The impact of completing body image assessments on adolescents' body image and engagement in body change strategies: Harmful or harmless?

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BODY IMAGE ASSESSMENTS: HARMFUL OR HARMLESS?

Abstract

Objective: Parents and educators have raised concerns that participating in body image research may cause or increase poor body image and engagement in body change strategies. This quasi-experimental study compared body image and body change strategy outcomes among adolescents who had, and had not, previously been exposed to the same assessment questions 6-months prior (twice- vs once-completers). Comparison was also made between groups who completed an assessment containing only positively worded items or both positive and negative items (positive vs mixed valence). **Method:** Boys and girls (N = 1,532, M_{age} = 13.83, SD = 1.18) completed online measures of body dissatisfaction, body appreciation, overvaluation of weight and shape, appearance esteem and body change strategies. **Results:** In regression analyses, neither body image nor body change strategies were predicted by group (completion or valence groups), except lower body dissatisfaction and higher body appreciation among twice-completers. Most participants did not experience individual-level change in body image or body change strategies over 6-months. **Discussion:** Findings suggest that body image assessments may not put adolescents at risk of poor body image or engagement with body change strategies, however; experimental research is needed. Some improvement in body image may have implications for prospective and prevention research.

Keywords: Adolescents, assessment, research, harm, risk, body image

Introduction

Conducting research to examine body image and unhealthy behaviours to pursue weight and shape change among adolescents is important to understand the development of risk factors for, and best approaches to prevent, these concerns and behaviours. Despite this importance, some parents and educators express concerns that participating in body image and disordered eating research may cause short-term distress and or medium to longer-term harm to children and adolescents. Arguments that exposure to items assessing these constructs may either contribute to the development of new concerns or trigger existing concerns have been reported (Damiano et al., 2020). There is also some suggestion that asking adolescents to report disordered eating or body change strategies (e.g., use of diet pills or protein supplements) may inadvertently encourage or inspire such behaviours, a concern raised by schools, the setting in which most research with adolescents takes place (Wilksch & Wade, 2009). These contentions suggest that parents and educators have concern about the potential for ongoing negative implications of young people being exposed to questioning about their body image and eating behaviours. The perception appears to be that the questioning contained in the research may lead to the development of problems that would not otherwise arise in the absence of the research. In addition, from a practical perspective, our research group has been asked by some schools to remove negatively worded items (i.e., overvaluation of weight and shape) and items assessing disordered eating, as they believe these may have a negative impact on students by encouraging negative thoughts and behaviours. These concerns are also reflected within research practice. Specifically, body image research is considered above low risk by ethics committees, indicating the perception that discomfort or harm may result from participating in the research and that specific strategies must be in place in the research protocol to reduce the risk of harm. Given the concerns outlined above and their potential impact on research design, recruitment and implementation, it is imperative that research examines whether assessments of body image and body change behaviours are harmful for adolescents.

Few studies have explored the impact of completing body image assessments on body image or body change behaviours. Celio et al. (2003) examined whether completion of survey items that focused on risky weight control behaviours and attitudes increased incidence of these behaviours among girls aged 11-12 years. Incidence of risky weight control behaviours among participants who completed the survey on one occasion or two occasions over a 1-year period were compared to determine if there were differences between those exposed or not exposed to such items previously. No group differences were found between once- or twice-completers for excessive weight and shape concerns. Interestingly, rates of weight change behaviours, including dieting, starving, skipping meals, use of laxatives/diuretics and vomiting, decreased over time among twice-completers, rather than increased as those with concerns about this kind of research may have predicted. In line with other health risk behaviour literature (Rodgers et al., 2015), it is possible that exposure to these types of assessments may actually help adolescents identify and reappraise such strategies as problematic, and even discourage risky behaviours or encourage help seeking. Although it appears that completing body image assessments demonstrated minimal risk for increased body change behaviours and attitudes (Celio et al., 2003), this claim is based on research conducted almost two decades ago and which only included adolescent girls.

More recently, a study designed to explore parents' perceptions of the impact of participating in body image assessments showed that parents were primarily positive or neutral about their child's participation (Damiano et al., 2020). However, up to 3.2% reported a perceived negative impact on their child, including that assessments were boring or time-consuming, or prompted negative self-evaluations. One recommendation made in the paper to ensure the conduct of safe body image research was that body image surveys should use positively word items and use distractor items to obscure the body image focus (Damiano et al., 2020). It is noted, however, that the focus of this study was primary-school aged children who had participated in research from the age of 3 to 8 years and recommendations may not be applicable to older age groups. Furthermore,

at present, no empirical data exist to support or refute any impact of using negatively worded items among children or adolescents. The current study aims to address this gap.

The two studies above represent the limited research in this domain, and the authors are unaware of any other studies which have tested whether completing body image assessments increases poor body image and body change behaviours in adolescent boys and girls at a later timepoint. Further, as noted above, no research has examined whether participants report different outcomes if completing assessments containing some negatively worded items compared to only positively worded items. Consequently, the present study explored two research questions; (1) is extent of exposure to body image assessments (twice- vs once-completer groups) differentially associated with body image-related outcomes (body dissatisfaction, body appreciation, overvaluation of weight and shape, and appearance esteem) and engagement in body change strategies at 6-months, and (2) is valence of body image assessments (positive vs mixed valence groups) differentially associated with body (dis)satisfaction and body appreciation at 6-months. Individual-level change scores over the 6-month period for twice-completers were also examined to further identify if there were any detrimental effects from participating in body image research. The purpose of this research was to examine medium-term (6-month) harm among adolescents. Given that gender differences and developmental and psychosocial shifts throughout adolescence are related to body image (Bucchianeri et al., 2013; Lacroix et al., 2020), age and gender were included in the models as covariates.

Method

Design

The present study originated from an opportunity that arose during data collection for a prospective examination of relationships between social media and body image and well-being among adolescents. Utilising a quasi-experimental design, the present study compared outcomes for groups according to their extent of exposure to a body image assessment (twice- vs once-completers), and whether they received positive only or mixed valence survey items (positive vs

mixed valence). These groups formed over the course of the study based on participant circumstance (i.e., absence from school, school year).

Sampling Procedures and Participants

The research was approved by the University Human Ethics Committee (HEC18424). Two private, co-educational secondary schools in Melbourne, Australia were recruited to take part. The present study examines data from baseline and 6-month assessments. Informed, opt-out parent consent and informed participant assent was obtained, with 35 (1.84%) parents choosing to opt-out their child from the study. All remaining students in grade 7 – 10 (typically aged 12-16 years) were invited to participate in the research. Trained researchers attended the school during normal class time to facilitate online survey completion at baseline and 6-month follow-up. Researchers delivered instructions to students during data collections and provided supervision alongside class teachers to ensure the survey was completed silently and independently.

Participants (N = 1,583) identified as male (55.97%), female (40.81%), or 'other/not listed' (1.33%), with 1.90% preferring not to respond. Given that gender is included as a covariate in the analyses and the numbers were low for 'other' and 'prefer not to respond' gender responses (n = 51), these latter participants were excluded from analyses, resulting in a final sample of 1,532 adolescents aged 11 – 17 years (M_{age} = 13.83, SD = 1.18). Socioeconomic status of the sample was calculated using self-reported home postcode (Australian Bureau of Statistics, 2018) and indicated high socioeconomic advantage (range = 1 – 10, M = 9.27, SD = 1.24), consistent with the school demographics. The majority of participants were born in Australia or New Zealand (86.00%).

Participant Grouping

Depending on whether participants completed the survey at both baseline and 6-month timepoints or only at 6-months, they were automatically designated as being in the twice-completers group (n = 1,318) or once-completers group (n = 214), respectively. The primary reason for students only completing the 6-month assessment was that they were not present during

baseline data collection, either due to absenteeism or other school commitments (e.g., sports or music lessons).

Prior to data collection, one of the schools had expressed concerns about some negatively worded items in the assessment. Consequently, they requested that measures which included any negatively worded items (contained in the measures body change strategies to lose weight and gain muscle, overvaluation of weight and shape, and appearance esteem) were removed for their younger students (grades 7 and 8). For measures that contained both positively and negatively worded items, the authors decided to remove the entire measures in question, rather than just omit negatively worded items, as selective omission would likely affect the reliability and validity of scores on the measures. Therefore, these participants completed an assessment which only contained positively worded items (body [dis]satisfaction and body appreciation), comprising the positive valence group for the purposes of the present study (*n* = 364). Note, the body dissatisfaction measure is positively worded, so was kept in the survey for all participants, but reverse-scoring means it is presented here as body dissatisfaction. The positive valence group only consisted of students in grades 7 and 8, therefore the comparison group (mixed valence; *n* = 611) also only contained students in grades 7 and 8. All grades 9 and 10 students were excluded from analyses of the effects of item valence on outcomes (*n* = 657). By comparing the groups outlined above, we are able to indicate whether exposure to body image assessments resulted in differential impacts on body image and body change strategies.

Measures

Demographics. Self-reported age, gender, and home postcode.

Body dissatisfaction. Body dissatisfaction was assessed using the Body Shape Satisfaction Scale (Pingitore et al., 1997), where participants rate their satisfaction with 10 physical features (e.g., face, body shape) on a 5-point scale (1 = *very dissatisfied,* 5 = *very satisfied*). In the present study, four additional items were included to ensure relevance among adolescent boys (chest, overall body

fat, hair and muscles; Jarman et al., 2021). Items were reverse-coded and summed, with higher scores representing greater body dissatisfaction. Scores on the original scale have demonstrated discriminant, convergent, and predictive validity, as well as 2-week test-retest reliability among adolescents (Bucchianeri et al., 2013; Paxton et al., 2006). Internal reliability in the present study was high (α = .95).

Body appreciation. Positive body image was assessed using the 10-item Body Appreciation Scale for Children (Halliwell et al., 2017). Participants report how often they agree with 10-items (e.g., I feel love for my body) on a 5-point scale (1 = *never,* 5 = *always*). A mean score was calculated, with higher scores representing greater body appreciation. Scores on this scale have demonstrated good internal consistency, 6-week test-rest reliability, and construct validity among early adolescents (Halliwell et al., 2017). Internal reliability in the present study was high (α = .95).

Body change strategies. Body change strategies to lose weight and gain muscle were assessed using six items from prior research conducted by the Centre for Appearance Research, UK (unpublished data). Participants were asked if, over the past 28 days, they had engaged in strategies to lose weight or keep from gaining weight (taken diet pills or laxatives, used a food substitute [e.g., powder or special drink], exercised a lot) and strategies to gain muscle (used a protein or energy supplement [e.g., powder drink or bar], lifted weights, eaten extra food to gain bulk) by indicating yes or no. Analyses were conducted separately for each of the six items.

Overvaluation of weight and shape. Two items from the Weight and Shape subscale of the Eating Disorder Examination Questionnaire (Fairburn & Beglin, 1994) were used to assess overvaluation of weight and shape. Participants indicate how often their self-concept has been impacted by their weight and shape over the past 28 days (e.g., Has your shape influenced how you think about [judge] yourself as a person?) using a 7-point scale (1 = *not at all,* 7 = *markedly/a lot*). A mean score was calculated, with higher scores representing greater overvaluation of weight and shape. Scores on these items have demonstrated good reliability among adolescents (McLean et al.,

2015; Mond et al., 2014). Spearman-Brown coefficients for the 2-item overvaluation of weight and shape indicated high internal consistency reliability (r_s = .92).

Appearance esteem. Appearance esteem was assessed using the appearance subscale of the Body Esteem Scale (Mendelson et al., 2001). Participants report how often statements about their appearance apply to them (e.g., I am pretty happy about the way I look) on a 5-point scale (1 = *never,* 5 = *always*). After reverse-scoring six items a mean score was calculated, with higher scores representing greater appearance esteem. Scores on the subscale have shown good internal consistency, test-retest reliability, and structural and convergent validity among adolescents (Kling et al., 2019; Mendelson et al., 2001). Internal reliability in the present study was high (α = .90).

Analysis Strategy

Sample characteristics were examined to provide descriptive data. Demographic equivalence of groups for age was tested on both groups (once- vs twice-completers and positive vs mixed valence assessment) with independent samples t-tests. Demographic equivalence of groups by gender and socioeconomic status was assessed using a chi-square test for one group (positive vs mixed valence) and using Fischer exact test for the other group comparison (once- vs twice-completers) as the cells had an expected count below five.

To examine our research questions, (1) is level of exposure to assessments (once- vs twice-completers) differentially associated with body image-related outcomes and body change strategies at 6-months, and (2) is item valence (positive vs mixed valence) differentially associated with body dissatisfaction and body appreciation at 6-months, separate regression models were run in Mplus 8 (Muthén & Muthén, 2017). Linear regressions were conducted for the continuous variables where body dissatisfaction, body appreciation, overvaluation of weight and shape and appearance esteem were dependent variables. Logistic regressions were conducted for analyses where dependent variables were dichotomous. These were the six body change strategy variables. Age and gender were included in the models as covariates. The data were not normally distributed so a maximum

likelihood robust (MLR) estimator was used to deal with deviations from normality in all linear regression analyses (Yuan & Bentler, 2000) and a maximum likelihood estimator was used in the logistic regression analyses. All models report betas (standardised β for linear regressions, unstandardised B for logistic regressions) and 95% Confidence Intervals (CIs), and odds ratios were reported for the logistic regressions. Effect sizes (f^2) were calculated using the formula R^2 / 1 - R^2, whereby $f^2 \geq 0.02$, $f^2 \geq 0.15$, and $f^2 \geq 0.35$ represent small, medium and large effect sizes, respectively (Cohen, 1988; Cohen et al., 2003). Post-hoc sensitivity analyses were conducted using G*Power 3.1 (Faul et al., 2009) for the proposed regression models, entering the total sample size of each group, alpha value .05 and power .80. The results indicated effect size f^2 of .006 for the once-vs twice-completers models and .010 for the positive vs mixed valence models which, as indicated previously, represents adequate power to detect very small effects.

Although average scores can indicate group-level changes, this approach does not capture individual-level changes (Jacobson & Truax, 1991). Therefore, the proportion of individuals who experienced reliable change in body image from baseline to 6-month follow-up was examined by calculating a change score (time 1 – time 2) to explore the proportion of individuals who had no change, worsened, or improved at the second assessment, following earlier exposure to the assessment questions. Given that time 1 and time 2 scores were only available for twice-completers, these analyses were conducted among these participants only. For the continuous body image variables (body dissatisfaction, body appreciation, overvaluation of weight and shape, and appearance esteem), the change score was divided by the standard error of the difference between the two scores and standardized to create a z-score (Iverson, 2019). The resultant score is the reliable change index (Jacobson & Truax, 1991). If the standardized score is larger than the desired level of significance ($p < .05$, +/- 1.96) then the change score is interpreted as likely to occur beyond chance and indicative of reliable change (Jacobson & Truax, 1991). Thus, for scales with a positive valence (body appreciation, appearance esteem) scores which were greater than 1.96 reflected worsening (reduced scores), whereas scores below -1.96 reflected improvement (increased scores).

Alternatively, for scales with a negative valence (body dissatisfaction and overvaluation of weight and shape) scores which were greater than 1.96 reflected improvement (increased scores), whereas scores below -1.96 reflected worsening (reduced scores). For body change strategy items, a positive score, zero, or negative score was allocated based on participants' change score only (+1 = increased engagement with body change strategies; 0 = no change; -1 = reduced engagement with body change strategies). Given the nature of these nominal data, reliable change could not be calculated so these scores represent actual change. The proportion of participants who worsened, experienced no change, and improved are reported. As an additional analysis, a chi-square test was conducted to examine whether the proportion of change (worsened, stayed the same, improved) differed by valence group (positive vs mixed). Body dissatisfaction and body appreciation were the variables included in these analyses as they were the only measures completed by both valence groups.

Results

Missing data across the two time points were assessed and the extent of missing data was reasonable for school-based research (0 – 14.90%). An administrative error occurred whereby some adolescents (n = 161) did not receive the 2-item overvaluation of weight and shape scale at 6-month follow-up. Given that some data were not missing completely at random, full information maximum likelihood estimation was used to handle missing data. Table 1 displays demographic characteristics and equivalence of the sample. Once- and twice-completers did not differ by gender (X^2[1, N = 1,532] = 0.03, p = .882) or socioeconomic status (X^2[7, N = 1,203] = 3.80, p = .811). However, groups differed by age, whereby the twice-completers were significantly younger than once-completers, t(297.361) = 2.67, p = .008, d = 0.19. For the positive vs mixed valence, the groups did not differ by gender (X^2[1, N = 975) = 0.26, p = .640) or socioeconomic status (X^2[7, N = 738] = 9.93, p = .179). However, they did differ by age, whereby the positive valence group were significantly younger than the mixed valence only group, t(739.83) = 4.86, p < .001, d = 0.32.

Summary statistics and regression coefficients for the once- vs twice-completer groups are presented in Table 2. The linear regression models revealed that group significantly predicted body dissatisfaction and body appreciation, whereby twice-completers reported significantly lower body dissatisfaction and higher body appreciation than once-completers. No significant effects were found in the remaining linear and logistic regression models; overvaluation of weight and shape, appearance esteem, strategies to lose weight or keep from gaining weight: taken diet pills or laxatives; used a food substitute (e.g., powder or special drink); exercised a lot, and strategies to gain muscle: used a protein or energy supplement (e.g., powder drink or bar); lifted weights; and eaten extra food to gain bulk.

In relation to the positive and mixed valence groups, summary statistics and regression coefficients are reported in Table 3. Linear regression models showed that group did not significantly predict body dissatisfaction or body appreciation. Results from all regression analysis did not change substantially when covariates were omitted, whereby all significant and non-significant effects remained.

Figure 1 presents the proportion of participants who experienced change in body image (improvement or worsening) over the 6-month follow-up. For the body change strategies, of which actual (not reliable) change was calculated due to the nominal nature of the data, similar proportions worsened (1.67% - 13.49%) as improved (1.56% - 13.15%). Specifically, the proportions were as follows; strategies to lose weight or keep from gaining weight: taken diet pills or laxatives (1.67% worsened, 96.77% experienced no change, 1.56% improved), used a food substitute (e.g., powder or special drink; 9.02% worsened, 85.08% experienced no change, 5.90% improved), and exercised a lot (13.49% worsened, 73.36% experienced no change, 13.15% improved); and strategies to gain muscle: used a protein or energy supplement (e.g., powder drink or bar; 10.24% worsened, 81.63% experienced no change, 8.13% improved); lifted weights (12.12% worsened, 76.64% experienced no change, 11.23% improved); and eaten extra food to gain bulk (8.13% worsened,

84.19% experienced no change, 7.68% improved). For the continuous variables, for which the reliable change index, which indicates change beyond chance, was examined, the proportion of participants who worsened (2.46% – 4.80%) was also similar to the proportion that improved (2.62% - 3.07%). Specifically, the proportions were as follows; body dissatisfaction (3.25% worsened, 93.74% experienced no reliable change, 3.01% improved), body appreciation (2.46% worsened, 94.92% experienced no reliable change, 2.62% improved), overvaluation of weight and shape (4.80% worsened, 92.13% experienced no reliable change, 3.07% improved), and appearance esteem (3.24% worsened, 93.85% experienced no reliable change, 2.91% improved). With the exception of using a food substitute (9.02% worsened vs 5.90% improved), the proportions appeared relatively consistent across the actual and reliable change scores, with most participants not experiencing change in body image.

When the proportions (worsened, no reliable change, improved) were examined by valence group (positive vs mixed), no differences were found for body dissatisfaction (X^2[2, N = 1,230) = 5.65, p = .055) or body appreciation (X^2[2, N = 1,261) = 3.79, p = .153), indicating that the proportions were equivalent across the positive and mixed valence groups.

Discussion

The present study examined whether completing body image assessments was associated with body image-related outcomes and engagement in body change strategies over 6-months. Specifically, body image was compared among participants who had been and had not been previously exposed to body image assessments (twice- vs once-completers) and among participants who completed an assessment with only positively worded body image items compared with those who completed an assessment which also included negatively worded body image items (positive vs mixed valence). With some exceptions, findings suggest that previous exposure to body image assessments was largely not associated with body image or body change strategies among adolescents. In addition, the presence of negatively worded body image items relative to only

positive items was not associated with levels of body dissatisfaction or body appreciation. Finally, individual-level change scores indicated that body image and body change strategies did not change over 6-months for the majority of participants. Further, there was no difference in the proportion of participants who experienced worsening, no change, or improvement in body dissatisfaction or body appreciation between participants exposure to only positively, or both positively and negatively worded items.

Consistent with previous research (Celio et al., 2003), adolescents who were previously exposed to body image assessments reported equivalent, or slight improvements (body dissatisfaction and body appreciation) in body image at the second assessment relative to those who had not previously completed the assessment. This appears to demonstrate that those who had already been exposed to items assessing body image did not have poorer outcomes at a latter point in time compared with those without previous exposure. Contrary to the views of some parents and educators, a focus on body image in research assessments does not appear to promote new or existing body image concerns. Instead, some participants reported improvements in body dissatisfaction and body appreciation. In line with this, brief surveys have been found to impact attitudinal changes in a number of other fields (e.g., tanning and alcohol behaviours; McCambridge & Kypri, 2011; Rodgers et al., 2015). For example, one study found that a brief online survey which assessed awareness of tanning-related health risks demonstrated unintentional intervention effects, whereby participants self-reported lower health-risk behaviours, such as sunbed use, four months later (Rodgers et al., 2015). It is possible that exposure to body image items (e.g., I appreciate the different and unique things about my body) may encourage participants to reappraise their relationship with their body, resulting in the promotion of positive body image, including body appreciation and acceptance. These results might explain improvements in body image seen in control groups in prevention and treatment research exposed only to assessments rather than any form of intervention (e.g., Halliwell et al., 2018). Although the effects in the present study were small, if participants do report improvements in body image measures after completing multiple

assessments, it may have significant implications for research and prevention. Therefore, additional studies should be conducted and future research using experimental methods with random allocation to condition should examine the impact of exposure to positive body image items as a possible micro-intervention.

Extending exploration of findings beyond average responses, the present study examined reliable, individual-level change in body image to identify the proportion of participants who experienced no change, worsening or improvement in body image. Findings demonstrated that among participants who completed body image measures on two occasions, body image stayed relatively consistent over the 6-month period. In other words, the majority of participants did not experience reliable change in body image-related outcomes 6-months later. This suggests that, for most participants, completing body image assessments did not impact their body image or engagement in body change strategies, either positively or negatively. Inspection of the proportion who did experience change over time showed that the proportion of participants who experienced worsened body image was largely equivalent to the proportion of participants who experienced improved body image. Similarly, there was no statistically significant difference in proportions of participants who had no change, worsening or improvement in body image according to exposure to positively or mixed valence assessment items. This suggests that the valence of items did not impact change over time.

Taken together, the findings for individual-level change related to frequency of assessment and valence of assessment items may suggest that changes over time in body image and body change strategies occurred due to factors independent of participation in the research. Given that adolescence is a critical period for the development of body image, typically characterised by increased appearance pressures and the onset of body image concerns (Rohde et al., 2015), changes in a small proportion of participants over the 6-month period were unsurprising. Alternatively, the possibility, remote though it appears, that some participants reacted negatively to the assessment

cannot be ruled out. Although some control was exercised (e.g., including covariates such as age and gender), due to the quasi-experimental study design one cannot ascertain the reasons for change in body image, regardless of the direction of that change, either improvement or worsening. Certainly, these data may then indicate that participating in body image assessments are largely not associated with any harmful effects on body image or body change strategies for the vast majority of adolescents. However, more evidence is necessary from further studies which utilise experimental designs with random allocation and longer follow-up periods to examine potential delayed effects before more conclusive claims are made.

The present study examined an array of body change strategies, ranging from mild (e.g., exercise) to severe behaviours (e.g., taking diet pills). Findings revealed that none of the body change strategies differed according to whether participants had or had not previously been exposed to the assessment. Further, the majority of participants reported the same level of each body change strategy 6-months later, and the proportion of adolescents who worsened or improved appeared equivalent. These findings indicate that completing body image assessments was not associated with changes in engagement with body change strategies. Given the pervasiveness of diet culture within Western societies, it is likely that adolescents are already aware of body change strategies, including through channels such as social media (Yee et al., 2020) and peers (Piatkowski et al., 2019). Therefore, it appears unlikely that completion of study assessments represents the first time adolescents are exposed to such behaviours.

The findings also revealed that the levels of body dissatisfaction or body appreciation did not differ between participants who completed a positively worded body image assessment and those who completed an assessment which included negatively worded items. This suggests that exposure to negatively worded items does not trigger body image concerns. According to sociocultural theory (Thompson et al., 1999), body image is developed and maintained through three primary channels; the media, peers and parents/family. These influences are likely to have a substantially greater

impact on adolescents' body image than brief exposure to negatively worded items in a research assessment. Although scholars have recommended that body image assessments should use positively word items and obscure the body image focus when conducting research with children (Damiano et al., 2020), this approach may be overly cautious for adolescents given the findings from the present study gave no indication that assessments containing negatively worded items are more harmful than assessments only including positively worded items among adolescents. However, given this study is one of the first of its kind, additional research is necessary to confirm and extend these findings.

Although the present study has some strengths, including the prospective nature of the data and wide variety of body image constructs examined, it is important to interpret these findings in the context of several limitations. First, the quasi-experimental design whereby inclusion in group was automatically designated on the basis of participant circumstance, i.e., having been present for one or two assessment time points, rather than random allocation, reduces the ability to preclude alternative explanations for the results. For example, individuals who were only present for one assessment (once-completers) may have been experiencing issues at home or in school which may have introduced bias within groups. Future experimental studies with experimental designs utilising random allocation would be fruitful. Second, our sample contained a homogenous group of primarily White, socioeconomically advantaged adolescents. Future research should recruit participants from a wide-ranging sociodemographic area. Further, obtaining larger samples which allow examination of the data by age or gender would also be beneficial, given differences in body image and body change strategies may exist. Third, although the body change strategy items included in the present study are frequently used in research (McCabe et al., 2001; Neumark-Sztainer et al., 2012), these items do not represent a validated or established measure. Building on the present findings, future research should also examine the effect of using more extensive and established disordered eating scales among adolescents. Fourth, whilst the collection of objective measures of body image may be a strength, it may also miss an important aspect of the subjective experience of participating in body

image research, for which qualitative research would be beneficial. Finally, given the nominal nature of the body change strategy items, the change score for those items represented actual change, not reliable change. Therefore, it is possible that some of this change occurred due to chance.

Conclusions

The present study indicates that body image assessments do not appear to put adolescents at increased risk of developing or exacerbating body image concerns. Specifically, whether adolescents completed the assessment previously or not over a 6-month period did not predict body image-related outcomes, except for slightly lower body dissatisfaction and higher body appreciation among twice-completers. Further, no evidence suggests that body image assessments encourage body change strategies among adolescents. There was no difference in body image among participants who completed an assessment containing negatively worded items than an assessment containing only positively worded items. Although these findings provide preliminary support that body image assessments do not appear to cause harm to the majority of adolescents, further research is needed to extend these findings, with use of experimental designs to reduce bias.

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Tables

Table 1

Demographic Characteristics and Equivalence of the Sample by Groups (Once- vs Twice-Completers and Positive vs Mixed Valence)

	Completion status			Assessment item valence		
	Once-completers (*n* = 214)	Twice-completers (*n* = 1,318)	*p-value*	Positive valence (*n* = 364)	Mixed valence (*n* = 611)	*p-value*
	Mean (SD)			*Mean (SD)*		
Age (years)	14.02 (1.12)	13.80 (1.19)	.008	12.95 (0.73)	13.18 (0.71)	<.001
Socioeconomic status	9.26 (1.29)	9.27 (1.24)	.811	9.34 (1.13)	9.30 (1.13)	.179
	Percentage (%)			Percentage (%)		
Gender	58.41% boys	57.74% boys	.882	55.77% boys	57.45% boys	.640

Table 2

Summary Statistics and Regression Results for Group (Once- and Twice-Completers) Predicting Body Image and Body Change Strategies

Linear regressions	Once-completers (*n* = 214)		Twice-completers (*n* = 1,318)		Regression coefficient		95% Confidence interval	Effect size f^2	
	n	*M (SD)*	*n*	*M (SD)*	*β*	*p-value*			
Body dissatisfaction	210	36.43 (13.45)	1,292	33.65 (12.42)	-0.07	.008	[-0.12,-0.02]	-.22	
Body appreciation	213	3.52 (0.98)	1,303	3.73 (0.92)	0.08	.005	[0.02,0.13]	.23	
Overvaluation of weight and shape	181	3.02 (1.92)	813	2.79 (1.82)	-0.05	.165	[-0.11,0.02]	-.13	
Appearance esteem	195	3.34 (0.95)	956	3.47 (0.87)	0.05	.079	[-0.01,0.11]	.15	
Logistic regressions	***n***	**% 'yes'**	***n***	**% 'yes'**	***B***	***p-value***	**95% Confidence interval**	**Effect size f^2**	**Odds ratio**
Body change strategies to lose weight or keep from gaining weight:									
Taken diet pills or laxatives	193	2.59	962	2.29	-0.13	.796	[-1.12,0.86]	.04	0.88
Used a food substitute	192	11.46	961	12.49	0.10	.684	[-0.39,0.59]	.03	1.11
Exercised a lot	193	57.51	960	53.54	-0.16	.317	[-0.48,0.15]	.02	0.85
Body change strategies to gain muscle:									
Used a protein or energy supplement	193	15.54	961	18.42	0.21	.328	[-0.22,0.64]	.10	1.24
Lifted weights	193	34.72	960	37.71	0.15	.383	[-0.19,0.50]	.19	1.17
Eaten extra food to gain bulk	193	20.73	960	16.88	-0.29	.175	[-0.71,0.13]	.52	0.75

Note. Age and gender were included as covariates in all regression analyses.

Table 3

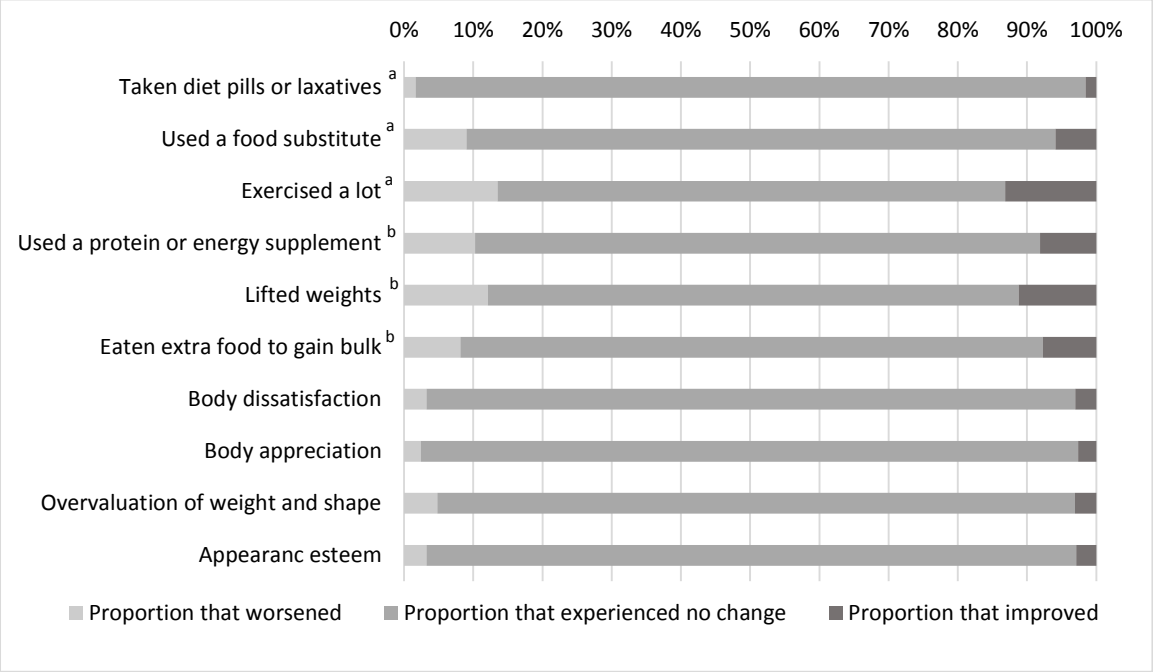
Summary Statistics and Regression Results for Group (Positive and Mixed Valence) Predicting Body Dissatisfaction and Body Appreciation

Linear regressions	Positive valence (n = 364)		Mixed valence (n = 611)		Regression coefficient		95% Confidence Interval	Effect size f^2
	n	*M (SD)*	*n*	*M (SD)*	*β*	*p value*		
Body dissatisfaction	356	32.81 (12.70)	595	32.97 (12.29)	-0.01	.653	[-0.08,0.05]	.05
Body appreciation	361	3.75 (0.93)	605	3.79 (0.92)	-0.02	.553	[-0.08,0.04]	.03

Note. Age and gender were included as covariates in all regression analyses.

Figures

Figure 1. Proportion of change score for each measure over 6-months



Note. [a] body change strategies to lose weight or keep from gaining weight, [b] body change strategies to gain muscle. Actual change is represented for body change strategies [a,b]. Reliable change is indicated for body dissatisfaction, body appreciation, overvaluation of weight and shape, and appearance esteem.

The impact of completing body image assessments on adolescents' body image and engagement in body change strategies: Harmful or harmless?

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BODY IMAGE ASSESSMENTS: HARMFUL OR HARMLESS?

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