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Characteristics Associated with Low Self-esteem among U.S. Adolescents

Auden C. McClure, MD^{*,†}, Susanne E. Tanski, MD^{*,†}, John Kingsbury[^], Meg Gerrard, PhD[†], and James D. Sargent, MD^{*,†}

^{*}Department of Pediatrics, Dartmouth Medical School, Hanover NH

[†]Norris Cotton Cancer Center, Dartmouth Medical School, Hanover NH

[^]Psychological and Brain Sciences, Dartmouth College, Hanover NH

Abstract

Objective—Low self-esteem in adolescents has been associated with a number of risk and protective factors in previous studies, but results have been mixed. Our objective was to examine characteristics associated with low self-esteem in a large national sample of young adolescents.

Design/Methods—Population-based correlational study. A sample of 6522 adolescents, aged 12–16 years, was surveyed by phone as part of a national study of media and substance use. Self-esteem was measured with three questions that assessed global self worth and physical appearance. Multivariate logistic regression was used to examine the relation between self-esteem and socio-demographics, child personality characteristics, weight status, daily TV time, parenting style, school performance and team sports participation. Interactions among gender, race, and weight status were examined.

Results—In multivariate analysis, female gender, Hispanic race, overweight and obesity, sensation seeking, rebelliousness, and daily TV time were each independently associated with lower self-esteem. Teens of Black race, with higher parental responsiveness and demandingness, better school performance or involvement in team sports were less likely to report low self-esteem. Black females were at lower risk and Hispanic males were at higher risk for low esteem than peers of similar gender of other races.

Conclusions—Low self-esteem was associated with a number of modifiable risk factors including obesity, television time, team sports participation, school performance and parenting style that should be discussed with teens and parents at health supervision visits. Further research examining race and gender-specific factors that serve to moderate risk for poor self-esteem in adolescents is warranted.

Keywords

Adolescent; self-esteem; obesity

Contact information: Auden C. McClure, MD MPH, Pediatric and Adolescent Medicine, Dartmouth-Hitchcock Medical Center, Lebanon, NH 03756, 603-653-6036 (phone), 603-653-9090 (Fax), Auden@Hitchcock.org.

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Introduction

Self-esteem, as an overall reflection of an individual's self-worth, encompasses beliefs about oneself as well as an emotional response to those beliefs.¹ Representing the capacity to feel worthy of happiness and be able to successfully address life challenges, self-esteem is an important determinant of adolescent mental health and development.^{2, 3} Accordingly, low self-esteem has been associated with a number of psychological, physical, and social consequences that may influence successful adolescent development and the transition to adulthood, including depression, anxiety, suicide and disordered eating,³⁻⁶ violent behavior,³ earlier initiation of sexual activity (in girls),⁷ and substance use.⁵ Recent research also suggests that low self-esteem in adolescence may be a harbinger for poor longer-term outcomes, such as fewer years of post-secondary education, greater likelihood of joblessness and financial difficulties,^{2, 8} as well as poorer mental/physical health and higher rates of criminal behavior.⁹ Identification of modifiable risk factors for low self-esteem in adolescents is important in developing interventions to prevent and to enhance adolescents' self-esteem.

Self-esteem research has been conducted for several decades, but researchers have yet to reach a consensus on a definition for this construct. Several comprehensive assessment scales have been reported including Rosenberg's self-esteem scale,¹⁰ the Piers-Harris Children's Self-Concept Scale,¹¹ and Harter's Self-Perception Profile.¹² The former focuses on a global measure, while the latter two scales evaluate specific dimensions of self-esteem (i.e. physical appearance) and then aggregate scores to form a global score. The current study utilizes an abbreviated version of Harter's Self-Perceptions Profile for Children and incorporates those domains that capture global self-worth and comfort with one's appearance.

Many publications have explored risk and protective factors for the development of low self-esteem during adolescence, but much of the research is limited by small sample sizes, regional populations and inconsistent inclusion of covariates. Reported risk factors include older age, female gender,^{10, 13-17} low socioeconomic status,¹⁰ nontraditional family structure,¹⁴ having special health care needs, exposure to school violence, parental aggravation¹⁸ or family stress,¹⁶ and higher TV viewing.¹⁹ A relationship between weight status (overweight and obesity) and low self-esteem has also been demonstrated, however results have been mixed¹¹ with some studies showing lower self-esteem among obese adolescents^{2, 5, 20, 21} and others finding associations only among subgroups based on age or race,^{14, 22} or for a particular domain of self-esteem.^{13, 23-25} Wang and Vaegeles² identified both risk and protective factors with complex relations between self-esteem, body mass index (BMI), school performance and a number of socio-demographic risk factors. Elevated BMI and sedentary behavior were risks for low esteem, but greater parent education, higher household income, greater physical activity and better school performance were protective.² Other protective factors include physical activity,¹⁹ better health, positive family communication and closeness,¹⁸ more authoritative parenting, perceived teacher support,¹⁶ feeling safe in school and being part of a religious community.¹⁰

Additional complexity has been identified when researchers have assessed interactions between self-esteem and race/gender. A number of longitudinal studies have demonstrated that Black adolescents are less likely to have low self-esteem compared with their White counterparts; the association between Hispanic race and self-esteem has been less studied and offers mixed results. In a national longitudinal sample, Black and Hispanic race both predicted higher self-esteem among female adolescents.¹⁰ This finding confirmed earlier work by Brown et al demonstrating greater stability of self-esteem and satisfaction with physical appearance among Black adolescent girls²⁶ as well as a study by Youngblade et al

that showed Hispanic ethnicity (both genders) to be protective in a large national sample of US adolescents using a single item measure of self-esteem.¹⁸ In contrast, other studies, including a meta-analysis, demonstrated lower self-esteem among Hispanics when compared to Black and White peers.^{16, 27} This heterogeneity of results has been attributed, in part, to study design (sample, esteem scale used, definition of race/ethnicity, analyses) but also to variation in ethnic identity over time and among populations.^{16, 17, 28, 29} Ethnic identity has been shown to be an important predictor of self-esteem in adolescents²⁸ and may mediate the complex associations between race, gender and other predictors of esteem that put adolescents at risk for poor health outcomes.¹⁶

As briefly reviewed above, the literature to date suggests a number of risk and protective factors for low self-esteem with potentially important differences across gender and race. Results have been mixed, however, in part because few studies have included a broad range of covariates simultaneously in a large sample. This population-based correlational study aims to advance the current understanding of risk factors for low self-esteem in adolescents by assessing, in a large national sample of US adolescents, a number of intrinsic and extrinsic factors associated with low self-esteem as defined by perception of physical appearance and self-worth. The current study adds to previous research by utilizing a large, nationally representative sample of adolescents, and by employing a multivariate approach that controls for multiple relevant covariates. This work extends previous research by examining complex interactions between self-esteem, gender, race, and weight status in this national sample. Identifying modifiable risk factors and better understanding the multiple influences at play may guide efforts to bolster self-esteem among adolescents.

Methods

Recruitment

A detailed description of recruitment methods has been previously published.³⁰ Briefly, a national random-digit-dial (RDD) telephone survey recruited 6522 10 to 14 year old US adolescents for a national study of media and substance use. Westat, a national research organization, conducted baseline and follow-up surveys using computer assisted telephone interviews. The baseline survey was conducted in 2003 with three follow up surveys at 8 month intervals. Parental consent and adolescent assent were obtained verbally by Westat staff prior to each interview: parents were asked “Do you give your permission for <<NAME/AGE/SEX>> to participate in this Dartmouth Medical School study?” Adolescents were informed that their parent had given permission for them to participate in the study and they were then asked whether they were willing to go ahead with survey items. To protect confidentiality, adolescents entered responses to all sensitive questions (e.g. tobacco, alcohol use) using the telephone touch pad. The survey was approved by the Human Subjects Protection Committees at Dartmouth Medical School and Westat. The survey response rate (as determined by the Council of American Survey Research Organizations' standard) was 32% and the cooperation rate (completed interviews divided by eligible households) was 66%, which is typical for RDD surveys. The un-weighted baseline sample was representative of 2000 US Census data for age, gender, region of the country and family income. Compared with census, there was slight under-representation of Blacks and over-representation of Hispanics. Reliability coefficients (Cronbach's alpha) were computed for all derived measures. Data for this analysis was collected from June to October of 2003. In addition, BMI was assessed from June to October of 2005, in a later survey wave.

Measures

[see appendix table for detailed survey items]

Outcome measure—Self-esteem was the primary outcome measure, assessed using selected measures from the Harter Self Perception Profile for Children.¹² A composite score was derived from three survey items that assessed domains of global self-worth and physical appearance. Survey items included “I like myself the way I am”, “I am happy with the way I look”, and “I wish I were someone else”. Participants were asked to respond whether they felt the descriptor was like them using a 4 point Likert scale, and values were summed into a scale (Cronbach's alpha= 0.64). For this study, we defined low self-esteem as the lowest quintile of the distribution.

Predictor variables—Demographics were assessed at baseline, including age, gender, race and socioeconomic status (SES). For race and ethnicity, parents were first asked about their child's ethnicity: “Is s/he Spanish, Hispanic, or Latino?” They were then asked about race and could choose from eight categories: White, Black, Hispanic, Pacific Islander, American Indian/Alaskan Native, more than one race, and other/mixed-race. For analysis purposes, if a parent indicated that their child was Hispanic, the child was categorized as Hispanic regardless of parent response to the question about race. SES was measured using a standardized derived variable that combined parent-reported education and household income (Cronbach's alpha=0.71). We examined a number of baseline variables, in addition to demographics, that have been associated with self-esteem in other studies. These included weight status (classification of BMI percentile), child personality characteristics (sensation seeking and rebelliousness), daily TV use, parenting style (maternal responsiveness and demandingness), school performance, and participation in team sports.

Body mass index was derived from self-report and/or parent-report of height and weight at a 24-month follow-up (70% retention rate), calculated by converting (if appropriate) height from inches to meters and weight from pounds to kilograms and then dividing weight by height squared. Algorithms available from the Centers for Disease Control (CDC) were then used to convert measurements to age and gender-specific BMI z-scores, relative to the US population³¹. Quality-assurance checks used by the CDC were applied to the data to eliminate implausible height and weight responses. Similar to the cut-offs used in the Pediatric Nutrition Surveillance System (PedNSS) study, weights that corresponded with the 2000 CDC weight-for-age z-scores that were less than -5 or greater than 5, and BMI scores that corresponded with the 2000 BMI-for-age z-scores that were less than -4 or greater than 5 were deemed biologically implausible³². Different from the PedNSS, we deemed heights implausible if they corresponded with the 2000 CDC height-for-age z-scores that were less than -5 or greater than 4 (PedNSS considered z-scores >3 as implausible). As both parent and subjects reported height and weight, we averaged the BMIz unless implausible or missing values were found. If parent values were flagged by the above conditions as biologically implausible, the subject's report was used; if subject values were implausible, the parent's report was used. Correlation between subject and parent report for BMI was 0.83. For the analysis, CDC definitions were followed for classifying weight status by BMI: obesity (95%ile or higher), overweight (85 to 95%ile), normal weight (5 to 85%ile) and underweight (<5%ile). Underweight and healthy weight categories were combined for the purposes of this analysis.

Rebelliousness, sensation seeking, and maternal demandingness and responsiveness were scaled variables that were dichotomized into high and low categories using a median split. TV time was categorized as <1 hours/day, 1 to 2 hours/day, or ≥3 hrs/day. Team sports participation was dichotomized as “almost every day to a few times a week” versus “a few times a month or never.”

Statistical Analysis

All analyses were completed using STATA statistical software. Chi-square tests were used to compare differences in proportions. Multivariate logistic regression analyses were conducted to determine the independent association between predictor variables and self-esteem. The multivariate model included demographics (age, gender, race, SES), weight status, child personality characteristics (sensation seeking and rebelliousness), hours of TV per day, measures of parenting style (maternal responsiveness and demandingness), school performance, and team sports participation. Finally, interactions between weight status and gender, weight status and race, and gender and race were examined. All statistical tests were two-tailed and significance was set at $p < 0.05$.

Results

Sample Characteristics (Table 1)

The study sample is described in Table 1.

Factors associated with low self-esteem: Bivariate analysis

Table 2 lists characteristics associated with low self-esteem in bivariate (chi-squared) analysis. The percent of teens with our definition of low self-esteem was greater in older adolescents and in females. Differences were found by race, with proportionally fewer Black teens having low self-esteem compared with Whites, and Hispanic teens having a higher rate of low self-esteem. Obese teens had particularly high rates of low self-esteem (30%). Teens with greater sensation seeking and rebelliousness had higher rates of low self-esteem, as did those who reported higher TV use. Adolescents whose parents were more responsive and demanding also had lower rates of poor self-esteem, as did those who had better grades in school and regularly participated in team sports.

Factors associated with low self-esteem: Multivariate analysis

In multivariate analysis (Table 3), females were twice as likely to have low self-esteem as males [OR 2.01, (95% CI 1.71-2.36)]. Those of Hispanic race were more likely to have low self-esteem [OR 1.32 (1.05-1.67)] whereas Black adolescents were less likely to have low self-esteem [OR 0.68 (0.50-0.92)] when compared with Whites. Weight status was associated with low self-esteem, with teens in the obese category being twice as likely to have low self-esteem, and those in the overweight category 1.3 times as likely [OR 2.05 (1.63-2.57) and OR 1.26 (1.02-1.56) respectively] than normal weight youth. Low self-esteem was also associated both with higher sensation seeking and with rebelliousness [OR 1.53 (1.29-1.82) and OR 1.48 (1.23-1.79) respectively]. Teens with higher sensation seeking or rebelliousness were 50% more likely to have low self-esteem [OR 1.53 (1.29-1.82) and OR 1.48 (1.23-1.79) respectively]. Importantly, a number of factors were associated with a lower risk for low self-esteem (in addition to Black race, as above). More responsive and demanding parenting [OR 0.53 (0.44-0.63) and OR 0.7 (0.58-0.84) respectively] and either good [OR 0.82 (0.68-0.99)] or excellent [OR 0.74 (0.59-0.92)] school performance decreased the likelihood of low esteem, as did involvement in team sports [OR 0.68 (0.58-0.80)].

Interaction effects

In main effects analysis, both male gender and Black race were associated with lower risk of low self-esteem. We further explored these associations by examining theoretically important interaction effects including gender, race, and obesity. No statistically significant interactions were found between overweight/obesity and gender or overweight/obesity and race. However, a significant interaction was found between gender and race ($p = 0.015$),

showing that Black female adolescents did not have the higher risk for low self-esteem that was conferred to females in other race/ethnicity categories. Table 4 illustrates this interaction effect and shows that risk for low self-esteem in Black females was similar to that of White, Black or mixed-race males. For example, the risk of low self-esteem in White, Hispanic and mixed-race females was 2.5 to 3 times higher than for Black females but not significantly different than White, Black or mixed-race males. Interestingly, Hispanic males, like White, Black and mixed-race females, were at higher risk for low self-esteem [OR 1.94 (1.17, 3.24)] when compared to Black females, thus the finding of Hispanic race being associated with low self-esteem was not due to being female.

Discussion

This population-based correlational study examines multiple factors associated with low self-esteem, identifying important modifiable variables. This study furthers previous research by utilizing a large national sample and assessing multiple covariates concurrently, allowing for multivariate and subgroup analyses and better control of possible confounding. Our findings confirm that while there are a number of socio-demographic risk factors that are associated with low self-esteem including female gender and Hispanic race, there are also a number of potentially modifiable factors. One such factor is obesity, which is strongly associated with low self-esteem in this study. This highlights the importance of efforts to prevent and manage childhood obesity, as well as counseling strategies to help overweight teens maintain healthy self-esteem. Higher TV viewing is perhaps the most easily modifiable risk factor for low self-esteem, warranting specific attention from parents and clinicians. Our results further demonstrate that adolescents with stronger school performance and participation in team sports have lower risk for poor self-esteem. Within the present study, less than half of teens reported participation in any team sport, highlighting an additional opportunity for school and community sports programs to promote self-esteem and prevent obesity. Finally, adolescents who perceive their parents to be more responsive and better at setting limits also appear to have lower risk for poor self-esteem.

Our findings are consistent with previous literature examining modifiable risk factors for low self-esteem. Wang et al examined obesity, school performance, self-esteem and a number of socio-demographic factors concurrently, and found that obesity and sedentary activity (such as media time) had an independent negative effect on self-esteem while school performance and physical activity were protective. While the link between physical activity and higher self-esteem has been demonstrated previously,² this is the first large study to demonstrate lower risk for poor self-esteem among adolescents who participate regularly in team sports. Our findings are also consistent with several national studies demonstrating a positive association between parenting style and self-esteem.^{10, 16, 18} These studies suggest that parents have a great deal of influence on their children's psychological development, even during a time when adolescents move towards a peer-dominated environment.³³ These findings have obvious implications for public health interventions and for health counseling. Pediatricians can encourage healthy self-esteem by counseling parents and teens on the importance of limiting TV time, promoting physical activity/team sports involvement and supporting academic endeavors. Their efforts to support parents in setting limits and to be responsive to their adolescents could also improve adolescents' sense of self-worth.

The observed interaction between race and gender suggests that Black females are protected against low self-esteem. This finding is consistent with previous studies that have demonstrated a self-esteem advantage for Black youth, females in particular.^{10, 17, 26, 27, 29, 34} Higher self-esteem among Black youth has been explained in a mediation analysis that demonstrated that self-esteem was more internally motivated and less contingent on external motivators, such as other's approval, physical appearance and competition with others

compared with White adolescents.³⁵ This suggests that race and gender cannot be examined in isolation when assessing self-esteem. Ethnic identity, as a means through which people of common traits distinguish themselves from others, has also been associated with more stable self-esteem among adolescents and tends to be stronger among Black and Hispanic than White adolescents.^{16, 28, 34} This may in part explain the differences in self-esteem among racial groups.²⁷ While ethnic identity was not measured within our study, this may be a modifiable aspect of race that parents, family and community can influence; this warrants further study.

Our finding that low self-esteem is associated with Hispanic race is consistent with previous literature including a meta-analysis of race and self-esteem^{16, 27} with the exception of a recent longitudinal national study by Birndorf et al,¹⁰ that pointed to higher self-esteem among Hispanic females. Our finding of increased risk of low self-esteem among Hispanic males, compared to males of other races, was unexpected and has not been previously reported. The heterogeneity of findings among studies may be explained by temporal trends over time, different classification strategies for race / ethnicity, or different measures of self-esteem.²⁷ It has also been suggested that ethnic differences in global self-esteem may be explained by variation in response to specific domains of self-esteem;^{17, 29, 34} this hypothesis could only be explored with a comprehensive measure of the different self-esteem domains.

These findings suggest that interactions between race, gender and self-esteem may be more complex than previously described. Further elucidation of the mechanisms through which race/ethnicity and gender characteristics modify self-esteem will be necessary to guide families, clinicians and public health workers in their efforts to preserve healthy self-esteem levels during adolescence and ensure a successful transition to adulthood.

Limitations

This study has a number of limitations. Reporting bias may exist as all responses were self-reported by teens or parents. In addition, BMI was not measured concurrently with other variables, as this survey item was assessed at the 24 month survey. While it is possible that weight status may have changed during this time period, BMIz has been shown to be relatively stable within respective weight categories over time, thus would not be expected to alter these findings.²⁰ Nevertheless, we recognize that BMI could have changed over time, at least for some. If changes were correlated with baseline self-esteem, this would suggest that self-esteem affects change in BMI. Although we consider this unlikely, this phenomenon would serve to inflate our estimates of the cross-sectional association. More likely, BMI influences contemporaneous measures of self-esteem. If this is the case, changes in BMI over time would cause us to under estimate the cross-sectional correlation between BMI and self-esteem.

Because these data are not longitudinal, causality cannot be determined. Additional studies are needed to determine if risk factors such as obesity and TV viewing lead to low self-esteem, or if perhaps lower self-esteem contributes to the development and persistence of obesity. With such complex relationships, multiple directions of influence can be hypothesized. Finally, for our assessment of self-esteem, we used a limited rather than a comprehensive scale of self-esteem, so our results may not be fully comparable to other measures of self-esteem and may not be as internally valid. However, a lower reliability would be expected to weaken the strength of our findings so it is reassuring that our findings are generally consistent with the literature.

Conclusion

Results of this study identified specific factors that are associated with low self-esteem in adolescents. More importantly, these results increase understanding for how various risk and potentially protective factors for self-esteem differ across race and gender. Several of these factors are modifiable (e.g. obesity, TV time, school performance, team sports participation), and therefore the results of this study could guide public health interventions and counseling for parents in health supervision visits in an attempt to protect adolescents from the deleterious psychological, physical, and social outcomes associated with low self-esteem.

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Appendix

Variable	Survey questions	Response categories	Derived variable
Outcome variable			
Self-esteem	<i>Composite of 3 measures below:</i> I like myself the way I am. I am happy with how I look. I wish I was someone else.	Would you say that's...? not like you a little like you a lot like you just like you	3-item index Range: 4-16 Cronbach's alpha = 0.64
Covariates			
Age	How old is the child?	12,13,14,15,16	
Gender	Is s/he a male or female?	M/F	
Race/Ethnicity	Is s/he Spanish, Hispanic, or Latino? Which of the following categories best describes your racial background? Are you:	Yes / No White Black or African American Asian American Indian or Alaskan Native Hawaiian or Pacific Islander Other	
SES 1. Household Income	Please tell me which group best describes the total income of all persons living in this	<=\$10,000 \$10,000 to \$20,000	Median: 0.10

Variable	Survey questions	Response categories	Derived variable
	household over the past year?	\$20,000 to \$30,000 \$30,000 to \$50,000 \$50,000 to \$75,000 >=\$75,000	Range: -1.25, 1.39 Cronbach's alpha = 0.71
2. Parent Education	What is the highest grade or year of school that you (parent) completed?	High school graduate or less Some college, Voc/Tech Associates Degree Bachelor's, Graduate Degree Professional Degree	
Body Mass Index	see methods section		
Personality Characteristics	I like to do scary things.	Would you say that's...?	
1. Sensation Seeking	I like to do dangerous things I often think there is nothing to do I like to listen to loud music	not like me a little like me a lot like me just like me	4-item index Range: 4-16 Cronbach's alpha = 0.59
2. Rebelliousness	I get in trouble at school. I argue a lot with other kids I argue with teachers I like to break the rules		4-item index Range: 4-16 Cronbach's alpha = 0.71 Collapsed into dichotomous variable: high and low
Daily TV Time	How many hours of TV do you usually watch each day (on school days)?	None Less than 1 hour One to two hours Three to four hours More than four hours	Responses 3 and 4 were collapsed: >=3hrs/day
Parenting Style		Would you say that's...?	
1. Maternal Responsiveness	She is pleased with how I behave She likes me just the way I am She listens to what I have to say She makes me feel better when I am upset	not like him/her a little like him/her a lot like him/her just like him/her	5-item index Range: 5-20 Cronbach's alpha = 0.75

Variable	Survey questions	Response categories	Derived variable
2. Maternal Demandingness	She wants to hear about my problems		
	She knows where I am after school		4-item index
	She knows where I am after school		Range: 0-12
	She asks me what I do at my friends' houses		Cronbach's alpha = 0.59
	She checks to see if I do my homework		
	She makes sure I go to bed on time		Collapsed into dichotomous variable: high and low
School Performance	How would you describe your grades in school? Would you say your grades were...?	below average average good excellent	Responses 1 and 2 were collapsed: average/below average or good/excellent
Team Sports	How often do you participate in team sports where there is a coach? [For example, football, baseball, basketball or soccer.]	almost every day one to a few times a week one to a few times a month never	Collapsed into dichotomous variable: almost every day/few times a week or (few times a month/never)

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Sample description

TABLE 1

Characteristic	N	(%)
Age		
12	780	17.5
13	903	20.3
14	883	19.2
15	985	22.1
16	907	20.4
Gender		
Male	2234	50.1
Female	2224	49.9
Race		
White	3035	68.1
Black	378	8.5
Hispanic	668	15.0
Other	377	8.5
Parent Education		
Less than high school	1045	23.4
High school degree	1480	22.8
Some post-high school education	2525	46.2
Associates degree	550	8.5
Bachelor's degree	1194	18.4
Some graduate education / degree	5749	95.7
Household Income		
\$10,000 or less	466	7.7
\$10,001 to \$20,000	631	10.4
\$20,001 to \$30,000	738	12.1
\$30,001 to \$50,000	1272	20.9
\$50,001 to \$70,000	1174	19.3
Over \$75,000	1802	29.6
Overweight Status		
NL/underweight	3253	73.0
Overweight	692	15.5
Obese	513	11.5
TV/day		
<1hr	1118	25.1
1-2hr	2123	47.7
>=3hrs	1209	27.2
School performance		
Excellent	1125	25.3
Good	1823	41.0

Characteristic	N	(%)	
Average/below average	1500	33.7	
Team Sports			
Yes	1934	43.5	
No	2511	56.5	
	Range	Median	Interquartile range
Sensation seeking	4-16	8	6-10
Rebelliousness	4-16	5	4-6
Maternal responsive	5-20	17	15-19
Maternal demandingness	4-16	13	11-15

TABLE 2
Factors associated with low self-esteem: bivariate (chi-squared) analysis

Characteristic	Normal Self-esteem		Low Self-esteem		P-value
	N	(%)	N	(%)	
Age					p=0.000
12	661	(84.7)	119	(15.3)	
13	748	(82.8)	155	(17.2)	
14	712	(80.6)	171	(19.4)	
15	769	(78.1)	216	(21.9)	
16	679	(74.9)	228	(25.1)	
Gender					p=0.000
Male	1859	(83.2)	375	(16.8)	
Female	1710	(76.9)	514	(23.1)	
Race					p=0.021
White	2442	(80.5)	593	(19.5)	
Black	313	(82.8)	65	(17.2)	
Hispanic	507	(75.9)	161	(24.1)	
Other	307	(81.4)	70	(18.6)	
Weight Status					p=0.000
Normal/underweight	2666	(82.0)	587	(18.0)	
Overweight	546	(78.9)	146	(21.1)	
Obese	357	(69.6)	156	(30.4)	
Sensation seeking					p=0.000
Low	1926	(85.9)	316	(14.1)	
High	1643	(74.1)	573	(25.9)	
Rebelliousness					p=0.000
Low	1556	(86.2)	249	(13.8)	
High	2013	(75.9)	640	(24.1)	
TV/day					p=0.000
<1hr	927	(82.9)	191	(17.1)	
1-2hr	1724	(81.2)	399	(18.8)	
>=3hrs	911	(75.4)	298	(24.7)	

Characteristic	Normal Self-esteem		Low Self-esteem		P-value
	N	(%)	N	(%)	
Maternal responsiveness					p=0.000
Low	1730	(73.3)	630	(26.7)	
High	1839	(87.7)	259	(12.4)	
Maternal demandingness					p=0.000
Low	1897	(75.1)	630	(24.9)	
High	1672	(86.6)	259	(13.4)	
School performance					p=0.000
Average/below average	825	(73.3)	300	(26.7)	
Good	1460	(80.1)	363	(19.9)	
Excellent	1276	(85.1)	224	(14.9)	
Team Sports					p=0.000
No	1462	(75.6)	472	(24.4)	
Yes	2097	(83.5)	414	(16.5)	

TABLE 3
Factors associated with low self-esteem: multivariate analysis

Odds Ratio				
Characteristic*	Unadjusted	Adjusted	95% CI	
Age				
12	Reference			
13	1.15	1.11	0.84	1.45
14	1.33	1.13	0.86	1.49
15	1.56	1.23	0.95	1.60
16	1.87	1.26	0.97	1.64
Gender				
Male	Reference		Reference	
Female	1.49	2.01	1.71	2.36
Race/Ethnicity				
White	Reference		Reference	
Black	0.86	0.68	0.50	0.92
Hispanic	1.31	1.32	1.05	1.67
Other	0.94	0.79	0.59	1.06
Weight Status				
Normal/underweight	Reference			
Overweight	1.21	1.26	1.02	1.56
Obese	1.98	2.05	1.63	2.57
Personality Characteristics				
Sensation seeking >= median	2.13	1.53	1.29	1.82
Rebelliousness >= median	1.99	1.48	1.23	1.79
Daily TV Usage				
<=1hr	Reference		Reference	
1-2hrs	1.12	1.04	0.85	1.27
>=3 hrs	1.59	1.24	1.00	1.55
Parenting Style				
Responsiveness >= median	0.39	0.53	0.44	0.63
Demandingness >= median	0.47	0.70	0.58	0.84
Grades in School				
average or below	Reference		Reference	
good	0.68	0.82	0.68	0.99
excellent	0.48	0.74	0.59	0.92
Participates in team sports	0.61	0.68	0.58	0.80

* Model includes a composite standardized measure of SES derived from parent education and household income.

Table 4
Interactions between low self-esteem, race and gender

Characteristic	Low Self-esteem (%)	OR	95 %CI		
Black female	14.1	REFERENCE			
White female	23.4	2.71	1.73	4.27	
Hispanic female	25.8	3.00	1.81	4.98	
Mixed-race female	25.4	2.46	1.42	4.29	
White male	15.7	1.17	0.74	1.85	
Black male	20.4	1.53	0.86	2.69	
Hispanic male	22.5	1.94	1.17	3.24	
Mixed-race male	19.9	0.73	0.39	1.38	

Note: this multivariate analysis controls for other variables listed in Table 3, as well as a composite standardized measure of SES derived from parent education and household income.