in the school-based research, compared to using a mother-daughter dyads design, and would encourage more mothers to participate in the research. The group design was also considered a simpler approach to use within the school environment. Future work, examining RCG with mother-dyads is needed in order to determine whether this design has any impact on the results.

**Implications**

Despite abundant agreement regarding the influence of parents on the developing body image of daughters, and a call some 25-years ago by Graber and Brooks-Gunn (1996) for parents to be included in eating disorder prevention research, there is still a dearth of empirically evaluated parenting programs available, particularly for parents of adolescents. Further, while interventions directed at parents, or interventions directed at young people, demonstrate preventative effects for internalizing problems, dual-component programs (parent interventions with an added child component or child intervention with an added parent component) have not demonstrated addition benefits (Yap et al., 2016). Consequently, the process of transfer between parental intervention outcomes and child outcomes remains unclear. The current study sought to fill some of the research gaps regarding parental interventions, to provide additional insight and knowledge to the field, as well as inform school-level decision making about parent information programs.

Firstly, the participant feedback, high acceptability ratings and low attrition rates, indicated that the RCG intervention was a valuable and enjoyable experience for most of the mothers who attended. Further, the outcomes detailed in Chapter 4, demonstrate that the program was effective in improving parenting outcomes, as well as enhancing participants body image. These findings are positive and provide support for the recommendations made by Hart et al. (2015) regarding designing parental interventions that are engaging for participants. Encouragingly, the outcomes of the RCG program did extend to daughters in regards to reduced appearance-based talk, offering an important contribution to understanding the positive transfer of parent intervention to adolescent daughters. The appearance-based talk finding is important, as engagement in appearance-based talk has been associated with increased body dissatisfaction (Lawler & Nixon, 2011), eating pathology and depressive symptoms in adolescent girls (Chow & Tan, 2018). Further, daughters whose mothers reciprocate appearance-based talk are more at risk of experiencing eating disordered attitudes and behaviours (Chow & Tan, 2018). Although participation in DCM did not result in a significant reduction in appearance-based talk, there was a difference when DCM was coupled with the RCG

intervention for mothers. Therefore, overall the study endorses extending school-based resources to include parents in body image interventions

However, it is also important to consider whether the RCG program requires modification in order to extend the effect on daughters beyond improving appearance-based talk. The RCG intervention adopted an experiential approach to both improve the body image of mothers while providing skills and education to mothers regarding improving the body image of daughters. Participants were invited to consider how they themselves engage with body comparison, the appearance-ideal, appearance-based talk and socio-cultural pressure. Thus, there was less content outlining explicit advice and guidance around what mothers should do to improve their daughter's body image. Accordingly, while the experiential focus successfully improved a mother's body image, it may not have been potent enough to impact broadly on daughter's body image. Although some research has found that mothers' own body image is critical in facilitating more effective role modelling of positive body image (Damiano et al., 2019), more explicit advice and intervention content might be needed to ensure that the intervention effects are transferred. The findings of the current study suggest that eating disorder risk factors can be reduced in adolescent girls, following a dual-component intervention delivered to both mothers and daughters. Nonetheless, it is likely that mothers of adolescent daughters require additional skills and an increased focus on specific strategies to use with adolescent daughters, rather than an emphasis on their own body image, in order for successful transmission of broader body image outcomes to daughters.

**Strengths, Limitations and Recommendations**

There are a number of strengths evident in the current study. Firstly, utilizing the available data from Chapter 3, the study took the next step by conducting an analysis of RCG outcomes for daughters, thereby contributing to the paucity of research within the field of body image interventions for parents of adolescents. Compared to previous body image programs for parents (Bruning Brown et al., 2004; McVey et al., 2007), the current study demonstrates strong engagement by mothers and low

attrition rates. Secondly, the adoption of a multi-informant approach and dual-component design, evidenced by the examination of an intervention for mothers alongside an intervention for adolescents and obtaining measurements from both mothers and daughters, is in keeping with research recommendations (Yap et al., 2016) and demonstrates a significant strength in regards to research design.

However, certain limitations must be acknowledged. As this was not the primary analyses planned for this data, this particular study was underpowered to detect small effects and was limited to a 3-month follow-up period. The generalisability of the results may also be limited. The population involved students from a private, independent girls' school, possessing a strong academic focus and mothers who mostly held tertiary qualifications. Thus, the sample was within a high socio-economic bracket and valued education. Given evidence suggests parents in the high socio-economic bracket are more likely to engage with parenting programs (Baker et al., 2010), the findings of the current study may be limited to this population.

**Conclusion**

Given the dearth of research regarding transfer of body image education and intervention from mothers to children, the examination of whether RCG outcomes extend to daughters provides an important contribution to the research field. The current study demonstrated that positive outcomes, reported by mothers following participation in RCG, did transfer to daughters. Specifically, daughters whose mothers attended RCG reported a significant decrease in appearance-based talk at the 3-month follow-up, compared to daughters whose mothers were not involved.

In order to determine whether broader body image outcomes extend from mothers to daughters additional research is needed. Firstly, refinement of RCG content and inclusion of specific strategies for mothers may result in improved outcomes for daughters. Secondly, a longer follow-up measurement time would likely provide valuable insight regarding the long-term outcomes of RCG

on daughters. Overall, the findings support extending classroom-based body image programs to

include parents, because not does this assist parents, but further, it enhances outcomes for students.

**CHAPTER 6**

**CONCLUSION AND RECOMMENDATIONS**

Initially, this thesis evolved from a pragmatic perspective. Specifically, the guiding aim was to understand what would work to improve the body image of adolescent girls attending an independent girl's school in Queensland, Australia. Holding the position of school psychologist for 15-years, the researcher felt behooved to investigate effective intervention approaches for the students under her care. Moreover, as the project evolved, it has been the researcher's role within the school, necessitating the need to navigate research requirements with real-life constraints, which afforded unique insights and information to the study. Across 7-years, the research project progressed to incorporate both practical and theoretical perspectives, expanded to include two studies and extended from a focus primarily on students to include mothers. This final chapter will conclude the thesis by providing a summary of the research project, identify key findings, and note a number of practical considerations for schools intending to implement body image interventions for students and parents, in addition to outlining implications for future research.

The project began with Study 1, a replication of *Dove Confident Me* (DCM) with Year 8 students attending a single-sex independent school. Developed for universal co-education populations, the classroom-based DCM program focuses on reducing known causal risk factors for body dissatisfaction including internalization of the appearance-ideal, appearance-based comparison and appearance-focused conversations/teasing. The intervention had been trialed in the UK and was intended for global dissemination. Thus, as the first evaluation of DCM outside of the UK, Study 1 aimed to examine whether the intervention was effective under diverse conditions and to determine its robustness with a selective group of Australian adolescent girls. Further, Study 1 sought to add to the expanding field of research involving teacher-led delivery of school-based body image programs. Specifically the research aims for Study 1 included:

1. **Evaluate the effectiveness of the universal school-based body image program** *Dove Confident Me* **in improving participants' body image and reducing eating disorder risk factor outcomes, when delivered by teachers to a selective population of Year 8 girls attending an independent girls' school in Australia.**

2. **Examine participant and teacher feedback, and participant ratings of acceptability of DCM.**

Overall, the findings from Study 1 found that DCM did not effectively improve body image or eating disorder risk factor outcomes for Year 8 participants compared to a control group. There appeared to be a lack of student engagement with the intervention, issues regarding student-teacher relationship, and concerns with teacher fidelity to program due to a lack of time and complexity of the manual. The findings, while discouraging, provide deeper insight into the complexities regarding wide-scale dissemination of universal prevention programs in the real-world setting.

Study 2 extended and expanded upon Study 1. First, Study 2 rectified a number of design limitations and conducted a second replication of a modified version of DCM, to determine its effectiveness and acceptability with a second sample of Year 8 students attending the same Australian girls' school. The modifications made to DCM were in alignment with the usual adaptations that teachers and school psychologists might make to programs prior to implementation in order to appeal to students and focused on making the content more relevant for Australian girls. The research aims examined in Study 2 included:

1. **Evaluate the effectiveness of a modified version of the universal school-based body image program** *Dove Confident Me* **in improving participants' body image and reducing eating disorder risk factor outcomes when delivered by teachers to a selective population of Year 8 girls attending an independent girls' school in Australia.**

2. **Examine participants' feedback and acceptability ratings of the modified version of DCM.**

The findings demonstrated significant improvements regarding acceptability and engagement, however contrary to expectations, there were no significant improvement in body image outcomes or

eating disorder risk variables following participation in the modified DCM intervention compared to the control group. A number of possible explanations for the null findings were proposed including, the universal DCM intervention being ineffective for single-sex settings or a selective group, the modification of DCM rendering the intervention less effective, or the high intellect levels of the students resulting in the intervention proving too simplistic for them.

Study 2 also adopted an ecological approach by expanding the research project to develop and evaluate *Raising Confident Girls* (RCG), a 3-session intervention provided to mothers of Year 8 students, alongside student participation in the modified version of DCM. The RCG intervention was novel, in that it sought to both improve the body image of mothers in addition to providing skills and education to assist mothers to enhance the body image of their daughters. Specifically, the expanded research project aimed to:

1. **Evaluate the effectiveness of *Raising Confident Girls* in improving participant's body image, parenting knowledge, parent role modelling and parenting skills and confidence.**

2. **Examine participant feedback and ratings of acceptability on *Raising Confident Girls*.**

3. **Explore whether it is beneficial for schools to target resources towards parental interventions.**

In line with the hypotheses, mothers who attended RCG reported significantly greater body esteem and body appreciation than those mothers in the control group. Further, as predicted, participation in RCG improved a mother's knowledge, confidence and skills in parenting an adolescent girl, and improved her positive role modeling for her daughter with respect to body image. Receiving both high acceptability ratings and attendance, the RCG program appeared successful in overcoming difficulties with engaging parents in body image interventions. Further, the findings suggest that RCG may be the first face-face, school-based intervention delivered to a large group of mothers, to demonstrate a significant improvement in the body appreciation and body esteem of participants.

Finally, Study 2 examined whether students completing DCM benefited from having their mother attend RCG. A re-examination of the student data from Chapter 3 aimed to:

1. **Examine whether the outcomes from *Dove Confident Me* are significantly enhanced in students whose mothers attended the school-based intervention *Raising Confident Girls.***

The findings indicated that the frequency of appearance-based talk from pre-test to 3-month follow-up was significantly less for students whose mothers participated in RCG compared to students whose mothers were not involved in RCG. This is a novel finding for a universal school-based body image parent intervention, and promising. Further, there were noticeable improvements in a number of body image and eating disorder risk factor outcomes from pre-test to post-test for the group of students whose mothers attended RCG, however the findings did not reach significance. Overall, the results support extending body image intervention from the classroom to parents and adopting a multi-informant approach to determine transfer of outcomes from parenting programs to children. However, it was suggested that a longer follow-up measure would be more successful in determining transmission of broader outcomes to daughters.

### Recommendations for Schools

The practical insights gained from the project may be of assistance for schools intending to implement body image interventions. The examination of acceptability ratings, student and teacher feedback comments, and comparison between Study 1 and Study 2, contribute to understanding how relationships, timing and perception can affect engagement with classroom-based body image interventions. While the findings add to the growing body of research supporting task-shifting facilitation of body image programs to endogenous providers such as teachers, feedback comments highlighted the importance of a strong student-teacher relationship. Further, credibility and expertise of facilitator appeared as essential as content of program. Finally, there was feedback to indicate that some students felt more comfortable participating with their pastoral classes compared to their

academic core class, and teachers suggested that delivery in Term 4 was an unsettling time of the year. Together, the above findings suggest the following practical recommendations for schools.

### *Reduce the time between facilitator training and intervention delivery*

Teacher feedback comments revealed that DCM facilitator training was scheduled too far apart from the implementation of the intervention. Thus, it is recommended that facilitator training for teachers be provided as close to the commencement of the intervention as possible. Further, providing ongoing support and monitoring to ensure teachers understand the etiological theory underpinning the intervention is important. Experts within the field have recognized this need. For example, Diedrichs et al. (2020) described that since their trial of DCM, a series of videos have been produced to assist ongoing teacher training throughout delivery of the DCM intervention.

### *Ensure grouping of familiar peers and teachers for intervention delivery*

The research findings from this study indicate that students receiving body image content feel more comfortable when they are in classes comprising of a familiar teacher and peers who are known to them. Therefore it is recommended that Schools use teachers who are familiar to students to facilitate body image interventions, rather than teachers new to the class. This finding encourages Schools to carefully consider plans for managing teacher absence during a scheduled DCM lesson. Substitute teachers, who are not adequately trained, are unable to teach a DCM lesson. In the event of asking a trained DCM substitute teacher to conduct the lesson, one must be mindful of a possible lack of relationship and trust between this teacher and the class. However, the alternative can often be that the class forgoes the entire DCM session due to timetable restrictions not providing time for a make-up lesson. Undoubtedly, schools attempt to solve such complexities as best they can, usually in the frantic hour before classes commence at 8am. Nonetheless, wellbeing lessons, particularly including body-image content, must be managed carefully. Given the risks of a substitute teacher inadvertently doing harm, it is likely better for the class to miss the session entirely in the event of teacher absence.

Further, it is recommended that classes comprise students who are known to each other. Where this is not possible, Schools are encouraged to allow time prior to commencing a body image intervention in order to develop rapport and trust between classmates, and between students and teachers. Thus, implementing such an intervention in Term 1 of the school year would not be ideal.

### *Plan timing of intervention delivery within student contexts*

Facilitator feedback suggested that student restless contributed to a lack of engagement with the intervention. As such, there is value in considering what time of the year body image intervention programs are implemented within schools. Specifically, it is important to identify when students are the most receptive, and which term is the longest and the least disrupted by public holidays and other school activities. Whilst many of these practical considerations are implemented by schools via careful timetable planning, as was the case in Study 2, this required at least 12-months preparation and entailed rescheduling the entire Year 8 camp program for 2018. Thus, while the thesis project provides insight into how practical factors can affect engagement and enjoyment of classroom-based body image programs, it further highlights the reality timetable pressures have regarding the effectiveness of school-based intervention programs.

### *Align parental interventions with parental needs*

The research demonstrated enhanced parental engagement with a school-based body image intervention when investing in the process as much as the content. Specifically, the findings recommended Schools consider their parent community and tailor the intervention experience to meet parental needs. For example, investing in providing opportunities for parents to build relationships with each other and have an enjoyable experience when attending a school-based intervention.  The findings on Study 2 indicated that creating an atmosphere in which a large group felt cozy and welcome, and making learning about body image feel enjoyable and fun, increased participant engagement. An opportunity to socialize with other participants up to 30-mins prior to each session, provision of refreshments, careful selection of a comfortable venue, seating in table groups,

welcoming each participant upon arrival and commencing the intervention with viewing the *Embrace* documentary further contributed to creating a sense of group cohesion and making participants feel relaxed and engaged. Although, Session 2 was experiential, mothers also reported to enjoy developing insight regarding their daughter's wellbeing curriculum and appeared to feel empowered by this knowledge. Thus, Schools are recommended to embed a parent intervention within the context of their daughters curriculum. Finally, providing the supplementary booklet for each session, and ensuring that it was mailed to any participant who missed a session, contributed towards the low attrition rates and sustained engagement across the entire three sessions.

**Recommendations for Research**

The findings propose a number of future directions for research regarding global dissemination of universal interventions.

***Develop multiple interventions for diverse populations or malleable interventions that sustain effectiveness when adapted.***

The findings acknowledge the limitations of using selective and universal programs interchangeably. Further, the project provided insight into the reality of how school personnel typically engage with globally disseminated intervention programs. Due to both real-life constraints and the embedded teaching practice of differentiating curriculum to suit students, strict adherence to manualized programs within the school setting is somewhat rare. Thus, expecting one universal intervention to be the panacea for global dissemination may be unrealistic. As such, outcomes from the thesis encourage future researchers to consider developing multiple interventions, or malleable interventions that can readily be adapted to suit diverse populations in regards to age, gender or culture. As the thesis involved marrying etiological theory with real life needs, the findings revealed that while modifying an intervention can increase engagement, it also risks reducing potency. Consequently, in order to ensure that interventions are flexible enough to endure malleability in both

content and design, while robust enough to sustain effectiveness, increased collaboration between researchers and school personnel is recommended.

### *Increase the collaboration between researchers and school personnel when developing interventions.*

This research highlights that, while researchers are experts in etiological theory, school personnel are experts regarding their community. The high acceptability ratings received by both RCG and the modified version of DCM suggest that both benefited from the researcher's position within the school. Understanding the dynamics of the participant group allowed the interventions to be tailored specifically for the intended audience and as a result, increased participant engagement. Yet, removal of certain aspects from the DCM intervention may have reduced the effectiveness. Increased collaboration between researchers and school personnel when developing or modifying intervention programs, may be one way of preventing this. Such collaboration may be particularly pertinent when developing parental interventions. Given the consistent issues with engaging parents in prevention programs, the current investigation provides insight into ways to address this problem. Utilising evidence based resources and tailoring an intervention specifically to suit the intended population, RCG demonstrates high acceptability ratings and high engagement. Further, mothers in the study responded well to a design embedding the intervention within an experience offering entertainment, socialization and information regarding their daughter's curriculum. Had the researcher not dually been a member of school personnel, then RCG would likely have been designed differently, may have experienced the ubiquitous difficulties of low parental uptake, as have other parental interventions (Hart et al., 2015).

### *Improve parental uptake by utilizing the expertise of school personnel regarding specific parental needs and embed body image content in general parenting interventions*

Theoretical implications from the thesis corroborate recommendations proposed by Hart et al. (2015) in regards to effectively engaging parents in body image prevention. Specifically, the findings strengthen Hart et al.'s (2015) recommendations to develop engaging programs designed to suit the

particular needs of parents and embedding eating disorder prevention programs within general parenting and relationship building interventions. Overall, the thesis has provided a deeper insight into how to improve parental uptake and engagement in body image interventions delivered within the school context, first, by adhering to the recommendations as outlined by Hart et al. (2015), and second, by utilizing the existing expertise of the school personnel to tailor the intervention to specifically appeal to the parent population.

### *Adopt a body positive approach*

Finally, the original question underpinning the thesis, what would work to improve the body image of adolescent girls attending an independent single-sex school in Australia, while clearer, is still not resolved. One concept that would be useful to explore further is whether a positive body image approach is more effective with this population than targeting eating disorder risk factors. In the 7-years since the thesis was initially designed, increasingly the body image field has expanded from a focus on reducing eating disorder risk factors to consider a body appreciation approach. Further, a positive body image approach supports contemporary approaches within the field of women's body image interventions (Alleva et al., 2015a; Alleva et al., 2018; Albertson et al., 2014; Mulgrew et al., 2017; Guest et al. 2019), and is also in keeping with feedback received from student participants within the study. Interestingly, since the thesis project commenced, the intervention school has established a significant commitment to mindfulness via embedding a whole school framework and training a specialized team of mindfulness teaching staff. So too has the concept of self-compassion and gratitude been increasingly incorporated into the wellbeing curriculum and daily habits of the student body. Thus, students regularly practice acceptance, compassion and appreciation. Therefore, intervention approaches focusing on body appreciation, self-compassion and body functionality may appeal more to these students, than the reduction of body dissatisfaction risk factors. Further, as body appreciation and body dissatisfaction are considered distinct constructs (Tylka & Wood-Barcalow, 2015b), it would be interesting to examine whether adolescent girls can

experience both positive and negative body image simultaneously, as is thought the case for women (Bailey et al., 2016; Tiggemann & McCourt, 2013; Tiggemann, 2015). Given the research suggesting body appreciation increases as a women ages, while body dissatisfaction remains stable (Tiggemann & McCourt, 2013), perhaps the next direction for future research involves identifying effective approaches, not only to reduce body dissatisfaction, but to promote body appreciation, in early adolescence.

**Conclusion**

The thesis provides valuable insights regarding global dissemination of etiologically based body image interventions and the real-life reality of how such interventions are utilised by schools. Further, the study supports extending body image interventions from the classroom to the home, and provides practical suggestion to enhance parental engagement and participation. The study possess a number of strengths, including substantial participant feedback, a multi-informant assessment approach, and the researcher's employment at the intervention school providing unique insights in regards to embedding etiological interventions in the real-life setting.

A number of practical implications have been outlined, in addition to recommended future directions for research. Firstly, for schools, familiar facilitators enhances student-teacher relationships, careful teacher training and ongoing monitoring improves fidelity to the etiological theory underpinning interventions, and careful consideration and planning regarding the timing of program delivery will prevent unnecessary disruptions. In regards to parenting interventions, schools are encouraged to prioritise both the content and the process by aiming to create opportunities for parents to attend interventions that they find appealing and will enjoy. Secondly, researchers are encouraged to develop multiple interventions for diverse populations or malleable interventions that sustain effectiveness when adapted, engage in increased collaboration with school personnel to develop appropriately tailored interventions for both students and parents, and examine the effectiveness of a positive body image approach with adolescents.

Overall, the thesis project suggests that within the 3-month follow-up period examined, the school-based universal DCM intervention did not significantly improving body image outcomes nor reducing eating disorder risk factors, for the selective population of adolescent girls attending a single-sex school. However, the RCG intervention was successful in improving mothers body image and parenting skills, knowledge, confidence and positive role-modelling. Although the outcomes for mothers did extend to daughters, specifically in regards to appearance-based talk, the improvements were limited, thus longer follow-up measures are recommended.

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**Appendices**

**Appendix A- Principal Information Sheet**

**VICTORIA UNIVERSITY**
MELBOURNE AUSTRALIA

**PRINCIPAL INFORMATION SHEET**

**Invitation**

Your School is being invited to participate in research evaluating the Dove Confident Me program. Dove Confident Me is a 5 session program which aims to improve self-esteem and body image. The program will be delivered by each Teacher to all Year 8 students during lessons in Term IV, 2016.

The research project is seeking to evaluate the impact of Dove Confident Me with an Australian Girls' School. The project is being conducted by Dr Zali Yager from the College of Education at Victoria University and Mrs Jody Forbes, Student Researcher.

All year 8 students XXXX School are being invited to participate in this research.

**Project explanation**

Dove Confident Me has been used in the United Kingdom with male and female students in secondary schools.  This research project aims to test the efficacy of this program in the Australian setting. All year 8 students will complete Dove Confident Me, and will be invited to participate in the research to evaluate the impact of this program.

**What will my students be asked to do?**

Your students will be asked to complete a 15-20 minute questionnaire on three separate occasions (Week 1 & Week 9 in Term IV 2016, and Week 6 in Term I 2017). This survey asks questions about body esteem, self-esteem, life engagement, negative feelings and appearance based teasing/discussion/comparison. All items are standardised questionnaires that have been used around the world with children and adolescents.

All students and their parents will be sent a similar information sheet to this one and advised to talk with each other about the study and decide together whether this is something they wish to participate in.

Students who participate in this research may be contacted in the future to request some further follow-up data. Again, this will be voluntary and both student and parent will be notified of this invitation.

**What will my students gain from participating?**

By participating in this study, your students may gain an increased awareness of her thoughts and feeling about body image, and self-esteem.

The Dove Confident Me program has successfully improved body esteem, self-esteem and life engagement among adolescents attending co-educational high schools in the United Kingdom. Participation in this project will assist the researchers to determine whether the same benefits will occur as a result of program implementation in Australian Girls' schools.  By participating in this study, your

School will be involved in important work that aims to improve body image among young female adolescents around the world.

**How will the information my child gives be used?**

The information that is provided in the questionnaires will be anonymous, and treated with privacy and respect. Each student will generate a unique participant code that will mean that she does not have to put her name on the questionnaire. The information that your students provide will be entered into research databases and both hard and soft copy data will be stored in secure locations. We will use the information to do some statistical analyses, write a report, and present these findings to in scientific journal articles, and at conferences. We will retain anonymous electronic databases for potential research and meta-analyses.

**What are the potential risks of participating in this project?**

There is a small chance that your students may feel some discomfort in responding to the questions that ask about attitudes and beliefs relating to their body image and feelings. However, in our extensive experience in this area, we have not had any students become upset by answering these questions. There is no evidence to suggest that completing a questionnaire about body image does any harm to adolescent girls. However, if any student does feel upset by these questions, she can choose to end completion of the questionnaire at any time.

Teacher's will be asked to follow up and pass on any concerns regarding students wellbeing to her Teacher who will be responsible for organising any follow-up support required.

**How will this project be conducted?**

Students will be asked to complete a questionnaire three times. The surveys will be completed in private, on-line, using each student's electronic device. Students who do not consent to participate in this research will remain in the lesson doing private work and being supervised by the Teacher.

Students who do not wish to be involved with the research will participate in the Dove Confident Me program during lessons, but will not complete any of the questionnaires.

**Who is conducting the study?**

Dr Zali Yager, Phone: XXXXXXXXXX: zali.yager@vu.edu.au

Mrs Jody Forbes, Phone: XXXXXXXXXX, jody.forbes@live.vu.edu.au

Any queries about your participation in this project may be directed to Dr Zali Yager.

We thank you for allowing your School to participate in the research.

If you have any queries or complaints about the way you have been treated, you may contact the Ethics Secretary, Victoria University Human Research Ethics Committee, Office for Research, Victoria University, PO Box 14428, Melbourne, VIC, 8001, email researchethics@vu.edu.au or phone (03) 9919 4781 or 4461.

**Appendix B -Participant & Parent Information Sheets**

**VICTORIA UNIVERSITY**
MELBOURNE AUSTRALIA

### INTERVENTION- PARTICIPANT INFORMATION SHEET

**Invitation**

You are invited to participate in research evaluating the Dove Confident Me program, conducted by Dr Zali Yager from the College of Education at Victoria University and Mrs Forbes, Student Researcher.

Dove Confident Me is a program for adolescents to help improve the way girls feel about themselves and their bodies.

**What is this project about?**

Dove Confident Me has been used in the United Kingdom among male and female high school students. It is a 5 session program which aims to improve self-esteem and body image. In this project, we aim to test how well Dove Confident Me works in Australia within a girls' school.

Teachers will be delivering Dove Confident Me to all Year 8 students at XXXX School during classes in Term IV.

All Year 8 students are being invited to participate in the research to evaluate the impact of this program.

**What will I be asked to do?**

If you agree to participate in this research, we will ask you to complete a 15-20 minute questionnaire during class on three separate occasions (Week 1 & Week 9 in Term IV, 2016 and Week 6 in Term I, 2017). This survey asks questions about the way that you feel about yourself and the way you look. The questionnaire will be accessed on your laptop and your Teacher will provide instructions on how to complete the questionnaire.

Your parent/guardian have been sent a similar information sheet to this one. You should talk with them about the study and decide together whether this is something you want to participate in.

If you agree to participate in this research then we may contact you again in the future to request some further follow-up data. Again, this will be voluntary and you will be notified of this invitation.

**What will I gain from participating?**

By participating in this study, you may become more aware of the way that you feel about yourself and the way that you look. You will also be involved in important work that aims to improve body image among young male and female adolescents around the world.

**How will the information I give be used?**

The information you provide in the questionnaires will be anonymous, and private. You do not write your name anywhere on the questionnaire but instead generate a code so we can match your three questionnaires with each other. The information that you provide in the questionnaires will not be shown to your parents, teachers or any authorities.  We will use the information to do some statistical analyses,

write a report, and present these findings in scientific journal articles, and at conferences. We will retain anonymous electronic databases for future potential research.

**Are there any risks to me by participating in this project?**

There is a small chance that you may feel some discomfort in responding to the questions about your attitudes/feelings relating to your body, and any behaviours you may use to try and change your body. However, this questionnaire has been used with thousands of adolescents worldwide and there have been no negative consequences reported. If you feel upset by the questions you may stop the questionnaire at any time. Your Teacher will help you to withdraw from the research project any time you wish. If you feel uncomfortable, or have any questions about the feelings or thoughts which may arise when completing the questionnaires, then you are able to speak with your Teacher, or one of the School Counsellors.

**How will this project be conducted?**

You will be asked to complete a questionnaire three times, in class. Surveys will be completed in private on your laptop. Students who do not want to participate in this research will still go to their class, but they will not complete the questionnaires. All students will participate in Dove Confident Me during Ethics, even if they do not wish to complete the questionnaires for the research project.

**Who is conducting the study?**

Dr Zali Yager, Phone: XXXXXXX, Email: zali.yager@vu.edu.au

Mrs Forbes Phone: XXXXXXXX Email jody.forbes@live.vu.edu.au

If you have any questions about this project then please phone or email Dr Yager.

We thank you for participating in this research. If you do not want to complete the questionnaire then please inform your Teacher. Remember, you can change your mind and still withdraw from this study at any time, even if you have already completed half of the questionnaire.

If you have any queries or complaints about the way you have been treated, you may contact the Ethics Secretary, Victoria University Human Research Ethics Committee, Office for Research, Victoria University, PO Box 14428, Melbourne, VIC, 8001, email researchethics@vu.edu.au or phone (03) 9919 4781.

**VICTORIA UNIVERSITY**
MELBOURNE AUSTRALIA

### CONTROL- PARTICIPANT INFORMATION SHEET

#### Invitation

You are invited to participate in research evaluating the Dove Confident Me program, conducted by Dr Zali Yager from the College of Education at Victoria University and Mrs Jody Forbes, Student Researcher. Dove Confident Me is a program for adolescents to help improve the way girls feel about themselves and their bodies.

#### What is this project about?

Dove Confident Me has been used in the United Kingdom among male and female high school students. This project aims to test whether Dove Confident Me will help Australian adolescents attending a girls' school. Your School Principal, XXXX, has provided consent for XXXX School to be involved with this research. Your school will be acting as a Control Group. Dove Confident Me will be delivered to students attending a similar school. The students at both schools will be asked to complete a questionnaire on three separate occasions.

#### What will I be asked to do?

If you agree to participate in this research, we will ask you to complete a 15-20 minute questionnaire during class time on three separate occasions – Week 1 & Week 9 in Term IV, 2016 and Week 6 in Term I, 2017. This survey asks questions about the way that you feel about yourself and the way you look.

Your parent/guardian have been sent a similar information sheet to this one. You should talk with them about the study and decide together whether this is something you want to participate in.

#### What will I gain from participating?

By participating in this study, you may become more aware of the way that you feel about yourself and the way that you look. You will also be involved in important work that aims to improve body image among young male and female adolescents around the world.

#### How will the information I give be used?

The information you provide in the questionnaires will be anonymous, and private. You do not write your name anywhere on the questionnaire but instead generate a code so we can match your three questionnaires with each other. The information that you provide in the questionnaires will not be shown to your parents, teachers or any authorities. We will use the information to do some statistical analyses, write a report, and present these findings in scientific journal articles, and at conferences. We will retain anonymous electronic databases for future potential research.

#### Are there any risks to me by participating in this project?

There is a small chance that you may feel some discomfort in responding to the questions about your attitudes/feelings relating to your body, and any behaviours you may use to try and change your body. However, this questionnaire has been used with thousands of adolescents worldwide and there have been no negative consequences reported. If you feel upset by the questions you may stop the questionnaire at any time. Your Teacher will help you to withdraw from the research project any time you wish. If you feel

uncomfortable, or have any questions about the feelings or thoughts which may arise when completing the questionnaires, then you are able to speak with your Teacher, Head of House or one of the School Counsellors.

**How will this project be conducted?**

You will be asked to complete a questionnaire three times, in class. Surveys will be completed in private. Students who do not want to participate in this research will remain in the class and do private work while others complete the questionnaires.

**Who is conducting the study?**

Dr Zali Yager, Phone: XXXXXXX, Email: zali.yager@vu.edu.au

Mrs Jody Forbes Phone: XXXXXXXX, Email: jody.forbes@live.vu.edu.au

If you have any questions about this project then please phone or email Dr Yager.

We thank you for participating in this research. If you do not want to complete the questionnaire then please inform your Teacher. Remember, you can change your mind and still withdraw from this study at any time, even if you have already completed half of the questionnaire.

If you have any queries or complaints about the way you have been treated, you may contact the Ethics Secretary, Victoria University Human Research Ethics Committee, Office for Research, Victoria University, PO Box 14428, Melbourne, VIC, 8001, email researchethics@vu.edu.au or phone (03) 9919 4781.

**VICTORIA UNIVERSITY**
MELBOURNE AUSTRALIA

## INTERVENTION- PARENT/GUARDIAN INFORMATION SHEET

### Invitation

Your daughter is being invited to participate in research evaluating the Dove Confident Me program. Dove Confident Me is a 5-session program which aims to improve self-esteem and body image. The program will be delivered by each Teacher to all Year 8 students during Ethics lessons in Term IV, 2016.

The research project is seeking to evaluate the impact of Dove Confident Me with an Australian Girls' School. The project is being conducted by Dr Zali Yager from the College of Education at Victoria University and Mrs Jody Forbes, Student Researcher.

All year 8 students at XXXX School are being invited to participate in this research.

### Project explanation

Dove Confident Me has been used in the United Kingdom with male and female students in secondary schools.  This research project aims to test the efficacy of this program in the Australian setting. The School Principal, has provided consent for the School to be involved with this research. All year 8 students will complete Dove Confident Me, and will be invited to participate in the research to evaluate the impact of this program.

### What will my child be asked to do?

Your daughter will be asked to complete a 15-20 minute questionnaire in class, on three separate occasions (Week 1 & Week 9 in Term IV 2016, and Week 6 in Term I 2017). This survey asks questions about body esteem, self-esteem, life engagement, negative feelings and appearance based teasing/discussion/comparison. All items are standardised questionnaires that have been used around the world with children and adolescents.

Your daughter has been sent a similar information sheet to this one. She has been advised to talk with you about the study and decide together whether this is something she wants to participate in.

### What will my child gain from participating?

By participating in this study, your daughter may gain an increased awareness of her thoughts and feeling about body image, and self-esteem.

The Dove Confident Me program has successfully improved body esteem, self-esteem and life engagement among adolescents attending co-educational high schools in the United Kingdom. Participation in this project will assist the researchers to determine whether the same benefits will occur as a result of program implementation in Australian Girls' schools.  By participating in this study, your daughter will be involved in important work that aims to improve body image among young female adolescents around the world.

### How will the information my child gives be used?

The information that is provided in the questionnaires will be anonymous, and treated with privacy and respect. Your daughter will generate a unique participant code that will mean that she does not have to put

her name on the questionnaire. The information that your daughter provides will be entered into research databases and both hard and soft copy data will be stored in secure locations. We will use the information to do some statistical analyses, write a report, and present these findings to in scientific journal articles, and at conferences. We will retain anonymous electronic databases for potential research and meta-analyses.

## What are the potential risks of participating in this project?

There is a small chance that your child may feel some discomfort in responding to the questions that ask about attitudes and beliefs relating to their body image and feelings. However, in our extensive experience in this area, we have not had any students become upset by answering these questions. There is no evidence to suggest that completing a questionnaire about body image does any harm to adolescent girls. However, if your daughter does feel upset by these questions, she can choose to end completion of the questionnaire at any time.

Your daughter's Teacher will be asked to follow up and pass on any concerns regarding your daughter's wellbeing to her Teacher who will be responsible for organising any follow-up support required.

## How will this project be conducted?

Your daughter will be asked to complete a questionnaire three times, during her lesson. The surveys will be completed in private, on-line, using your daughters' electronic device. Students who do not consent to participate in this research will remain in the lesson doing private work and being supervised by the Teacher.

Students who do not wish to be involved with the research will participate in the Dove Confident Me program during Ethics lessons, but will not complete any of the questionnaires.

## Who is conducting the study?

Dr Zali Yager, Phone: XXXXXXX, Email: zali.yager@vu.edu.au

Mrs Jody Forbes, Phone: XXXXXX, jody.forbes@live.vu.edu.au

Any queries about your participation in this project may be directed to Dr Zali Yager.

We thank you for allowing your daughter to participate in the research. If you have a concern about your daughter completing the questionnaires you can elect for them not to take part by contacting her Teacher or XXXXXXs.

If you have any queries or complaints about the way you have been treated, you may contact the Ethics Secretary, Victoria University Human Research Ethics Committee, Office for Research, Victoria University, PO Box 14428, Melbourne, VIC, 8001, email researchethics@vu.edu.au or phone (03) 9919 4781 or 4461.

**VICTORIA UNIVERSITY**
M E L B O U R N E   A U S T R A L I A

## CONTROL - PARENT/GUARDIAN INFORMATION SHEET

### Invitation

Your daughter is being invited to participate in research evaluating the Dove Confident Me program. Dove Confident Me is a 5 session program which aims to improve self-esteem and body image. The research project is seeking to evaluate the impact of Dove Confident Me with adolescents attending an Australian girls' school. The project is being conducted by Dr Zali Yager from the College of Education at Victoria University and Mrs Jody Forbes, Student Researcher. All Year 8 students at XXXX School are being invited to participate in this research.

### Project explanation

Dove Confident Me has been used in the United Kingdom with male and female students in secondary schools. This research project aims to test the efficacy of this program in the Australian setting. Your School Principal, XXXX, has provided consent for XXXX School to be involved with this research. The Year 8 students at XXXX School will be acting as a Control Group. Dove Confident Me will be delivered to students attending a similar school. The students at both schools will be asked to complete a questionnaire on three separate occasions.

### What will my child be asked to do?

The study will have minimal interference with normal classes and comprises of three 15-20 minute questionnaires completed on three separate occasions (Week 1 & Week 9 in Term IV 2016, and Week 6 in Term I 2017). This survey asks questions about body esteem, self-esteem, life engagement, negative feelings and appearance based teasing/discussion/comparison. All items are standardised questionnaires that have been used around the world with children and adolescents.

Your daughter has been sent a similar information sheet to this one. She has been advised to talk with you about the study and decide together whether this is something she wants to participate in.

If your daughter participates in this research then we may contact her in the future to request some further follow-up data. Again, this will be voluntary and you will be notified of this invitation.

### What will my child gain from participating?

By participating in this study, your daughter may gain an increased awareness of their attitudes and beliefs about body image, and self-esteem. Participation in this project will assist the researchers to determine whether the Dove Confident Me is as effective in Australian girls' schools as it has been in UK co-educational schools. By participating in this study, your daughter will be involved in important work that aims to improve body image among young female adolescents around the world.

### How will the information my child gives be used?

The information that is provided in the questionnaires will be anonymous, and treated with privacy and respect. Your child will generate a unique participant code that will mean that they do not have to put their name on the questionnaire. The information that your child provides will be entered into research databases and both hard and soft copy data will be stored in secure locations. We will use the information to do some statistical analyses, write a report, and present these findings to in scientific journal articles,

and at conferences. We will retain anonymous electronic databases for potential research and meta-analyses. Neither your child, nor her School will be identified in any of the information published after the study.

## What are the potential risks of participating in this project?

There is a small chance that your child may feel some discomfort in responding to the questions that ask about attitudes and beliefs relating to their body image and feelings. However, in our extensive experience in this area, we have not had any students become upset by answering these questions. There is no evidence to suggest that completing a questionnaire about body image does any harm to adolescent girls. However, if your daughter does feel upset by these questions, she can choose to end completion of the questionnaire at any time, and will be offered debriefing and follow-up support by school personnel.

## How will this project be conducted?

Your daughter will be asked to complete a questionnaire three times, during a lesson. Surveys will be completed in private. Students who do not consent to participate in this research will participate will be supervised in the class as usual.

## Who is conducting the study?

Dr Zali Yager, Phone: XXXXXXX, zali.yager@vu.edu.au

Mrs Jody Forbes, Phone: XXXXXXXX, jody.forbes@live.vu.edu.au

Any queries about your participation in this project may be directed to Dr Yager or Mrs Forbes.

We thank you for allowing your daughter to participate in the research. If you have a concern about your daughter completing the questionnaires, you can elect for her not to take part by contacting XXXX at your school directly.

If you have any queries or complaints about the way you have been treated, you may contact the Ethics Secretary, Victoria University Human Research Ethics Committee, Office for Research, Victoria University, PO Box 14428, Melbourne, VIC, 8001, email researchethics@vu.edu.au or phone (03) 9919 4781 or 4461.

**Appendix C- Teacher Survey Instructions**

<u>Instructions for Survey Administration</u>

All students are to complete this at the same time.

Staff: Please READ and be familiar with the script below in advance.

On arrival of all students to the roll call room:

Good morning,

Last Term you and your parents received an information sheet about the research project for Year 8's. Today those of you who have agreed to be involved in the research project will be completing an online survey.

You will find an email in your inbox which has a link to the survey. If you do not have the email then this means that you, and or your parents, have decided to not be involved with the research project. If you do not have the email then please do some private study quietly for the remainder of the lesson.

When you click on the link in the email you will go to the survey. The survey will ask a number of questions and you are required to select a response. You are to answer the questions by selecting the response that best describes you. There may be times when no answer is perfect however select the response that best reflects you. You can select any of the responses. There are no right or wrong answers and this is not a test.

You will be asked to work through each of these on your own. Please do not discuss your answers with anyone else. If you finish before others please wait quietly and do not disturb others.

The survey is confidential and you should not put your name anywhere on it. There is no way of knowing which student completed which survey even though it has been emailed to you, because the computer has created a confidential code for all your results. You will also be asked to create a special code at the start of the survey.

There is a small chance that you may feel some discomfort in responding to the questions about your attitudes/feelings relating to your body, and any behaviours you may use to try and change your body. If you feel uncomfortable, or have any questions about the feelings or thoughts that may arise when completing the questionnaires, then please speak with me, your Teacher or School Counsellor.

If you have a concern about completing the survey, or you have decided you do not wish to take part then please click "No" at the question "Do you wish to complete the survey", and/or let me know. Even after you have started completing the survey, you can still change your mind and withdraw from this study at any time. The survey is not compulsory and you will not be in any trouble if you decide you don't wish to participate.

If you have any questions please raise your hand.

*(If students are unfamiliar with a words meaning you can assist them with the meaning however do not influence them by suggesting a choice).*

The survey should take about 15 minutes, however there is no time limit. Do not spend too much time on any question. If you are unsure pick the one that you think is best and move on to the next.

Are there any questions?
*(Answer questions and then commence)*

*Ask students to begin.*

When complete: Thank students and ask them if they have any additional questions. Advise that students should not discuss the survey or their results with their peers.

**Appendix D -Teacher Fidelity Measures**

Please indicate by ticking which topics you covered in the session. Once completed please place in box provided in room to be collected**.**

<u>**Session 1 –Appearance Ideals**</u>

| Topic | Tick if completed | Comments |
|---|---|---|
| What do we mean by appearance ideals? | | |
| What are today's appearance ideals? | | |
| How are appearance ideals constantly changing? | | |
| Can we match appearance ideals? | | |
| Where do we find out about appearance ideals? | | |
| What appearance pressures do we face? | | |
| What is the impact of these appearance pressures? | | |
| What else can we value? | | |
| Student Activity<br>• Label & Costs | | |
| Student Activity<br>• What makes us unique | | |

Please indicate by ticking which topics you covered in the session. Once completed please place in box provided in room to be collected.

## Session 2- Media Messages

| Topic | Tick if completed | Comments |
| --- | --- | --- |
| What do we mean by media? | | |
| How can images be manipulated? | | |
| Why is professional media created in this way? | | |
| How would it feel to have your image manipulated? | | |
| What is the impact of media messages? | | |
| What is the impact of messages and images on social media | | |
| How can we remix our responses to media messages? | | |
| Student Activity<br>• How can images be manipulated | | |
| Student Activity<br>• Can you decode media messages | | |

Please indicate by ticking which topics you covered in the session. Once completed please place in box provided in room to be collected.

## Session 3 – Confront Comparisons

| Topic | Tick if completed | Comments |
|---|---|---|
| What ideals are portrayed in the media? | | |
| How do we compare with those around us? | | |
| How do we compare our looks? | | |
| What happens when people compare looks? | | |
| What is the impact of these comparisons? | | |
| The 'whirlpool of comparisons' | | |
| What can we do instead? | | |
| How can we change our script? | | |
| How will you change your script? | | |
| Student Activity<br>• How do you confront comparisons. | | |
| Student Activity<br>• Can you catch yourself | | |
| Student Activity<br>• How will you change your script | | |

Please indicate by ticking which topics you covered in the session. Once completed please place in box provided in room to be collected.

## Session 4 – Banish Body Talk

| Topic | Tick if completed | Comments |
|---|---|---|
| How do we talk about appearance? | | |
| What is body talk? | | |
| How do we use body talk? | | |
| What is the impact of body talk? | | |
| How can we challenge body talk? | | |
| Student Activity <br>• How do we use body talk | | |
| Student Activity <br>• How can we challenge body talk | | |

Please indicate by ticking which topics you covered in the session. Once completed please place in box provided in room to be collected.

## Session 5 – Be the change

| Topic | Tick if completed | Comments |
|---|---|---|
| How can we celebrate individuality? | | |
| Be a body confidence champion | | |
| Champion change in our world | | |
| Student Activity <br> • What makes us unique | | |
| Student Activity <br> • Be a body confidence champion | | |

**Appendix E -Teacher Time 2 Evaluation**

How much do you agree with the following statements:

| | Strongly disagree | disagree | neutral | agree | Strongly agree |
|---|---|---|---|---|---|
| The training program was adequate in preparing me to teach this program | | | | | |
| Comments: | | | | | |
| After the training program I felt confident in delivering the lessons | | | | | |
| Comments | | | | | |
| The format of the lesson plans was easy to use when teaching the program | | | | | |
| Comments: | | | | | |
| The materials were developmentally appropriate for year 8 girls | | | | | |
| Comments: | | | | | |
| The program was engaging for the students | | | | | |
| Comments: | | | | | |
| I believe that the program was effective in enhancing body image in the students in my class | | | | | |
| Comments: | | | | | |
| The program was an appropriate length | | | | | |
| Comments: | | | | | |
| I think that the school should implement this program again | | | | | |
| Comments: | | | | | |
| I would teach this program again | | | | | |
| Comments: | | | | | |
| I would recommend this program to colleagues | | | | | |
| Comments: | | | | | |

**Appendix F - Dove Confident Me modifications**
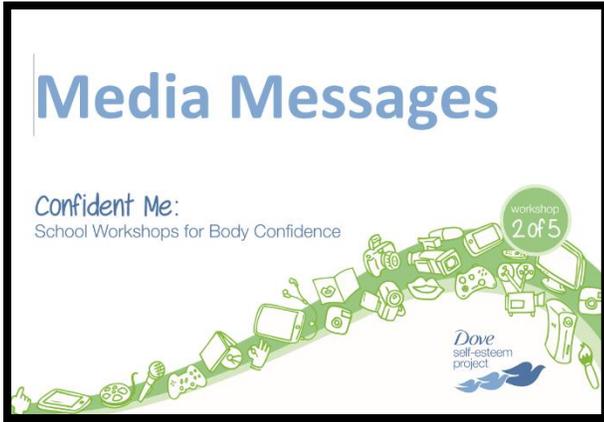
**Original DCM**                                        **Modified DCM**
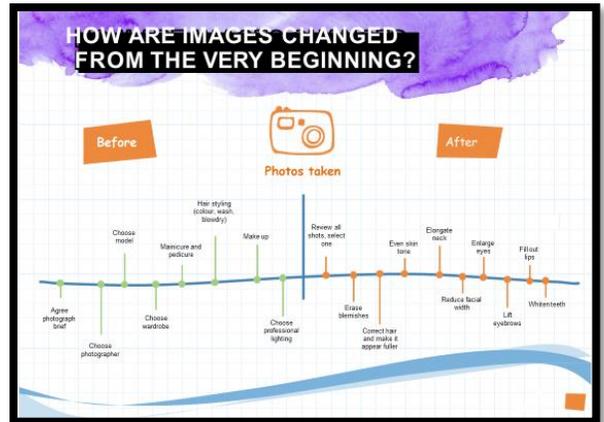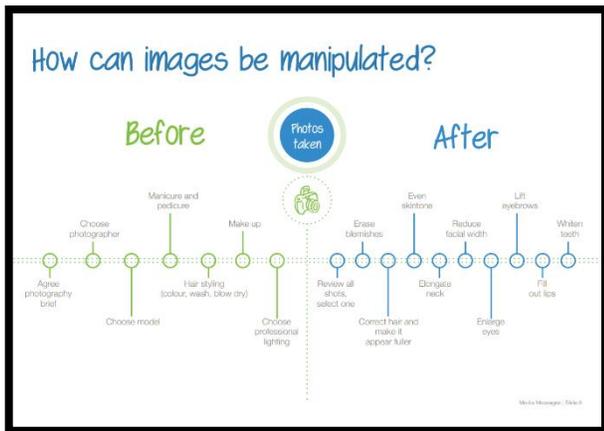
**Appendix G- Be Real, Get Real Video**

**Appendix H- RCG Participant Information Sheets**

**VICTORIA UNIVERSITY**
**MELBOURNE AUSTRALIA**

### INTERVENTION- PARTICIPANT INFORMATION SHEET

**Invitation**

You are invited to participate in research helping adolescent girls and their mothers feel more confident about themselves. We are offering a 3-session workshop "*Raising Confident Girls*" for all mothers of Year 8 students. The workshop will be delivered in Term II, 2018 at XXXX School. At the same time all Year 8 students will be participating in a school-based program called *Dove Confident Me* delivered by Teachers during Ethics lessons.

*Dove Confident Me* is a program for adolescents to help improve the way girls feel about themselves and their bodies. The research project would like to know if this program helps girls in an Australian Girls' School feel more positive about themselves. Mothers have a very important role in developing their daughter's self-confidence. The *Raising Confident Girls* workshop aims to provide mothers with information and skills to understand and improve their own self-confidence as well as their daughters.

The project is being conducted by Dr Zali Yager from the College of Education at Victoria University and Mrs Jody Forbes, Student Researcher. The School Principal, Ms XXX, has provided consent for the School to be involved with this research.

**What is Raising Confident Girls about?**

The 3-session workshops will focus on developing positive body image, improving self-esteem and increasing your confidence about how to empower your daughter to feel good about herself. One of the main ways mothers can influence their daughters is to have a healthy self-confidence themselves. Therefore, the workshop will also focus on developing your own self-confidence.

The workshops will include viewing the ***Embrace*** documentary as well as presentations, discussions, handouts and homework. The program is based at XXX School, and will be delivered to a group of Year 8 Mothers on three separate evenings during Term II. Mrs Jody Forbes, School Psychologist & Director of Student Counselling, will facilitate the workshop as part of her PhD research. Jody has worked at XXXX for 13 years and has extensive experience with assisting adolescent girls and their parents during the teenage years.

**What will I be asked to do?**

If you are interested in participating then we will ask you to attend all three evening sessions of the workshop. You will also be asked to complete a 10 minute survey on three different occasions (prior to Session 1, after Session 3 and finally at the end of Term III). This survey asks questions about the way you feel about yourself and how confident you feel supporting your daughter. The survey will be accessed electronically via your email, and completed in your own time. Alternatively, you will have the opportunity to complete a paper version of the survey if you prefer.

**What will I gain from participating?**

By participating in this project you may become more aware of your body image and self-confidence. You may also develop a better understanding of the pressures facing your daughter and learn strategies to assist build her self-confidence. You will also be involved in important work that aims to improve body image among young female adolescents around the world.

## How will the information I give be used?

The information you provide in the surveys will be anonymous, and private. You do not write your name anywhere on the survey but instead create a code so we can match your three responses with each other. Each survey is de-identified and there is no way for School personnel to access or identify the results you provide.

We will use the de-identified information to do some statistical analyses, write a report, and present these findings in scientific journal articles, and at conferences. We will retain anonymous electronic databases for potential future research.

## Are there any risks to me by participating in this project?

There is a small chance that you may feel some discomfort in responding to some of the questions on the survey about your attitudes/feelings relating to your body, and any behaviours you may use to try and change your body. However, this questionnaire has been used with thousands of adults and adolescents worldwide and there have been no negative consequences reported.

If you feel upset by the questions you can simply stop the survey at any time, without consequence.

The workshop intends to be delivered in a friendly and comfortable environment. There will be no expectation for any participant to engage in any discussion or activity unless she chooses to.

## Who is conducting the study?

Dr Zali Yager, Phone: XXXXXX, Email: zali.yager@vu.edu.au

Mrs Forbes Phone: XXXXXX, Email jody.forbes@live.vu.edu.au

If you have any questions about this project then please phone or email Dr Yager.

If you have any queries or complaints about the way you have been treated, you may contact the Ethics Secretary, Victoria University Human Research Ethics Committee, Office for Research, Victoria University, PO Box 14428, Melbourne, VIC, 8001, email researchethics@vu.edu.au or phone (03) 9919 4781.

**VICTORIA UNIVERSITY**
MELBOURNE AUSTRALIA

### CONTROL- PARTICIPANT INFORMATION SHEET

## Invitation

You have been invited to participate as part of a Control Group in a research project that aims to help adolescent girls and their mothers feel more confident. A seminar, "*Raising Confident Girls*" will be delivered to a separate group of Year 8 Mothers (Intervention Group), and data collected from both groups will be compared and evaluated.

Mothers have a very important role in developing their daughter's self-confidence. The "*Raising Confident Girls*" seminar aims to provide mothers with information and skills to understand and improve their own self-confidence as well as their daughters. The research project will be evaluating the effectiveness of the seminar by collecting and comparing data between the Control Group and Intervention Group.

The project is being conducted by Dr Zali Yager from the College of Education at Victoria University and Mrs Jody Forbes, Student Researcher. The School Principal, Ms XXX, has provided consent for the School to be involved with this research.

## What will I be asked to do?

If you are interested in participating then we will ask you to complete a 10-15 minute survey on three different occasions (start of Term II, end of Term II and end of Term III).

**This survey asks questions about the way you feel about yourself, your body, your appearance, your relationship with your daughter, your communication with your daughter and how confident you feel supporting your daughter.**

The survey will be accessed electronically via your email. A link to the survey will be emailed to you and you will then click on this link to access the survey. The survey will be completed in your own time on your own electronic devise.

## What will I gain from participating?

By participating in this project, you may become more aware of your body image and your self-confidence. You will also be involved in important work that aims to improve body image and self-confidence among young female adolescents around the world.

At the completion of the data collection (October 2018), you will be provided with the *Raising Confident Girls* booklets. This valuable resource includes all the power point slides and accompanying notes from the seminar. We hope this resource provides Year 8 mothers who were not able to attend the seminar, the opportunity to develop a better understanding of the pressures facing your daughter and learn strategies to assist build her self-confidence.

## How will the information I give be used?

The information you provide in the surveys will be anonymous, and private. Participants do not put their name anywhere on the questionnaire and each email address is de-identified by the Qualtrics survey

software. Each participant creates a code so we can match your three responses with each other. The researchers and school personnel cannot identifying which responses belong to which participant.

If your daughter is participating in the data collection then she too will be completing a similar survey. However, the questions are suited to adolescents and are mostly different to the parent survey. Your answers will not be linked, paired or compared with your daughters. All answers are compared as a whole and there is no examination of mother-daughter responses.

We will use the de-identified information to do some statistical analyses, write a report, and present these findings in scientific journal articles, and at conferences. We will retain anonymous electronic databases for potential future research.

**Are there any risks to me by participating in this project?**

There is a chance that you may feel some discomfort in responding to some of the questions on the survey about your -

- attitudes/feelings relating to your body or appearance
- how you communicate with your daughter
- any behaviours you may use to try to change your body or appearance

**If you feel upset by the questions, you can simply stop the survey at any time, without consequence.**

**It is possible to withdraw from the data collection if the survey questions or experience cause you any distress. We will still provide you with the *Raising Confident Girls* resource in October.**

**Who is conducting the study?**

Dr Zali Yager, Phone: XXXXXX, Email: zali.yager@vu.edu.au

Mrs Forbes Phone: XXXXXX, Email jody.forbes@live.vu.edu.au

If you have any questions about this project then please phone or email Dr Yager.

This study has been granted ethical approval – **Application: HRE17-211**. If you have any queries or complaints about the way you have been treated, you may contact the Ethics Secretary, Victoria University Human Research Ethics Committee, Office for Research, Victoria University, PO Box 14428, Melbourne, VIC, 8001, email researchethics@vu.edu.au or phone (03) 9919 4781