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Impact of a school-based body image intervention in Portuguese adolescents: The Confident me programme

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IMPACT OF A SCHOOL-BASED BODY IMAGE INTERVENTION IN PORTUGUESE ADOLESCENTS: THE CONFIDENT ME PROGRAMME

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Resumo

O programa "*Dove: Eu Confiante: 5 sessões*" foi desenvolvido com base no original "*Dove, Confident Me: Single Session*" (Diedrichs et al., 2015), tratando-se de um programa de intervenção em contexto escolar, cujo objetivo principal é a promoção da autoestima corporal em adolescentes entre os 11 e os 13 anos. O presente trabalho consiste na replicação de um estudo realizado em Bristol, tendo sido implementado em 15 escolas do distrito do Porto,. No estudo participaram 630 adolescentes, dos quais 276 pertenceram ao grupo de controlo e 354 ao grupo experimental, com idades compreendidas entre os 11 e os 15 anos (47% raparigas e 53% rapazes). Foram consideradas três níveis de variáveis de resultado: imagem corporal, fatores relacionados com a imagem corporal e indicadores psicossociais. A análise dos dados feita através de uma metodologia do tipo *mixed models*, avaliada em 5 momentos (pré e pós intervenção, 3 meses, 6 meses e 12 meses após a realização da intervenção) permitiu verificar uma melhoria significativa da imagem corporal dos adolescentes. Verificou-se ainda uma melhoria na satisfação em relação ao peso e no afeto positivo, mas apenas nos rapazes. Nas restantes variáveis estudadas, as mudanças não se revelaram significativas. Os resultados sugerem que o programa tem um impacto positivo ao nível da imagem corporal para ambos os sexos, ainda que em algumas variáveis de resultado o efeito seja mais notório no género masculino. No global, o programa "Dove: Eu Confiante" revelou ser uma ferramenta eficaz na promoção da imagem corporal em contexto escolar. Este estudo é de particular relevância, dada a inexistência de programas orientados para este objetivo, empiricamente validados no contexto português.

Palavras-chave: adolescência, imagem corporal, escolas, Norte de Portugal

Abstract

The program "*Dove: Confident Me: 5 sessions*" was developed based on the original "*Dove, Confident Me: Single Session*" (Diedrichs et al., 2015), being an intervention program in a school context, whose main objective is the promotion of body self-esteem in adolescents between 11 and 13 years old. The present work consists on the replication of a study carried out in Bristol, having been implemented in 15 schools in the district of Porto. Sixty hundred thirty adolescents participated in the study, aged between 11 and 15 years (47% girls and 53% boys). Three levels of outcome variables were considered: body image, factors related to body image and psychosocial indicators. Data analysis using a mixed model methodology, evaluated at 5 moments (pre- and post-intervention, 3 months, 6 months, and 12 months after the intervention) allowed to verify a significant improvement in the adolescents' body image. There was also an improvement in satisfaction with weight and positive affect, but only in boys. In the remaining variables studied, the changes were not significant. The results suggest that the program has a positive impact on body image for both sexes, although in some outcome variables the effect is more noticeable in males. Overall, the "*Dove: Eu Confiante*" program proved to be an effective tool in promoting body image in the school context. This study is of particular relevance, given the inexistence of programs aimed at this objective, empirically validated in the Portuguese context.

Key words: adolescence, body image, schools, Northern Portugal

Introduction

Adolescence is the period that ranges between 10-19 years of age, in which occurs rapid physical, psychological, cognitive, behavioral and social changes, as well as an increased self-consciousness of body image. (Bluth et al., 2018; Lawler & Nixon, 2011; McArthur et al., 2005; Rapee et al., 2019; Shagar et al., 2018; Schneider et al., 2013; Steinberg, 2014; Valois et al., 2019). In this period of identity formation, adolescents become more aware of their bodies, being influenced by the appearance-related norms imposed by the media (Rousseau & Eggermont, 2018). Physical traits become more important at this developmental stage and appearance play a significant role in teens' identity (Dittmar et al., 2000; Zametkin et al., 2004). For these reasons, adolescence is a crucial period for body image development (Ata et al., 2007; Fortenberry, 2013).

Body dissatisfaction is prevalent among adolescents, with rates varying between 30% and 80% (Dion et al., 2015), and it tends to increase between middle school and high school (Bucchianeri et al., 2013). Adolescent girls report higher levels of body dissatisfaction than boys (46% vs. 24%; Neumark-Sztainer et al., 2004) and wish to alter their body sizes in a higher percentage (80.8% vs. 54.8%; Lawler & Nixon, 2011). When we look at body satisfaction, the results are at the same line: in a study of 4,746 adolescents, 46% of the girls had low body satisfaction while only 26% of the boys had the same feeling (Neumark-Sztainer et al., 2002). In Portugal, according to data from 2018, 26% of 11-year-old boys and girls are dissatisfied with their body weight and perceive themselves as overweight; concerning the age group of 13-year-old, 24% of the boys show dissatisfaction with their body weight, whereas the girls show a higher percentage - 32% (WHO, 2018). Also, according to Francisco et al. (2015), Portuguese adolescents between 12 to 16-years-old, who have higher internalization of sociocultural ideals, are more dissatisfied with their bodies.

A negative cognitive evaluation of one's body can be an expression of a negative body image. Body image is conceptualized as a complex construct encompassing affective/cognitive (what one feels/thinks about his body), perceptual (how one perceives his body size), and behavioral (e.g., food intake and physical activity) dimensions (Allgood-Merten et al., 1990; Roy & Payette, 2012; Gardner, 2001; Vocks et al., 2009; McArthur et al., 2005). Negative thoughts and feelings about one's body are defined as

body dissatisfaction, an important indicator of stress related to the body (Thompson et al., 1999). There are some risk factors associated with body dissatisfaction, such as the internalization of cultural appearance ideals, appearance-related comparisons, and being teased about one's physical appearance (Alipour et al., 2015; Bird et al., 2013; Castro et al., 2010; Hellfert & Warschburger, 2011). In turns, poor body image among adolescents can lead to long-term consequences in emotional, social, and psychological well-being, namely low self-esteem (Bergman & Scott, 2001; Meland et al., 2007; O´Dea & Caputi, 2001; Paxton et al., 2006; Williams & Currie, 2000), low self-confidence (Meland et al., 2007), depressed mood (Bucchianeri et al., 2013; Meland et al., 2007; Paxton et al., 2006; Stice, 2002), and unhealthy eating behaviors (Jacobi et al., 2004; Neumark-Sztainer et al., 2006; O´Dea & Caputi, 2001; Santana et al., 2013; Stice, 2002).

However, body image also includes positive aspects. The concept of Positive Body Image is considered a distinct construct with unique components (Tylka, 2011) and has increasingly attracted the attention of researchers over the past few years. It is described as the ability to accept, respect, and appreciate one´s physical appearance, thus having the capability to reject unrealistic body image ideals (Tylka & Wood-Barcalow, 2015; Wood-Barcalow et al., 2010). This concept has the potential to improve well-being, given its positive association with self-esteem (Avalos et al., 2005; Wasylkiw et al., 2012), optimism (Avalos et al., 2005; Tylka & Van Diest, 2013), self-compassion (Wasylkiw et al., 2012), proactive coping (Avalos et al., 2005; Tylka & Van Diest, 2013), appearance satisfaction (Tylka & Van Diest, 2013), positive affect (Tylka & Van Diest, 2013) and life satisfaction (Tylka & Van Diest, 2013; Tylka & Wood-Barcalow, 2015). For this reason, intervention programs to promote positive body image are of major interest to protect adolescents from future psychosocial problems.

A large number of interventions have been designed to improve body image, mostly applied in schools. This setting is ideal to work this concept in early developmental stages, since it is where adolescents are more exposed to risk factors, becoming important to provide them with the right tools to keep their body esteem and be able to challenge social messages and cultural norms (Skemp-Arlt, 2006; Yager et al., 2013). According to a systematic review of classroom-based body image programs (Yager et al., 2013), the program "*Dove Confident Me: Single Session"* has shown to be effective in improving measures of body image and body dissatisfaction among adolescents from pre- to post-intervention, targeting younger adolescents by focusing on media literacy, self-esteem and peer-interaction content. This program was initially designed as "*Dove Confident Me:*

Single Session" (Diedrichs, et al., 2015), implemented through a single 90-minute session, with immediate effects in reducing risk factors associated with negative body image and improving psychosocial and in eating behavior disorders (Diedrichs, et al., 2015). However, as most of these effects were of small size and were not maintained at follow-up, it has arisen the need for longer intervention. Thus, the "*Dove Confident Me: 5 sessions*" was developed, grounded in an existing evidence-based program "*Happy Being Me*", targeting adolescents between 11-13 years old. This teacher-led intervention was adapted for a mixed-gender audience and was updated to include new visual aids and to reflect current adolescents' media consumption (Diedrichs, et al., 2021).

The acceptability and effectiveness of the "Dove Confident Me - 5 sessions" was recently tested (Diedrichs, et al., 2021), presenting promising results. Relative to the control group, the intervention produced improvements in body esteem (both sexes), maintained up to 6-months. This represents the most extended sustained improvement in body image observed in school-based intervention with teacher-led delivery. It was also found a significant reduction in experienced appearance-related teasing (girls only) at 6- and 12-month follow-up. Moreover, from the students' point of view the intervention was acceptable, enjoyable, and effective.

The work of Diedrichs et al. (2021) is one of the largest and most solid school-based effectiveness trials evaluating a body image intervention. Most limitations pointed out in previous studies were overcome, by using an adequate sample size and evaluating long-term effects (Torres, 2021). It has also been implemented on a large scale, being available in 45 countries (Diedrichs et al., 2021).

To the best of our knowledge, there is no empirically validated body-image intervention aimed at adolescents available in Portugal. In order to answer this need, we followed the Yager's et al. (2013) suggestion of avoiding duplicating efforts by creating new contents but, instead, adapting and evaluating programs that have consistently been shown to be effective. Therefore, this study aimsto independently replicate the "*Dove: Confident Me – 5 sessions*" in Portuguese schools. It was hypothesized that the "Dove: Confident Me" would improve body image and related psychosocial outcomes, relative to a lessons-as-usual control condition.

Method

1. Participants

A total of 630 adolescents of both genders, in Years 7 and 8 (aged 11-13; *M* = 12.85; *SD* = 0.814) were recruited from 15 schools in Northern Portugal. Participants received a 5-session intervention (*n* = 354) or lessons-as-usual control (*n* = 276). In the control group, 55.4% participants were in Year 7 (*n* = 154) and 44.2% in Year 8 (*n* = 122). In the intervention group, 46.3 % participants were in Year 8 (*n* = 164) and 48.9% in Year 7 (*n* = 173). Other demographic characteristics are presented in detail in the results section. Attrition due to student absence from class on data collection days was 100 % at post-intervention, 38% at 3-month follow-up, 44% at 6-month follow-up and 53 % at 12-month follow-up.

2. Intervention

The 'Dove Confident Me' is an adaptation of an existing evidence-based program designed for classroom delivery, "Happy Being Me" (Bird et al., 2013). Its development was supported by the Dove Self-Esteem Project (social mission for multinational brand Dove). To this replication study, the intervention materials were provided to the research team of the FPCEUP (Filipa Vieira, Raquel Barbosa, and Sandra Torres) by the "Dove Confident Me" team (contact person Phillippa Diedrichs – University of Bristol), with permission of the Dove Self-Esteem Project. The intervention content was translated to Portuguese (teacher guides, students' presentation, videos and worksheets), and minor cultural adjustments were made.

The "Dove Confident Me" consisted of five 45-minute interactive group sessions. In the first session, the theme introduced is appearance ideals. In this topic adolescents understand the concept of societal appearance ideals; learn about the nature and consequences of appearance ideals; and recognize pressures associated with aspiring to look like appearance ideals (e.g., money, time). The topic of the second session is media messages, and the main purpose is to develop media literacy. Thus, students learn to

identify sources of media and techniques used to create media images; critically analyze advertisements; recognize that it is unfair to compare oneself to media images; and practice ways to respond to media images. The third topic is about appearance-related social comparisons. In this session, adolescents learn to identify the downsides of comparing one's appearance to another person's appearance; practice ways to avoid making these comparisons and commit to avoiding appearance comparisons. The fourth session focus on appearance-based conversations and teasing. In particular, adolescents learn to understand the concept of body talk, including teasing and injurious appearance conversations; understand the negative consequences of engaging in body talk; and practice ways to avoid engaging in body talk. The last session is targeted to promote body activism. Students plan a campaign to share the messages of the workshops with a broader audience. A more detailed description of each session's learning objectives and strategies can be found in Diedrichs et al. (2021).

3. Material

3.1. Demographic Characteristics

Demographic information included self-reported gender, age, height and weight. Body mass index was not used in this study.

3.2. Outcome Measures

Body-image related variables were assessed as the primary outcome, with secondary outcomes encompassing risk factors for body image, and tertiary outcomes related to psychosocial factors. Table 1 displays all outcome measures along with internal consistency.

Table 1.

Outcome measures and internal consistencies (Cronbach´s alphas for the current sample)

Outcome	Scale	α Girls	α Boys
Body Image			
Body Esteem	Body Esteem Scale for Adults and Adolescents (Mendelson et al., 2001). This scale was validated among Portuguese adolescents (Barbosa et al., 2018). Appearance-positive and appearance-negative subscales combined, seven items, mean score range 1-5. Higher scores indicate greater body esteem.	.920	.908
Positive Body Image	Body Appreciation Scale-2 (Tylka, & Wood-Barcalow, 2015). This scale was validated among Portuguese adolescents (Lemoine et al., 2018). Measures positive body image, ten-item scale, mean score range 1-5. Higher scores indicate a more positive body image.	.959	.963
Body Satisfaction	Eating Disorder Inventory - Body Dissatisfaction Subscale (Gardner et al., 1983). This scale was validated among Portuguese adolescents (Machado et al., 2001). Eating related attitudes and behavior, 9 items, mean score range 1-6. Higher scores indicate greater body satisfaction.	.858	.705
Risk Factors			
Internalization of appearance ideals	Sociocultural Attitude Towards Appearance Questionaire-3 (Thompson et al., 2004). This scale was validated among Portuguese adolescents (Pessoa, 2010). Analyzed the General (9 items) and Athletic (5 items) Internalization subscales, mean score range 1-5. Higher scores indicate greater internalization of appearance ideals.	.938	.927
Perceived sociocultural pressures/Perception of sociocultural pressures (impact)	Scale created with the combination and amendment of a few validated scales (pressure from peers, family, and the media; Stice & Bearman, 2001; Thompson et al., 2004). The psychometric properties of a Portuguese version were analyzed by Vieira et al. (2018. It assesses whether adolescents have felt pressure to lose weight or change their bodies from	.916	.906

	family/friends/media (12 items) or have felt upset regarding pressures (4 items) mean score range 1-5. Higher scores indicate greater felt pressure and impact of that pressure.		
Social appearance comparisons	Modified from the Social Comparison to Models and Peers Scale (June, 2001). The psychometric properties of a Portuguese version were analyzed by Vieira et al. (2018). Comparisons to peers and celebrities and how it affects body image, 12 items, mean score range 1-5. Higher scores indicate bigger tendency to make comparisons.	.880	.874
Appearance-related teasing	Modified from the Perception of Teasing Scale (Neumark-Sztainer et al., 2007). We used a translated version made by the FPCEUP team. The translation process was based on the TRAPD method - Translation, Review, Adjudication, Pretesting, and Documentation (Harkness, 2003). Assesses frequency (2 items) and impact (2 items) of teasing, mean score range 1-5. Higher scores indicate greater frequency and impact.	.893	.884
Appearance conversations with friends	Appearance Conversation with Friends subscale from Appearance Culture Among Peers (Jones et al., 2004). The psychometric properties of a Portuguese version were analyzed by Vieira et al. (2018). 5 items, mean score range 1-5. Higher scores indicate greater engagement in appearance conversations.	.864	.848
Psychosocial Impacts			
Disordered eating behaviors	SCOFF Screening tool for eating behaviors (Morgan et al., 1999). This scale has been validated among Portuguese adolescents (Lima, 2012). 5 items, mean score range 1-2. Higher scores indicate greater eating disorder behaviors.	.466[a]	.415[a]
Self-esteem	Rosenberg Self-Esteem Scale (Neumark-Sztainer et al., 2007). This scale has been validated among Portuguese adolescents (Santos & Maia, 2003). 10 items, mean score range 1-4. Higher scores indicate greater self-esteem.	.865	.857
Negative affect	Positive and negative affect scale for children (Ebusatani et al, 2012). This scale has been validated among Portuguese adolescents (Carvalho et al., 2014). Positive affectivity subscale and negative affectivity subscale, 10 items mean score range 1-5. Higher scores indicate greater negative affect.	.830 (N); .916 (P)[b]	.758 (N); .905 (P)[b]

Dietary restraint	Dutch Eating Behaviors Questionnaire - Dietary restraint subscale (Van Strien et al., 1986). This scale has been validated among Portuguese adolescents (Viana & Sinde, 2003). Restraint subscale, 10 items, mean score range 1-5. Higher scores indicate greater dietary restraint.	.921	.923

[a]Although this internal consistency coefficient is lower than generally deemed desirable, they are similar to those reported in other studies (.44, .47) that concluded the SCOFF is a valuable screening tool (Rueda et al., 2005; Wahida et al., 2017). Because the SCOFF is composed of just five items with a simple response format (yes/no) and focuses on diverse behaviors indicative of distinct types of ED, modest reliability estimates are expected (Streiner, 2003).

[b]N = Negative affect; P = Positive affect

4. Procedures

A non-randomized quasi-experimental design was implemented. We developed a 15-hour training course for teachers certified by the Portuguese Ministry of Education (registration number: CCPFC/ACC-88795/16). The training course was disseminated in schools as part of a research project, and the teachers individually applied to participate in the intervention group. Schools from the same geographic region were invited to participate as control group. With this procedure the risk of contagion was minimized by avoiding mixing at the same school classes involved in intervention and control conditions. At the end of the study, the training course was made available to teachers from control schools.

The current study was approved by the Ethical Board of the Faculty of Psychology and Education Sciences (Ref. 5-05/2016) and consent for data collection at schools was obtained from school principals. Legal guardians provided passive informed consent (prior to baseline assessment) and informed written assent was also given by the students (at baseline assessment). Students completed questionnaires under standardized conditions supervised by their teachers. Approximately one week following baseline questionnaires, intervention schools received the intervention delivered by schoolteachers to whole classes (one lesson per week over five weeks). There was one teacher for 20-30 students. Students in control schools took part in their usual scheduled lessons. All students completed questionnaires at post-intervention (within one week of final lesson), 3-, 6-, and 12-months.

5. Statistical analysis

Data were screened for outliers, normality and missing data. We did not complement the missing values, and each factor and total score including missing items were discarded. Unpaired Student t-test (for metric variables) and a chi-square test (for categorical variables) were applied to compare intervention and control groups in demographic and baseline outcome variables. Effect sizes of t-test where analyzed based on Cohen´s d for ease of interpretation (small effect $d = 0.20$; medium effect $d = 0.50$; large effect $d = 0.80$) and Phi of Pearson (.1 – small; .3 – medium; .5 – large;Pereira & Patrício, 2020).

Intervention effects were analyzed using linear mixed models (LMM) using IBM SPSS Version 27. LMM is an intention-to-treat analysis that explains the correlations between repeated measurements within each individual. It is an extension of linear models, in which factors and covariates are assumed to have a linear relationship to the dependent variable. They are called “mixed” because they consider both random and fixed effects, bypassing some of the limitations imposed by other traditional approaches, such as Repeated Measures ANOVA. To proceed with this analysis , it was necessary to transform the database from wide to long format. Then, for the variables in which significant time and quadratic time values were obtained, LMM were applied to analyze continuous variables and mixed effects for dichotomous variables. However, before that, we chose which would be the best covariance model for each independent variable, considering the Akaike's Information Criterion (AIC) since the selected model was the one that always had the smallest AIC (see Supplementary Material, tables S1 to S38). Having then analyzed which variables had significant time and quadratic time values in that covariance structure.. In terms of Intraclass Correlation Coefficient (ICC), as a rough estimate, it was calculated as the proportion of variance in math achievement that is between individuals: Intercept/(Intercept + Repeated measures) = ICC (Hack et al., 2014). To proceed to applying mixed models analyses, the cut point of this analyses is recommended to be 5% (Hox, 2010). All assumptions for LMM were met. So, model complexity was increased by including year level, group, and gender as covariates in the analyzes to evaluate their impact on the variable. Also, variables modeling the two-way interactions time x group, time x gender, time x year level, quadratic time x group, quadratic time x gender and quadratic time x year level, as well as the three-way interactions time x group x gender and quadratic time x group x gender were included in the model. For all analyses, the alpha level was set at .05.

Results

6. Baseline demographic and outcome differences

The participants' baseline characteristics and tests of equivalence are reported in Table 2. No significant differences between intervention and control groups were found in age, t (628) = -1.101, p = .271, d = -.089, and sex distribution, $\chi 2$ = 0.734, p = .392. Participants in control group reported higher mean scores than intervention group in body dissatisfaction, self-esteem, appearance conversations with friends, positive affect, dietary restraint, and positive body image. Despite these significant differences, the magnitude of the effect size is low, except for Body esteem (satisfaction with appearance), that reaches a medium value, d = -0.493. However, for the analysis, none of the variables was controlled, since it was effectively a low magnitude difference, favoring the simplicity of the models.

Table 2.

Participants characteristics at baseline

	Control (n = 276)	**Intervention (n = 354)**	***t/ χ2 ****	***d/Phi***
Demographics				
Age at baseline, mean (SD)	12.88 (0.82)	12.82 (0.81)	*t*(628)=0.850, *p* =.396	-.034
Gender, n (%),	135 girls (48.9%); 141 boys (51.1%)	161 girls (45.5%); 193 boys (54.5%)	0.734, *p* = .392	1
Year level*, n (%)	7th grade – 154 (55.8%) 8th grade – 122 (44.2%)	7th grade – 173 (48.9%) 8th grade – 164 (46.3%)	14.842, ***p* < .001**	
OUTCOMES				
Internalization of appearance ideals (general), mean (SD)	2.05 (0.82)	2.13 (0.87)	*t* (628) = -1.234, *p* =.217	-0.099
Internalization of athletic appearance ideals, mean (SD)	2.51 (0.99)	2.65 (0.94)	*t* (628) = -1.762, *p* =.078	-0.142
Body esteem - weight satisfaction, mean (SD)	2.26 (0.59)	2.37 (0.70)	*t* (624) = -2.251, ***p* =.025**	-0.177
Body esteem - satisfaction with appearance, mean (SD)	2.02 (0.85)	2.46 (0.91)	*t* (606) = -6.189**, *p* < .001**	-0.493
Body esteem, mean (SD)	2.15 (0.64)	2.41 (0.72)	*t* (618) = -4.724, ***p* < .001**	-0.314
Body dissatisfaction, mean (SD)	2.69 (0.93)	2.58 (0.97)	*t* (628) = 1.430, *p* =.153	0.115
Positive Body Image, mean (SD)	4.06 (0.97)	3.93 (0.95)	*t* (626) = 1.699, *p* =.090	0.137
Social appearance comparisons, mean (SD)	2.04 (0.85)	2.26 (0.90)	*t* (628) = -3.055, ***p* =.002**	-0.245
Appearance-related teasing (frequency), mean (SD)	1.30 (0.68)	1.48 (0.74)	*t* (612) = -3.105, ***p* =.002**	-0.247
Appearance-related teasing (impact), mean (SE)	1.48 (0.98)	1.68 (1.10)	*t* (613) = -2.379, ***p* =.019**	-0.191
Sociocultural pressures, mean (SD)	1.34 (0.51)	1.43 (0.61)	*t* (624) = -2.016, ***p* =.044**	-0.159
Perception of sociocultural pressures (impact), mean (SD)	1.46 (0.70)	1.58 (0.82)	*t* (615) = -1.983, *p* =.048	0.157
Appearance conversations with friends, mean (SD)	2.22 (0.93)	2.07 (0.87)	*t* (628) = 1.986, *p* =.048	0.159
Negative affect, mean (SD)	1.57 (0.71)	1.69 (0.74)	*t* (626) = -2.056, ***p* =.040**	-0.165
Positive affect, mean (SD)	4.06 (0.91)	3.83 (0.94)	*t* (627) = 3.092, ***p* =.002**	0.249
Eating disorder behavior, mean (SD)	0.86 (1.02)	0.93 (1.08)	*t* (628) = -0.794, *p* =.427	-0.064
Appearance-related life engagement, mean (SD)	1.11 (0.30)	1.14 (0.30)	*t* (627) = -1.410, *p* =.159	-0.113
Dietary restraint, mean (SD)	1.81 (0.90)	1.74 (0.84)	*t* (627) = 1.001, *p* = .317	0.080

* t-test was used for metric variables, and chi-square test was used for categorical variables. Significant p-values are in bold.

7. Intervention effects on outcome measures

All the 19 outcome variables had ICC values higher than the minimum recommended to proceed with the LMM. Most of them (12 out of 19) had ICC values greater than 50% (see Supplementary Material, Table S39). Some variables to which LMM were applied showed significant effects of *time, quadratic time, group, gender, time x group, time x gender, time x year level, quadratic time x group, quadratic time x gender and time x group x gender*, as shown in Supplementary Tables S40 to 55.

For the present work, we chose to address only the interactions *time x group, quadratic time x group, time x group x gender or quadratic time x group x gender* referring to primary outcomes (Table 3), secondary outcomes (Table 4) and tertiary outcomes (Table 5).

In terms of Body-image related variables, only body esteem (weight satisfaction and satisfaction with appearance reported effects) and positive body image reported effects.

In terms of body esteem (weight satisfaction), intervention group and control group show different trajectories over time, showing that in some point of the trajectory intervention group tends to diminish its weight satisfaction, $B = 0.003$, $SE = 0.003$, $p = .002$.

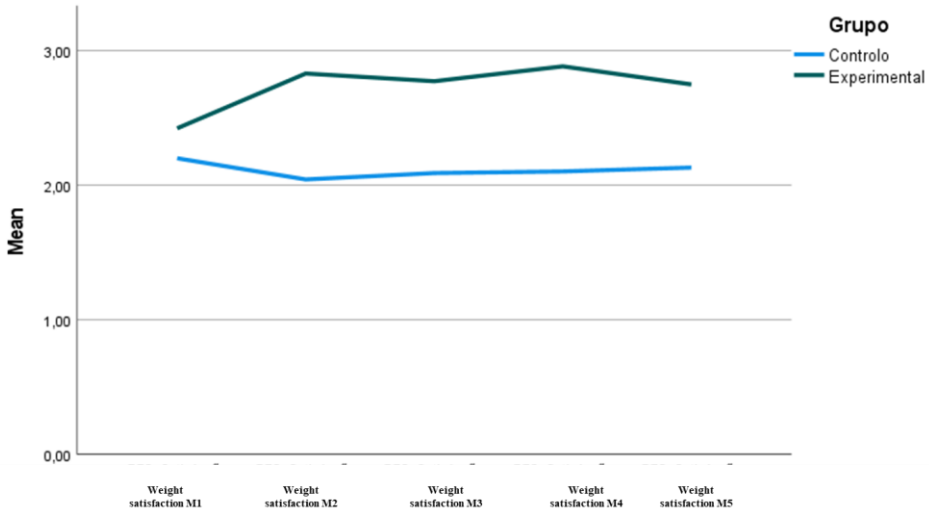


Figure 1. Body esteem (weight satisfaction) in terms of quadratic time x group interaction

In terms of gender, for boys receiving the intervention, in the variable of body esteem (weight satisfaction), there was a reduction in their satisfaction with their weight, when compared with girls, B = -0.007, SE = 0.003, p = 0.014.

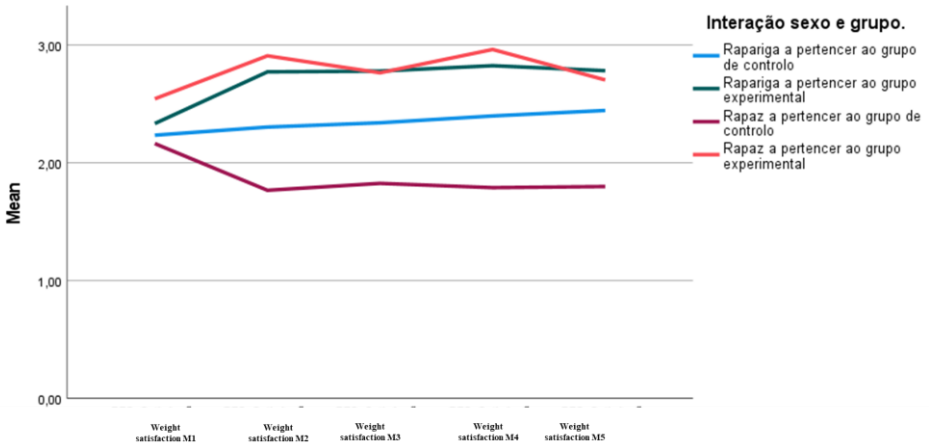


Figure 2. Body esteem (weight satisfaction) in terms of quadratic time x group x gender interaction

Body esteem (satisfaction with appearance) showed significant results in the double interaction time x group, which means that the intervention group tends to have a higher satisfaction with its appearance along the intervention, although there is a decrease in these values at a given time.

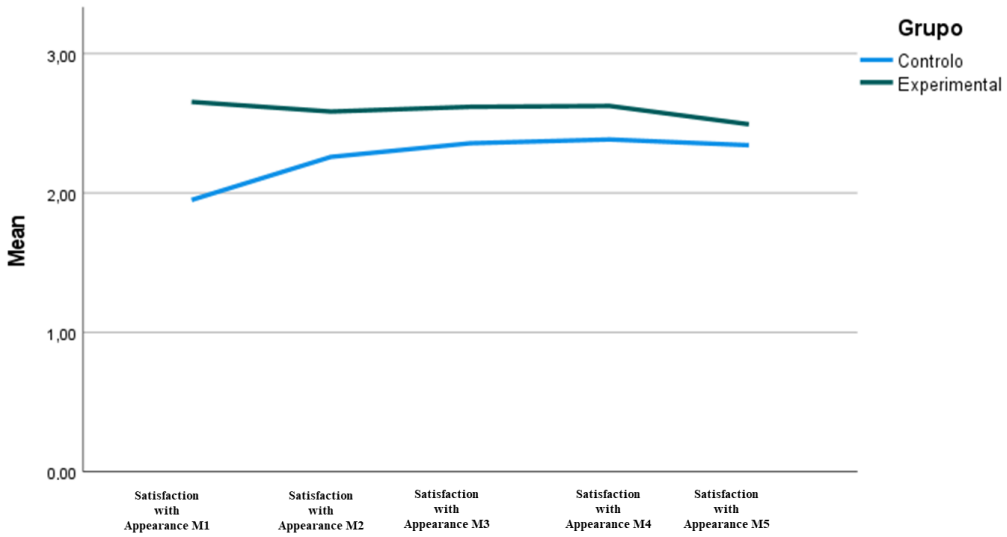


Figure 3. Body esteem (satisfaction with appearance) in terms of time x group

For positive body image, we can conclude that intervention group and control group have different trajectories over time, improving the intervention group body image over time, however it seems that the control group tends to have higher values throughout the intervention.

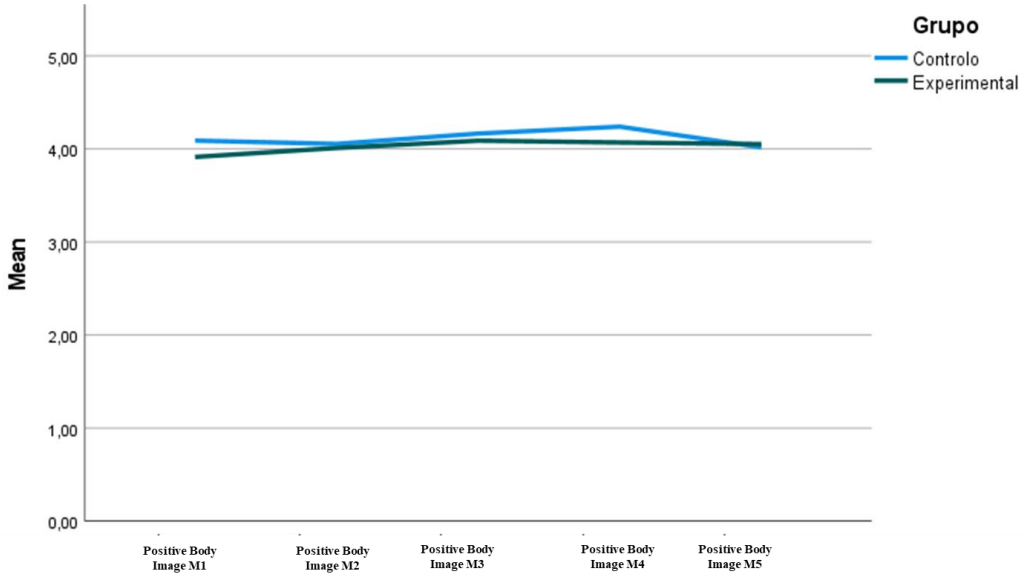
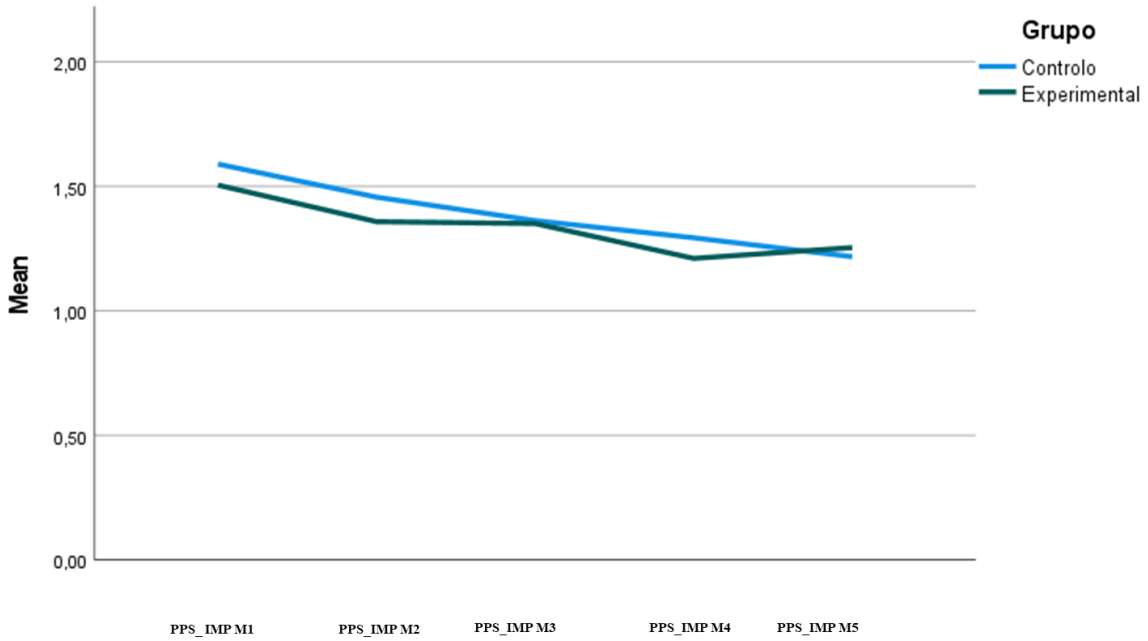


Figure 4. Positive body image in terms of time x group

With regard to the secondary outcomes, the impact of the perception of sociocultural appearance was the only variable that had improvements in quadratic time x group. This



means that the intervention group tends to have a different trajectory in comparison to the control group, and that at some point of the intervention they become more aware of this impact.

Figure 5. Impaction of the perception of sociocultural pressures in terms of quadratic time x group

At last, in terms of psychosocial impact, positive affect showed effects in terms of time x group x gender. In this variable, boys belonging to the intervention group tend to diminish their positive affect and girls tend to improve it in time.

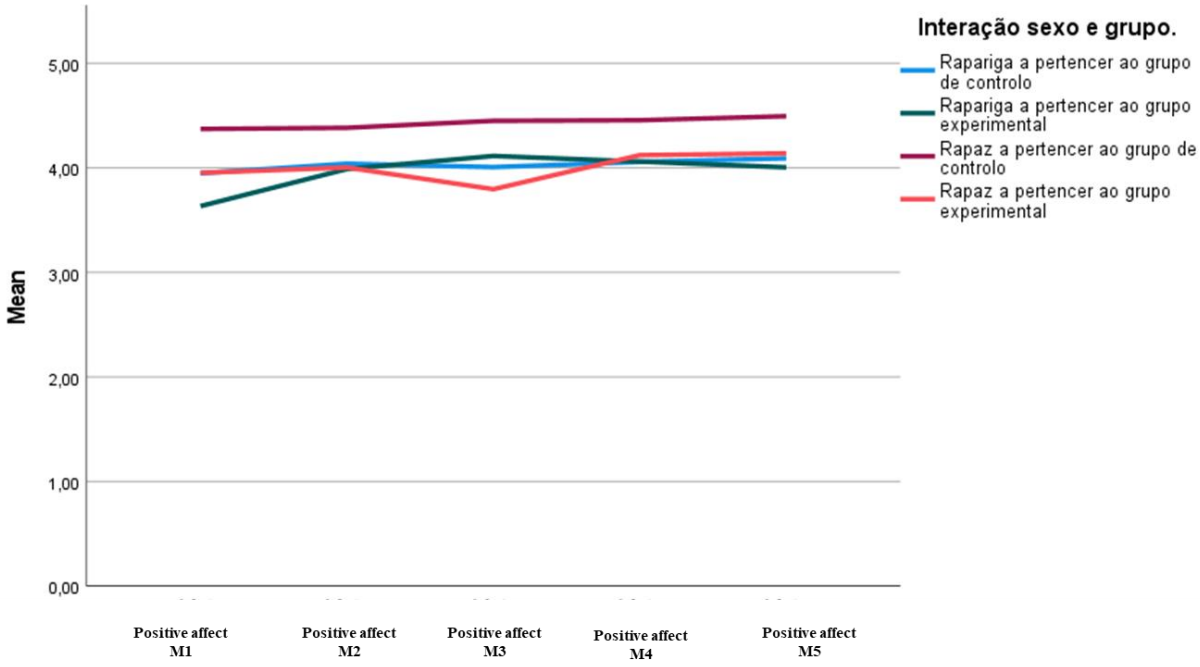


Figure 6. Positive affect in terms of time x group x gender

No other between group differences met criteria for significance across the remaining risk factor or related to psychosocial outcomes.

Table 3.
Group effect for body-image related variables (primary outcomes)

Outcomes e independent variables	***B***	***SE***	***p***	**95% Confidence Interval** (Lower bound; Upper Bound)
Body esteem (weight satisfaction)				
Group	**0.170**	**0.040**	**<.001**	**(-0.092; 0.249)**
Quadratic time * Group	**-0.003**	**0.002**	**.002**	**(-0.006; 0.001)**
Quadratic time * Group * Gender	**-0.007**	**0.003**	**.014**	**(-0.013; -0.001)**
Body esteem (satisfaction with appearance)				
Group	**0.342**	**0.062**	**<.001**	**(0.219; 0.464)**
Time * Group	**-0.058**	**0.027**	**.031**	**(-0.111; 0.005)**
Time * Group * Gender	-0.018	0.033	.592	(-0.083; 0.048)
Quadratic time * Group	0.003	0.002	.122	(-0.001; 0.007)
Quadratic time * Group * Gender	0.002	0.003	.476	(-0.003; 0.007)
Body esteem (global)				
Group	**0.250**	**0.056**	**<.001**	**(0.141; 0.359)**
Time * Group	0.009	0.022	.676	(-0.034; 0.053)
Time * Group * Gender	0.016	0.030	.583	(-0.042; 0.075)
Quadratic time * Group	-0.001	0.002	.562	(-0.005; 0.002)
Quadratic time * Group * Gender	-0.001	0.002	.611	(-0.006; 0.004)
Body dissatisfaction				
Group	-0.101	0.076	.182	(-0.250; 0.047)
Time * Group	-0.007	0.032	.838	(-0.069; 0.056)
Time * Group * Gender	0.055	0.043	.200	(-0.029; 0.140)
Quadratic time * Group	9.48E-5	0.003	.970	(-0.005; 0.005)
Quadratic time * Group * Gender	-0.003	0.003	.468	(-0.009; 0.004)
Positive body image				
Group	-0.078	0.075	.290	(-0.225; 0.069)
Time * Group	**0.043**	**0.036**	**.004**	**(-0.026; 0.113)**
Time * Group * Gender	-0.087	0.047	.066	(-0.179; 0.006)
Quadratic time * Group	-0.002	0.003	.792	(-0.007; 0.005)
Quadratic time * Group * Gender	0.005	0.004	.255	(-0.003; -0.013)

Group:0 = control; 1 = intervention.

Table 4.
Group effect for body image risk factors (secondary outcomes)

Outcomes e independent variables	***B***	***SE***	***P***	**95% Confidence Interval** (Lower Bound; Upper Bound)
Internalization of general appearance ideals				
Group	0.067	0.066	.315	(-0.064; 0.197)
Time * Group	0.001	0.033	.970	(-0.064; 0.066)
Time * Group * Gender	0.050	0.045	.270	(-0.039; 0.138)
Quadratic time * Group	-0.000	0.003	.955	(-0.005; 0.005)
Quadratic time * Group * Gender	-0.004	0.004	.260	(-0.011; 0.003)
Internalization of athletic appearance ideals				
Group	0.090	0.076	.233	(-0.058; 0.239)
Time * Group	-0.010	0.034	.778	(-0.077; 0.058)
Time * Group * Gender	0.003	0.045	.954	(-0.087; 0.092)
Quadratic time * Group	0.001	0.003	.771	(-0.004; 0.006)
Quadratic time * Group * Gender	0.001	0.004	.886	(-0.007; 0.008)
Appearance-related teasing (frequency)				
Group	**0.155**	**0.050**	**.002**	**(0.056; 0.253)**
Time * Group	-0.003	0.009	.729	(-0.020; 0.014)
Time * Group * Gender	-0.001	0.012	.941	(-0.024; 0.022)
Appearance-related teasing (impact)				
Group	**0.176**	**0.078**	**.024**	**(0.023; 0.329)**
Time * Group	0.018	0.034	.601	(-0.049; 0.085)
Time * Group * Gender	-0.030	0.043	.483	(-0.115; 0.054)
Quadratic time * Group	-0.002	0.003	.542	(-0.007; 0.004)
Quadratic time * Group * Gender	0.002	0.004	.533	(-0.005; 0.009)
Social appearance comparisons				
Group	**0.181**	**0.068**	**.008**	**(0.046; 0.315)**
Time * Group	0.012	0.032	.702	(-0.050; 0.074)
Time * Group * Gender	-0.043	0.042	.303	(-0.125; 0.039)
Quadratic time * Group	-0.002	0.003	.475	(-0.007; 0.003)
Quadratic time * Group * Gender	0.003	0.004	.352	(-0.004; 0.010)
Sociocultural pressures				
Group	0.080	0.045	.077	(-0.009; 0.168)
Time * Group	-0.009	0.021	.676	(-0.050; 0.032)
Time * Group * Gender	0.008	0.027	.762	(-0.061; 0.045)
Quadratic time * Group	0.000	0.002	.862	(-0.003; 0.004)
Quadratic time * Group * Gender	0.001	0.002	.787	(-0.004; 0.005)
Perception of sociocultural pressures (impact)				
Group	**0.121**	**0.050**	**.017**	**(0.022; 0.219)**
Time * Group	-0.046	0.036	.207	(-0.117; 0.026)
Time * Group * Gender	-0.001	0.048	.991	(-0.096; 0.095)
Quadratic time * Group	**0.004**	**0.002**	**.011**	**(0.001; 0.008)**
Quadratic time * Group * Gender	-0.003	0.002	.289	(-0.007; 0.002)

Group:0 = control; 1 = intervention.

Table 5.
Group effect for related psychosocial impact (tertiary outcomes)

Outcomes e independent variables	***B***	***SE***	***p***	**95% Confidence Interval** (Lower Bound; Upper Bound)
Self-esteem				
Group	**-0.103**	**0.042**	**.014**	**(-0.186; -0.021)**
Time * Group	0.031	0.018	.084	(-0.004; 0.065)
Time * Group * Gender	-0.036	0.024	.130	(-0.082; 0.011)
Quadratic time * Group	-0.003	0.001	.080	(-0.005; 0.000)
Quadratic time * Group * Gender	0.002	0.002	.371	(-0.002; 0.006)
Positive affect				
Group	**-0.204**	**0.072**	**.005**	**(-0.345; -0.063)**
Time * Group	0.071	0.036	.049	(0.000; 0.142)
Time * Group * Gender	**-0.109**	**0.047**	**.019**	**(-0.200; -0.018)**
Quadratic time * Group	-0.004	0.003	.134	(-0.010; 0.001)
Quadratic time * Group * Gender	0.008	0.004	.052	(7.93E-5; 0.016)
Eating disorder behavior				
Group	0.043	0.078	.579	(-0.109; 0.196)
Time * Group	0.047	0.032	.135	(-0.015; 0.109)
Time * Group * Gender	-0.063	0.037	.090	(-0.135; 0.010)
Quadratic time * Group	-0.004	0.002	.098	(-0.009; 0.001)
Quadratic time * Group * Gender	0.005	0.003	.081	(-0.001; 0.012)
Dietary restraint				
Group	-0.062	0.069	.365	(-0.197; 0.072)
Time * Group	0.009	0.030	.778	(-0.051; 0.068)
Time * Group * Gender	0.004	0.040	.930	(-0.075; 0.082)
Quadratic time * Group	-0.001	0.002	.605	(-0.006; 0.004)
Quadratic time * Group * Gender	0.001	0.003	.724	(-0.005; 0.008)

Group:0 = control; 1 = intervention.

Discussion

This study aimed to independently replicate the "Dove, Confident Me" - a promising school-based intervention delivered by schoolteachers that has demonstrating improvements in body image and associated factors among adolescents (Diedrichs et al., 2021; Garbett et al., 2021). Using a longitudinal design with five assessment times (baseline, post-intervention, 3-, 6-, and 12-month follow-up) we sought to analyze the impact of the program on body image, risk factors for body image, and related psychosocial outcomes. As a replication study, this work also allows to compare the effectiveness of the "Dove, Confident

Me" with previous studies carried out in different countries, and therefore, identify future refinements of the intervention.

In general, the application of the " Confident Me" program seems to impact on some outcome variables. In particular, the intervention produced improvements at the impact of sociocultural pressures, positive body image, body esteem (satisfaction with appearance and weight satisfaction). Non-gender specific results were also found in previous "Confident Me" trials (Diedrichs et al., 2015; Diedrichs et al., 2021; Garbett et al., 2021) for body esteem, but not with social comparisons, for example. These findings are very encouraging because they reinforce the notion that this teacher-led intervention has the potential to effectively improve adolescents' body image (Torres, 2021).

In terms of gender, for boys in the intervention group, improvements were observed in body esteem (weight satisfaction), which is not in accordance with the India and UK trials that found improvements in body esteem irrespective of gender.

Also, contrary to our hypotheses, the intervention did not significantly improve internalization of general or athletic appearance ideals, sociocultural pressures, social comparisons, eating disorder behavior and dietary restraint. Likewise, the study in UK and India didn´t produce improvements in the same variables (Garbett et al., 2021; Diedrichs et al., 2021). The modest effects found in this and other health promotion interventions can be explained by what is called "floor effects". The participants' baseline scores for body image and other outcomes were mostly in normal range, as they have not reached the most common onset period for body dissatisfaction, which means that there is limited extent for risk factor reduction (Wilksch, 2014). However, we should not exclude the possibility that some improvements in program content may also be needed, in particular, a greater focus on body dissatisfaction risk factors. One way to achieve this goal is by approaching some facets of positive body image, which have been lacking in most of the programs, such as the promotion of functional view of the body (i.e., encouraging adolescents to praise their bodies for its abilities rather than for it looks), body attunement (i.e., emphasizing the importance of being aware to the body´s needs and inner positivity (i.e., feeling beautiful on the inside which may radiate to the external appearance and behavior; Torres, 2021).

This study is a replication of one of the largest trials evaluating a body image delivered by schoolteachers. The current findings should be interpreted in light of both strengths and limitations. Strengths included its longitudinal nature, with multiple follow-ups, and the use of comparable program materials, samples, outcome measures, and follow-up times that allow for meaningful comparisons across studies and effective replication.

Limitations include the non-randomized design and the use of a non-representative sample. Randomization was not possible due to the strategy used to recruit teachers. Thinking in future dissemination, the teaching course was an important procedure to put into practice. The fact that the sample is limited to the northern part of the country limits the generalization of the results to adolescents' population. Thus, a future study should include students from other areas of the country, to broaden the spectrum of participants. In addition, the quantitative content of the project does not allow us to understand the most helpful and hindering aspects of the intervention. An acceptability study is recommended to be planned for the future.

Lastly, an investment in large-scale dissemination of the Dove Confident Me program is an important further step. To achieve that it would be important to promote training schoolteachers on the program and encourage them to continue to deliver the intervention to students in the next years.

Conclusion

This study is a replication of the program "Dove: Confident Me" focusing on evaluating the application of a body image intervention delivered by schoolteachers in Northern Portugal. The effects for the primary outcome of body image are promising. In particular, body esteem (satisfaction with appearance), positive body image and the impact of perception of sociocultural pressures show some effects in terms of the intervention group when compared to the control. In terms of gender, positive affect and body esteem (weight satisfaction) seem to have some effects in boys, from the intervention group.. . However, refinements are recommended to improve the long-term maintenance of the effects and further analyses should be done, in order to emphasize the findings of the study.

References

Alipour, B., Farhangi, M. A., Dehghan, P., & Alipour, M. (2015). Body image perception and its association with body mass index and nutrient intakes among female college students aged 18–35 years from Tabriz, Iran. *Eating and Weight Disorders-Studies on Anorexia, Bulimia and Obesity*, *20* (4), 465-471.

Allgood-Merten, B., Lewinsohn, P. M., & Hops, H. (1990). Sex differences and adolescent depression. *Journal of abnormal psychology*, *99* (1), 55-63. https://doi.org/10.1037/0021-843X.99.1.55

Ata, R. N., Ludden, A. B., & Lally, M. M. (2007). The effects of gender and family, friend, and media influences on eating behaviors and body image during adolescence. *Journal of Youth and Adolescence*, *36* (8), 1024-1037. https://doi.org/10.1007/s10964-006-9159-x

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

Barbosa, R., Vieira, F. M., Brandão, M. P., Meneses, L., Fernandes, R., & Torres, S. (2018, June). Measurement of positive body image's facets: Psychometric properties of the BESAA and BAOS in Portuguese adolescents and adults. *Poster presented at the Appearance Matters 8 Conference, Bath, UK.*

Bergman, M. M., & Scott, J. (2001). Young adolescents´wellbeing and health-risk behaviours: Gender and socio-economic differences. *Journal of Adolescence*, *24* (2), 183-197. https://doi.org/10.1006/jado.2001.0378

Bird, E. L., Halliwell, E., Diedrichs, P. C., & Harcourt, D. (2013). Happy Being Me in the UK: A controlled evaluation of a school-based body image intervention with pre-

adolescent children. *Body Image, 10,* 326-334. http://dx.doi.org/10.1016/j.bodyim.2013.02.008

Bluth, K., Mullarkey, M., & Lathren, C. (2018). Self-Compassion: A potential path to adolescent resilience and positive exploration. *Journal of Child and Family Studies, 27*, 3037-3047. https://doi.org/10.1007/s10826-018-1125-1

Bucchianeri, M. M., Arikian, A. J., Hannan, P. J., Eisenberg, M. E., & Neumark-Sztainer, D. (2013). Body dissatisfaction from adolescence to young adulthood: Findings from a 10-year longitudinal study. *Body image*, *10* (1), 1-7. https://doi.org/10.1016/j.bodyim.2012.09.001

Campos, M. (2017). *O Programa "Eu, Confiante": Impacto na imagem corporal, comportamento alimentar e funcionamento psicológico.* (Tese de Mestrado). Faculdade de Psicologia e de Ciências da Educação da Universidade do Porto, Porto.

Castro, I. R. R. D., Levy, R. B., Cardoso, L. D. O., Passos, M. D. D., Sardinha, L. M. V., Tavares, L. F., Dutra, S. P., & Martins, A. (2010). Imagem corporal, estado nutricional e comportamento com relação ao peso entre adolescentes brasileiros. *Ciência & saúde coletiva*, *15*, 3099-3108.

Carvalho, M., Baptista, A., & Gouveia, J. (2014). Análise da Estrutura fatorial de uma medida de auto-avaliação da afetividade negativa e positivo para crianças e adolescentes. In C. Machado, L. S. Almeida, M. Gonçalves, & V. Ramalho (Orgs.), *Avaliação Psicológica: Formas e Contextos*. Psiquilibrios Edições.

Diedrichs, P. C., Atkinson, M. J., Steer, R. J., Garbett, K. M., Rumsey, N., & Halliwell, E. (2015). Effectiveness of a brief school-based body image intervention "*Dove Confident Me: Single Session"* when delivered by teachers and researchers: Results from a cluster randomized controlled trial. *Behaviour, Research and Therapy, 74,* 94-104. http://dx.doi.org/10.1016/j.brat.2015.09.004

Diedrichs, P. C., Atkinson, M. J., Garbett, K. M., & Leckie, G. (2021). 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

Dion, J., Blackburn, M. E., Auclair, J., Laberge, L., Veillette, S., Gaudreault, M., Vachon, P., Perron, M & Touchette, É. (2015). Development and aetiology of body dissatisfaction in adolescent boys and girls. *International journal of adolescence and youth*, *20* (2), 151-166. https://doi.org/10.1080/02673843.2014.985320

Dittmar, H., Lloyd, B., Dugan, S., Halliwell, E., Jacobs, N., & Cramer, H. (2000). The "body beautiful": English adolescents' images of ideal bodies. *Sex Roles, 42,* 887–915. https://doi.org/10.1023/A:1007050517432

Dunstan, C. J., Paxton, S. J., & McLean, S. A. (2017). An evaluation of a body image intervention in adolescent girls delivered in single-sex co-educational classroom settings. *Eating Behaviours*, *25*, 23-31. https://doi.org/10.1016/j.eatbeh.2016.03.016

Ebesutani, C., Regan, J., Smith, A., Reise, S., Higa-Millan, C., & Chorpita, B. F. (2012). The 10-item Positive and Negative Affect Schedule for Children, Child and Parent Shortened Versions: Application of Item Response Theory for more Efficicent Assessment. Journal of Psychopathology and Behavioral Assessment, 34, 191-203.

Francisco, R., Espinoza, P., González, M. L., Penelo, E., Mora, M., Rosés, R., & Raich, R. M. (2015). Body dissatisfaction and disordered eating among portuguese and spanish adolescents: The role of individual characteristics and internalization of sociocultural ideals. *Journal of Adolescence*, *41*, 7-16. https://doi.org/10.1016/j.adolescence.2015.02.004

Fortenberry, J. D. (2013). Puberty and adolescent sexuality. *Hormones and behavior*, *64* (2), 280-287. https://doi.org/10.1016/j.yhbeh.2013.03.007

Garbett, K. M., Lewis-Smith, H., Chaudhry, A., Shroff, H., Dhillon, M., White, P., & Diedrichs, P. (2021). Acceptability and preliminary efficacy of a school-based body image intervention in urban India: A pilot randomized controlled trial. *Body Image*, *37*, 282-290. https://doi.org/10.1016/j.bodyim.2021.02.011

Gardner, R. M. (2001). Assessment of body image disturbance in children and adolescents. In Thompson JK, Smolak L (Eds.), *Body image, eating disorders, and obesity in youth: assessment, prevention, and treatment* (pp. 193-213). American Psychological Association.

Garner, D. M., Olmsted, M. P., & Polivy, J. (1983). Development and validation of a multidimensional Eating Disorder Inventory for anorexia nervosa and bulimia. *International Journal of Eating Disorders, 2(2),* 15-34.

Harkness, J. (2003). Questionnaire translation. In J. A. Harkness, F. J. R. V. de Vijver, & P. P. Mohler (Eds.), *Cross-cultural survey methods* (pp. 35-56). Wiley-Interscience.

Heck, R. H., Thomas, S. L., & Tabata, L. N. (2014). *Multilevel and longitudinal modeling with IBM SPSS.* Routledge.

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

Hox, J. J., Moerbeek, M., & Van de Schoot, R. (2017). *Multilevel analysis: Techniques and applications*. Routdlege.

IBM Corp. Released (2020). IBM SPSS Statistics for Windows, Version 27.0. Armonk, NY: IBM Corp. https://www.ibm.com/support/pages/how-cite-ibm-spss-statistics-or-earlier-versions-spss

Jacobi, C., Hayward, C., de Zwaan, M., Kraemer, H. C., & Agras, W. S. (2004). Coming to terms with risk factors for eating disorders: application of risk terminology and suggestions for a general taxonomy. *Psychological bulletin*, *130* (1), 19. https://doi.org/10.1037/0033-2909.130.1.19

Jones, D. C. (2001). Social comparison and body image: attractiveness comparisons to models and peers among adolescent girls and boys. *Sex Roles, 45,* 645-664.

Jones, D. C., Vigfusdottir, T. H., & Lee, Y. (2004). Body image and appearance culture among adolescent girls and boys: An examination of friend conversations, peer criticism, appearance magazines and the internalisation of appearance ideals. *Journal of Adolescent Research, 19*, 323-339. https://doi.org/10.1177/0743558403258847

Lawler, M., & Nixon, E. (2011). Body dissatisfaction among adolescent boys and girls: the effects of body mass, peer appearance culture and internalization of appearance ideals. *Journal of youth and adolescence, 40* (1), 59-71. https://doi.org/10.1007/s10964-009-9500-2

Lemoine, J. E., Konradsen, H., Lunde-Jensen, A., Roland-Lévy, C., Ny, P., Khalaf, A., & Torres, S. (2018). Factor structure and psychometric properties of the Body Appreciation Scale-2 among adolescents and young adults in Danish, Portuguese, and Swedish. *Body Image, 26*, 1-9. https://doi.org/10.1016/j.bodyim.2018.04.004

Lima, C. (2012). Contributo para a validação da versão portuguesa do questionário SCOFF para deteção de casos de perturbação do comportamento alimentar [Contribution for the validation of the Portuguese version of SCOFF for screening eating disorders]. (*Unpublished master thesis).* Faculty of Psychology and Educational Sciences, University of Porto.

Machado, P. P., Gonçalves, S., Martins, C., & Soares, I. C. (2001). The Portuguese version of the Eating Disorders Inventory: Evaluation of its psychometric properties. European Eating Disorders Review, 9(1), 43-52. https://doi.org/10.1002/erv.359

McArthur, L. H., Holbert, D., & Peña, M. (2005). An exploration of the attitudinal and perceptual dimensions of body image among male and female adolescents from six latin american cities. *Adolescence, 40* (160), 801-816.

Meland, E., Haugland, S., & Breidablik, H. J. (2007). Body image and perceived health in adolescence. *Health Education Research, 22* (3), 342-350. https://doi.org/10.1093/her/cyl085

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.

Monteiro, A. M. (2017). *O Programa "Dove, Eu, confiante": A perspetiva de alunos e professores*. (Tese de Mestrado). Faculdade de Psicologia e de Ciências da Educação da Universidade do Porto, Porto.

Morgan, J. F., Reid, F., & Lacey, J. H. (1999). The SCOFF questionnaire: Assessment of a new screening tool for eating disorders. *British Medical Journal, 319*, 1467-1467.

Neumark-Sztainer, D., Hannan, P. J., Story, M., & Perry, C. L. (2004). Weight-control behaviors among adolescent girls and boys: implications for dietary intake. *Journal of The American Dietetic Association, 104,* 913–920. https://doi.org/10.1016/j.jada.2004.03.021

Neumark-Sztainer, D., Paxton, S. J., Hannan, P. J., Stat, H. M., Haines, J., & Story, M. (2006). Does body satisfaction matter? Five-year longitudinal associations between body satisfaction and health behaviors in adolescent females and males. *Journal of Adolescent Health, 39* (2), 244-251. https://doi.org/10.1016/j.jadohealth.2005.12.001

Neumark-Sztainer, D., Story, M., Hannan, P. J., Perry, C. L., & Irving, L. M. (2002). Weight-related concerns and behaviors among overweight and nonoverweight adolescents: Implications for preventing weight-related disorders. *Archives of pedriatics & adolescent medicine, 156* (2), 171-178.

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

O'Dea, J. A., & Caputi, P. (2001). Association between socioeconomic status, weight, age and gender, and the body image and weight control practices of 6-to 19-year-old

children and adolescents. *Health education research*, *16* (5), 521-532. https://doi.org/10.1093/her/16.5.521

Paxton, S. J. (2013). *Body image, eating disorder and depressive symptom outcomes follow a school-based body image prevention intervention: A one year follow-up study.* La Trobe University School of Psychological Science.

Paxton, S. J., Neumark-Sztainer, D., Hannan, P. J., & Eisenberg, M. E. (2006). Body dissatisfaction prospectively predicts depressive mood and low self-esteem in adolescent girls and boys. *Journal of clinical child and adolescent psychology*, *35*(4), 539-549. https://doi.org/10.1207/s15374424jccp3504_5

Pereira, A., & Patrício, T. (2020). *SPSS – Guia Prático de Utilização: Análise de dados para ciências sociais e psicologia* (8ª ed.). Edições Sílabo.

Pessoa, V. (2010). Insatisfação corporal e as influências dos meios de comunicação face à aparência, controlo do peso e obesidade (Unpublished master thesis). Universidade Lusófona de Humanidades e Tecnologias

Rapee, R. M., Oar, E. L., Johnco, C. J., Forbes, M. K., Fardouly, J., Magson, N. R., & Richardson, C. E. (2019). Adolescent development and risk for the onset of social-emotional disorders: A review and conceptual model. *Behaviour Research and Therapy*. https://doi.org/10.1016/j.brat.2019.103501

Richardson, S. M., & Paxton, S. J. (2010). An evaluation of a body image intervention based on risk factors for body dissatisfaction: A controlled study with adolescent girls. *International Journal of Eating Disorders*, *43* (2), 112-122. https://doi.org/10.1002/eat.20682

Rousseau, A., & Eggermont, S. (2018). Media ideals and early adolescents' bodyimage: Selective avoidance or selective exposure? *Body Image, 26,* 50–59. http://dx.doi.org/10.1016/j.bodyim.2018.06.001

Roy, M., & Payette, H. (2012). The body image construct among Western seniors: A systematic review of the literature. *Archives of gerontology and geriatrics*, *55* (3), 505-521. https://doi.org/10.1016/j.archger.2012.04.007

Rueda, G. E., Diaz, L. A., Campo, A., Barros, J. A., Avila, G. C., Oróstegui, L. T., Osorio, B. C., & Cadena, L. P. (2005). Validación de la encuesta SCOFF para tamizaje de trastornos de la conducta alimentaria en mujeres universitarias. *Biomédica, 25* (2), 196-202.

Santana, M. L. P., Silva, R. C. R., Assis, A. M. O., Raich, R. M., Machado, M. E. M., Pinto, E. J., Moraes, L. T. L. P., & Júnior, H. C. R. (2013). Factors associated with body image dissatisfaction among adolescents in public schools students in Salvador, Brazil. *Nutrición Hospitalaria*, *28* (3), 747-755.

Santos, P. J., & Maia, J. (2003). Análise factorial confirmatória e validação preliminar de uma versão portuguesa da escala de auto-estima de Rosenberg. *Psicologia: Teoria, Investigaçäo e Prática, 2*, 253-268.

Schneider, S., Weiß, M., Thiel, A., Werner, A., Mayer, J., Hoffman, H., GOAL Study Group, & Diehl, K. (2013). Body dissatisfaction in female adolescents: extent and correlates. *European Journal of Pediatrics, 172* (3), 373-384.

Shagar, P. S., Harris, N., Boddy, J., & Donovan, C. L. (2018). The relationship between body image concerns and weight-related behaviours of adolescents and emerging adults: A systematic review. *Behaviour Change, 34* (4), 208-252. https://doi.org/10.1017/bec.2018.3

Skemp-Arlt, K. M. (2006). Body image dissatisfaction and eating disturbances among children and adolescents: Prevalence, risk factors, and prevention strategies. *Journal of Physical Education, Recreation & Dance, 77* (1), 45-51. https://doi.org/10.1080/07303084.2006.10597813

Steinberg, L. (2014). *Age of opportunity. Lessons from the new science of adolescence*. New York: Houghton Mifflin Harcourt Publishing Company.

Stice, E. (2002). Risk and maintenance factors for eating pathology: a meta-analytic review. *Psychological bulletin*, *128* (5), 825. https://doi.org/10.1037/0033-2909.128.5.825

Stice, E., & Bearman, S. K. (2001). Body image and eating disturbances prospectively predict growth in depressive symptoms in adolescent girls: A growth curve analysis. *Developmental Psychology, 37*, 597-607. https://doi.org/10.1037/0012-1649.37.5.597

Streiner, D. L. (2003). Being inconsistent about consistency: When coefficient alpha does and doesn't matter. *J Pers Assess*, *80*, 217-222.

Thompson, J. K., Heinberg, L. J., Altabe, M., & Tantleff-Dunn, S. (1999). *Exacting beauty: Theory, assessment, and treatment of body image disturbance*. American Psychological Association. https://doi.org/10.1037/10312-000

Thompson, J. K., van den Berg, P., Roehrig, M., Guarda, A. S., & Heinberg, L. J. (2004). The Sociocultural attitudes Towards Appearance scale-3 (SATAQ-3): development and validation. *International Journal of Eating Disorders, 35*, 293-304. https://doi.org/10.1002/eat.10257

Torres, S. (2021). School-based body image intervention: Overcoming challenges to dissemination. *Journal of Adolescent Health, 68* (2), 229-230. https://doi.org/10.1016/j.jadohealth.2020.11.002

Tylka, T. L. (2011). Positive psychology perspectives on body image. In T. F. Cash &L. Smolak (Eds.), *Body image: A handbook of science, practice, and prevention* (pp. 56–64). Guilford Press.

Tylka, T. L., & Van Diest, A. M. K. (2013). The intuitive eating scale-2: Item refinement and psychometric evaluation with college women and men. *Journal of Counselling Psychology*, *60* (1), 137-153. https://doi.org/10.1037/a0030893

Tylka, T. L., & Wood-Barcalow, N. L. (2015). The Body Appreciation Scale-2: item refinement and psychometric evaluation. *Body image*, *12*, 53-67. https://doi.org/10.1016/j.bodyim.2014.09.006

Van Strien, T., Frijters, J. E. R., Bergers, G., & 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), 295-315. https://doi.org/10.1002/1098108X(198602)5:2<295::AIDEAT2260050209>3.0.CO;2-T

Valois, D. D., Davis, C. G., Buchholz, A., Obeid, N., Henderson, K., Flament, M., & Goldfield, G. S. (2019). Effects of weight teasing and gender on body esteem in youth: A longitudinal analysis from the real study. *Body Image*, *29*, 65-73. https://doi.org/10.1016/j.bodyim.2019.02.009

Viana, V., & Sinde, S. (2003). Estilo Alimentar: Adaptação e validação do Questionário Holandês do Comportamento Alimentar. *Psicologia: Teoria, Investigação e Prática, 1*, 59-71.

Vieira, F. M., Torres, S., Matos, J., Dias, S., Pinto, A., Lima, E., Nogueira, E., & Barbosa, R. (2018, June). Psychometric properties of measures of appearance comparisons, conversations, and sociocultural pressures in Portuguese adolescents. *Poster presented at the Appearance Matters 8 Conference*, Bath, UK.

Vocks, S., Hechler, T., Rohrig, S., & Legenbauer, T. (2009). Effects of a physical exercise session on state body image: The influence of pre-experimental body dissatisfaction and concerns about weight and shape. *Psychology and Health*, *24* (6), 713-728. https://doi.org/10.1080/08870440801998988

Wahida, W. M. Z., Lai, P. S. M., & Hadi, H. A. (2017). Validity and reliability of the english version of the sick, control, one stone, fat, food (SCOOF) in Malaysia. *Clinical Nutrition ESPEN*, *18*, 55-58.

Wasylkiw, L., MacKinnon, A. L., & MacLellan, A. M. (2012). Exploring the link between self-compassion and body image in university women. *Body Image*, *9* (2), 236-245. https://doi.org/10.1016/j.bodyim.2012.01.007

Williams, J. M., & Currie, C. (2000). Self-esteem and physical development in early adolescence: Pubertal timing and body image. *The Journal of Early Adolescence*, *20* (2), 129-149. https://doi.org/10.1177/0272431600020002002

Wilksch, S. M. (2014). Where did universal eating disorder prevention go?. *Eating disorders*, *22* (2), 184-192. https://doi.org/10.1080/10640266.2013.864889

Wood-Barcalow, N. L., Tylka, T. L., & Augustus-Horvath, C. L. (2010). "But I like my body": Positive body image characteristics and a holistic model for young-adult women. *Body image*, *7* (2), 106-116. https://doi.org/10.1016/j.bodyim.2010.01.001

World Health Organization (2018). *Differences in body image*. https://gateway.euro.who.int/en/indicators/hbsc_19-body-image/

Yager, Z., Diedrichs, P. C., Ricciardelli, L. A., & Halliwell, E. (2013). What works in secondary schools? A systematic review of classroom-based body image programs. *Body Image*, *10*, 271-281. http://dx.doi.org/10.1016/j.bodyim.2013.04.001

Zametkin, A. J., Zoon, C. K., Klein, H. W., & Munson, S. (2004). Psychiatric aspects of child and adolescent obesity: a review of the past 10 years. *Focus*, *43* (4), 134-641. https://doi.org/10.1176/foc.2.4.625

Supplementary Material

Table S1.
Internalization of general appearance ideals

		Number of parameters	AIC
Repeated Effects	**Diagonal**	**11**	**6833**
	Unstructured	21	10522
	AR (1)	7	10704

Table S2.
Estimates of fixed effects for internalization of general appearance ideals

	B	***SE***	***p***	**95% Confidence Interval** (Lower Bound; Upper Bound)
Intercept	2.081	0.033	<.001	(2.016; 2.146)
Time	-0.067	0.012	<.001	(-0.091; -0.043)
Quadratic time	0.004	0.001	<.001	(0.002; 0.006)

Table S3.
Internalization of athletic appearance ideals

		Number of parameters	AIC
Repeated Effects	**Diagonal**	**11**	**5712**
	Unstructured	21	6948
	AR (1)	7	5712

Table S4.
Estimates of fixed effects for internalization of athletic appearance ideals

	B	***SE***	***p***	**95% Confidence Interval** (Lower Bound; Upper Bound)
Intercept	2.538	0.038	<.001	(2.464; 2.611)
Time	-0.144	0.013	<.001	(-0.169; -0.119)
Quadratic time	0.009	0.001	<.001	(0.007; 0.011)

Table S5.
Body esteem (weight satisfaction)

		Number of parameters	AIC
Repeated Effects	Diagonal	11	4873
	Unstructured	**21**	**4732**
	AR (1)	7	4916

Table S6.
Estimates of fixed effects for body esteem (weight satisfaction)

	B	***SE***	***p***	**95% Confidence Interval** (Lower Bound; Upper Bound)
Intercept	2.326	0.023	<.001	(2.281; 2.372)
Time	0.021	0.012	.078	(-0.002; 0.044)
Quadratic time	-0.002	0.001	.032	(-0.004; -0.000)

Table S7.
Body esteem (satisfaction with appearance)

		Number of parameters	AIC
Repeated Effects	Diagonal	11	4251
	Unstructured	21	5191
	AR (1)	**7**	**4426**

Table S8.
Estimates of fixed effects for body esteem (satisfaction with appearance)

	B	***SE***	***p***	**95% Confidence Interval** (Lower Bound; Upper Bound)
Intercept	2.283	0.029	<.001	(2.226; 2.340)
Time	0.061	0.010	<.001	(0.042; 0.081)
Quadratic time	-0.005	0.001	<.001	(-0.006; -0.003)

Table S9.
Body esteem

		Number of parameters	AIC
Repeated Effects	Diagonal	11	3688
	Unstructured	21	5036
	AR (1)	**7**	**3684**

Table S10.
Estimates of fixed effects for body esteem

	B	***SE***	***p***	**95% Confidence Interval** (Lower Bound; Upper Bound)
Intercept	2.308	0.028	<.001	(2.253; 2.364)
Time	0.044	0.008	<.001	(0.029; 0.060)
Quadratic time	-0.004	0.001	<.001	(-0.005; -0.002)

Table S11.
Body dissatisfaction

		Number of parameters	AIC
Repeated Effects	**Diagonal**	**11**	**5416**
	Unstructured	21	6256
	AR (1)	7	5417

Table S12.
Estimates of fixed effects for body dissatisfaction

	B	***SE***	***p***	**95% Confidence Interval** (Lower Bound; Upper Bound)
Intercept	2.635	0.037	<.001	(2.561; 2.708)
Time	-0.041	0.011	<.001	(-0.064; -0.019)
Quadratic time	0.004	0.001	<.001	(0.002; 0.005)

Table S13.
Self-esteem

		Number of parameters	AIC
Repeated Effects	Diagonal	11	2648
	Unstructured	21	2646
	AR (1)	**7**	**2645**

Table S14.
Estimates of fixed effects for self-esteem

	B	***SE***	***p***	**95% Confidence Interval** (Lower Bound; Upper Bound)
Intercept	3.126	0.021	<.001	(3.085; 3.167)
Time	0.055	0.006	<.001	(0.042; 0.067)
Quadratic time	-0.004	0.001	<.001	(0.005; -0.003)

Table S15.
Social appearance comparisons

		Number of parameters	AIC
Repeated Effects	Diagonal	11	5081
	Unstructured	21	6212
	AR (1)	**7**	**5077**

Table S16.
Estimates of fixed effects for social appearance comparisons

	B	***SE***	***p***	**95% Confidence Interval** (Lower Bound; Upper Bound)
Intercept	2.133	0.034	<.001	(2.066; 2.200)
Time	-0.093	0.012	<.001	(-0.115; -0.070)
Quadratic time	0.005	0.001	<.001	(0.004; 0.007)

Table S17.
Appearance-related teasing (frequency)

		Number of parameters	AIC
Repeated Effects	**Diagonal**	**11**	**4175**
	Unstructured	21	5351
	AR (1)	7	4222

Table S18.
Estimates of fixed effects for appearance-related teasing (frequency)

	B	***SE***	***p***	**95% Confidence Interval** (Lower Bound; Upper Bound)
Intercept	1.397	0.027	<.001	(1.344; 1.451)
Time	-0.020	0.010	0.033	(-0.039; -0.002)
Quadratic time	0.001	0.001	0.090	(-0.000; 0.003)

Table S19.
Appearance-related teasing (impact)

		Number of parameters	AIC
Repeated Effects	**Diagonal**	**11**	**5412**
	Unstructured	21	6238
	AR (1)	7	5462

Table S20.
Estimates of fixed effects for appearance-related teasing (impact)

	B	***SE***	***p***	**95% Confidence Interval** (Lower Bound; Upper Bound)
Intercept	1.585	0.039	<.001	(1.509; 1.661)
Time	-0.067	0.013	<.001	(-0.092; -0.041)
Quadratic time	0.004	0.001	<.001	(0.002; 0.006)

Table S21.
Sociocultural pressures

		Number of parameters	AIC
Repeated Effects	Diagonal	11	3316
	Unstructured	**21**	**3313**
	AR (1)	7	3335

Table S22.
Estimates of fixed effects for sociocultural pressures

	B	***SE***	***p***	**95% Confidence Interval** (Lower Bound; Upper Bound)
Intercept	1.389	0.022	<.001	(1.346; 1.433)
Time	-0.024	0.008	.002	(-0.040; -0.009)
Quadratic time	0.002	0.001	.018	(0.000; 0.003)

Table S23.
Perception of sociocultural pressures (impact)

		Number of parameters	AIC
Repeated Effects	Diagonal	11	3918
	Unstructured	**21**	**3903**
	AR (1)	7	3980

Table S24.
Estimates of fixed effects for perception of sociocultural pressures (impact)

	B	***SE***	***p***	**95% Confidence Interval** (Lower Bound; Upper Bound)
Intercept	1.506	0.030	<.001	(1.346; 1.433)
Time	-0.061	0.010	<.001	(-0.080; -0.042)
Quadratic time	0.004	0.001	<.001	(0.002; 0.005)

Table S25.
Appearance conversations with friends

		Number of parameters	AIC
Repeated Effects	**Diagonal**	**11**	**5554**
	Unstructured	21	6930
	AR (1)	7	5576

Table S26.
Estimates of fixed effects for appearance conversations with friends

	B	***SE***	***p***	**95% Confidence Interval** (Lower Bound; Upper Bound)
Intercept	2.132	0.036	<.001	(2.063; 2.202)
Time	0.018	0.012	.138	(-0.006; 0.042)
Quadratic time	-0.001	0.001	.295	(-0.003; 0.001)

Table S27.
Negative affect

		Number of parameters	AIC
Repeated Effects	Diagonal	11	4667
	Unstructured	21	5841
	AR (1)	**7**	**4467**

Table S28.
Estimates of fixed effects for negative affect

	B	***SE***	***p***	**95% Confidence Interval** (Lower Bound; Upper Bound)
Intercept	1.640	0.029	<.001	(1.583; 1.697)
Time	0.006	0.010	.553	(-0.027; 0.014)
Quadratic time	-0.001	0.001	.153	(-0.001; 0.003)

Table S29.
Positive affect

		Number of parameters	AIC
Repeated Effects	Diagonal	11	5673
	Unstructured	21	6960
	AR (1)	**7**	**5667**

Table S30.
Estimates of fixed effects for positive affect

	B	***SE***	***p***	**95% Confidence Interval** (Lower Bound; Upper Bound)
Intercept	3.397	0.036	<.001	(3.866; 4.007)
Time	0.046	0.014	<.001	(0.019; 0.072)
Quadratic time	-0.003	0.001	.006	(-0.005; -0.001)

Table S31.
Eating disorder behavior

		Number of parameters	AIC
Repeated Effects	**Diagonal**	**11**	**8149**
	Unstructured	21	10904
	AR (1)	7	8292

Table S32.
Estimates of fixed effects for eating disorder behavior

	B	***SE***	***p***	**95% Confidence Interval** (Lower Bound; Upper Bound)
Intercept	0.910	0.038	<.001	(0.835; 0.986)
Time	-0.136	0.012	<.001	(-0.160; -0.112)
Quadratic time	0.007	0.001	<.001	(0.005; 0.009)

Table S33.
Appearance-related life engagement

		Number of parameters	AIC
Repeated Effects	**Diagonal**	**11**	**1084**
	Unstructured	21	2715
	AR (1)	7	1099

Table S34.
Estimates of fixed effects for appearance-related life engagement

	B	***SE***	***p***	**95% Confidence Interval** (Lower Bound; Upper Bound)
Intercept	1.129	0.012	<.001	(0.835; 0.986)
Time	-0.005	0.005	.262	(-0.160; -0.112)
Quadratic time	0.000	0.000	.545	(0.005; 0.009)

Table S35.
Dietary restraint

		Number of parameters	AIC
Repeated Effects	Diagonal	11	4894
	Unstructured	21	5122
	AR (1)	**7**	**4881**

Table S36.
Estimates of fixed effects for dietary restraint

	B	***SE***	***p***	**95% Confidence Interval** (Lower Bound; Upper Bound)
Intercept	1.176	0.034	<.001	(1.703; 1.834)
Time	-0.051	0.011	<.001	(-0.073; -0.030)
Quadratic time	0.003	0.001	<.001	(0.002; 0.005)

Table S37.
Positive Body Image

		Number of parameters	AIC
Repeated Effects	**Diagonal**	**11**	**5833**
	Unstructured	21	7117
	AR (1)	7	5833

Table S38.
Estimates of fixed effects for positive body image

	B	***SE***	***p***	**95% Confidence Interval** (Lower Bound; Upper Bound)
Intercept	3.977	0.037	<.001	(3.904; 4.050)
Time	0.040	0.013	.002	(0.014; 0.065)
Quadratic time	-0.003	0.001	.003	(-0.005; -0.001)

TableS39.
Intraclass Correlation Coefficient

Independent variables	***ICC***
Internalization of general appearance ideals	0.063
Internalization of athletic appearance ideals	0.501
Body esteem (weight satisfaction)	0.593
Body esteem (satisfaction with appearance)	0.534
Body esteem (global)	0.687
Body dissatisfaction	0.622
Self-esteem	0.630
Social appearance comparisons	0.537
Appearance-related teasing (frequency)	0.471
Appearance-related teasing (impact)	0.484
Sociocultural pressures	0.466
Perception of sociocultural pressures (impact)	0.524
Appearance conversations	0.541
Negative affect	0.504
Positive affect	0.455
Eating disorder behavior	0.228
Appearance-related life engagement	0.402
Dietary restraint	0.585
Positive body image	0.500

Table S40.
Estimates of fixed effects applying mixed model analysis to internalization of general appearance ideals

Outcomes	***B***	***SE***	***p***	**95% Confidence Interval** (Lower bound; Upper Bound)
Intercept	**2.145**	**0.066**	**<.001**	**(2.015; 2.275)**
Time	-0.049	0.029	.088	(-0.105; 0.007)
Quadratic time	0.003	0.002	.267	(-0.002; 0.007)
Group*	0.067	0.066	.315	(-0.064; 0.197)
Gender**	**-0.153**	**0.066**	**.021**	**(-0.282; -0.023)**
Year level***	-0.060	0.066	362	(-0.190; 0.070)
Time * Group	0.001	0.033	.970	(-0.064; 0.066)
Time * Gender	-0.056	0.035	.110	(-0.125; 0.013)
Time * Year level	-0.003	0.025	.916	(-0.051; 0.046)
Time * Group * Gender	0.050	0.045	.270	(-0.039; 0.138)
Quadratic time * Group	-0.000	0.003	.955	(-0.005; 0.005)
Quadratic time * Gender	0.005	0.003	.091	(-0.001; 0.010)
Quadratic time * Year level	0.001	0.002	.636	(-0.003; 0.005)
Quadratic time * Group * Gender	-0.004	0.004	.260	(-0.011; 0.003)

*0 = control; 1 = experimental.
** 0 = girls; 1 = boys.
*** 0 = 7th grade; 1 = 8th grade.

Table S41.
Estimates of fixed effects applying mixed model analysis to internalization of athletic appearance ideals

Outcomes	***B***	***SE***	***p***	**95% Confidence Interval** (Lower bound; Upper Bound)
Intercept	**2.375**	**0.075**	**<.001**	**(2.227; 2.524)**
Time	**-0.098**	**0.030**	**.001**	**(-0.156; 0.039)**
Quadratic time	**0.007**	**0.002**	**.004**	**(0.002; 0.011)**
Group*	0.090	0.076	.233	(-0.058; 0.239)
Gender**	**0.275**	**0.075**	**<.001**	**(0.127; 0.423)**
Year level***	-0.079	0.075	.296	(-0.227; 0.069)
Time * Group	-0.010	0.034	.778	(-0.077; 0.058)
Time * Gender	**-0.074**	**0.037**	**.042**	**(-0.146; -0.003)**
Time * Year level	-0.006	0.026	.831	(-0.057; 0.046)
Time * Group * Gender	0.003	0.045	.954	(-0.087; 0.092)
Quadratic time * Group	0.001	0.003	.771	(-0.004; 0.006)
Quadratic time * Gender	0.003	0.003	.340	(-0.003; 0.008)
Quadratic time * Year level	0.001	0.002	.732	(-0.003; 0.005)
Quadratic time * Group * Gender	0.001	0.004	.886	(-0.007; 0.008)

*0 = control; 1 = experimental.
** 0 = girls; 1 = boys.
*** 0 = 7th grade; 1 = 8th grade.

Table S42.
Estimates of fixed effects applying mixed model analysis to body esteem (weight satisfaction)

Outcomes	***B***	***SE***	***p***	**95% Confidence Interval** (Lower bound; Upper Bound)
Intercept	**2.323**	**0.040**	**<.001**	**(2.244; 2.402)**
Time	0.013	0.016	.399	(-0.018; 0.044)
Quadratic time	**-0.004**	**0.002**	**.013**	**(-0.008; -0.001)**
Group*	**0.170**	**0.040**	**<.001**	**(-0.092; 0.249)**
Gender**	**-0.192**	**0.040**	**<.001**	**(-0.270; -0.113)**
Year level***	0.026	0.040	.513	(-0.052; 0.105)
Quadratic time * Group	-0.003	0.002	.178	(-0.006; 0.001)
Quadratic time * Gender	**0.006**	**0.002**	**.004**	**(0.002; 0.010)**
Quadratic time * Year level	0.002	0.001	.255	(-0.001; 0.005)
Quadratic time * Group * Gender	**-0.007**	**0.003**	**.014**	**(-0.013; -0.001)**

*0 = control; 1 = intervention.
** 0 = girls; 1 = boys.
*** 0 = 7th grade; 1 = 8th grade.

Table S43.
Estimates of fixed effects applying mixed model analysis to body esteem (satisfaction with appearance)

Outcomes	***B***	***SE***	***p***	**95% Confidence Interval** (Lower bound; Upper Bound)
Intercept	**2.275**	**0.062**	**<.001**	**(2.153; 2.397)**
Time	**0.050**	**0.024**	**.036**	**(0.003; 0.097)**
Quadratic time	**-0.004**	**0.002**	**.016**	**(-0.008; -0.001)**
Group*	**0.342**	**0.062**	**<.001**	**(0.219; 0.464)**
Gender**	**-0.369**	**0.062**	**<.001**	**(-0.491; -0.247)**
Year level***	0.057	0.062	.362	(-0.065; 0.179)
Time * Group	**-0.058**	**0.027**	**.031**	**(-0.111; 0.005)**
Time * Gender	**0.089**	**0.028**	**.002**	**(0.034; 0.145)**
Time * Year level	-0.003	0.021	.905	(-0.044; 0.039)
Time * Group * Gender	-0.018	0.033	.592	(-0.083; 0.048)
Quadratic time * Group	0.003	0.002	.122	(-0.001; 0.007)
Quadratic time * Gender	**-0.005**	**0.002**	**.013**	**(-0.010; -0.001)**
Quadratic time * Year level	0.001	0.002	.696	(-0.003; 0.004)
Quadratic time * Group * Gender	0.002	0.003	.476	(-0.003; 0.007)

*****0 = control; 1 = intervention.
****** 0 =girls; 1 = boys.
*** 0 = 7th grade; 1 = 8th grade.

Table S44.
Estimates of fixed effects applying mixed model analysis to body esteem (global)

Outcomes	***B***	***SE***	***p***	**95% Confidence Interval** (Lower bound; Upper Bound)
Intercept	**2.303**	**0.055**	**<.001**	**(2.195; 2.412)**
Time	0.026	0.019	.164	(-0.011; 0.063)
Quadratic time	-0.003	0.002	.070	(-0.006; 0.000)
Group*	0.250	0.056	<.001	(0.141; 0.359)
Gender**	**-0.308**	**0.055**	**<.001**	**(-0.416; -0.199)**
Year level***	0.051	0.055	.358	(-0.058; 0.160)
Time * Group	0.009	0.022	.676	(-0.034; 0.053)
Time * Gender	-0.007	0.023	.777	(-0.052; 0.039)
Time * Year level	0.021	0.016	.210	(-0.012; 0.053)
Time * Group * Gender	0.016	0.030	.583	(-0.042; 0.075)
Quadratic time * Group	-0.001	0.002	.562	(-0.005; 0.002)
Quadratic time * Gender	0.001	0.001	.578	(-0.003; 0.005)
Quadratic time * Year level	-0.001	0.001	.663	(-0.003; 0.002)
Quadratic time * Group * Gender	-0.001	0.002	.611	(-0.006; 0.004)

*0 = control; 1 = intervention.
****** 0 = girls; 1 = boys.
*** 0 = 7th grade; 1 = 8th grade.

Table S45.
Estimates of fixed effects applying mixed model analysis to body dissatisfaction

Outcomes	***B***	***SE***	***p***	**95% Confidence Interval** (Lower bound; Upper Bound)
Intercept	**2.734**	**0.075**	**<.001**	**(2.586; 2.882)**
Time	-0.009	0.027	.733	(-0.063; 0.044)
Quadratic time	0.002	0.002	.355	(-0.002; 0.006)
Group*	-0.101	0.076	.182	(-0.250; 0.047)
Gender**	-0.111	0.075	.140	(-0.259; 0.037)
Year level***	0.028	0.075	.709	(-0.120; 0.177)
Time * Group	-0.007	0.032	.838	(-0.069; 0.056)
Time * Gender	-0.032	0.034	.338	(-0.099; 0.034)
Time * Year level	**-0.048**	**0.023**	**.042**	**(-0.094; -0.002)**
Time * Group * Gender	0.055	0.043	.200	(-0.029; 0.140)
Quadratic time * Group	9.48E-5	0.003	.970	(-0.005; 0.005)
Quadratic time * Gender	0.001	0.003	.734	(-0.004; 0.006)
Quadratic time * Year level	0.003	0.002	.088	(-0.001; 0.007)
Quadratic time * Group * Gender	-0.003	0.003	.468	(-0.009; 0.004)

*0 = control; 1 = intervention.
** 0 = girls; 1 = boys.
*** 0 = 7th grade; 1 = 8th grade.

Table S46.
Estimates of fixed effects applying mixed model analysis to self-esteem

Outcomes	***B***	***SE***	***p***	**95% Confidence Interval** (Lower bound; Upper Bound)
Intercept	**3.096**	**0.042**	**<.001**	**(3.014; 3.178)**
Time	**0.044**	**0.015**	**.003**	**(0.015; 0.074)**
Quadratic time	**-0.004**	**0.001**	**.002**	**(-0.006; -0.001)**
Group*	**-0.103**	**0.042**	**.014**	**(-0.186; -0.021)**
Gender**	**0.193**	**0.042**	**<.001**	**(0.111; 0.276)**
Year level***	-0.034	0.042	.421	(-0.116; 0.049)
Time * Group	0.031	0.018	.084	(-0.004; 0.065)
Time * Gender	0.016	0.019	.391	(-0.021; 0.052)
Time * Year level	-0.006	0.013	.634	(-0.032; 0.019)
Time * Group * Gender	-0.036	0.024	.130	(-0.082; 0.011)
Quadratic time * Group	-0.003	0.001	.080	(-0.005; 0.000)
Quadratic time * Gender	-0.001	0.002	.708	(-0.004; 0.002)
Quadratic time * Year level	0.002	0.001	.111	(-0.000; 0.004)
Quadratic time * Group * Gender	0.002	0.002	.371	(-0.002; 0.006)

*****0 = control; 1 = intervention.
****** 0 = girls; 1 = boys.
*** 0 = 7th grade; 1 = 8th grade.

Table S47.
Estimates of fixed effects applying mixed model analysis to social appearance comparisons

Outcomes	***B***	***SE***	***p***	**95% Confidence Interval** (Lower bound; Upper Bound)
Intercept	**2.199**	**0.068**	**<.001**	**(2.065; 2.332)**
Time	**-0.106**	**0.027**	**<.001**	**(-0.159; -0.052)**
Quadratic time	**0.007**	**0.002**	**<.001**	**(0.003; 0.012)**
Group*	**0.181**	**0.068**	**.008**	**(0.046; 0.315)**
Gender**	**-0.338**	**0.068**	**<.001**	**(-0.472; -0.205)**
Year level***	0.008	0.068	.911	(-0.126; 0.142)
Time * Group	0.012	0.032	.702	(-0.050; 0.074)
Time * Gender	0.034	0.033	.311	(-0.032; 0.099)
Time * Year level	0.002	0.024	.950	(-0.045; 0.048)
Time * Group * Gender	-0.043	0.042	.303	(-0.125; 0.039)
Quadratic time * Group	-0.002	0.003	.475	(-0.007; 0.003)
Quadratic time * Gender	-0.004	0.003	.182	(-0.009; 0.002)
Quadratic time * Year level	-9.9E-5	0.002	.958	(-0.004; 0.004)
Quadratic time * Group * Gender	0.003	0.004	.352	(-0.004; 0.010)

*****0 = control; 1 = intervention.
****** 0 = girls; 1 = boys.
*** 0 = 7th grade; 1 = 8th grade.

Table S48.
Estimates of fixed effects applying mixed model analysis to appearance-related teasing (frequency)

Outcomes	***B***	***SE***	***p***	**95% Confidence Interval** (Lower bound; Upper Bound)
Intercept	**1.351**	**0.051**	**.001**	**(1.251; 1.452)**
Time	-0.019	0.012	.109	(-0.041; 0.004)
Quadratic time	0.001	0.001	.104	(-0.000; 0.003)
Group*	**0.155**	**0.050**	**.002**	**(0.056; 0.253)**
Gender**	-0.100	0.050	.046	(-0.199; -0.002)
Year level***	-0.026	0.050	.602	(-0.072; 0.125)
Time * Group	-0.003	0.009	.729	(-0.020; 0.014)
Time * Gender	0.003	0.009	.744	(-0.015; 0.021)
Time * Year level	-0.001	0.007	.899	(-0.014; 0.013)
Time * Group * Gender	-0.001	0.012	.941	(-0.024; 0.022)

*****0 = control; 1 = intervention.
** 0 = girls; 1 = boys.
*** 0 = 7th grade; 1 = 8th grade.

Table S49.
Estimates of fixed effects applying mixed model analysis to appearance-related teasing (impact)

Independent variables	***B***	***SE***	***p***	**95% Confidence Interval** (Lower bound; Upper Bound)
Intercept	**1.580**	**0.077**	**<.001**	**(1.428; 1.731)**
Time	**-0.064**	**0.030**	**.034**	**(-0.123; -0.005)**
Quadratic time	0.004	0.002	.054	(-7.5E-5; 0.009)
Group*	**0.176**	**0.078**	**.024**	**(0.023; 0.329)**
Gender**	**-0.246**	**0.078**	**.002**	**(-0.398; -0.094)**
Year level***	0.073	0.078	.348	(-0.080; 0.226)
Time * Group	0.018	0.034	.601	(-0.049; 0.085)
Time * Gender	0.035	0.036	.323	(-0.035; 0.106)
Time * Year level	-0.042	0.027	.113	(-0.095; 0.010)
Time * Group * Gender	-0.030	0.043	.483	(-0.115; 0.054)
Quadratic time * Group	-0.002	0.003	.542	(-0.007; 0.004)
Quadratic time * Gender	-0.003	0.003	.249	(-0.009; 0.002)
Quadratic time * Year level	0.003	0.002	.216	(-0.002; 0.007)
Quadratic time * Group * Gender	0.002	0.004	.533	(-0.005; 0.009)

*****0 = control; 1 = intervention.
****** 0 = girls; 1 = boys.
*** 0 = 7th grade; 1 = 8th grade.

Table S50.
Estimates of fixed effects applying mixed model analysis to sociocultural pressures

Outcomes	***B***	***SE***	***p***	**95% Confidence Interval** (Lower bound; Upper Bound)
Intercept	**1.324**	**0.045**	**<.001**	**(1.236; 1.412)**
Time	-0.010	0.018	.571	(-0.046; 0.026)
Quadratic time	0.001	0.001	.531	(-0.002; 0.004)
Group*	0.080	0.045	.077	(-0.009; 0.168)
Gender**	0.058	0.045	.192	(-0.029; 0.146)
Year level***	-0.021	0.045	.641	(-0.109; 0.067)
Time * Group	-0.009	0.021	.676	(-0.050; 0.032)
Time * Gender	-0.005	0.022	.817	(-0.049; 0.038)
Time * Year level	-0.005	0.016	.757	(-0.037; 0.027)
Time * Group * Gender	0.008	0.027	.762	(-0.061; 0.045)
Quadratic time * Group	0.000	0.002	.862	(-0.003; 0.004)
Quadratic time * Gender	-0.001	0.002	.763	(-0.004; 0.003)
Quadratic time * Year level	0.001	0.001	.600	(-0.002; 0.003)
Quadratic time * Group * Gender	0.001	0.002	.787	(-0.004; 0.005)

*0 = control; 1 = intervention.
** 0 = girls; 1 = boys.
*** 0 = 7th grade; 1 = 8th grade.

Table S51.
Estimates of fixed effects applying mixed model analysis to perception of sociocultural pressures (impact)

Outcomes	***B***	***SE***	***p***	**95% Confidence Interval** (Lower bound; Upper Bound)
Intercept	**1.486**	**0.050**	**<.001**	**(1.388; 1.585)**
Time	-0.031	0.030	.302	(-0.090; 0.028)
Quadratic time	0.002	0.002	.159	(-0.001; 0.005)
Group*	**0.121**	**0.050**	**.017**	**(0.022; 0.219)**
Gender*	**-0.103**	**0.050**	**.041**	**(-0.201; -0.004)**
Year level***	0.035	0.050	.491	(-0.064; 0.133)
Time * Group	-0.046	0.036	.207	(-0.117; 0.026)
Time * Gender	0.006	0.037	.871	(-0.068; 0.080)
Time * Year level	-0.022	0.026	.405	(-0.073; 0.030)
Time * Group * Gender	-0.001	0.048	.991	(-0.096; 0.095)
Quadratic time * Group	**0.004**	**0.002**	**.011**	**(0.001; 0.008)**
Quadratic time * Gender	0.001	0.002	.734	(-0.003; 0.004)
Quadratic time * Year level	-0.001	0.001	.658	(-0.003; 0.002)
Quadratic time * Group * Gender	-0.003	0.002	.289	(-0.007; 0.002)

*****0 = control; 1 = intervention.
****** 0 = girls; 1 = boys.
*** 0 = 7th grade; 1 = 8th grade.

Table S52.
Estimates of fixed effects applying mixed model analysis to positive affect

Outcomes	***B***	***SE***	***p***	**95% Confidence Interval** (Lower bound; Upper Bound)
Intercept	**4.041**	**0.072**	<.001	**(3.900; 4.182)**
Time	0.015	0.031	.634	(-0.047; 0.077)
Quadratic time	-0.002	0.003	.429	(-0.007; 0.003)
Group*	**-0.204**	**0.072**	**.005**	**(-0.345; -0.063)**
Gender**	**0.245**	**0.072**	**<.001**	**(0.104; 0.385)**
Year level***	**-0.252**	**0.072**	**<.001**	**(-0.393; -0.111)**
Time * Group	0.071	0.036	.049	(0.000; 0.142)
Time * Gender	0.026	0.038	.496	(-0.049; 0.100)
Time * Year level	0.022	0.028	.425	(-0.032; 0.076)
Time * Group * Gender	**-0.109**	**0.047**	**.019**	**(-0.200; -0.018)**
Quadratic time * Group	-0.004	0.003	.134	(-0.010; 0.001)
Quadratic time * Gender	0.001	0.003	.749	(-0.001; 0.010)
Quadratic time * Year level	-0.001	0.002	.814	(-0.005; 0.004)
Quadratic time * Group * Gender	0.008	0.004	.052	(7.93E-5; 0.016)

*****0 = control; 1 = intervention.
****** 0 = girls; 1 = boys.
******* 0 = 7th grade; 1 = 8th grade.

Table S53.
Estimates of fixed effects applying mixed model analysis to eating disorder behavior

Outcomes	***B***	***SE***	***p***	**95% Confidence Interval** (Lower bound; Upper Bound)
Intercept	**1.015**	**0.077**	**<.001**	**(0.864; 1.167)**
Time	**-0.192**	**0.027**	**<.001**	**(-0.245; -0.139)**
Quadratic time	**0.011**	**0.002**	**<.001**	**(0.007; 0.015)**
Group*	0.043	0.078	.579	(-0.109; 0.196)
Gender**	**-0.176**	**0.077**	**.023**	**(-0.328; -0.024)**
Year level***	-0.093	0.078	.229	(-0.245; 0.059)
Time * Group	0.047	0.032	.135	(-0.015; 0.109)
Time * Gender	0.061	0.032	.057	(-0.002; 0.124)
Time * Year level	0.048	0.025	.058	(-0.002; 0.097)
Time * Group * Gender	-0.063	0.037	.090	(-0.135; 0.010)
Quadratic time * Group	-0.004	0.002	.098	(-0.009; 0.001)
Quadratic time * Gender	-0.005	0.003	.064	(-0.009; 0.000)
Quadratic time * Year level	-0.003	0.002	.084	(-0.007; 0.000)
Quadratic time * Group * Gender	0.005	0.003	.081	(-0.001; 0.012)

*0 = control; 1 = intervention.
****** 0 = girls; 1 = boys.
*** 0 = 7th grade; 1 = 8th grade.

Table S54.
Estimates of fixed effects applying mixed model analysis to dietary restraint

Outcomes	***B***	***SE***	***p***	**95% Confidence Interval** (Lower bound; Upper Bound)
Intercept	**1.934**	**0.068**	**<.001**	**(1.800; 2.068)**
Time	**-0.062**	**0.026**	**.016**	**(-0.113; -0.012)**
Quadratic time	**0.005**	**0.002**	**.009**	**(0.001; 0.009)**
Group*	-0.062	0.069	.365	(-0.197; 0.072)
Gender**	-0.121	0.068	.076	(-0.255; 0.013)
Year level***	-0.126	0.068	.066	(-0.260; 0.008)
Time * Group	0.009	0.030	.778	(-0.051; 0.068)
Time * Gender	0.012	0.032	.711	(-0.050; 0.074)
Time * Year level	-0.006	0.023	.801	(-0.050; 0.039)
Time * Group * Gender	0.004	0.040	.930	(-0.075; 0.082)
Quadratic time * Group	-0.001	0.002	.605	(-0.006; 0.004)
Quadratic time * Gender	-0.002	0.003	.448	(-0.007; 0.003)
Quadratic time * Year level	-0.001	0.002	.586	(-0.005; 0.003)
Quadratic time * Group * Gender	0.001	0.003	.724	(-0.005; 0.008)

*0 = control; 1 = intervention.
** 0 = girls; 1 = boys.
*** 0 = 7th grade; 1 = 8th grade.

Table S55.
Estimates of fixed effects applying mixed model analysis to positive body image

Outcomes	***B***	***SE***	***p***	**95% Confidence Interval** (Lower bound; Upper Bound)
Intercept	**3.942**	**0.075**	**<.001**	**(3.795; 4.089)**
Time	0.013	0.031	.677	(-0.048; 0.073)
Quadratic time	-0.003	0.003	.250	(-0.008; 0.002)
Group*	-0.078	0.075	.290	(-0.225; 0.069)
Gender**	**0.275**	**0.075**	**<.001**	**(0.128; 0.421)**
Year level***	-0.125	0.075	.095	(-0.272; 0.022)
Time * Group	**0.043**	**0.036**	**.004**	**(-0.026; 0.113)**
Time * Gender	0.031	0.038	.412	(-0.043; 0.105)
Time * Year level	0.021	0.027	.433	(-0.031; 0.073)
Time * Group * Gender	-0.087	0.047	.066	(-0.179; 0.006)
Quadratic time * Group	-0.002	0.003	.436	(-0.008; 0.004)
Quadratic time * Gender	-0.001	0.003	.792	(-0.007; 0.005)
Quadratic time * Year level	-0.001	0.003	.842	(-0.004; 0.005)
Quadratic time * Group * Gender	0.005	0.004	.255	(-0.003; 0.013)

*0 = control; 1 = intervention
** 0 = girls; 1 = boys.
*** 0 = 7^{th} grade; 1 = 8^{th} grade.