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The link between body dissatisfaction and self-esteem in adolescents: Similarities across gender, age, weight status, race/ethnicity, and socioeconomic status

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Abstract

Purpose—The present study examined whether the cross-sectional association between body dissatisfaction and low self-esteem varies across gender, age, body weight status, race/ethnicity, and SES. We also examined the association longitudinally.

Methods—A school-based survey of eating, weight, and related attitudes was conducted with a diverse sample of adolescents aged 11–18 years ($N = 4,746$). Height and weight were measured in the schools at Time 1. Participants were resurveyed by mail five years later (Time 2, $N = 2,516$).

Results—The body dissatisfaction/self-esteem association was strong and significant in both boys and girls ($p < .0001$), and did not differ significantly between genders ($p = .16$), nor between the middle school and high school cohorts in either boys ($p = .79$) or girls ($p = .80$). Among girls, the body dissatisfaction/self-esteem relationship was strong, but did vary across weight status, race/ethnicity, and SES (p 's $.0001$ – $.03$). The relationship was non-significant in underweight girls ($p = .36$), and weaker but still significant among black, Asian, and low SES girls (all p 's $< .0001$) in comparison to white and high SES group girls. Among boys, the association did not differ significantly across demographic groups (p 's $.18$ – $.79$). In longitudinal analyses, the strength of the association did not change significantly as adolescents grew older.

Conclusions—Findings indicate that body dissatisfaction and self-esteem are strongly related among nearly all groups of adolescents. This suggests the importance of addressing body image concerns with adolescents of all backgrounds and ages.

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Keywords

Body dissatisfaction; Body image; Self-esteem; Adolescent; Race; Ethnicity; Socioeconomic status; Eating disorders

Both low self-esteem and body dissatisfaction early in life have been found to predict a range of adverse health outcomes later in life, including the use of unhealthy weight-control behaviors, other eating-disordered behaviors, general psychological distress, and a variety of other negative outcomes (1–3). The relationship between self-esteem and body dissatisfaction among adolescents overall is fairly strong (4), and the focus on appearance in making self-evaluations has been implicated in the low levels of self-esteem often observed in adolescence (5). Nevertheless, it is likely that self-esteem is not equally strongly tied to body dissatisfaction for all adolescents. For example, associations may be stronger in racial/ethnic or gender groups that place more importance on appearance and body shape. Associations might also be expected to be stronger at ages in which appearance-related concerns are highest. Thus, it is important to identify variation in the body dissatisfaction/self-esteem relationship across gender, age, weight status, race/ethnicity, and SES, and to use this information to inform screening practices and to target prevention efforts aimed at reducing body dissatisfaction, other precursors to eating disorders, and self-esteem.

At least four factors have been found to affect levels of body dissatisfaction or low self-esteem during adolescence, namely, age, gender, body weight and race/ethnicity (6–11). Body dissatisfaction has been found to be greater late in adolescence than early in adolescence (6;10), greater among overweight individuals than average weight or underweight individuals (12;13), greater among females than among males (8;14), and greater among whites than among blacks and at least some other racial and ethnic minority populations (9;11;14;15). Self-esteem has also been found to be lower among girls than among boys (5;7) and to decrease as adolescents progress from early to late adolescence (5;16), whereas the associations between self-esteem, body weight, and race/ethnicity among adolescents appear to be more complex and variable (5;13;17). For instance, it appears that blacks have higher scores than whites on measures of self-esteem, but that this finding may differ by gender and depend on the measure of self-esteem used (18).

However, little is known about the effect of these different variables on the *association* between self-esteem and body dissatisfaction. Body dissatisfaction appears to be associated with greater impairment in self-esteem and other aspects of psycho-social functioning in females than in males (7;13;19–21), although there is also some evidence that both the prevalence of body dissatisfaction and its impact on psychosocial functioning may be increasing in males (22–24). Findings from small study with college students suggested that the impact of body dissatisfaction on self-esteem may be greater in white women than in black women (14). We are not aware of any research to address racial/ethnic differences in the association between body dissatisfaction and self-esteem in adolescent samples. Whether and how the association between body dissatisfaction and low self-esteem might vary by age and by weight status is also unclear.

The primary aim of the present study was to examine, in a large, population-based sample of adolescents, whether and how the association between body dissatisfaction and low self-esteem might vary as a function of age, gender, body weight status, race/ethnicity, and SES. A secondary aim was to utilize the longitudinal design of the study to examine change in the association between body dissatisfaction and low self-esteem over time.

Method

Study Design and Data Collection

Participants were from Project EAT, a school-based study of a large, racially/ethnically and socio-economically diverse sample of adolescents in the Minneapolis-St. Paul area. Participants completed in-class surveys and height and weight were measured at Time 1 (1998–1999). A mail survey was conducted at Time 2 (2003–2004). Of the original sample at Time 1, 1074 (22.6%) were lost to follow-up for various reasons, primarily due to missing or obsolete contact information. Of the remaining 3672 participants with valid addresses to whom surveys were mailed, 2516 responded, representing 53.0% of the original cohort and 68.4% of participants with whom contact was attempted. The University of Minnesota's Institutional Review Board Human Subjects Committee and the research boards of participating school districts approved all study protocols. Further details regarding the study design and survey development are available elsewhere (11;25).

Sample

The study sample at Time 1 consisted of 4,746 adolescents in 7th through 12th grades. Approximately one-third of the participants (35%) were in middle school at Time 1 (referred to as the younger or middle school age cohort); their mean age was 12.8 years ($SD=0.8$). Approximately two-thirds of the participants (65%) were in high school (referred to as the high school or older age cohort) at Time 1; their mean age was 15.9 years ($SD=0.9$). Further demographic characteristics of the sample appear in Table 1.

Measures

Body Dissatisfaction—Body dissatisfaction was assessed with a modified version of the Body Shape Satisfaction Scale (26). Respondents rated their satisfaction with ten aspects of their body (e.g., height, weight, body shape, waist, body build and shoulders). Aspects of the upper torso were included to ensure the scale was appropriate for use with males (27). Each item was rated on a 5-point Likert scale from “very satisfied” (1) to “very dissatisfied” (5) and responses were summed. Scores ranged from 10–50, and higher scores indicated greater dissatisfaction. Time 1 Cronbach's $\alpha = .93$ for the boys and $\alpha = .92$ for the girls. Cronbach's alphas were excellent in both age cohorts ($\alpha = .93$) and in all weight status groups ($\alpha = .91-.93$), race/ethnicity groups ($\alpha = .92-.93$), and SES levels ($\alpha = .91-.93$).

Self-esteem—Self-esteem was assessed with a shortened version of the Rosenberg Self-Esteem Inventory (28). The scale contained 6 items such as “On the whole, I am satisfied with myself” and each was rated on a 4-point scale from “strongly disagree” (1) to “strongly agree” (4). The range was 6–24, and higher scores indicated higher self-esteem. Internal consistency of the shortened version in the current study was good in both genders ($\alpha = .78$ in males and females) and age cohorts ($\alpha = .75-.80$), and across weight status ($\alpha = .74-.80$), race/ethnicity ($\alpha = .68-.83$), and SES group ($\alpha = .72-.81$).

Body Mass Index (BMI) and Weight status—Height and weight were measured at Time 1 by trained research staff using standardized equipment and procedures and BMI was computed. Weight status was classified as: underweight (BMI < 15th percentile), average weight (15th percentile < BMI < 85th percentile), overweight (85th percentile < BMI < 95th percentile), and obese (95th percentile < BMI) (29;30).

Socio-demographic characteristics—Gender, race/ethnicity, and socioeconomic status (SES) were based on self-report at Time 1. Participants indicated whether they were “White,” “Black or African American,” “Hispanic or Latino,” “Asian American,” “Hawaiian or Pacific Islander,” or “American Indian or Native American,” and were

allowed to choose more than one category. SES was calculated based on an algorithm that weighted parental education level most heavily, but also took into account family eligibility for public assistance, eligibility for free or reduced-cost school meals, and employment status of the mother and father (see Neumark-Sztainer, Story, Hannan, & Croll, 2002 (31), for more information).

Statistical Analysis

Descriptive statistics for all variables were calculated, and comparisons of mean body dissatisfaction and self-esteem scores across gender, age cohort, weight status, race/ethnicity, and SES were made, using Scheffe's test as appropriate to adjust for multiple comparisons among groups with unequal sample sizes.

All analyses were conducted separately for boys and girls. Multiple regression was used to examine the association between body dissatisfaction and self-esteem across each demographic variable, controlling for all other demographic variables. Standardized regression coefficients, standard errors, and *p*-values are reported for each level of the demographic variables. Standardized regression coefficients represent the amount of change in self-esteem, in standard deviation units, associated with a 1 standard deviation change in body dissatisfaction, and can be interpreted similarly to a correlation coefficient.

In assessing moderation, which occurs when the association between two variables is different across levels of a third variable, an interaction term including the third variable is introduced into the model. The significance of the interaction term indicates whether the association between body dissatisfaction and self-esteem varies significantly across the levels of the third variable. For example, the significance of an interaction term including SES would indicate whether the association between body dissatisfaction and self-esteem is significantly different in any of the SES groups. *P*-values for the interaction terms for each of the demographic variables are reported. In addition to the significance of the overall interaction term, for each level of the demographic variable we indicate whether the association between body dissatisfaction and self-esteem is significantly different in the given level compared to the reference group (younger age cohort, average weight, whites, or high SES).

To evaluate longitudinal changes in the association between body dissatisfaction and self-esteem, we used mixed model regression with time as a random variable. Only participants who responded at Time 1 and Time 2 were included in these analyses (*N*=2516). For the longitudinal analyses, because non-response at Time 2 differed across socio-demographic characteristics (with Time 2 responders more likely to be female, white, of higher SES [all *p*'s <.0001] and of average weight [*p* = .02]), participants' responses were weighted using a method that takes into account participants' probability of responding at Time 2 (32). SAS 9.1 was used for all analyses (SAS Institute, Cary, NC).

Results

Adolescent boys had significantly lower mean levels of body dissatisfaction (*p* <.0001) and significantly higher mean levels of self-esteem at Time 1 (*p* <.0001) compared to girls (Table 2). In both boys and girls, body dissatisfaction and self-esteem differed significantly across weight status, race/ethnicity, and SES (all *ps* ≤ .01); specific differences can be seen in Table 2. However, there was no significant difference in body dissatisfaction between the younger and older cohort for boys (*p* = .28), nor for girls (*p* = .29). Of note, underweight and overweight boys had similar mean body dissatisfaction scores, with average weight boys having the lowest level of body dissatisfaction and obese boys having the highest level. In

contrast, underweight and average weight girls had lower body dissatisfaction scores than did overweight and obese girls.

The overall association between body dissatisfaction and self-esteem, adjusted for weight status, race/ethnicity, SES, and age cohort, was $\beta = -.46$ ($p < .0001$) for boys and $\beta = -.52$ ($p < .0001$) for girls. The association was not significantly different between boys and girls ($p = .16$). The p -values for the interaction terms for age cohort, weight status, race/ethnicity, and SES (Table 3) indicated that the association between body dissatisfaction and self-esteem did not differ significantly across levels of these variables for boys. In contrast, the p -values for the interaction terms in girls indicate that the association between body dissatisfaction and self-esteem varied significantly across levels of weight status, race/ethnicity, and SES, although not across age cohort. Specifically, a strong negative association was found between body dissatisfaction and self-esteem ($\beta = -.50$ to $\beta = -.55$) for all weight status groups except underweight girls. For underweight girls, the association between body dissatisfaction and self-esteem was not statistically significant ($\beta = .11$, $p = .36$; Table 3). The association between body dissatisfaction and self-esteem was strong and statistically significant in all race/ethnicity group among girls, varying from $\beta = -.41$ to $\beta = -.65$. However, while still strong and significant, the association was significantly smaller among black ($\beta = -.41$) and Asian girls ($\beta = -.41$) compared to white girls ($\beta = -.65$). Likewise, the association between body dissatisfaction and self-esteem was strong and significant among all SES groups ($\beta = -.42$ to $\beta = -.58$), but was significantly lower among low SES girls ($\beta = -.42$) compared to high SES girls ($\beta = -.55$).

In longitudinal analyses, results indicated that the association between body dissatisfaction and self-esteem did not change significantly between Time 1 and Time 2 (when the adolescents were 5 years older), for boys ($p = .31$) or girls ($p = .81$). Furthermore, when change over time was examined separately by age cohort, the degree of change over time in the body dissatisfaction/self-esteem association was not significantly different between the younger and older age cohorts, for boys ($p = .51$) or girls ($p = .48$).

Discussion

We examined the association between low self-esteem and body dissatisfaction across gender, age cohort, weight status, race/ethnicity, SES, and time. Results indicated that the association was strong and that it did not differ between boys and girls, nor across any of the other variables for boys. For girls, however, the association between body dissatisfaction and low self-esteem was different across weight status, race/ethnicity, and SES. The body dissatisfaction/self-esteem association was: (i) non-significant among underweight girls, but strong and significant among average weight, overweight, and obese girls; (ii) strong and significant for all racial/ethnic groups of girls, but smaller among black and Asian girls; and (iii) significant among all SES groups, but smaller in the lowest SES group. The association between body dissatisfaction and low self-esteem did not become stronger or weaker as adolescents grew older.

The findings showing a similar association between body dissatisfaction and self-esteem in boys and girls were unexpected (7;13;19). Given the strong social pressures that girls face regarding physical appearance (33), one might expect that body image would have a stronger impact on global self-esteem in female adolescents. However, the large size and racial/ethnic and socioeconomic diversity of our sample lend support to the generalizability of this result. In our sample, gender differences were found for mean levels of body dissatisfaction and self-esteem, but not for the association between the two variables. This finding might be understood to mean that higher body dissatisfaction among boys and girls

is similarly associated with lower self-esteem, but that overall boys have lower body dissatisfaction and better self-esteem.

Regarding the effects of weight status, it is notable that body dissatisfaction was unrelated to self-esteem among underweight girls, whereas for all other weight status groups - average, overweight and obese - the association was substantial. In addition, mean levels of body dissatisfaction were lower and levels of self-esteem higher among underweight girls. These findings may reflect the fact that in females, underweight tends to be positively regarded in the media, by peers and even by family (34). Hence, body dissatisfaction in underweight girls is less likely to be reinforced by individuals in their social environment, which may reduce its association with self-esteem. In boys, by contrast, underweight is as likely, if not more likely, to be stigmatized as overweight (7;35), so that such a “protective effect” would not be expected. These findings suggest that underweight girls may be less in need of interventions to promote higher levels of body satisfaction and self esteem than average weight and overweight girls.

Racial/ethnic differences in the association between body dissatisfaction and self-esteem were found, some of which are in line with differences in mean levels of body dissatisfaction and self-esteem. Black girls had higher self-esteem and lower body dissatisfaction than many other racial/ethnic groups and a weaker relationship between body dissatisfaction and self-esteem compared to white girls. Asian girls also had a weaker relationship between body dissatisfaction and self-esteem than did white girls, but they had lower self-esteem and higher body dissatisfaction than many other racial/ethnic groups. These findings are novel and their meaning is not immediately clear. It is possible that cultural differences emphasizing or de-emphasizing appearance as the basis of self-evaluation may be a factor. In this regard, it might also be noted that high levels of body dissatisfaction and eating-disordered behavior have been observed among young women in newly industrialized Asian countries and in Asian women living in the US and other Western nations (36–38). However, the literature regarding body dissatisfaction and disordered eating among Asian women and girls is sparse and conflicting (39). Further studies of body dissatisfaction, self-esteem, and related outcomes in Asian and black adolescents are needed to address this poorly understood topic.

Self-esteem and body dissatisfaction were less strongly (but still significantly) associated among girls in the lowest SES group compared to girls in the highest SES group, and furthermore girls with low SES also had higher body dissatisfaction and lower self-esteem scores. This pattern of higher mean levels but a weaker body dissatisfaction/self-esteem relationship is similar to that found in Asian-American girls. It may be useful to focus on Asian-American, black, and low SES girls when developing and evaluating interventions to lessen the importance of appearance in adolescents’ self-evaluations.

Longitudinally, the lack of change across time in the association between body dissatisfaction and self-esteem is notable, given prior research suggesting that self-esteem may decline and body dissatisfaction may increase across this period, at least among girls (5;6). Thus while there may be changes in mean levels of self-esteem and body dissatisfaction across adolescence, the strong association between the two constructs appears to remain fairly stable. This finding suggests that prevention programs to reduce body dissatisfaction and promote self-esteem need not focus solely on younger adolescents to be successful.

Strengths of the current investigation include the large, school-based, racially and ethnically diverse sample, and the use of established, validated measures for the assessment of body dissatisfaction and self-esteem in adolescents. However, even given the large sample size,

some comparisons likely suffered from reduced power due to the small sample size of some gender and race/ethnicity groups (for example, Native American boys). In addition, while the presence of two time points allowed us to examine longitudinal change in the association between body dissatisfaction and self-esteem, additional measurements would have increased our ability to understand developmental changes across the entire adolescent period of development. Moreover, since our study is primarily correlational we can only speculate about the direction of the observed associations. It is reasonable to hypothesize that body dissatisfaction and self-esteem have a reciprocal relationship and that pathways in both directions begin early in life. Finally, in the longitudinal analyses there were demographic differences between responders and non-responders at Time 2, and while we used propensity weighting to adjust for these differences, it is possible that differences remained even after weighting.

In summary, the current investigation suggests that body dissatisfaction and self-esteem are strongly related in both boys and girls, across middle and late adolescence, and in nearly every weight status, racial/ethnic, and SES group. While differences in the association between body dissatisfaction and self-esteem were noted across race/ethnicity and SES groups for girls, in all cases the associations were still strong and significant. These results suggest that it is not only in white girls that greater body dissatisfaction should be considered a risk for low self-esteem. Elevated body dissatisfaction may not be as prevalent in some groups, such as boys and black girls, but when it does occur, it appears to have similar implications for self-esteem. This finding might argue for the inclusion of all adolescents with high body dissatisfaction, regardless of socio-demographic groups, in prevention efforts to reduce body dissatisfaction and increase self-esteem (with the possible exception of underweight girls). Unfortunately, the majority of available body dissatisfaction and eating disorder preventive interventions are designed for and targeted at girls, and often specifically white girls (40). The results of the current study suggest that the development of preventive interventions aimed at and tailored to a much broader range of demographic groups of adolescents may be warranted, and that such interventions, if found to be effective, may have the potential to improve the risk of disordered eating and low self-esteem of many adolescents.

Overall, clinicians and others working with youth should continue to be mindful of the important role of appearance as related to self-esteem in the lives of nearly all youth today. Based on our findings, adolescents who express overly negative evaluations of their bodies or appearance should be considered at risk of lowered self-esteem. This risk, while somewhat lower in some groups of adolescents, nonetheless applies to nearly all youth, including non-white adolescents and boys.

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Table 1

Sample characteristics at Time 1.

	<i>n</i>	%
Gender		
Male	2377	50.0
Female	2357	50.0
Age cohort		
Middle school at Time 1	1637	34.6
High school at Time 1	3097	65.4
Weight status		
Underweight	220	5.2
Average weight	2669	63.0
Overweight	732	17.3
Obese	619	14.6
Race		
White	2264	48.5
Black	887	19.0
Hispanic	273	5.8
Asian	896	19.2
Native American	165	3.5
Mixed/Other	186	4.0
SES		
High	626	13.8
High-Middle	1065	23.4
Middle	1209	26.6
Low-Middle	857	18.8
Low	793	17.4

Table 2

Unadjusted mean body dissatisfaction and self-esteem scores at Time 1, by demographic characteristics.

	Body Dissatisfaction				Self-Esteem			
	Male		Female		Male		Female	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Gender*	$p<.0001$				$p<.0001$			
	23.2	8.9	28.0	9.8	18.7	3.5	17.3	3.5
Age cohort	$p=.28$		$p=.0002$		$p=.01$		$p=.29$	
Middle school at Time 1	22.9	9.2	27.0 ^a	10.2	18.4 ^a	3.4	17.2	3.5
High school at Time 1	23.3	8.8	28.5 ^b	9.5	18.8 ^b	3.5	17.4	3.5
Weight status	$p<.0001$		$p<.0001$		$p<.0001$		$p=.0007$	
Underweight	24.5 ^a	9.5	24.9 ^a	7.9	18.1 ^{ac}	3.5	17.9 ^a	3.3
Average weight	21.3 ^b	8.1	26.1 ^a	9.5	19.0 ^{ab}	3.5	17.5 ^a	3.5
Overweight	24.0 ^a	8.5	30.7 ^b	9.4	18.8 ^{ab}	3.3	17.1 ^{ab}	3.3
Obese	28.9 ^c	8.7	32.4 ^b	9.5	17.9 ^c	3.2	16.7 ^b	3.6
Race	$p<.0001$		$p<.0001$		$p<.0001$		$p<.0001$	
White	22.6 ^a	8.4	28.4 ^a	9.0	19.2 ^a	3.4	17.2 ^{bd}	3.6
Black	21.9 ^a	9.7	24.7 ^b	10.4	18.8 ^{ab}	3.7	18.4 ^a	3.5
Hispanic	23.9 ^{ab}	9.3	31.0 ^a	9.8	18.1 ^{bc}	3.4	17.3 ^{abc}	3.5
Asian	25.9 ^b	9.0	30.0 ^a	9.9	17.2 ^c	3.1	16.4 ^c	3.1
Native American	24.2 ^{ab}	9.2	28.8 ^{ac}	9.3	18.0 ^{ac}	3.1	16.7 ^{bc}	3.5
Mixed/Other	22.3 ^{ab}	9.4	24.6 ^{bc}	9.5	18.7 ^{ab}	3.8	18.4 ^{ad}	3.6
SES	$p<.0001$		$p=.0065$		$p<.0001$		$p<.0001$	
High	20.9 ^a	7.8	26.1 ^a	8.9	19.6 ^a	3.3	18.2 ^a	3.4
High-Middle	22.4 ^{ab}	8.6	27.9 ^{ab}	9.5	19.2 ^a	3.4	17.7 ^{ab}	3.6
Middle	23.5 ^{bc}	9.1	28.2 ^{ab}	9.3	18.5 ^b	3.3	17.1 ^{bc}	3.5
Low-Middle	23.8 ^{bc}	8.9	28.5 ^b	10.1	18.4 ^b	3.5	17.1 ^{bc}	3.7
Low	25.0 ^c	9.6	28.6 ^b	10.6	17.5 ^c	3.3	16.9 ^c	3.4

Body dissatisfaction range = 10–50; Self-esteem range = 6–24.

* p -values for gender refer to differences between values in male and female columns, for body dissatisfaction and self-esteem. Other p -values are for comparisons within gender (for example, differences in body dissatisfaction across weight status, among males and separately among females).

Note: Within columns for each demographic variable and gender, means sharing a superscript letter do not differ significantly from one another. For example, the mean body dissatisfaction scores for underweight and overweight boys do not differ significantly from each other, but the scores of both of those groups differ significantly from the scores for average weight and obese boys.

Adjusted¹ associations between body dissatisfaction and self-esteem across levels of age cohort, weight status, race/ethnicity, and SES.

Table 3

	Boys				Girls			
	n	β	SE	p	n	β	SE	p
Age cohort				Interaction term $p=.79$				Interaction term $p=.80$
Middle school at Time 1 (reference)	609	-.43	.04	<.0001	632	-.51	.03	<.0001
High school at Time 1	1323	-.46	.03	<.0001	1269	-.53	.03	<.0001
Weight status, percentile				Interaction term $p=.79$				Interaction term $p=.01$
< 15th	107	-.43	.09	<.0001	90	-.11*	.12	0.36
15th-85th (reference)	1222	-.47	.03	<.0001	1196	-.55	.03	<.0001
85th-95th	286	-.46	.05	<.0001	380	-.50	.05	<.0001
> 95th	317	-.44	.05	<.0001	235	-.55	.06	<.0001
Race/ethnicity				Interaction term $p=.18$				Interaction term $p=.0001$
White (reference)	1082	-.48	.03	<.0001	938	-.65	.03	<.0001
Black	285	-.36	.06	<.0001	345	-.41*	.05	<.0001
Hispanic	121	-.53	.09	<.0001	83	-.50	.10	<.0001
Asian	328	-.42	.05	<.0001	373	-.41*	.04	<.0001
Native Am	56	-.55	.11	<.0001	76	-.43	.11	.0001
Mixed/Other	60	-.44	.14	.002	86	-.56	.11	<.0001
SES				Interaction term $p=.28$				Interaction term $p=.03$
High (reference)	289	-.53	.06	<.0001	262	-.55	.06	<.0001
Upper middle	509	-.50	.04	<.0001	418	-.58	.05	<.0001
Middle	527	-.43	.04	<.0001	485	-.50	.04	<.0001
Lower middle	348	-.43	.05	<.0001	362	-.58	.05	<.0001
Low	259	-.40	.06	<.0001	374	-.42*	.04	<.0001

Notes: Ns may differ due to missing data

¹ Each model is adjusted for all socio-demographic variables other than the one being tested.

^a p -value for the test of the interaction with the socio-demographic term, which indicates whether the association between body dissatisfaction and self-esteem is significantly different in one or more subgroups.

* Significantly different from reference group