



VICTORIA UNIVERSITY
MELBOURNE AUSTRALIA

Raising Confident Girls: A pragmatic school-based trial of a body image and parenting program for mothers of adolescent girls

This is the Published version of the following publication

Forbes, Jody, Paxton, Susan J and Yager, Karen (Zali) K (2024) Raising Confident Girls: A pragmatic school-based trial of a body image and parenting program for mothers of adolescent girls. *Body Image*, 50. ISSN 1740-1445

The publisher's official version can be found at
<https://www.sciencedirect.com/science/article/pii/S1740144524000408?via%3Dihub>
Note that access to this version may require subscription.

Downloaded from VU Research Repository <https://vuir.vu.edu.au/48944/>



Raising Confident Girls: A pragmatic school-based trial of a body image and parenting program for mothers of adolescent girls

Jody Forbes^a, Susan Paxton^{b,1}, Zali Yager^{c,d,*},²

^a School Psychologist, Brisbane Girls Grammar School, Australia

^b La Trobe University, Australia

^c Institute for Health and Sport, Victoria University, Australia

^d The Embrace Collective, Australia

ARTICLE INFO

Keywords:

Body image
Intervention
Parent program
Mother

ABSTRACT

This study evaluated *Raising Confident Girls* (RCG), delivered to mothers of Year 8 students (mean age 12.8-years) who were receiving the classroom-based *Dove Confident Me* (DCM) program. RCG is an interactive, multi-session intervention designed to improve body image in mothers in order to enhance their capacity to parent and role model this to their daughters. A pragmatic non-randomised controlled trial involved delivery of the program to mothers ($n = 69$) over three, 2-hour seminars in evenings, compared with a comparison group ($n = 51$). The study took place at an independent all-girls secondary school in Australia. Multilevel mixed modelling analyses compared pre- and post-test scores on standardized scales. Mothers who participated in the program had significantly higher scores on primary outcome variables of body esteem and body appreciation compared to the comparison group at post-test. Further, participation significantly improved mother's knowledge, confidence, and skills for parenting, and improved role modeling of positive body image. Mothers were well engaged, with low attrition rates, and rated the program highly. The RCG program was effective and engaging for mothers, offering deeper insight into improving parental engagement in body image interventions delivered within the school context.

1. Introduction

Parents, in particular mothers, play a significant role in their children's developing body image (Hart et al., 2015; Wertheim et al., 2002), influencing it both directly, via conversations, comments, criticism, teasing, or encouragement to lose or gain weight, and indirectly, through role modelling of attitudes and behaviours relating to weight and shape (Salci & Paxton, 2017). Negative body talk is common within families (Lydecker et al., 2018; MacDonald et al., 2015) and parents regularly talk with their children about their weight (Winkler et al., 2018), encourage dieting (Neumark-Sztainer et al., 2010) and make derogatory comments about their child in front of them (Lydecker et al., 2018). Given societal pressure on parents to regulate children's diets and manage weight (Budd & Hayman, 2008; Sahoo et al., 2015; Tomayko et al., 2021), it is understandable that some parents may make

well-meaning comments regarding their child's diet or body. However, such comments are not benign. Parental criticism, comments, or weight-related teasing have demonstrated strong associations with binge eating, dieting, extreme weight control behaviours, weight gain, body dissatisfaction, body shame, weight stigma, depressive symptoms, and less self-compassion in children (Arroyo et al., 2017; Chow & Tan, 2018; Helfert & Warschburger, 2011; Kluck, 2010; Neumark-Sztainer et al., 2010; Rodgers et al., 2019). Thus, well intentioned, or not, certain conversations between parents and children regarding weight and diet have a negative effect.

Although both parents influence the body image of children, multiple studies have found that compared to fathers, it is mothers who predominately offer more body related messages (Berge et al., 2016; Simone et al., 2021; Taniguchi & Aune, 2013), explicitly encourage their children to diet or lose weight (Benedikt et al., 1998; Klein et al., 2016;

Abbreviations: RCG, Raising Confident Girls; DCM, Dove Confident Me.

* Corresponding author at: Institute for Health and Sport, Victoria University, Australia.

E-mail address: zali.yager@gmail.com (Z. Yager).

¹ <https://orcid.org/0000-0002-8486-1996>

² <https://orcid.org/0000-0002-2503-7374>

<https://doi.org/10.1016/j.bodyim.2024.101718>

Received in revised form 8 April 2024; Accepted 22 April 2024

Available online 29 May 2024

1740-1445/© 2024 The Authors. Published by Elsevier Ltd. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Simone et al., 2021), and are more critical of their daughter's bodies compared to fathers (Wertheim et al., 1999). For many mothers and daughters, engaging in appearance-based conversations, or 'fat talk', is a common occurrence, and studies suggest that mothers and daughters share significantly similar levels of negative body talk (Arroyo & Andersen, 2016; Barbeau et al., 2022; Rogers et al., 2017). While body talk may be akin to a bonding experience, research indicates that a mother's level of body talk can predict greater body shame (Domoff et al., 2020) and is associated with increased bulimic behavior in daughters (Arroyo & Andersen, 2016), particularly when the body talk is reciprocated between mother and daughter (Chow & Tan, 2018). Thus, reciprocity of fat talk between a mother and daughter is thought to allow for intergenerational transmission of maternal body image concerns and reinforces the internalisation of appearance ideals (Chow & Tan, 2018).

Social learning theory postulates that children learn from watching or imitating others, particularly those most like him/her (Bandura, 1977). Accordingly, if a daughter observes her mother engaging in a discourse containing self-criticism and negative body talk, or model weight control behaviours and body shame, then her daughter may internalise these same attitudes and behaviours. Studies have reported that a mother's body shame and body surveillance is associated with frequency of body surveillance in adolescent daughters (Katz-Wise et al., 2012), and a mother's fear of fat is correlated with increased fear of fat and dietary restraint in her daughter (Hart et al., 2021). Further, the transmission of ideas between mothers and daughters can occur at a very young age. Similar levels of body dissatisfaction have been reported between mothers and daughters aged 5–8-years (Lowes & Tiggemann, 2003), while girls as young as 3-years have demonstrated weight-based stigma when their mothers had higher levels of internalisation of the thin-ideal (Spiel et al., 2012), and dietary restraint (Spiel et al., 2016).

Contrastingly, if a daughter observes her mother engaging in body acceptance and appreciation, treating her body with respect and care, then she may be more likely to follow this example (Arroyo et al., 2020). 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. Research among mothers has found that they are more likely to role model positive body image to their children if they themselves have higher levels of body appreciation (Damiano et al., 2019). Thus, improving the way a mother feels about her own body, alongside greater emphasis and education discouraging mothers from engaging in negative modelling behaviours, is likely to positively impact daughters.

The quality of mother-daughter relationship has received less research attention but has an important impact on developing body image. According to attachment theory (Bowlby, 1969), the quality of the relationship a baby has with their primary caregiver, usually his/her mother, is crucial as it creates an internal working model that will affect future relationships and experience (Dozier et al., 2008; Tasca, 2019). Research has suggested that mother-daughter enmeshment, characterised by undefined boundaries and lack of autonomy, is associated with increased body dissatisfaction (Ogden & Stewart, 2000), and 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). In contrast, a positive mother-child relationship, typified by high levels of support, companionship and alliance, and less conflict or criticism, can contribute to greater body-esteem, 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, while a study by Arroyo et al. (2020) suggested that recalling a close relationship with a mother is associated with greater social competence, body appreciation and body satisfaction, suggesting that prevention approaches should include educating mothers about the benefits of a supportive relationship between her and her daughter.

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. Hart et al. (2015) conducted a systematic review of prevention programs that included parents and 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), and only one of these reporting a positive impact on children's body dissatisfaction (Corning et al., 2010). Programs delivered solely to parents have taken a variety of forms, including intensive small group workshops for targeted populations (Corning et al., 2010; Trost, 2006) and brief web-based psychoeducation materials (Diedrichs et al., 2016). Research designs where an intervention has been delivered to both parents and children have been mostly limited to an internet-delivered (Bruning Brown et al., 2004) or pamphlet-based design (Sniezek, 2006), with one study offering monthly workshops and newsletter articles for the parents (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).

One of the most difficult barriers to wide-scale implementation of programs that involve parents is low engagement and participation by parents (Hart et al., 2015; Spoth et al., 2007; Spoth et al., 2000). For example, Trost (2006) invited 1725 parents to participate in the *Health Image Partnership* (HIP) program, the final sample included eighty mothers and one father, which is less than 5% uptake. In a study by McVey et al. (2007), 982 students were invited and less than 7% of parents attended the monthly workshops. 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. Hart et al. (2015) suggested researchers develop engaging programs designed to suit the particular needs of parents, suggesting that parents may be more likely to attend eating disorder prevention programs if they align the program with the theoretical pathways of influence, and are developed and marketed for that specific parent e.g., mothers only. Hart et al. (2015) further suggests embedding eating disorder prevention programs within general parenting and relationship building interventions to incorporate a wider range of content that parents see as valuable and address multiple risk and protective factors. Despite the calls (Damiano et al., 2019; Yager et al., 2020), 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.

The current study seeks to determine the benefits of extending interventions for adolescent girls to include a complimentary parent program that aims to improve the body image of mothers and equip them with the knowledge, skills, and confidence to enhance the body image of their daughter, improve the relationship they share with their daughter, and be a positive body image role model for their daughter. The design of the current study strives to address the gaps and challenges in previous studies by developing and delivering a 3-session intervention *Raising Confident Girls* (RCG) to a large universal group of mothers of Year 8 girls who are participating in a classroom-based intervention *Dove Confident Me* (Unilever, 2021).

This study aimed to evaluate the efficacy and acceptability of RCG, a face-face, interactive, etiologically based, and multi-session intervention when delivered to a large group of mothers within the school context. It is hypothesised that RCG will be an acceptable intervention for delivery to mothers within the school setting and will result in significantly improved body image (body esteem, body satisfaction), self-esteem, parenting knowledge, positive parent role modelling and parenting skills and confidence for participants compared to a comparison group. Further, it is hypothesised that following participation in RCG, mothers

will report to engage in significantly less internalization, maternal pressure, social comparison, appearance conversations and dietary restraint compared to a comparison group. Finally, it is hypothesised that these outcomes will be maintained at the 3-month follow-up.

2. Method

The project, conducted in 2018, employed a quasi-experimental research design to examine the acceptability and effectiveness of a 3-session intervention program, *Raising Confident Girls* (RCG) delivered to mothers who had a daughter attending Year 8 (mean age 12.8-years) at the independent girls' school where the first author is employed as a school psychologist. In a parallel study, the Year 8 daughters participated in a controlled replication of the classroom-based *Dove Confident Me* (DCM) program during the time mothers participated in RCG (Forbes et al., 2023). After obtaining Victoria University ethical clearance (HRE17-211), the Deputy Principal emailed all mothers of Year 8 students (approximately $n = 230$) and invited them to engage in the *Raising Confident Girls* program. Allocation of mothers to intervention or comparison group was non-randomised for pragmatic reasons. Mothers who volunteered to attend the RCG seminars formed the intervention group. Following the recruitment to the intervention group, the remaining Year 8 mothers were then sent a second email from the Deputy Principal inviting them to complete questionnaires and participate in the study as the comparison group.

2.1. Participants

A total of 120 (intervention = 69, comparison = 51) mothers aged between 30–59-years were recruited into the study. Initially, 74 mothers registered for the seminar. However, two withdrew prior to data collection due to conflicting commitments. Three participants who registered for the seminar did not arrive for any of the three sessions, did not complete Time 1 survey, and failed to respond to further communication, thus were not included in the study. The final sample consisted of 69 mothers in the intervention group and 51 in the comparison group. Most mothers (78.3%) were aged 40–49-years, followed by 20.8% aged 50–59-years and only one participant was aged between 30–39-years. Thirteen percent of participants 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%). While all participants spoke and understood English, 10% of participants indicated that they spoke another language at home, including Mandarin (2%), Filipino (1%), Cantonese (1%) and Korean (1%). There were no significant differences between the intervention and comparison groups at baseline in relation to age, country of birth, or speaking another language other than English at home.

2.2. Data collection

Study protocols were not registered with clinical trials registries as this was not required at the time of the research. Participants were sent information about the study by the school Deputy Principal in order to reduce the conflict of interest from the researcher who was also employed at the school. A link to the pre-test questionnaire administered via Qualtrics software was sent to participants and they were advised that completing the questionnaire was voluntary, and the question “Do you wish to continue with the survey?” was embedded into the start of each questionnaire. The survey took approximately 10–15-mins to complete and were completed online in participants own time. All responses to the survey were anonymised via the Qualtrics system and data matching took place via assigning an ID-code to identify condition, and participants creating a unique code.

Data collection commenced in Term 2 (May) 2018. Intervention participants were asked to complete the pre-test in their own time before

attending Session 1 of RCG. Links for the post-test and 3-month follow-up surveys were sent to participants immediately post and 3-months after the completion of the intervention. Participants in the comparison group were sent links to the questionnaires at approximately the same time as the intervention group and were asked to complete the surveys in the same manner as described above. The survey link remained open for a period of two weeks. Table 1 outlines details of data collection and the length of time between each survey.

2.3. Measures

As this study was an extension of a replication of the classroom-based DCM (Diedrichs et al., 2020), similar measures were utilised in the replication and original study (Diedrichs et al., 2020; Forbes et al., 2023). Two measures, *Parenting Knowledge* and *Parent Skills & Confidence* were constructed specifically for the study. To develop both scales, the first author generated questions reflecting the main learning objectives of the program and the key skills taught. These were sent to other body image researchers to assess face validity. The *Parent Modelling* scale was relatively new and developed prior to the study (Damiano et al., 2019). All remaining measures were standardised and have been validated and widely used with adult women. Table 2 outlines the measures used and internal consistencies obtained for the current sample.

2.4. Program implementation

The 3-sessions of RCG were delivered fortnightly to participants on a weekday evening from 6 pm- 8 pm. The first author delivered RCG 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 booklet to refer to and to take home. Participants were asked to complete homework each week.

The intervention, *Raising Confident Girls* (RCG), was developed by the first author specifically for the purposes of the current study. The intervention intended to improve the body image of mothers themselves, so that they can role model positive body image to their daughters, as well as educate mothers about how best to promote positive body image in their daughters and develop their relationship with their daughters through the teen years. A review of the literature found body functionality (Guest et al., 2019), cognitive dissonance (Stice et al., 2019) and self-compassion (Braun et al., 2016; Homan & Tylka, 2015) approaches were effective in improving adult women’s body image. As such, the resources were adapted from previously tested programs, and informed by conversations with parents, alongside insights from the first and final authors based on their prior research and experience with mothers and parents.

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; Schwartz et al., 2019; Stice & Shaw,

Table 1
Data collection for mothers.

Group	Context	Time 1	Time 2	No of weeks	Time 3	No of weeks
		Term 2	Term 2	T1- T2	Term 3	T2 – T3
		2	2		3	
Intervention	At home in own time	Week 3	Week 9	6	Week 6	10
Comparison	At home in own time	Week 4	Week 10	6	Week 6	11

Table 2
Self-reported measures and internal consistencies (Cronbach’s alphas for current sample).

Outcome	Measures/Scales	α
Primary Outcome Measure		
Body appreciation	Body Appreciation Scale (Avalos et al., 2005). 8 item modified version assessing body appreciation (“I feel good about my body”). Mean score, range 1-5. Higher scores reflecting greater body appreciation.	.89
Secondary Outcome Measures		
Body esteem	Body Esteem Scale for Adolescents & Adults (Mendelson et al., 2001). Weight and appearance subscales combined. 18 items evaluating appearance and weight satisfaction (“I like what I look like in photos, I am happy with my weight”). Mean score, range 1-5 with negatively phrased items being reversed coded. Higher scores reflected greater body esteem.	
Internalisation	Ideal-Body Stereotype Scale – Revised (IBSS-R;Stice et al., 1996). 8-items measuring how much each participant internalised the thin-ideal (“Slim women are more attractive”). Mean score, range 1-5. Higher scores reflected greater internalisation.	.96
Social comparisons	Physical Appearance Comparison Scale (Thompson et al., 1991). 5 items measuring how much a participant compares their physical appearance with that of others (“At parties or other social events, I compare my physical appearance to the physical appearance of others”). Mean score, range 1-5. Higher scores indicated greater tendency to compare oneself to others.	.80
Appearance conversations	Appearance Conversation Scale (Jones et al., 2004), 5 items measuring frequency of appearance related talk (“My friends and I talk about how our bodies look in clothes”). Mean score range 1-5. Higher scores reflected greater frequency of appearance related talk among peers.	.87
Self-esteem	Rosenberg Self-esteem Scale shortened (Neumark-Sztainer et al., 2007; Rosenberg, 1965). 6 items measuring participant’s self-esteem (“On the whole I am happy with myself”). Mean score range 1-4. Negatively phrased items were reversed coded and higher averaged scores indicated greater self-esteem.	.75
Dietary restraint	Dutch Eating Behaviour Questionnaire, (van Strien et al., 1986), Restraint subscale. 10 items measuring dieting behaviours. (“When you have put on weight do you eat less than usual?”). Mean score range 1-5. Higher mean scores indicated higher levels of dietary restraint.	.90
Parenting and Role Modelling		
Maternal pressure	Maternal Pressure Scale (Corning et al., 2010). 9 items assessing perceptions of how much appearance-related pressure participants apply to their daughters (“I encourage my daughter to watch her weight”). Mean score, range 1-4. Higher scores reflecting greater maternal pressure.	.82
Parenting knowledge	Purpose built measure. 9 items measuring typical parenting knowledge and skills included in the RCG program (“I know how to help my daughter become a confident young woman”). Mean score, range 1-5. Higher scores reflected greater parenting knowledge.	.83
Parent modelling	Role Modelling of Body Image (Attitudes and Behaviors) Questionnaire (RMBI-Q) (Damiano et al., 2019). 7 items measuring participant’s perception of how they model body image for their daughters (“I avoid talking about my body/appearance in a negative way in front of my daughter/s”). Mean score, range 1-5. Higher scores reflected greater modelling of positive body image.	.91
Parent skills and confidence	Purpose built measure. 9 items, measuring degree of confidence and skills in parenting for positive body image (“I know how to maintain a strong relationship with my daughter”). Mean score, range 1-5. Higher scores reflected greater skills and confidence.	.70
Feasibility, Acceptability and Demographics		
Program acceptability	Purpose built measure used in DCM trials (Diedrichs et al., 2020). 5 items measuring participants’	

Table 2 (continued)

Outcome	Measures/Scales	α
	impressions of the RCG program at post-test. Participants were asked to rate (not at all- very much) their enjoyment of the sessions, how helpful, comfortable, and important the sessions were, and how well the program was taught. Mean score, range 1-5. Higher scores indicated feedback that is more positive.	
Program attendance	A purpose-built measure administered to RCG participants at post-test. 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.	
Participant characteristics	Self-reported age, country of birth, language other than English spoken at home and ethnicity.	

2004). Designed to engage a large group of mothers, the intervention sought to build cohesive group rapport by offering refreshments and a brief time for participants to socialise prior to the commencement of each evening session. Table 3 outlines the RCG program and session content. Participants in the comparison group did not attend the RCG program but were provided with the three session booklets at the completion of the data collection period.

2.5. Data analysis

2.5.1. Data screening and preparation

Initial data preparation and analyses were conducted using SPSS (Version 24). Descriptive data were screened for normality and all dependent variables appeared normally distributed except for maternal pressure, which was negatively skewed. A log transformation was performed on maternal pressure and an analysis of intervention effects conducted on both the transformed and untransformed data indicated no significant differences between results (Pallant, 2016). Maternal pressure outcomes are presented using transformed data.

2.5.2. Acceptability and intervention analysis

Similar to Diedrichs (2020), acceptability ratings 1- 5 were averaged and scores above 3.00 were considered to be high acceptability. Intervention effects were analysed using longitudinal mixed models (LMM). Preliminary analyses were conducted to determine the most appropriate LMM for each outcome variable. Four different models were considered for best fit, and 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 (fixed effect= intervention and control) and time (fixed effect= pre-test, post-test and 3-month follow-up), and the interaction between Group x Time. The comparison group and the pre-test measure were chosen as the reference category in order to compare the effects of intervention across time.

2.5.3. Power analysis

Post hoc power analyses were calculated according to Twisk (2003) guidelines using the equation below which was embedded into an Excel document. Sample size was calculated assuming a 1:1 ratio between the compared groups(τ), 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).

$$N = \frac{(Z(1 - \alpha/2) + Z(1 - \beta))^2 \sigma^2(\tau + 1)[1 + (T - 1)\rho]}{v^2 \tau T}$$

The study included 120 participants (intervention group = 69 and

Table 3
Raising Confident Girls: Session program content and rationale.

Session	Content	Rationale for inclusion
Session 1 <i>Embrace</i>	Welcome, introduction, overview, Body image: the landscape for girls and women Viewing of the <i>Embrace</i> Documentary (Brumfit, 2016) Power of mothers embracing for self Homework: Mirror exercise	An evaluation of the <i>Embrace</i> documentary found evidence that participants who saw the film had higher levels of body appreciation (Yager et al., 2020a). The mirror exercise is a key feature of The Body Project, which has high levels of efficacy among young adult women (Becker & Stice, 2017).
Session 2 <i>Educate</i>	Overview of student program – <i>Dove Confident Me</i> Understanding the risk factors and exploring strategies <ul style="list-style-type: none"> • Appearance ideals • Media messages • Confronting comparisons • Banish body talk Power of mothers educating their daughters Homework: Letter to my daughter	Content based on the similar material from the DCM manual (Unilever, 2021), in addition to added content from the <i>Uniquely Me</i> parent resource provided by Dove. The letter to my daughter exercise is adapted from the 'letter to my younger self' from The Body Project, which has high levels of efficacy among young adult women (Becker & Stice, 2017).
Session 3 <i>Empower</i>	Understanding the adolescent girl- emotions and body Encouraging a healthy lifestyle Staying connected Modelling well Power of mothers empowering confidence Wrap up and goodbye	Information developed by the first author regarding mother-daughter attachment, mother-daughter relationships, communication and parenting, adolescent development, and self-compassion and self-care for mothers.

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. The sample size is reasonable compared to other studies involving mothers. Trost's (2006) sample included 81 participants, whereas the Corning et al. (2010) and Diedrichs et al. (2016) studies involved 31 and 235 mothers respectively.

3. Results

3.1. Preliminary analysis

An analysis of missing data indicated that missing data at post-test were 8% ($n = 10$), which increased to 14% ($n = 18$) 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 were completely missing at random, $\chi^2(123) = 131.01$, $p = .290$. 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 for that session, and asked to read it, and complete the affiliated homework, prior to the next session.

3.2. Program acceptability

Participants ($n = 66$) rated RCG high acceptability regarding helpfulness ($M = 3.76$, $SD = .89$), enjoyment ($M = 4.09$, $SD = .87$) and comfort ($M = 4.00$, $SD = .85$), and very high acceptability for importance of seminars like RCG ($M = 4.59$, $SD = .58$) and presentation ($M = 4.42$, $SD = .65$). Participant acceptability ratings are presented in Table 4.

3.3. Baseline Comparison of Scores

Table 5 outlines descriptive statistics for each measure at baseline, post-test and 3-month follow-up for the intervention and comparison groups. A series of independent t-tests found no significant group differences on pre-test outcome measures, except for parent knowledge. Specifically, participants in the comparison group demonstrated significantly higher parent knowledge ($d = .50$) at baseline compared to the intervention group. This finding was controlled for during subsequent analysis.

3.4. Intervention effects on outcome measures

3.4.1. Time by Group interactions

As shown in Table 6 there was a significant Time x Group interaction for body esteem and body appreciation. Specifically, compared to the comparison group, participants in the intervention group reported significantly higher levels of body esteem at post-test ($d = .43$) and at 3-month follow-up ($d = .50$), compared to pre-test. Further, 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 the 3-month follow-up. All significant interaction effect sizes were medium ($ds .43-.50$).

As shown in Table 7, there was a significant interaction between Time x Group for parent knowledge, parent skills and confidence, and parent role modelling. Compared to the comparison group, 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, 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 ($ds .68- 1.22$). There were no other significant Time x Group effects for the remaining variables.

3.4.2. Time effects

As shown in Table 7, the only significant Time difference was observed in parent role modelling. Specifically, parent role modelling was significantly greater at 3-month follow-up compared to pre-test, across both groups. There were no significant Time interactions for the remaining variables.

3.4.3. Group effects

As shown in Table 7, parent knowledge demonstrated the only significant Group effect. Participants in the comparison group reported significantly more parent knowledge at baseline compared to the intervention group. As outlined in Table 8 and Table 9, there were no significant findings for the remaining variables.

4. Discussion

This non-randomised, pragmatic study examined the effectiveness and acceptability of *Raising Confident Girls* (RCG), a 3-session intervention designed for and delivered to mothers, that sought to improve the body image of mothers and provide education to assist mothers enhance

Table 4
Participant acceptability ratings for RCG program (1–5).

	<i>Not at all</i>	<i>A little</i>	<i>Some</i>	<i>Much</i>	<i>Very Much</i>	<i>M</i>	<i>SD</i>
How much did you enjoy these lessons?	1.52%	1.52%	19.70%	40.91%	36.36%	4.09	0.87
How much did the sessions help you in raising a confident daughter?	0.00%	6.06%	36.36%	33.33%	24.24%	3.76	0.89
How comfortable did you feel taking part?	0.00%	4.55%	22.73%	40.91%	31.82%	4.00	0.85
How well was the seminar organised and presented?	0.00%	0.00%	9.09%	39.39%	51.52%	4.42	0.65
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	0.58

Table 5
Means, standard deviation, minimum and maximum of outcome variables by Time and Group.

	Intervention					Comparison					<i>t (df)p</i>
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>	
Self esteem											
Pre-test	69	3.09	0.47	2.17	4.00	51	3.09	0.42	2.17	4.00	.01(118), <i>p</i> = 0.997
Post-test	66	3.11	0.48	2.00	4.00	44	3.12	0.41	2.33	4.00	
3-month	60	3.15	0.48	2.17	4.00	42	3.09	0.41	2.33	4.00	
Body esteem											
Pre-test	69	3.43	0.78	1.72	4.72	51	3.44	0.76	1.50	4.94	-.08(118), <i>p</i> = 0.930
Post-test	66	3.66	0.72	1.83	4.94	44	3.50	0.68	1.72	4.67	
3-month	60	3.64	0.72	1.94	4.72	42	3.45	0.72	1.67	4.61	
Body appreciation											
Pre-test	69	3.82	0.68	2.25	5.00	51	3.83	0.58	2.25	4.75	-.08(118), <i>p</i> = 0.935
Post-test	66	4.00	0.68	2.50	5.00	44	3.81	0.55	2.38	4.63	
3-month	60	3.91	0.67	2.38	5.00	42	3.75	0.59	2.13	4.88	
Parent knowledge											
Pre-test	69	3.52	0.52	2.11	4.56	51	3.79	0.55	2.67	5.00	-2.6(118), <i>p</i> = 0.009 *
Post-test	66	4.05	0.45	2.89	5.00	44	3.78	0.44	3.11	5.00	
3-month	60	4.08	0.51	3.00	5.00	42	3.81	0.46	2.89	5.00	
Parenting skills/confidence											
Pre-test	69	3.55	0.41	2.78	4.67	50	3.60	0.46	2.56	4.78	-.66(117), <i>p</i> = 0.508
Post-test	66	3.84	0.51	2.78	4.89	44	3.61	0.47	2.67	4.67	
3-month	59	3.89	0.46	2.89	5.00	42	3.58	0.46	2.67	4.67	
Parent role modelling											
Pre-test	68	3.72	0.69	1.71	4.86	50	3.71	0.65	2.29	5.00	.04(116), <i>p</i> = 0.966
Post-test	66	4.11	0.58	2.29	5.00	44	3.70	0.72	1.71	4.86	
3-month	59	4.02	0.72	1.43	5.00	42	3.88	0.64	1.86	5.00	
Internalization											
Pre-test	69	3.13	0.76	1.00	4.50	50	3.14	0.65	1.33	4.33	-.06(115), <i>p</i> = 0.951
Post-test	66	2.96	0.91	1.00	4.67	44	3.07	0.72	1.83	4.33	
3-month	59	2.94	0.89	1.00	4.83	42	3.12	0.65	1.17	4.00	
Maternal pressure											
Pre-test	69	1.56	0.48	1.00	2.89	51	1.55	0.55	1.00	3.44	-.21(116), <i>p</i> = 0.884
Post-test	66	1.48	0.42	1.00	2.67	44	1.57	0.59	1.00	3.67	
3-month	60	1.48	0.39	1.00	2.56	42	1.54	0.57	1.00	3.44	
Physical appearance comparison											
Pre-test	69	2.44	0.74	1.00	4.60	51	2.35	0.71	1.00	4.60	.69(118), <i>p</i> = 0.491
Post-test	66	2.30	0.65	1.20	4.00	44	2.25	0.67	1.00	4.00	
3-month	60	2.32	0.68	1.00	3.80	42	2.31	0.72	1.00	4.60	
Appearance conversations											
Pre-test	69	2.19	0.78	1.00	4.40	51	2.21	0.65	1.00	4.00	-.02(118), <i>p</i> = 0.868
Post-test	66	2.05	0.78	1.00	4.00	44	2.19	0.63	1.00	4.00	
3-month	60	2.01	0.67	1.00	3.40	42	2.17	0.70	1.00	4.00	
Dietary restraint											
Pre-test	69	2.67	0.73	1.00	3.90	50	2.70	0.77	1.20	4.20	-.78(117), <i>p</i> = 0.436
Post-test	66	2.50	0.62	1.10	4.70	44	2.78	0.70	1.30	4.20	
3-month	59	2.48	0.54	1.10	3.60	42	2.70	0.72	1.50	4.30	

Note: * = statistical significance at *p* value < .05.

the body image of their daughters. The program was face-to-face, interactive, and multi-sessional and delivered to a large universal sample of mothers within a school context.

Overall, the findings suggest that RCG is an acceptable and effective school-based intervention for mothers. Participants indicated that RCG was helpful, enjoyable, important, and well presented. Relative to the comparison group, RCG participants reported significant improvements in body esteem and body appreciation with medium effect sizes at post-test, with the body esteem improvements maintained at the 3-month follow-up. The effect sizes indicate that the significant change on

outcome measures for mothers' own body image was larger than that seen in other intervention research with adult women (Alleva et al., 2015) and the improvements in knowledge are consistent with previous studies (Diedrichs et al., 2016; Trost, 2006). RCG may be the first face-face, school-based intervention to effectively improve levels of body appreciation and body esteem in a large group of mothers.

RCG participants also experienced significant improvements in parenting factors with large effect sizes. Participants reported significantly greater parenting knowledge, and parenting confidence and skills which were maintained at the 3-month follow-up. Comparisons of

Table 6
Effects of Group on self-esteem, body esteem and body appreciation outcomes across Time.

Predictors	Self-esteem			-	Body-esteem			-	Body appreciation		
	β	SE	p		β	SE	p		β	SE	p
Intercept	3.09	0.06	< .001 **		3.44	0.10	< .001 **		3.84	0.09	< .001 **
Group (Intervention) ^a	0.00	0.08	.997		-0.01	0.14	.928		-0.01	0.12	.935
Time (Post) ^b	0.01	0.05	.826		0.05	0.05	.345		-0.03	0.05	.582
Time (Follow-up) ^b	-0.01	0.05	.796		0.00	0.05	.972		-0.09	0.05	.100
Group x Time (Intervention x Post) ^{ab}	0.00	0.07	.966		0.15	0.06	.015 *		0.18	0.07	.008 *
Group x Time (Intervention x Follow-up) ^{ab}	0.06	0.07	.354		0.15	0.06	.019 *		0.13	0.07	.059
Random effect for intercept (Variance)	0.15	0.02			0.51	0.07			0.36	0.05	

Note: Reference category^a = Comparison group (Comparison = 1, Intervention = 0), Reference category^b = Pre-Test (Pre-test =3, post-test =1, 3mth follow-up = 2). * = statistical significance at p value < .05, ** = statistical significance at p value < .001

Table 7
Effects of Group on parent knowledge, parent confidence & skills and parent role modelling outcomes across Time.

Predictors	Parent knowledge			-	Parent skills & confidence			-	Parent role modelling		
	β	SE	P		β	SE	p		β	SE	p
Intercept	3.79	0.07	< .001 **		3.60	0.07	< .001 **		3.72	0.09	< .001 **
Group (Intervention) ^a	-0.26	0.09	.006 *		-0.05	0.09	.537		0.00	0.12	.975
Time (Post) ^b	0.01	0.06	.825		0.01	0.06	.800		0.00	0.08	.987
Time (Follow-up) ^b	0.06	0.06	.346		-0.01	0.06	.878		0.18	0.08	.038 *
Group x Time (Intervention x Post) ^{ab}	0.50	0.08	< .001 **		0.27	0.07	< .001 **		0.38	0.11	< .001 **
Group x Time (Intervention x Follow-up) ^{ab}	0.44	0.08	< .001 **		0.33	0.08	< .001 **		0.10	0.11	.365
Random effect for intercept (Variance)	0.18	0.03			0.15	0.02			0.29	0.04	

Note: Reference category^a = Comparison group (Comparison = 1, Intervention = 0), Reference category^b = Pre-Test (Pre-test =3, post-test =1, 3mth follow-up = 2). * = statistical significance at p value < .05, ** = statistical significance at p value < .001

Table 8
Effects of Group on internalization and maternal pressure outcomes across Time.

Predictors	Internalization			-	-	Maternal pressure		
	β	SE	p			β	SE	p
Intercept	3.15	0.11	< .001 **			0.53	0.01	< .001 **
Group (Intervention) ^a	-0.01	0.15	.932			-0.00	0.01	.980
Time (Post) ^b	-0.08	0.09	.392			0.01	0.01	.075
Time (Follow-up) ^b	-0.03	0.09	.737			0.01	0.01	.120
Group x Time (Intervention x Post) ^{ab}	-0.09	0.11	.428			-0.01	0.01	.328
Group x Time (Intervention x Follow-up) ^{ab}	-0.13	0.12	.255			-0.00	0.01	.753
Random effect for intercept (Variance)	0.44	0.66				0.01	0.01	

Note: Reference category^a = Comparison group (Comparison = 1, Intervention = 0), Reference category^b = Pre-Test (Pre-test =3, post-test =1, 3mth follow-up = 2). * = statistical significance at p value < .05, ** = statistical significance at p value < .001

Table 9
Effects of Group on comparison, appearance talk and dietary restraint outcome across Time.

Predictors	Comparison			-	Appearance Talk			-	Dietary restraint		
	β	SE	p		β	SE	p		β	SE	p
Intercept	2.35	0.09	< .001 **		2.22	0.10	< .001 **		2.78	0.10	< .001 **
Group (Intervention) ^a	0.09	0.12	.471		-0.02	0.13	.864		-0.10	0.13	.415
Time (Post) ^b	-0.10	0.07	.181		-0.03	0.08	.720		-0.10	0.06	.105
Time (Follow-up) ^b	-0.05	0.07	.481		-0.04	0.08	.630		-0.10	0.06	.120
Group x Time (Intervention x Post) ^{ab}	0.02	0.09	.864		-0.11	0.11	.309		-0.05	-0.08	.508
Group x Time (Intervention x Follow-up) ^{ab}	-0.04	0.09	.651		-0.15	0.11	.172		-0.07	-0.08	.369
Random effect for intercept (Variance)	0.36	0.05			0.36	0.05			0.39	0.06	

Note: Reference category^a = Comparison group (Comparison = 1, Intervention = 0), Reference category^b = Pre-Test (Pre-test =3, post-test =1, 3mth follow-up = 2). * = statistical significance at p value < .05, ** = statistical significance at p value < .001

baseline scores indicated that the mothers with lower levels of knowledge were the ones who attended the RCG sessions. Although this was controlled for statistically, these findings suggest that parents may recognise their lower levels of knowledge in relation to this area and make efforts to attend programs to improve their knowledge in this area. Significant post-test improvements were also evident for positive parent role modeling. While there was no significant reduction in maternal pressure, the results of the parent role modelling scale, parent knowledge, and parenting skills and confidence measures, revealed improved relationships and increased positive body-talk following participation in

RCG. These results appear promising given comparative studies have reported no significant improvements in family communication (Snizek, 2006; Trost, 2006).

Despite the improvements in body esteem and body appreciation, there were no significant improvements in risk factors for body dissatisfaction such as self-esteem, internalisation, dietary restraint or appearance-based talk or comparison. The theory that body appreciation and body dissatisfaction are distinct constructs (Tylka & Wood-Barcalow, 2015), and research indicating that women can experience both positive and negative body image simultaneously (Bailey

et al., 2016; Tiggemann & McCourt, 2013), could explain these findings. The current study suggests that it is possible for mothers to improve their body esteem and body appreciation while continuing to engage in appearance-based comparison, body talk and thin-ideal internalisation. Moreover, 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. Thus, the study suggests that improving body appreciation in mothers may be more important than reducing thin-internalisation, appearance-based comparison and body talk regarding 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 value of such interventions, focusing on body appreciation, rather than reduction of eating disorders risk factors, is increasingly supported by contemporary research since the design of RCG intervention (Alleva et al., 2015; Guest et al., 2019).

This study offers several procedural insights to address the consistent issues with engaging parents in prevention programs including, the importance of aligning parental interventions with parental needs, utilising the expertise of school personnel, and embedding body image content in general parenting interventions. We learned that creating an atmosphere in which a large group felt welcome, and making learning about body image feel enjoyable and fun, resulted in high acceptability and engagement, with 92% of participants attending at least two or more of the three sessions. 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. 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. 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 daughter's 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. The above findings highlight that while researchers are experts in etiological theory, school personnel are experts regarding their community.

4.1. Strengths and Limitations

A strength of the study lies in the fact that the first author had been employed at the intervention school for 15-years and 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? Possessing the expertise of a practiced psychologist, in addition to unique insight regarding the needs of Year 8 mothers, the author was able to utilise evidence-based resources within the body image field to design an intervention that specifically suited the population and utilise her position at the school to facilitate recruitment and data collection processes. The high acceptability ratings suggest that the design of the intervention benefited from the researchers' position within the school. Over 95% of participants indicated interventions like RCG were important for parents to attend, 90% rated the program well organized and well presented, and 70% described the intervention as enjoyable and comfortable. Further, there was a 50% uptake of mothers invited to

participate in the study compared to previous studies reporting a less than 10% parental uptake (McVey et al., 2007; Trost, 2006).

While the study demonstrated several strengths, certain limitations must be mentioned. First, this study involved mothers who had enrolled their daughters at a private, independent girls' school, with a strong academic focus, who were therefore of high socio-economic status, so the findings of the current study may be limited to this population. Given this was a real-life study within the context of a school, the groups were not randomly allocated and instead participants volunteered to be in either the intervention or comparison group. Despite evidence that the intervention and comparison group did not differ on descriptive measures, the non-randomisation can be considered a limitation of the design. The intervention was delivered by the first author, who although is a school employee, cannot be considered an endogenous facilitator, as she is a trained and experienced psychologist. Thus, further research is needed to determine whether RCG can effectively be delivered by teachers in situations where schools do not have the resources of a school psychologist. Further, it might be considered that the first author being a school employee might be considered a conflict of interest. However, measures including the anonymization of data collection and repeated reminders that participation in the study was voluntary, was implemented to avoid this conflict. The parenting outcomes were measured by two instruments constructed specifically for the study and therefore have not been standardised nor validated widely with adult women. While attrition rates were low, there was some participant feedback to suggest that the group size was too large, thus future consideration is needed regarding the ideal group size. Finally, despite the promising results, questions remain to whether providing RCG to mothers has any positive impact daughters.

4.2. Conclusion

The current study demonstrated that a face-face interactive, multi-session 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. The findings 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 project between universities and schools offers many benefits. 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. Additional research is needed to determine the generalisability of RCG and whether other school staff, such as teachers, can deliver it. Further, involving parents in the development of parent-focused body image programs is an area of future study (Bermúdez Parsai et al., 2011). 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 support extending classroom-based body image programs to include parents, with a particular focus on mothers.

Declarations

Ethical Approvals.

This study received Human Ethics Approval from Victoria University Human Research Ethics Committee.

Research Funding

This research did not receive any specific grant from funding

agencies in the public, commercial, or not-for-profit sectors.

Data statement

At the time of ethical approval and informed consent, making data public was not expected, and therefore this was not approved or requested for this project. Anonymised datasets are available from the final author on request.

Competing Interests

the Authors have no competing interests to declare.

CRedit authorship contribution statement

Jody Forbes: Writing – original draft, Project administration, Methodology, Formal analysis, Data curation, Conceptualization. **Zali Yager:** Writing – review & editing, Supervision, Project administration, Investigation, Conceptualization. **Susan Paxton:** Writing – review & editing, Conceptualization.

Declaration of Competing Interest

The last author now works in a health promotion charity alongside the creator of the Embrace film that was utilised in Session one of this intervention. This was not the case during the time of the development of, or evaluation of this program.

Data Availability

The authors do not have permission to share data.

References

- Albers, W., Roeg, D., Nijssen, Y., Bongers, I., & van Weeghel, J. (2018). Effectiveness of an intervention for managing victimization risks related to societal participation for persons with severe mental illness: A cluster RCT study protocol. *BMC Psychiatry*, *18*(1), 247. <https://doi.org/10.1186/s12888-018-1831-7>
- Alleva, J., Martijn, C., Breukelen, G., Jansen, A., & Karos, K. (2015). Expand Your Horizon: A programme that improves body image and reduces self-objectification by training women to focus on body functionality. *Body Image*, *10*. <https://doi.org/10.1016/j.bodyim.2015.07.001>
- Arroyo, A., & Andersen, K. K. (2016). The relationship between mother-daughter self-objectification: Identifying direct, indirect, and conditional direct effects. *24 Sex Roles*, *74*(5-6), 231. <https://doi.org/10.1007/s11199-015-0554-1>.
- Arroyo, A., Segrin, C., & Andersen, K. K. (2017). Intergenerational transmission of disordered eating: Direct and indirect maternal communication among grandmothers, mothers, and daughters. *Body Image*, *20*, 107–115. <https://doi.org/10.1016/j.bodyim.2017.01.001>
- Arroyo, A., Stillion Southard, B. A., Cohen, H., & Caban, S. (2020). Maternal communication strategies that promote body image in daughters. *Communication Research*, *47*(3), 402–427. <https://doi.org/10.1177/0093650218781737>
- Avalos, L., Tylka, T. L., & Wood-Barcalow, N. (2005). The body appreciation scale: Development and psychometric evaluation. *Body Image*, *2*(3), 285–297. <https://doi.org/10.1016/j.bodyim.2005.06.002>
- Bailey, A., Cline, L., & Gammage, K. (2016). Exploring the complexities of body image experiences in middle age and older adult women within an exercise context: The simultaneous existence of negative and positive body images. *Body Image*, *17*, 88–99. <https://doi.org/10.1016/j.bodyim.2016.02.007>
- Bandura, A. (1977). *Social learning theory*. Prentice Hall..
- Barbeau, K., Carboneau, N., & Pelletier, L. (2022). Family members and peers' negative and positive body talk: How they relate to adolescent girls' body talk and eating disorder attitudes. *Body Image*, *40*, 213–224. <https://doi.org/10.1016/j.bodyim.2021.12.010>
- Becker, C. B., & Stice, E. (2017). From efficacy to effectiveness to broad implementation: Evolution of the body project. *Journal of Consulting and Clinical Psychology*, *85*(8), 767–782. <https://doi.org/10.1037/ccp0000204>
- Benedikt, R., Wertheim, E. H., & Love, A. (1998). Eating attitudes and weight loss attempts in female adolescents and their mothers. *Journal of Youth and Adolescence*, *27*, 43–57. <https://doi.org/10.1023/A:1022876715005>
- Berge, J. M., Hanson-Bradley, C., Tate, A., & Neumark-Sztainer, D. (2016). Do parents or siblings engage in more negative weight-based talk with children and what does it sound like? A mixed-methods study. *Body Image*, *18*, 27–33. <https://doi.org/10.1016/j.bodyim.2016.04.008>
- Bermúdez Parsai, M., Castro, F. G., Marsiglià, F. F., et al. (2011). Using community based participatory research to create a culturally grounded intervention for parents and youth to prevent risky behaviors. *Prevention Science*, *12*, 34–47. <https://doi.org/10.1007/s11121-010-0188-z>
- Bowlby, J. (1969). *Attachment and loss, Vol. 1: Attachment*. Basic Books..
- Braun, T., Park, C., & Gorin, A. (2016). Self-compassion, body image, and disordered eating: A review of the literature. *Body Image*, *17*, 117–131. <https://doi.org/10.1016/j.bodyim.2016.03.003>
- Brumfit, T. (2016). *Embrace: One woman's journey to inspire everybody*. Transmission Films.
- Bruning Brown, J. D., Winzelberg, A. J., Abascal, L. B., & Taylor, C. B. (2004). An evaluation of an internet delivered eating disorder prevention program, for adolescents and their parents. *Journal of Adolescent Health*, *35*, 290–296. <https://doi.org/10.1016/j.jadohealth.2003.10.010>
- Budd, G. M., & Hayman, L. L. (2008). Addressing the childhood obesity crisis: a call to action. *MCN American Journal of Maternity Child Nursing*, *33*(2), 111–120. <https://doi.org/10.1097/01.NMC.0000313419.51495.ce>
- Calam, R., Waller, G., Slade, P. D., & Newton, T. (1990). Eating disorders and perceived relationships with parents. *International Journal of Eating Disorders*, *9*(5), 479–485. [https://doi.org/10.1002/1098-108X\(199009\)9:5<479::AID-EAT2260090502>3.0.CO;2-I](https://doi.org/10.1002/1098-108X(199009)9:5<479::AID-EAT2260090502>3.0.CO;2-I)
- Chow, C. M., & Tan, C. C. (2018). The role of fat talk in eating pathology and depressive symptoms among mother-daughter dyads. *Body Image*, *24*, 36–43. <https://doi.org/10.1016/j.bodyim.2017.11.003>
- Ciao, A. C., Loth, K., & Neumark-Sztainer, D. (2014). Preventing eating disorder pathology: Common and unique features of successful eating disorders prevention programs. *Current Psychiatry Reports*, *16*, 453.
- Corning, A. F., Gondoli, D. M., Bucchianeri, M. M., & Blodgett Salafia, E. H. (2010). Preventing the development of body issues in adolescent girls through intervention with their mothers. *Body Image*, *7*, 289–295. <https://doi.org/10.1016/j.bodyim.2010.08.001>
- Damiano, S. R., Yager, Z., Prichard, I., & Hart, L. M. (2019). Leading by example: Development of a maternal modelling of positive body image scale and relationships to body image attitudes. *Body Image*, *29*, 132–139. <https://doi.org/10.1016/j.bodyim.2019.03.006>
- Diedrichs, P. C., Atkinson, M. J., Garbett, K. M., & Leckie, G. (2020). Evaluating the “Dove Confident Me” five-session body image intervention delivered by teachers in schools: A cluster randomized controlled effectiveness trial. *Journal of Adolescent Health*, *68*(2), 331–341. <https://doi.org/10.1016/j.jadohealth.2020.10.001>
- Diedrichs, P. C., Atkinson, M. J., Garbett, K. M., Williamson, H., Halliwell, E., Rumsey, N., et al. (2016). Randomized controlled trial of an online mother-daughter body image and well-being intervention. *Health Psychology*, *35*(9), 996–1006. <https://doi.org/10.1037/hea0000361>
- Domoff, S. E., Tan, C. C., & Chow, C. M. (2020). Mother-daughter negative body talk as a moderator between body surveillance and body shame in adolescent girls. *Eating and Weight Disorders - Studies on Anorexia, Bulimia and Obesity*. <https://doi.org/10.1007/s40519-020-00925-4>
- Dozier, M., Stovall-McClough, K. C., & Albus, K. E. (2008). Attachment and psychopathology in adulthood. In J. Cassidy, & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (pp. 718–744). The Guilford Press.
- Forbes, J., Paxton, S., & Yager, Z. (2023). Independent pragmatic replication of the Dove Confident Me body image program in an Australian Girls Independent Secondary School. *Body Image*, *46*, 152–167. <https://doi.org/10.1016/j.bodyim.2023.06.001>
- Graber, J. A., & Brooks-Gunn, J. (1996). Prevention of eating problems and disorders: including parents. *Eating Disorders*, *4*, 346–363. <https://doi.org/10.1080/10640269608249194>
- Graber, J. A., Brooks-Gunn, J., Paikoff, R. L., & Warren, M. P. (1994). Prediction of eating problems: An 8-year study of adolescent girls. *Developmental Psychology*, *30*, 823–834. <https://doi.org/10.1037/0012-1649.30.6.823>
- Guest, E., Costa, B., Williamson, H., Meyrick, J., Halliwell, E., & Harcourt, D. (2019). The effectiveness of interventions aiming to promote positive body image in adults: A systematic review. *Body Image*, *30*, 10–25. <https://doi.org/10.1016/j.bodyim.2019.04.002>
- Hart, E., Tan, C. C., & Chow, C. M. (2021). Anti-fat attitudes and dietary restraint within mother-daughter dyads: An actor-partner interdependence model (APIM) analysis. *Eating and Weight Disorders - Studies on Anorexia, Bulimia and Obesity*, *26*(5), 1417–1426. <https://doi.org/10.1007/s40519-020-00949>
- Hart, L. M., Cornell, C., Damiano, S. R., & Paxton, S. J. (2015). Parents and prevention: A systematic review of interventions involving parents that aim to prevent body dissatisfaction or eating disorders. *International Journal of Eating Disorders*, *48*(2), 157–169. <https://doi.org/10.1002/eat.22284>
- Hastie, T., Tibshirani, R., & Friedman, J. H. (2009). *The elements of statistical learning: data mining, inference, and prediction* (2nd ed.). Springer..
- Helfert, S., & Warschburger, P. (2011). A prospective study on the impact of peer and parental pressure on body dissatisfaction in adolescent girls and boys. *Body Image*, *8*(2), 101–109. <https://doi.org/10.1016/j.bodyim.2011.01.004>
- Homan, K. J., & Tylka, T. L. (2015). Self-compassion moderates body comparison and appearance self-worth's inverse relationships with body appreciation. *Body Image*, *15*, 1–7. <https://doi.org/10.1016/j.bodyim.2015.04.007>
- Jones, D. C., Vigfusdottir, T. H., & Lee, Y. (2004). Body image and the appearance culture among adolescent girls and boys: An examination of friend conversations, peer criticism, appearance magazines, and the internalization of appearance ideals. *Journal of Adolescent Research*, *19*, 323–339. (<https://psycnet.apa.org/doi/10.1177/0743558403258847>)
- Katz-Wise, S. L., Budge, S. L., Lindberg, S. M., & Hyde, J. S. (2012). Individuation or identification? Self-objectification and the mother-adolescent relationship.

- Psychology of Women Quarterly*, 37(3), 366–380. <https://doi.org/10.1177/2F0361684312468425>
- Klein, K. M., Brown, T. A., Kennedy, G. A., & Keel, P. K. (2016). Examination of parental dieting and comments as risk factors for increased drive for thinness in men and women at 20-year follow-up. *International Journal of Eating Disorders*, 50(5), 490–497. <https://doi.org/10.1002/eat.22599>
- Kluck, A. S. (2010). Family influence of disordered eating: The role of body image dissatisfaction. *Body Image*, 7, 8–14. <https://doi.org/10.1016/j.bodyim.2009.09.009>
- Little, R. J. A. (1988). A test of missing completely at random for multivariate data with missing values. *Journal of the American Statistical Association*, 83, 1198–1202. <https://doi.org/10.1080/01621459.1988.10478722>
- Lowe, J., & Tiggemann, M. (2003). Body dissatisfaction, dieting awareness and the impact of parental influence in young children. *British Journal of Health Psychology*, 8(2), 135–147. (<https://psycnet.apa.org/doi/10.1348/135910703321649123>).
- Lydecker, J. A., Riley, K. E., & Grilo, C. M. (2018). Associations of parents' self, child, and other "fat talk" with child eating behaviours and weight. *International Journal of Eating Disorders*, 51(6), 59–71. <https://doi.org/10.1002/eat.22858>
- MacDonald, D. E., Dimitropoulos, G., Royal, S., Polanco, A., & Dionne, M. M. (2015). The family fat talk questionnaire: development and psychometric properties of a measure of fat talk behaviors within the family context. *Body Image*, 12, 44–52. <https://doi.org/10.1016/j.bodyim.2014.10.001>
- Mendelson, B. K., Mendelson, M. J., & White, D. R. (2001). Body-esteem scale for adolescents and adults. *Journal of Personality Assessment*, 76(1), 90–106. https://doi.org/10.1207/s15327752jpa7601_6
- McVey, G., Tweed, S., & Blackmore, E. (2007). Healthy schools-healthy kids: A controlled evaluation of a comprehensive universal eating disorder prevention program. *Body Image*, 4(2), 115–136. <https://doi.org/10.1016/j.bodyim.2007.01.004>
- Neumark-Sztainer, D., Bauer, K. W., Friend, S., Hannan, P. J., Story, M., & Berge, J. M. (2010). Family weight talk and dieting: how much do they matter for body dissatisfaction and disordered eating behaviors in adolescent girls? *Journal of Adolescent Health*, 47(3), 270–276. <https://doi.org/10.1016/j.jadohealth.2010.02.001>
- Neumark-Sztainer, D., Wall, M., Haines, J., Story, M., Sherwood, N. E., & van den Berg, P. (2007). Shared risk and protective factors for overweight and disordered eating in adolescents. *Journal of Preventive Medicine*, 33, 359–369. <https://doi.org/10.1016/j.amepre.2007.07.031>
- Ogden, J., & Stewart, J. (2000). The role of the mother-daughter relationship in explaining weight concerns. *International Journal of Eating Disorders*, 23, 309–316. [https://doi.org/10.1002/\(sici\)1098-108x\(200007\)28:1<78::aid-eat>3.0.co;2-n](https://doi.org/10.1002/(sici)1098-108x(200007)28:1<78::aid-eat>3.0.co;2-n)
- Pallant, J. (2016). *SPSS survival manual: A step by step guide to data analysis* (6th edition.). McGraw-Hill Education.
- Rodgers, R. F., Wertheim, E. H., Damiano, S. R., & Paxton, S. J. (2019). Maternal influences on body image and eating concerns among 7 and 8-year-old boys and girls: Cross-sectional and prospective relations. *International Journal of Eating Disorders*, 53, 79–84. <https://doi.org/10.1002/eat.23166>
- Rogers, C., Martz, D., Webb, R., & Galloway, A. (2017). Everyone else is doing it (I think): The power of perception in fat talk. *Body Image*, 20, 116–119. <https://doi.org/10.1016/j.bodyim.2017.01.004>
- Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton University Press.
- Russell-Mayhew, S., Arthur, N., & Ewashen, C. (2007). Targeting students, teachers, and parents in a wellness-based prevention program in schools. *Eating Disorders*, 15(2), 59–181. <https://doi.org/10.1080/10640260701190709>
- Sahoo, K., Sahoo, B., Choudhury, A. K., Sofi, N. Y., Kumar, R., & Bhadoria, A. S. (2015). Childhood obesity: causes and consequences. *Journal of Family Medicine and Primary Care*, 4(2), 187–192. <https://doi.org/10.4103/2249-4863.154628>
- Salci, L. E., & Paxton, S. J. (2017). Parent influences on body image attitudes and eating patterns in early childhood. In T. Wade (Ed.), *Encyclopedia of Feeding and Eating Disorders*. Springer. (https://doi.org/10.1007/978-981-287-104-6_56).
- Schwartz, C., Drexler, K., Fischera, A., Fumib, M., Lowec, B., Naabb, S., et al. (2019). Universal prevention in eating disorders: A systematic narrative review of recent studies. *Mental Health & Prevention*, 14. <https://doi.org/10.1016/j.mph.2019.200162>
- Shenaar-Golan, V., & Walter, O. (2015). Mother-daughter relationship and daughter's body image. *Health*, 7, 547–559. <https://doi.org/10.4236/health.2015.75065>
- Sharpe, H., Patalay, P., Choo, T. H., Wall, M., Mason, S. M., Goldschmidt, A. B., & Neumark-Sztainer, D. (2018). Bidirectional associations between body dissatisfaction and depressive symptoms from adolescence through early adulthood. *Development and Psychopathology*, 30(4), 1447–1458. <https://doi.org/10.1017/s0954579417001663>
- Shochet, I., Dadds, M., Holland, D., Whitefield, K., Harnett, P., & Osgarby, S. (2001). The efficacy of a universal school-based program to prevent adolescent depression. *Journal of Clinical Child Psychology*, 30, 303–315. https://doi.org/10.1207/S15374424JCCP3003_3
- Simone, M., Hazzard, V. M., Berge, J. M., Larson, N., & Neumark-Sztainer, D. (2021). Associations between weight talk exposure and unhealthy weight control behaviors among young adults: A person-centered approach to examining how much the source and type of weight talk matters. *Body Image*, 36, 5–15. <https://doi.org/10.1016/j.bodyim.2020.10.004>
- Smith, J. E., Erickson, S. J., Austin, J. L., Winn, J. L., Lash, D. N., & Amrhein, P. C. (2016). Mother daughter relationship quality and body image in preadolescent girls. *Journal of Child and Family Studies*, 25(9), 2683–2694. <https://doi.org/10.1007/s10826-016-0452-3>
- Sniezek, R. (2006). Parental criticism and eating disturbance in adolescent females: Implications for a multifaceted eating disorder prevention program. *Dissertation Abstracts International: Section B: The Sciences and Engineering*, 67(6-B), 3467. (<https://search.proquest.com/openview/b676987ef6ef7aa812eb47ce7ecc40a6/1?pq-origsite=gscholar&cbl=18750&diss=y>).
- Spiel, E. C., Paxton, S. J., & Yager, Z. (2012). Weight attitudes in 3- to 5-year-old children: age differences and cross-sectional predictors. *Body Image*, 9(4), 524–527. <https://doi.org/10.1016/j.bodyim.2012.07.006>
- Spiel, E. C., Rodgers, R. F., Paxton, S. J., Wertheim, E. H., Damiano, S. R., Gregg, K. J., & McLean, S. A. (2016). He's got his father's bias: Parental influence on weight bias in young children. *British Journal of Developmental Psychology*, 34(2), 198–211. (<http://psycnet.apa.org/doi/10.1111/bjdp.12123>).
- Spoth, R., Clair, S., Greenberg, M., et al. (2007). Toward dissemination of evidence-based family interventions: maintenance of community-based partnership recruitment results and associated factors. *Journal of Family Psychology*, 21, 137–146. <https://doi.org/10.1037/0893-3200.21.2.137>
- Spoth, R., Redmond, C., & Shin, C. (2000). Modeling factors influencing enrollment in family-focused preventive intervention research. *Prevention Science*, 1, 213–225. <https://doi.org/10.1023/A:1026551229118>
- Stice, E., Marti, C. N., Shaw, H., & Rohde, P. (2019). Meta-analytic review of dissonance-based eating disorder prevention programs: Intervention, participant, and facilitator features that predict larger effects. *Clinical Psychology Review*, 70, 91–107. <https://doi.org/10.1016/j.cpr.2019.04.004>
- Stice, E., Rohde, P., & Shaw, H. (2012). *The Body Project Manual*. (<http://www.bodyprojectsupport.org/assets/pdf/materials/bodyproject4sessionscriptandhandouts.pdf>).
- Stice, E., & Shaw, H. (2004). Eating disorder prevention programs: A meta-analytic review. *Psychological Bulletin*, 130(2). <https://doi.org/10.1037/0033-2909.130.2.206>
- Stice, E., Ziemba, C., Margolis, J., & Flick, P. (1996). The dual pathway model differentiates bulimics, subclinical bulimics, and controls: Testing the continuity hypothesis. *Behavior Therapy*, 27, 531–549. ([https://psycnet.apa.org/doi/10.1016/S0005-7894\(96\)80042-6](https://psycnet.apa.org/doi/10.1016/S0005-7894(96)80042-6)).
- Swarr, A. E., & Richards, M. H. (1996). Longitudinal effects of adolescent girls' pubertal development, perceptions of pubertal timing, and parental relations on eating problems. *Developmental Psychology*, 32, 636–646. (<https://psycnet.apa.org/doi/10.1037/0012-1649.32.4.636>).
- Taniguchi, E., & Aune, R. K. (2013). Communication with parents and body satisfaction in college students. *Journal of American College Health*, 61(7), 387–396. <https://doi.org/10.1080/07448481.2013.820189>
- Tasca, G. A. (2019). Attachment and eating disorders: a research update. *Current Opinion in Psychology*, 25, 59–64. <https://doi.org/10.1016/j.copsyc.2018.03.003>
- Thompson, J. K., Heinberg, L. J., & Tantleff, S. (1991). The physical appearance comparison scale (PACS). *Behavior Therapist*, 14, 174.
- Tiggemann, M., & McCourt, A. (2013). Body appreciation in adult women: Relationships with age and body satisfaction. *Body Image*, 10(4), 624–627. (<https://psycnet.apa.org/doi/10.1016/j.bodyim.2013.07.003>).
- Tomayko, E. J., Tovar, A., Fitzgerald, N., Howe, C. L., Hingle, D., Murphy, M. P., et al. (2021). Parent involvement in diet or physical activity interventions to treat or prevent childhood obesity: An umbrella review. *Nutrients*, 13(9), 3227. <https://doi.org/10.3390/nu13093227>
- Trost, A.S. (2006). The healthy image partnership (HIP) parents program: The role of parental involvement in eating disorder prevention (PhD Thesis). Dissertation Abstract International. 68. (https://www.researchgate.net/publication/37256253_The_Healthy_Image_Partnership_HIP_parents_program_the_role_of_parental_involvement_in_eating_disorder_prevention_PhD_Thesis).
- Twisk, J. W. R. (2003). *Applied longitudinal data analysis for epidemiology: A practical guide*. Cambridge University Press.
- Tylka, T. L., & Wood-Barcalow, N. L. (2015). What is and what is not positive body image? Conceptual foundations and construct definition. *Body Image*, 14, 118–129. <https://doi.org/10.1016/j.bodyim.2015.04.001>
- Unlever. (2021). *Self-esteem school resources: Confident me 5 sessions*. (<https://www.dove.com/au/dove-self-esteem-project/school-workshops-on-body-image-confident-me/self-esteem-school-resources-confident-me-five-sessions.html>).
- van Strien, T., Frijters, J. E. R., Bergers, G. P. A., & Defares, P. B. (1986). The Dutch eating behavior questionnaire (DEBQ) for assessment of restrained, emotional, and external eating behavior. *International Journal of Eating Disorders*, 5(2), 295–315. [https://doi.org/10.1002/1098-108X\(198602\)5:2<295::AID-EAT2260050209>3.0.CO;2-T](https://doi.org/10.1002/1098-108X(198602)5:2<295::AID-EAT2260050209>3.0.CO;2-T)
- Wertheim, E. H., Martin, G., Prior, M., Sanson, A., & Smart, D. (2002). Parent influences in the transmission of eating and weight related values and behaviours. *Eating Disorders: The Journal of Treatment and Prevention*, 10, 321–334. (<https://psycnet.apa.org/doi/10.1080/10640260214507>).
- Wertheim, E. H., Mee, V., & Paxton, S. J. (1999). Relationships among adolescent girls' eating behavior and their parents' weight-related attitudes and behaviours. *Sex Roles*, 41, 169–187. <https://doi.org/10.1023/A:1018850111450>
- Winkler, M. R., Berge, J. M., Larson, N., Loth, K. A., Wall, M., & Neumark-Sztainer, D. (2018). Parent-child health- and weight-focused conversations: Who is saying what and to whom? *Appetite*, 126, 114–120. <https://doi.org/10.1016/j.appet.2018.03.023>
- Yager, Z., Prichard, I., & Hart, L. M. (2020a). I have embraced: a pilot cross-sectional naturalistic evaluation of the documentary film Embrace and its potential associations with body image in adult women. *BMC Women's Health*, 20, 18. <https://doi.org/10.1186/s12905-019-0870-7>
- Yager, Z., Prichard, I., Hart, L., & Damiano, S. R. (2020). Mumbod? A comparison of body image and dietary restraint among women with younger, older, and no children. *Journal of Health Psychology*. (<https://doi.org/10.1177/13591053209674222>).