

Self-concept, Self-esteem and Body Weight in Adolescent Females

A Three-year Longitudinal Study

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COMPETING INTERESTS: None declared.

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Journal of Health Psychology
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London, Thousand Oaks and New Delhi,
www.sagepublications.com
Vol 11(4) 599–611
DOI: 10.1177/1359105306065020

Abstract

Eighty girls aged 12.8 (0.6) years, completed self-concept, depression and anxiety scales over three years and had their height and weight measured. All nine self-concept domains were lower in the Highest BMI group, compared to the Lower BMI group and this trend was stable over three years. Highest BMI girls were substantially lower than population norms on all nine scales. Over three years, the Physical Appearance and Close Friendship scores of Highest BMI girls decreased compared to Lower BMI girls. This pattern was similar for all of the other self-concept domains. Several aspects of early adolescent girls' self-image may be adversely influenced by a heavy weight status.

Keywords

- *adolescents*
- *body image*
- *Body Mass Index (BMI)*
- *child obesity*
- *self-concept*
- *self-esteem*
- *weight*

OVERWEIGHT and weight problems in adolescents have increased in the past 30 years with current evidence suggesting that the prevalence has more than doubled since the 1960s in the United Kingdom, USA, Australia and Canada (Chinn & Rona, 2001; Hedley et al., 2004; Magarey, Daniels, & Boulton, 2001; Ogden, Flegal, Carroll, & Johnson, 2002; Willms, Tremblay, & Katzmarzyk, 2003).

The treatment and prevention of adolescent overweight is currently one of the most challenging public health objectives to confront health professionals, as adolescent overweight may be associated with numerous short-term and long-term health risks including insulin resistance and Type 2 diabetes mellitus, high blood pressure, abnormal blood lipids (Freedman, Dietz, Srinivasan, & Berenson, 1999), stress on weight-bearing joints (Bray, 1985) and respiratory problems (Leung & Robson, 1990).

The study of weight issues in adolescence is important because of possible health risks associated with overweight, but also because overweight children and adolescents are known to suffer psychosocial and emotional consequences such as stigmatization and teasing (Latner & Stunkard, 2003; Lewis, Cash, Jacobi, & Bubb-Lewis, 1997) body image concerns, disordered eating and poor self-esteem (Carlson, 2004; O'Dea & Abraham, 1999a). Little is known about the long-term developmental processes between weight status and self-concept in adolescents.

Gender differences in body image and self-concept are well documented in studies of adolescents. Studies from around the world have consistently found poorer overall self-concept in females compared to males (French, Story, & Perry, 1995; Harter, 1988; Marsh, 1989; O'Dea & Abraham, 1999a) and in particular, poor physical self-concept (Kimm et al., 1997; Mendelson, White, & Mendelson, 1995; Phillips & Hill, 1998). Such differences in self-concept have been found to be of particular salience in female adolescents to whom weight is especially important (Furnham, Badmin, & Sneade, 2002; Mendelson, Mendelson, & Andrews, 2000).

Studies worldwide have found that actual body weight correlates negatively with general self-esteem in girls as young as five years of age (Davison & Birch, 2002) and female adolescents (Braet, Mervielde, & Vandereycken, 1997;

Duncan, Woodfield, O'Neill, & Al-Nakeeb, 2002; French, Perry, Leon, & Fulkerson, 1995; Furnham et al., 2002; Mendelson, White, & Mendelson, 1996; O'Dea & Abraham, 1999a; Pierce & Wardle, 1997; Stein, Bracken, Haddock, & Shadish, 1998) and that heavy or overweight adolescents are likely to have both poorer overall self-esteem and physical self-concept than their lower-weight counterparts (French, Story, & Perry, 1995; Kimm et al., 1997; Mendelson et al., 1996; O'Dea & Abraham, 1999a).

In studies that have utilized multi-dimensional self-concept instruments such as the Harter Self-Perception Profile for Adolescents (Harter, 1988) several specific domains of self-concept have been found to be consistently associated with body weight. Aspects of self-concept, which are negatively associated with body weight in adolescent females, include physical appearance, romantic appeal, athletic competence and social acceptance, as well as overall self-esteem and global self-worth (Brown et al., 1998; French, Perry et al., 1995; Mendelson et al., 2000; Neumark-Sztainer & Hannan, 2000; O'Dea & Abraham, 1999a; Phillips & Hill, 1998; Strauss, 2000).

Few studies have explored the long-term development of the association between body weight and self-concept in adolescents. In a one-year study of body weight and self-concept, Kolody and Sallis (1995) reported increases in Body Mass Index (BMI) to be significantly associated with unfavorable changes in self-concept. Similarly, the recent study of Strauss (2000) reports decreasing global self-esteem in obese female adolescents over a four-year period. The study of Brown et al. (1998) reported declining self-worth in white girls but not black girls. The study of French, Perry et al. (1995) reported that among girls, physical appearance and social acceptance were inversely related to BMI three years later.

Examining the long-term patterns in self-concept development in adolescent girls of heavier body weight is important because these girls are known to be more likely than lower-weight girls to have poorer self-concept, which is associated with the development of body image concerns (Mendelson et al., 1995; O'Dea & Abraham, 1999b), eating disorders (Button, Sonuga-Barke, Davies, & Thompson, 1996),

poor nutritional status (Newell, Hammig, Jurich, & Johnson, 1990) and depression (Hoare & Cosgrove, 1998).

In order to examine the long-term association between body weight and different domains of the young adolescent female self-concept, a longitudinal study was designed spanning the girls' first three years of high school. The first aim of the study was to examine differences in all domains of self-concept among young adolescent females of higher and lower body weight including self-concept related to scholastic competence, intelligence, popularity, athletic ability, physical appearance, job competence, romantic appeal, behavior, close friendship and global self-esteem. A second aim was to examine the long-term changes in all domains of self-concept. The main hypothesis was that several domains of self-concept (in addition to expected differences in physical appearance and social acceptance) in heavier girls would be poorer than those of lower-weight girls and that the differences would be consistent in several different domains of self-concept over the three-year study period.

Methods

Participants

A cohort of female school students from Year 7 at a private, urban girls' high school in Sydney, Australia were included in the study. The participants were assessed once a year for three years. The school drew students from a varied mix of low, middle and high socioeconomic backgrounds. The ethnicity of participants was White/Anglo Saxon (85%), Asian (10%) and 'Other' (5%). The educational background of participants' parents was tertiary/college educated (54%); high school educated (34%) and primary school educated (12%).

Instruments

At the baseline visit, participants were given a questionnaire to obtain data about age and other demographic details. Participants' height and weight were measured without shoes and in light school uniform. Participants self-reported their ethnic background by selecting from categories of White/Anglo Saxon; Asian; Aboriginal; Pacific Islander; or Other. The highest level of education achieved by participants' parents was

assessed by asking participants to select from categories of Tertiary/College Education; High School Education and Primary School Education. Pubertal status was assessed by asking whether or not participants had experienced their first menstrual period (Yes/No) with participants subsequently classified as pre- or post-menarchial.

At each of the three study visits over three years, self-concept was determined using the Self-Perception Profile for Adolescents (Harter, 1988), a multi-dimensional instrument that measures different domains of self-concept. Psychometric data including reliability and consistency are detailed in the published manual for the instrument (Harter, 1988). The mean self-concept scores are based on adolescents' self-reported competencies in the following domains.

Scholastic competence This subscale measures adolescents' perceptions of their ability within the scholastic realm (e.g. how well they are doing at class work) and how intelligent they feel they are.

Social acceptance Subscale items measure the degree to which adolescents are accepted by peers, feel popular, have a lot of friends and feel that they are easy to like.

Athletic competence Items measure adolescents' perceptions of their athletic ability and competence in sports (e.g. feeling that they are good at sports and other athletic activities).

Physical appearance This subscale measures the degree to which adolescents are happy with the way they look, like their body and feel that they are good-looking.

Job competence Subscale items measure the extent to which adolescents feel they have job skills, are ready to do well at part-time jobs and feel that they are doing well at the jobs they have.

Romantic appeal Items measure adolescents' perceptions that they are romantically attractive to those in whom they are interested, are dating the people they would like to be dating, and feel that they are fun and interesting on a date.

Behavioral conduct This subscale measures the degree to which adolescents like the way they behave, do the right thing, act the way they are supposed to and avoid getting into trouble.

Close friendship Subscale items measure adolescents' ability to make close friends, with whom they can share personal thoughts and secrets.

Global self-worth Items measure the extent to which adolescents like themselves and are happy with the way they are. Thus, the Global Self-worth subscale constitutes a global judgment of one's worth as a person (i.e. overall self-esteem), rather than domain-specific competence or adequacy.

The Self-Perception Profile for Adolescents also enables the measurement of domain importance. Adolescents are asked whether certain domains hold particular importance for them (rated on a four-point scale). A discrepancy score (Harter, 1988) is calculated by subtracting the importance ratings from the self-concept subscale scores. The more negative the discrepancy score, the more adolescents feel that they are failing at the things that are really important to them.

Symptoms of depression were measured using the junior Beck Depression Inventory (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) and symptoms of anxiety were measured using the Spielberger State-Trait Anxiety Inventory (Spielberger, Gorsuch, & Lushene, 1970) which produces overall mean scores each for Trait Anxiety and State Anxiety.

Procedure

The study design and protocol were approved by the University of Sydney Human Ethics Committee. Under the supervision of the author, and after providing parental consent, participants anonymously completed the instruments each year for three years. Participation was voluntary and students were informed that they were being asked general questions, which had no right or wrong answer. Students were allocated an identification number and all responses remained confidential. Those students absent on the day of data collection were administered the instruments at a later date to ensure an optimal participation rate at each time.

Data analysis

A total of 95 students participated in the baseline study and a cohort of 82 were followed up at Time 2 and Time 3. This represented an 86 percent retention rate. Data from the 13 participants who had all left the school after the initial study visit were not statistically different on any of the measured variables from data of the 82 participants remaining in the study ($p > 0.05$).

Categorizing participants according to 'over-weight' or 'obesity' charts was not possible due to low numbers. In order to split the data for analysis, a percentile distribution of BMI (Weight/Height²) was created. The BMI category was determined using participants with the highest quartile of BMI as the Highest BMI group and other participants (the lower 75 percent of BMI) as the Lower BMI group. The Highest BMI group were those participants who were classified as Highest BMI at baseline (Time 1) and also fell within the top quartile of BMI at Time 2 and Time 3, with the exception of two participants whose BMI had decreased by Time 3. These two participants were excluded from the analyses, leaving a cohort of 80 participants whose BMI category had not changed over the three-year period.

The data of the cohort of 80 participants were analyzed by running a series of mixed design repeated measures multivariate analyses of variance (MANOVA), with time as the independent variable and BMI category (highest BMI or lower BMI), age, weight, height, self-concept sub-scale scores, depression scores and State and Trait anxiety scores as dependent variables. Where there were differences between the BMI category variables at baseline, further analyses were then run as a repeated measures multivariate analysis of covariance (MANCOVA) in order to control for such baseline differences.

Post-hoc Least Significant Difference (LSD) tests were performed as follow-up tests to determine where the significant differences occurred over the three time points (Times 1, 2, 3) and differences between highest BMI and lower BMI participants at baseline and at Times 2 and 3. Differences in ethnicity, parental education and menarchial status were examined using Chi Square tests.

Results

Group differences

There was no significant difference in age between the Highest BMI and Lower BMI groups at Time 1 (baseline) but Highest BMI girls were slightly taller (Table 1). There were no significant differences in ethnicity or parental education between Highest and Lower BMI groups ($p > .05$). There were no significant between-group differences for menarcheal status at Time 1 (38 percent of Highest BMI group post-menarcheal and 25 percent Lower BMI post-menarcheal, ($\chi^2(1) = 0.7, p > .05$); Time 2 (67 percent Highest BMI group post-menarcheal and 53 percent Lower BMI Post-menarcheal, ($\chi^2(1) = 0.8, p > .05$)) or Time 3 (81 percent Highest BMI Post-menarcheal and 63 percent Lower BMI post-menarcheal, ($\chi^2(1) = 1.6, p > .05$)).

The Highest BMI group had lower mean scores at baseline on all of the nine Harter self-concept subscales and this difference was statistically significant for Physical Appearance, Romantic Appeal and Job Competence, as well as Global Self-worth and the Discrepancy score (Table 1). Participants' scores for Depression,

State and Trait Anxiety were within normal ranges (Beck et al., 1961; Spielberger et al., 1970) and did not significantly differ by BMI group (Table 1).

All nine domains of mean self-concept scores of the Highest BMI girls were substantially lower than those reported in similar age groups of adolescents girls in previous population studies (Brown et al., 1998; Harter, 1988; O'Dea & Abraham, 1999a) but the mean scores of Lower BMI girls were well within normal population ranges.

The participants' mean scores and the change in participants' scores over three years (results of MANOVA and MANCOVA) are given in Table 2. The Between Subjects (Group) results in Table 2 show group differences in mean self-concept scores for all three times combined. Higher BMI scores were significantly lower than Lower BMI scores on all nine subscales at all three time points (Table 2, $p < .05$).

Changes in scores over three years

There were two significant Group/Time interactions with the scores of participants in the

Table 1. Description of participants and baseline differences in the anthropometric details and self-concept scores of adolescent females of highest^a and lower^b Body Mass Index (BMI)

	Highest BMI N = 21 M (SD)	Lower BMI N = 59 M (SD)	t-value
Age (years)	13.0 (0.6)	12.9 (0.6)	1.7
Height (cm)	154.5 (5.8)	153.7 (6.1)	1.9*
Weight (kg)	61.9 (9.6)	42.0 (7.2)	8.9***
BMI	25.7 (2.8)	18.4 (2.3)	10.6***
Global Self-worth	2.5 (0.6)	3.1 (0.5)	3.8***
Physical Appearance	2.1 (0.6)	2.6 (0.6)	2.9**
Romantic Appeal	2.1 (0.3)	2.4 (0.4)	2.3*
Job Competence	2.4 (0.5)	2.7 (0.5)	1.9*
Discrepancy ^c	-6.0 (3.5)	-3.6 (2.5)	3.1**
Beck Depression	49.6 (11.6)	44.3 (11.8)	1.6
Spielberger State Anxiety	29.9 (10.3)	29.2 (5.2)	0.4
Spielberger Trait Anxiety	32.7 (5.9)	32.2 (6.5)	0.3

* $p < .05$; ** $p < .01$; *** $p < .001$; d.f. = 1,78

^a Highest BMI = Participants in the top quartile (25%) of BMI

^b Lower BMI = Participants in the lower three quartiles (75%) of BMI

^c Discrepancy Score (Harter, 1988) = self-concept minus the importance of each aspect of self-concept. A negative score represents importance being rated more highly than perceived self-concept and this represents a poorer general self-esteem

Table 2. Change in the self-concept scores of adolescent females of Highest and Lower Body Mass Index (BMI) over three years

Measure	Time 1		Time 2		Time 3		Within subjects (Time) F	Between subjects (Group) F	Interaction (Group X Time) F
	Highest BMI M (SD)	Lower BMI M (SD)	Highest BMI M (SD)	Lower BMI M (SD)	Highest BMI M (SD)	Lower BMI M (SD)			
Global Self-worth	2.5 (0.6)	3.1 (0.5)	2.7 (0.8)	3.0 (0.6)	2.4 (1.0)	2.8 (0.8)	2.9	10.8**	0.4
Physical Appearance	2.0 (0.6)	2.6 (0.6)	2.3 (0.7)	2.5 (0.7)	1.7 (0.8)	2.4 (0.8)	6.0**	11.2**	3.3*
Behavioral Conduct	2.7 (0.4)	2.8 (0.5)	2.5 (0.5)	2.7 (0.5)	2.2 (1.0)	2.7 (0.6)	4.1*	5.6*	1.6
Scholastic Competence	2.5 (0.6)	2.6 (0.5)	2.6 (0.7)	2.8 (0.7)	2.3 (1.0)	2.8 (0.7)	2.6	4.2*	1.6
Athletic Competence	2.4 (0.6)	2.7 (0.6)	2.5 (0.7)	2.7 (0.7)	2.1 (1.0)	2.6 (0.8)	2.5	5.5*	0.9
Romantic Appeal	2.1 (0.3)	2.4 (0.5)	2.4 (0.5)	2.6 (0.6)	2.1 (0.9)	2.5 (0.7)	2.1	8.8**	0.1
Job Competence	2.5 (0.5)	2.7 (0.5)	2.8 (0.6)	3.0 (0.6)	2.4 (1.0)	2.8 (0.7)	5.3**	5.9*	0.5
Close Friendship	2.7 (0.4)	3.0 (0.7)	2.8 (0.6)	3.3 (0.7)	2.2 (1.1)	3.1 (0.8)	5.1**	12.5**	3.1*
Social Acceptance	2.7 (0.6)	2.9 (0.6)	3.0 (0.6)	3.1 (0.6)	2.4 (1.1)	3.0 (0.7)	4.5*	5.7*	1.9

* $p < .05$; ** $p < .01$; *** $p < .001$; d.f. = 1,78
 Highest BMI ($n = 21$); Lower BMI ($n = 59$)

Highest BMI group decreasing significantly over the three-year time period for Physical Appearance ($p < .05$) and Close Friendship ($p < .05$). The statistically significant longitudinal decreases in self-concept subscale scores among the Highest and Lower BMI group during each time point are illustrated in Figure 1. Results of post-hoc LSD tests show that the Physical Appearance Self-concept scores of Highest BMI girls decreased significantly between Time 2 and Time 3 ($p < .001$) while the scores of girls in the Lower BMI group stayed relatively stable over the same period. A similar decrease in Close Friendship scores is illustrated in Figure 1 with the scores of the Highest BMI girls decreasing between Times 1 and 3 ($p < .05$) and between Times 2 and 3 ($p < .01$). The Close Friendship scores of the Lower BMI girls increased significantly between Time 1 and Time 2 ($p < .01$) and stayed stable after Time 2.

Although statistical tests for Group/Time interactions did not reach statistical significance for the other seven subscale scores, and post-hoc testing was therefore precluded, the patterns over time for the Highest BMI group to decrease between Time 2 and Time 3 more than the Lower BMI Group and the Lower BMI group to increase or stay relatively stable were consistent. These patterns are illustrated in Figures 2–4. All nine self-concept subscales

follow this pattern. Results in Figs 2–4 are presented in self-concept groupings illustrating domains of social self-concept (Figure 2), academic and employment-related self-concept (Figure 3) and self-worth/athletic self-concept (Figure 4).

There were no significant differences between Highest or Lower BMI groups for depression, State or Trait anxiety at Times 1, 2 or 3 and no significant group interactions for these variables over time ($p > .05$).

Discussion

The findings of the current study suggest that several aspects of a girl's self-concept may be adversely affected by a heavy weight status, and not just those related to physical appearance or social acceptance as found previously.

The results of the current study also lend some support to the hypotheses that the poorer self-concept among heavy girls continues to be characteristic during their adolescent years. This result confirms the findings of previous studies (Brown et al., 1998; French, Perry et al., 1995; Kolody & Sallis, 1995; Strauss, 2000) but extends the findings of these earlier studies by suggesting that a greater array of self-concept may be affected among heavy versus lower-weight adolescent girls.

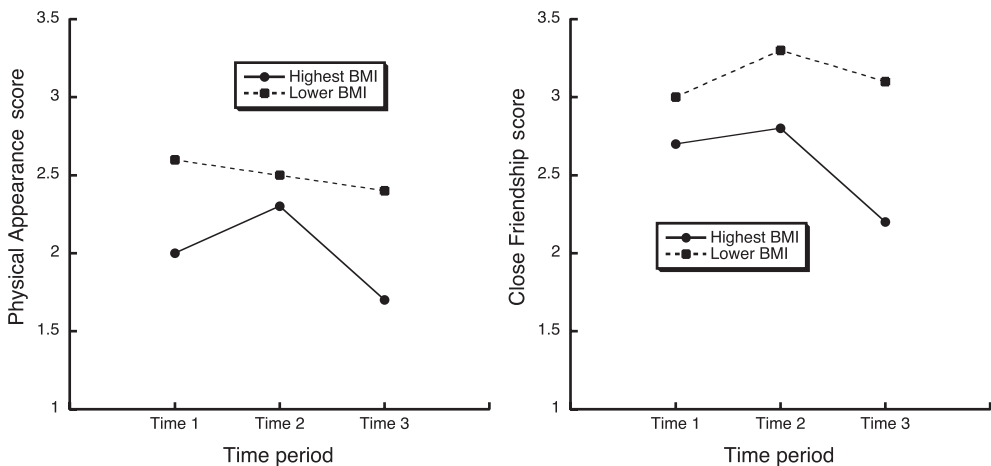


Figure 1. Change over three years in the Physical Appearance and Close Friendship Self-concept Scores of adolescent females of Highest and Lower Body Mass Index (BMI).

Highest BMI group ($n = 21$); Lower BMI group ($n = 59$)

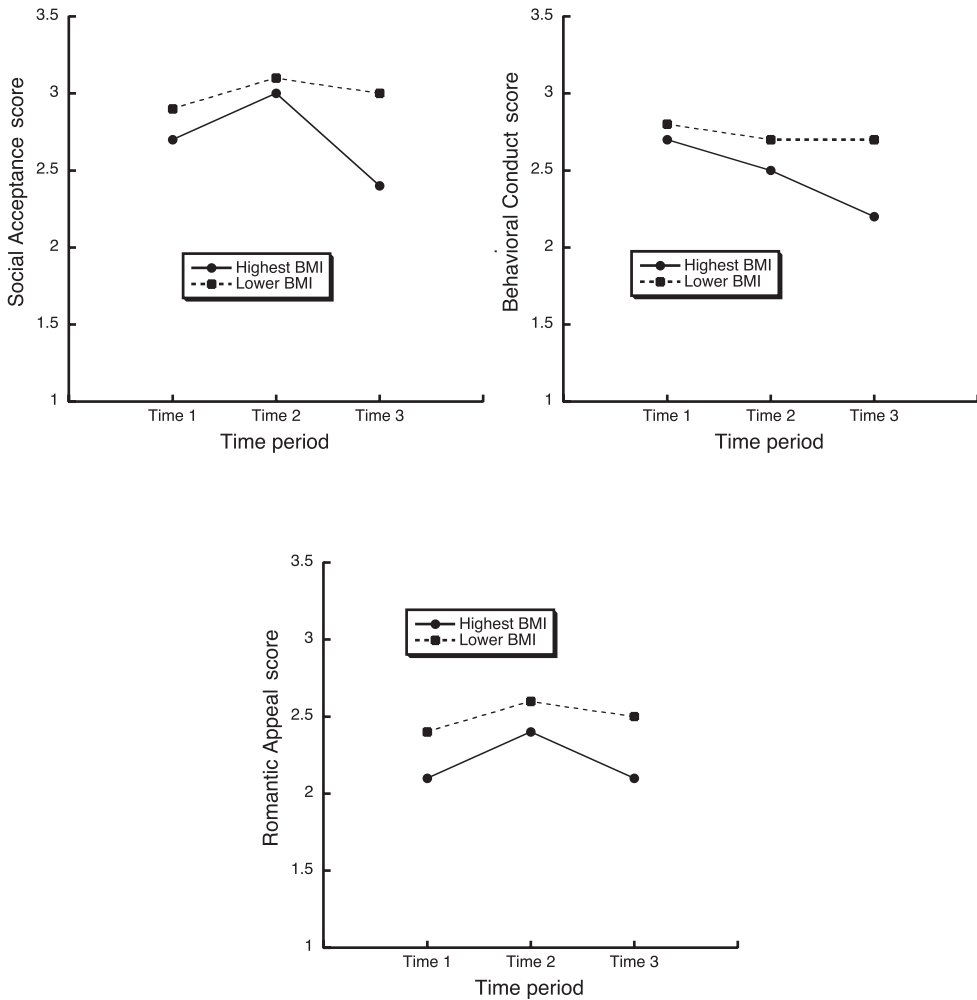


Figure 2. Change over three years in the Social Self-concept scores of adolescent females of Highest and Lower Body Mass Index (BMI). Highest BMI ($n = 21$); Lower BMI ($n = 59$)

The current study identified statistically significant differences between high and lower-weight girls in aspects of self-concept not previously thought to be impacted by weight, including scholastic competence and intelligence, job competence and popularity. It was concerning that the aspects of self-concept which were consistently lower in the heavier-weight girls were not exclusively related to physical appearance or body image as suggested by several previous studies (Mendelson et al.,

1995, 1996; Phillips & Hill, 1998). In addition, it was observed that all of the self-concept scores of heavier-weight girls were below the mean values for previously identified community samples of adolescent females.

These results are concerning because they suggest that the impact of weight on the female adolescent may be more pervasive than previously thought and appears to be associated with the overall self-perception of heavy girls. The heavy girls in the current study felt inadequate

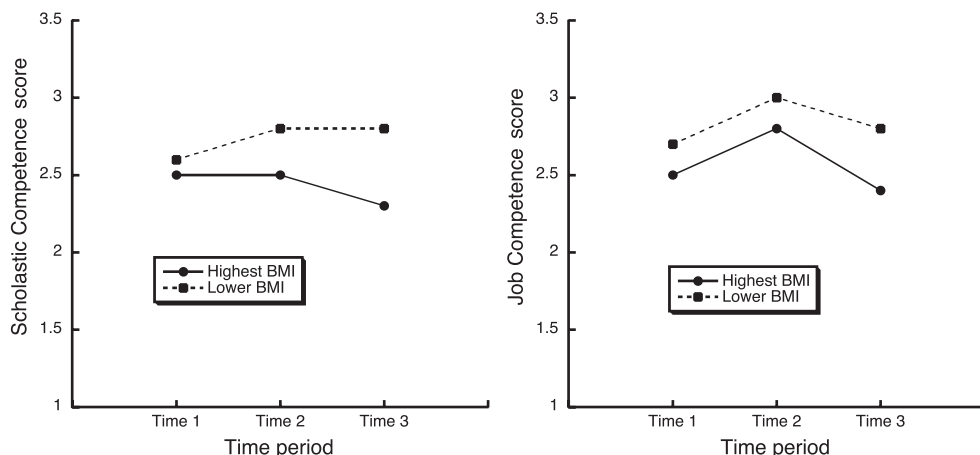


Figure 3. Change over three years in the Academic and Employment-related Self-concept scores of adolescent females of Highest and Lower Body Mass Index (BMI). Highest BMI group ($n = 21$); Lower BMI group ($n = 59$)

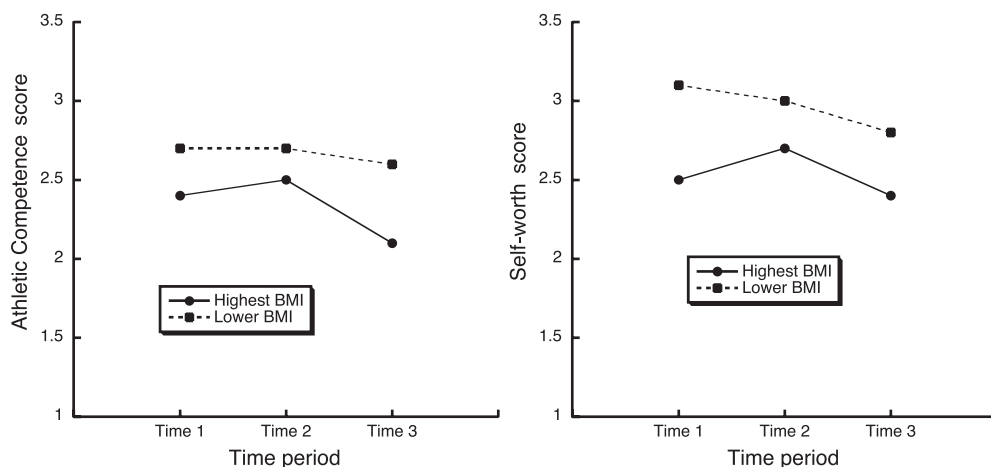


Figure 4. Change over three years in the Athletic Self-concept and Global Self-worth scores of adolescent females of Highest and Lower Body Mass Index (BMI). Highest BMI group ($n = 21$); Lower BMI group ($n = 59$)

in several aspects of themselves and this trend remained consistent over the three-year study period.

Another significant finding of the study was that the self-esteem of heavier-weight girls not only remained consistently lower than that of the lower-weight girls, but that two aspects of their self-concept, physical appearance and close friendship, become significantly poorer

over the study period. In addition, the pattern for all of the nine subscales of the heavier girls to become poorer appeared to be a consistent trend over the study period, which suggests that this result was a real trend which was due to more than just chance alone.

The longitudinal pattern for self-concept and self-esteem to become worse in heavier girls was observed but did not reach statistical significance

for all self-concept domains in this study, although the pattern of change suggests that all aspects of the heavier girls appear to have worsened. Because of the suggestive nature of these results, a larger study is currently being developed to incorporate greater statistical power in order to attempt to replicate these provocative findings.

The findings of the current study are concerning, because they suggest that heavier-weight girls may have poorer overall self-worth, poorer self-concept related to several different physical, social and academic domains of self-concept and that these trends continue and may worsen during the adolescent years. The stigmatization associated with overweight and obesity previously described in children (Latner & Stunkard, 2003) and adolescents (Lewis et al., 1997; Seidell, 1998) may be related to this overall poor self-concept in heavier girls. The observation that the overall trend in the data was for all nine of the self-concept subscale scores of heavier girls to decrease over time while the scores of lower-weight girls increased or remained relatively stable is a finding that arouses concern and warrants further longitudinal research in this area.

It would be helpful for further research studies to replicate and examine this trend in clinical and population-based groups of girls and boys, to further examine causation and association between weight and self-concept and to examine if such a finding is present among heavy boys, when the trend begins and if it continues or changes over time. This kind of additional information would be helpful in the early identification of low self-esteem, poor body image and overweight in children in order to intervene early and prevent a worsening of these problems.

It has been suggested that the trend for heavy children to have poorer self-esteem than their lower-weight peers begins early, with the self-concept of younger girls being adversely associated with body weight (Davison & Birch, 2002; Hill, Draper, & Stack, 1994). Others argue that changes at puberty including the weight and fat gain following menarche in young females are the key element in the poorer self-concept and body image of teenaged girls (Killen et al., 1994; O'Dea & Abraham, 1999b). These age, gender and pubertal factors should be studied in future longitudinal research.

The strengths of the current study design were centered on its longitudinal nature, the high retention rate of subjects over the three-year study period, the collection of complete data sets for each participant, the use of standardized instruments, the use of a multi-dimensional self-concept scale and the precise measurement of height and weight. The limitations of the study include a small sample size of one sex, which was selected from one private girls' school only. Hence, the generalizability of the current findings is limited. For these reasons, further longitudinal studies should examine these findings in larger groups of children, including boys, as current research suggests increasing body image concerns in young males (Field et al., 2001; Robinson, Chang, Haydel, & Killen, 2001).

The current findings have particularly relevant implications for activities involved with the treatment and prevention of childhood obesity and overweight. It has been suggested by several authors worldwide that body image programs and obesity treatment and prevention programs may inadvertently do more harm than good to young participants (Cameron, 1999; Ikeda et al., 1999; O'Dea, 2004a). Those who work with young people, including health professionals, teachers, counselors, school staff, youth workers and sports coaches should be aware that heavier teenaged girls are already at risk for the development of body-image concerns and poor self-esteem and that further focusing on their weight may only serve to make them feel worse about their weight, their bodies and, as the current study suggests, themselves in general.

The relentless pursuit of weight loss in overweight adults and the inevitable failure that follows is known to result in feelings of failure, guilt and inadequacy in adults (Ikeda & Mitchell, 2001; Wooley & Garner, 1991). The same adverse results are likely to occur in heavy-weight adolescents, and this strict weight loss and dieting approach should therefore be avoided in young people in order to protect them from further stigmatization, feelings of inadequacy, worthlessness, failure and low self-esteem.

Changing the focus of health education or child obesity prevention programs from highlighting negative, problem-based issues to helping young people build self-esteem, enjoy

healthy eating and regular physical activity without developing a fear of food is the first step in establishing positive nutrition practices and prevention programs which will do no harm.

Recently, it has been found that self-esteem development is a new, safe and successful approach to improve the body image of young male and female adolescents (McVey, Davis, Tweed, & Shaw, 2004; McVey, Lieberman, Voorberg, Wardrope, & Blackmore, 2003; O'Dea, 2004b; O'Dea & Abraham, 2000). These recent studies, together with suggestions from other researchers (Button et al., 1996; Ikeda et al., 1999; Shisslak, Crago, & Neal, 1990) suggest that protecting and improving the self-esteem of heavy or overweight adolescents may be the first step in helping these young people to feel better about themselves, which in turn, is likely to make them more likely to participate in the physical activities which assist with weight control.

Self-esteem programs in the treatment and prevention of child overweight are recommended by several authors and researchers working in the fields of eating disorders and child obesity prevention. One of the main objectives of self-esteem development in heavy or overweight children is to help them to recognize that everyone is unique and that differences between people are to be valued. Those who work with adolescents, especially health professionals, should be encouraged to reassure young people that they are accepted, valued and respected irrespective of their weight or shape.

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Author biography

JENNIFER A. O'DEA is an Australian body image and child health researcher with an MPH in Health Education from the University of California, Berkeley and a PhD in Medicine from the University of Sydney, Australia. Dr O'Dea is best known for her school-based self-esteem intervention study conducted among 500 young adolescents. The results of the 'Everybody's Different' intervention suggest that a program based on self-esteem alone will improve the body image, body dissatisfaction and physical self-image of early adolescent boys and girls and that some of these positive effects may still be detected at 12-month follow-up. Dr O'Dea is a member of the Faculty of Education & Social Work at the University of Sydney and a keen exponent of the self-esteem approach for body image improvement, eating disorder prevention and the nexus between eating disorders and child obesity prevention.
