

The Development of Self-Body-Image in
Overweight Youngsters

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ABSTRACT

THE DEVELOPMENT OF SELF-BODY-IMAGE IN OVERWEIGHT YOUNGSTERS

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This thesis examined whether self-body-image problems contribute to or result from obesity. The answer was sought in a developmental study of self-body-image with overweight and normal boys and girls. In addition, the thesis examined the relation between self-esteem and body-esteem.

Ninety-seven children participated in the study; they constituted three age groups (8.5 - 11.4 yr; 11.5 - 14.4 yr; 14.5 - 17.4 yr.) with about half overweight and half normal weight of both sexes. All children were tested on four experimental measures: self-concept test, body-concept tests, Coopersmith Self-Esteem Inventory, and Body-Esteem Scale.

At the youngest age, overweight and normal children had similar self-esteem, which suggests that self-esteem problems do not contribute to obesity at this age. At the middle age, self-esteem was adversely affected in overweight boys, but not in overweight girls. The drop in boys' self-esteem is possibly related to their poor sports ability. At the oldest age, self-esteem was affected in overweight girls, but not in overweight boys. Girls in later adolescence may

experience greater sex-role pressure to look slim and desirable.

With respect to self-concept, children made predictably more internal statements about themselves as they grew older. Surprisingly, overweight youngsters did not differ from normals.

With reference to body-esteem and body concept, overweight children had lower body-esteem and mentioned their relative weight (e.g., chubby) more than normal weight children, regardless of age. Therefore, poor body-esteem and knowledge of weight co-existed with good self-esteem in the youngest group.

Lastly, body-esteem and self-esteem were correlated at all ages and for both normal and overweight youngsters. Although self-esteem and body-esteem were correlated, relative weight was the best predictor of body-esteem. Independent of relative weight, however, self-esteem still predicted body-esteem for children in the two older age groups. That is, independent of weight, youngsters with low self-esteem tended to have low body-esteem.

On the basis of these data, considerations for the treatment of overweight youngsters at various ages were explored.

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Obesity is a major health problem in North America, a problem that is becoming more prevalent in children (Forbes, 1975). Besides health risks associated with it (Coates & Thorenson, 1980), childhood obesity becomes more prevalent with increasing age (Huenemann, Hampton, Behnke, Shapiro, & Mitchell, 1974) and tends to persist into adulthood (Abraham & Nordsieck, 1960; Charney, McBride, Lyon, & Pratt, 1976). One of the major problems in treating obesity is our lack of information on the causes and effects of the disorder.

Many researchers agree that obesity is a complex condition caused by interacting factors (Bruch, 1973; Rodin, 1982). Rodin (1982) proposed a biopsychosocial model that implicated several causal factors: genetic predisposition, responsiveness to external cues such as the passage of time and the taste and sight of food, as well as physiology related to internal regulatory cues, hypothalamic lesions, release of insulin, and overfeeding.

Current research suggests that there are two effects of obesity: physical problems and psychological problems of self-body-image. If the only problem associated with obesity were physical, the main concern would be devising treatment programs for permanent weight loss that start early in childhood. In addition to physical problems, however, obese adults may have general psychological

difficulties such as alienation, low self-worth, behavioural immaturity, and hypochondria (Craddock, 1969; Werkman & Greenberg, 1967), and even obese children seem to suffer from a variety of interpersonal and social difficulties.

Relationships with parents of the overweight child may be disturbed (Hammar, Gareis, Campbell, Campbell, Moore, Sareen, & Lucas, 1972). The overweight child's relationships with peers may also be impaired. Children as young as 5 years will express an aversion to chubbiness (Lerner & Gellert, 1969) and children as young as 6 years old prefer the mesomorph or muscular body type (Staffieri, 1967). Furthermore, the overweight child is rated as socially unfavourable and aggressive by peers (Staffieri, 1967, 1972). It is therefore not surprising that overweight children have difficulty sustaining friendships (Young & Awdziej, 1979). In addition to problems with parents and peers, overweight children are rated more negatively than normal children by their teachers (Walker, 1962). By adolescence, overweight girls admit to a greater number of problems than normal adolescents (Held & Snow, 1972) and show similarities to racial and ethnic minorities (Monello & Mayer, 1963).

It is unclear whether psychological and social problems cause obesity, whether obesity causes psycho-

logical problems, or whether there is a continuous feedback loop. Certainly, the difficulties that overweight children have with parents, teachers and peers may affect how they view themselves and how they view their bodies. In any case, a developmental study of self-body-image might clarify the cause-and-effect dilemma in obesity. It might highlight when an overweight individual starts to feel or think about himself/herself or his/her body differently from normal individuals. If psychological differences between overweight and normal children develop considerably after the onset of obesity, one may reasonably conclude that the psychological problems were an effect rather than the cause of obesity.

The main purpose of this thesis is to study the development of self-body-image in overweight youngsters. To do so, it is necessary to distinguish several aspects of self-image and body-image. The global term self-image comprises two terms: self-esteem and self-concept. Although the two terms are often used interchangeably (Beane & Lipka, 1980; Rosenberg, 1979), they are theoretically distinct concepts. Self-esteem is an individual's self-evaluation whether positive or negative; it expresses approval or disapproval and it reflects an individual's ability (Coopersmith, 1967). Self-report questionnaires

are generally used to measure self-esteem (Coopersmith, 1967; Piers, 1969). Self-concept is defined as an individual's thoughts and descriptions about the self (Rosenberg, 1979). It is measured in many ways ranging from reactions to a semantic differential scale (Dusek & Flaherty, 1981) to a free-description method that elicits spontaneous sentences about the self (McGuire & Padawer-Singer, 1976). Since self-esteem and self-concept define different, though related aspects of self-image, it seemed important to measure them independently.

The physical counterpart to self-image is body-image. Body-image is a complex term in the literature and includes two distinguishable aspects that are relevant to this thesis: (a) the feelings and attitudes about one's body (Fisher & Cleveland, 1968) which constitute an affective component of body-image (body-esteem); and (b) the thoughts and descriptions about one's body (body-concept).

Body-esteem is the body counterpart to self-esteem. It is an affective construct that includes an individual's attitudes, evaluations and feelings about the body. Body-esteem is generally measured by self-report questionnaires (Gray, 1977), open-ended interviews (Allon, 1979), or a reaction to body-related words (Secord & Jourard,

1953). Body-concept is the body counterpart to self-concept; it comprises an individual's thoughts and descriptions about the physical self. It can be measured by a free-description method that elicits spontaneous statements about the body (McGuire & Padawer-Singer, 1976). Again, body-esteem and body-concept were independently measured in this research.

This thesis focused mainly on self-esteem and body-esteem, but also concerned self-concept and body-concept. Four issues were addressed: (a) the developmental course of each construct; (b) sex differences; (c) the differences between overweight and normal individuals; and (d) the relation between self-esteem and body-esteem. Research relevant to each of these areas is discussed in the background section.

Background

Although it is generally accepted that overweight adults elicit negative stereotypes, there is less consensus about reactions to overweight children. The literature provides some clues, however, that negative stereotypes are associated with childhood obesity, which may account for suspected adjustment problems in overweight individuals.

Social Factors in Obesity

There has been considerable research on children's social stereotypes of body type. Staffieri (1967, 1972) showed that children as young as 6 or 7 years prefer the mesomorphic or muscular body type. In addition, they accept mesomorphic subjects on a sociometric measure more than they accept endomorphic subjects.

Children develop body-build stereotypes early. Kindergarten children make more physical statements about body builds than either social or personal statements, indicating they are highly aware of physique (Lerner & Schroeder, 1971a). Furthermore, kindergarten children express consistent aversions to photographs of chubby children (Lerner & Gellert, 1969) and prefer average body build (Lerner & Schroeder, 1971b). Lerner and his colleague (Lerner, 1969a; Lerner, 1969b; Lerner & Korn, 1972) extended this work and found that youngsters from childhood through college age have a predominantly favourable view of the mesomorph, a definitely unfavourable view of the endomorph, and a somewhat less negative but still unfavourable view of the ectomorph. Socially "negative" phrases (e.g., "be the poorest athlete" and "be the least aggressive") were assigned to the endomorph and ectomorph, but socially "positive" items (e.g., "assume

leadership" and "have many friends") were assigned to the mesomorph (Lerner, 1969b). Children also rate the overweight child as least likeable among a group of children with various physical handicaps (Alessi & Anthony, 1967; Richardson, Goodman, Hastdorf, & Dornbusch, 1961).

Although physique is an important factor in children's evaluation of their peers, other factors such as behaviour also determine peer acceptance (Young & Avdzej, 1979). Third, fourth and fifth graders assigned more negative adjectives to disobedient than obedient boys regardless of their weight and more negative adjectives to obese than nonobese boys, regardless of their behaviour. That is, the behaviour of the child may override the negative effects of his appearance, thereby influencing his acceptability.

Teachers and parents may also discriminate against the overweight child (Walker, 1962, 1963). Parents and teachers rated preschool children with different physiques. Relevant to this thesis, the endomorph was characterized as revengeful, inconsiderate, quarrelsome, highly energetic, extroverted and insensitive. It is unclear whether or not overweight preschoolers really have these characteristics, and, if not, whether they eventually

conform to their parents' and teachers' stereotypes.

Negative stereotypes against obesity also affect adolescents. High school teachers who write recommendations or college interviewers seem prejudiced against overweight adolescents even when interest and academic qualifications are constant (Canning & Mayer, 1966, 1968). Overweight females seeking acceptance to high-ranking colleges may be particularly subject to the problem.

In sum, children express an aversion for chubbiness at 5 years (Lerner & Gellert, 1969) and prefer the mesomorph body type as early as 6 years (Lerner & Schroder, 1971b; Staffieri, 1967). The aversion to chubbiness is maintained through adolescence and college years (Lerner, 1969b; Lerner, 1969a; Lerner & Korn, 1972). The stigma of overweight may work against the individual, cutting off social relationships and negatively influencing parents, teachers and peers (Canning & Mayer, 1966, 1968; Walker, 1962, 1963; Young & Avdzej, 1979). Such consistent prejudice may gradually erode the self-esteem of overweight individuals starting in early childhood.

Personality Factors in Obesity

Some research purports that emotional or personality factors precipitate obesity (Bruch, 1973). A more commonly

held view is that overweight individuals develop personality problems because they are a victim of various social factors. These personality problems may in turn compel the overweight individual to maintain a self-destructive eating cycle. One argument advanced against the position that emotional factors cause obesity is the failure to find consistent psychological traits in overweight individuals. Investigators using a wide variety of psychometric tests have tried to describe the exact nature of the overweight personality and of the adjustment problems associated with obesity. The conclusion is overwhelmingly simple: no one basic personality type is characteristic of all overweight persons (Leon, 1982; Rodin, 1982).

The most general personality traits are those of overweight adolescent girls. The effects of social and psychological pressures may lead to traits similar to those found in ethnic and racial minorities such as obsessive concern with their status, passivity, withdrawal from peers, and the acceptance of dominant values (Monello & Mayer, 1963). Obese adolescent girls also show behavioural immaturity, unrealistically high evaluation of themselves, social anxiety, depression, and hypochondriacal concerns (Werkman & Greenberg, 1967).

Finally, overweight girls admit to more problems than normal adolescents (Held & Snow, 1972) focusing on dependency, externalization of control, depression and mistrust (Snow & Held, 1973).

Obese adults may display a high degree of narcissistic strength (Suczek, 1957), or overcontrol of emotions and indirect expression of hostility (Atkinson & Ringuette, 1967). They may appear more immature, rigid and suspicious than normals (Moore, Stunkard & Strole, 1962) and may exhibit symptoms such as frustration, depression and tension (Goldblatt, Moore, & Stunkard, 1965). Finally, overweight females may have less feminine attributes than normals (Pomerantz, Greenberg, & Blackburn, 1977).

The many differences found between normal and overweight individuals cannot be easily summarized, and indeed, many studies found no psychological differences between the groups (Crumpton, Wine, & Groot, 1966; Friedman, 1959; Holland, Maisling, & Copley, 1970; Weinberg, Mendelson, & Stunkard, 1961). One hypothesis is that negative social feedback may affect the overweight individual's feelings and thoughts about self and body. The common personality factor may be disruptions in the development of self-body-image, which may mediate a wide range of adjustment problems.

Self-Image: Self-Esteem

One of the general self-body-image problems that may result from obesity is a change in self-esteem. While research on the personality of the overweight individual has not identified an exact profile, lowered self-worth seems to be a pervasive trait (Craddock, 1969). This section discusses social antecedents and the normal developmental course of self-esteem. Finally, research on self-esteem in the overweight is discussed.

Social antecedents. To fully understand its development, one must examine the factors that influence self-esteem. Three conditions foster high self-esteem in children: (a) totally (or nearly totally) accepting parents; (b) limits that are both clearly defined and enforced; and (c) respect and latitude for individual action within these limits (Coopersmith, 1967). However, some reservations must be expressed, since these results are based on a study with white middle class males between 10 and 12 years of age.

Once important parental attitudes may have a decreasing influence on adolescent self-esteem (Kokenes, 1974), when the peer group gains in importance. Social factors at school may be more of a determining influence on self-esteem during adolescence. Nonetheless, adolescents


who have close relationships with their fathers have higher self-esteem than adolescents who have distant relationships (Rosenberg, 1965, 1979).

One would expect majority group and high socioeconomic status persons to have higher self-esteem. However, the available evidence indicates that ethnic or minority group affiliation per se does not predict self-esteem (Rosenberg, 1965, 1979; Wylie, 1979). However, parental concern, which differs with social class, religion and ethnic groups is related to self-esteem. Thus, Protestants and Catholics have lower, not higher self-esteem than Jews (Rosenberg, 1965, 1979). Jewish children, especially boys, who receive increased parental attention, have higher self-esteem within the family.

The last social factor to influence self-esteem is the immediate similarity or dissimilarity of the individual to those around him. For example, black children attending white schools have lower self-esteem than black children attending mostly black schools; this difference increases with age. Thus, senior high students have lower self-esteem than junior high students in dissimilar environments (Rosenberg, 1965).

In sum, parental attitudes and behaviour seem to

influence self-esteem early on (Coopersmith, 1967). Also, the dissimilarity of the immediate social environment seems to affect self-esteem while ethnic or minority status, religion, and social class alone do not (Rosenberg, 1965, 1979).

Age trends. The developmental course of self-esteem has intrigued particularly investigators who believe that adolescence witnesses extreme disturbances of the self (Long, Ziller, & Henderson, 1968; Simmons, Rosenberg, & Rosenberg, 1973). Documenting disruptions in adolescents' overall self-evaluation would lend credibility to the notion of upheaval in adolescence. However, charting self-esteem development has not been easy. 

Wylie's (1979) major review of self-esteem research suggests that there are no age differences in self-esteem, but that self-esteem becomes more positive during adolescence. Unfortunately, Wylie did not review a major study by Rosenberg (1979) published at the same time. Rosenberg (1979) found a dramatic decline in self-esteem at 12 years of age. He used a six-item Guttman scale to assess overall self-esteem in 8- to 18-year olds. The scale was limited in scope and may have been difficult for the younger subjects to comprehend (e.g., "How happy are you with the kind of person you are? Answers: Pretty

happy; A little happy; Not at all happy."). Nonetheless other measures in the same study indicated that young adolescents also showed heightened self-consciousness, greater instability of the self, lower opinions of themselves with regard to certain qualities they value, and less of a belief that their parents, teachers and same-sex peers view them favorably. (Rosenberg, 1979). Furthermore, depressive affect was not uncommon at this age. Care should be taken in generalizing Rosenberg's findings since the major sample was predominantly black and working class. Nonetheless, Rosenberg's data concur with clinical impressions of parents and adolescents that turmoil occurs mostly between 12 and 14 years of age (Offer, 1969).

Finally, Rosenberg (1979) offered a logical explanation of his findings. He outlined three factors that seem to contribute to the upset in early adolescence. First, the onset of puberty causes physical changes and urges. A child who has not been self-conscious suddenly becomes aware of changes in size and hormones. Second, adolescence is marked by an important environmental shift from elementary to junior high school. The expectations of others such as teachers and peers are not clearly understood yet, and the young adolescent must make preliminary decisions about the future. Finally,

adolescents begin to define themselves as objects of observation. They are no longer oblivious to the scrutiny of others, but the attitudes of others are at best, uncertain. It is therefore not surprising that self-esteem suffers.

Older adolescents seem to establish new approaches to their earlier problems and thus raise their self-esteem (Engel, 1959; Piers & Harris, 1964). Thus, adolescents of 15 or more showed higher global self-esteem than both young children (aged 8-11) and young adolescents (aged 12-14) (Rosenberg, 1979). Other studies that were limited to adolescents also showed increases in self-esteem with age (Bachman & O'Malley, 1979; Jessor & Jessor, 1977; McCarthy & Hoge, 1982).

One of the problems in self-esteem research has been the measurement instrument. This thesis used the Coopersmith Self-Esteem Inventory which has been reworded for 8- to 10-year-olds. It is more extensive than the Rosenberg-Simmons Self-Esteem Scale; there are five subscales that allow coverage of many areas of a child's life such as peers, home and school. However, it is shorter than the Piers-Harris Children's Self-Concept Scale, so it is more convenient when used in conjunction with other tests. A developmental study of self-esteem using a more

extensive instrument would first, serve as a reference for understanding the developmental course of self-esteem in overweight youngsters and second, possibly contribute new information to the existing controversy with normal youngsters.

Sex differences. Sex differences in self-esteem have not been carefully analyzed (Rosenberg, 1979). One might expect sex differences in self-esteem at adolescence since pubertal changes usually occur earlier in girls. Thus, girls at this age may have less stable self-concept, higher self-consciousness (Rosenberg & Simmons, 1975; Simmons & Rosenberg, 1975), and lower self-confidence than boys (Maccoby & Jacklin, 1974). However, the results are equivocal and inconsistent. Some studies indicate lower self-esteem in adolescent girls than in boys (Bush, Simmons, Hutchison, & Blyth, 1977 - 1978; Rosenberg & Simmons, 1975) while others show negligible sex differences (Maccoby & Jacklin, 1974; Rosenberg, 1965).

Overweight differences. Surprisingly, self-esteem of overweight individuals has received comparatively little attention. Based on her experience in psychoanalytical therapy, Bruch (1941) characterized the obese child as fundamentally unhappy and maladjusted. She also found them timid, clumsy, insecure, insensitive,

unable to defend themselves, and exposed to the jeers of their class-mates.

Studies of self-esteem of overweight individuals have been sparse. Sixth and 7th grade boys with normal or muscular body types have higher self-esteem than obese boys (Felker, 1968; Felker & Kay, 1971). A comparison of the social and emotional adjustment of obese and non-obese children in grades 3, 5, 8 and 11 revealed no differences in social adjustment, but, collapsing across grade, obese youngsters had lower self-esteem than normal youngsters (Sallade, 1973). However, another study using the same measure of self-esteem with both boys and girls did not find such differences in grades 2 through 6 (Mendelson & White, 1982). In sum, overweight youngsters apparently have lower self-esteem than normals. However, specific age and sex differences are unclear. Further research on self-esteem development in the overweight would clarify and extend existing findings.

Self-Image: Self-Concept

Self-concept is the cognitive appraisal of oneself; it comprises all aspects of a thinking individual. Since self-esteem may be related to other aspects of a person's thoughts about the self, this thesis examined self-concept as well as self-esteem.

A measurement instrument to evaluate self-concept has posed some problems to researchers. Measuring self-concept with reactive methods that are scored with dimensions chosen by the researcher tends to lose information. A Piaget-type semi-structured interview (Guardo & Bohan, 1971; Mohr, 1978) yields better results, but the responses have to be carefully scrutinized for correct categorizations. Multi-dimensional instruments have been important in research on adolescent self-concept development (Dusek & Flaherty, 1981; Monge, 1973). Spontaneous self-concepts have been encouraged with the Twenty Sentences Test (Kikuchi, 1968; Montemayor & Eisen, 1977), which instructs subjects to write the first 20 sentences that come to mind about themselves. However, younger children may not be able to generate the same number of statements as older children. Some progress on studying spontaneous self-concepts involves a free-description method with two instructions: 1) "Tell me about yourself"; and 2) "Describe what you look like" (McGuire & Padawer-Singer, 1976). The last method was chosen for this thesis; its simple instructions are readily understood even by young children and it imposes no constraints on the type or number of responses given. Relatively little research has been done on the development of self-concept in

childhood and adolescence. Nonetheless, certain themes that characterize structural changes in self-concept emerge from the data. The theme most relevant here concerns a shift from external to internal modes of conceptualization. The shift begins at about 12 years of age but becomes more pronounced throughout later adolescence (Rosenberg, 1979, see Tables p. 208 & 210). Younger children tend to conceptualize themselves as social exteriors, as overt, physical objects. Such external characterizations seem to stress subsets of the following factors: health and constitution, appearance, physical abilities, citizenship, possessions, friends, family, and achievements (Kikuchi, 1968; Livesley & Bromley, 1973; Montemayor & Eisen, 1977; Rosenberg, 1979). In contrast, older children see themselves as psychological interiors, a world of thoughts, feelings and emotions. The internal self seems to stress subsets of the following factors: occupational role, interests and hobbies, relations with the opposite sex, comparison with others, interpersonal style, attitudes and values, thoughts, feelings, and desires (Kikuchi, 1968; Livesley & Bromley, 1973; Montemayor & Eisen, 1977; Rosenberg, 1979).

There has been no research on the self-concept development of the overweight child or adolescent. If

overweight adolescents were pre-occupied with their weight, they might not make the transition from external to internal characterizations. This thesis will examine self-concept in normal and overweight youngsters to determine if the generally observed shift from external to internal characterizations occurs in persons with differing body weight.

Body-Image: Body-Esteem

The physical counterpart to self-image is body-image. One of the problems that could result in an overweight child is a change in body-image. The development of body-image in overweight children has not been well-documented. Also, the relation between self-image and body-image is not known. Feelings and thoughts about the body may be differentially related to these same aspects of the self in general.

One aspect of body-image involves one's attitudes and feelings about one's body (Fisher & Cleveland, 1968), that is, body-esteem. Some adult studies of body-esteem are available. In an early investigation, Gottesfeld (1962) examined super-obese patients' feelings about their bodies and personalities. The "super-obese" patients were compared with neurotics both on their self-drawings and on self-ratings of personal traits. The self-drawings

of the super-obese patients omitted more body parts, were less differentiated and were judged as more negative.

In contrast, the super-obese were not more dissatisfied with their personalities than the neurotic patients.

Stunkard and Mendelson (1967) reported that obese adult patients suffered from body disturbances in three areas: self-evaluations, self-consciousness in general, and self-consciousness in relation to the opposite sex. An emotionally disturbed individual who became obese prior to adult life and whose family did not value obesity was particularly prone to feeling that his body was "grotesque" and "loathsome".

In a related series of studies, Stunkard and Burt (1967) focused on the age at onset of body disturbances. In one study, they examined two groups of adolescents with juvenile obesity: a) persons obese in childhood and adolescence ($N = 23$); and b) persons obese in adolescence but not in childhood ($N = 10$). Both groups suffered from body-esteem disturbances. Thus, being obese in childhood is not a critical factor in an obese adolescent's body-esteem. Unfortunately, there was not a group of normal adolescents who had been obese in childhood, so it was not possible to test the hypothesis that adolescence is the critical period for the onset

of body-esteem disturbances.

In another study, Stunkard and Burt (1967) did not find evidence of body-esteem disturbances in 9- to 11-year-old obese girls, but did find disturbances in adult women who had been overweight in adolescence and had subsequently lost weight. It is difficult, however, to draw any conclusions from the report, since the results are based solely on clinical interviews with patients in a weight control clinic.

Several studies have examined body-esteem in normal and overweight youngsters. Overweight adolescents generally have lower body-esteem (Allon, 1979; Hammar et al., 1972; Hendry & Gillies, 1978). Furthermore, overweight girls are dissatisfied with their weight and want to be slimmer (Davis, Best, & Hawkins, 11, 1980; Dwyer, Feldman, & Mayer, 1967; Dwyer, Feldman, Seltzer, & Mayer, 1969; Gray, 1977; Guggenheim, Poznanski, & Kaufmann, 1973, 1977; Huenemann, Shapiro, Hampton, & Mitchell, 1966; Mendelson & White, 1982; Miller, Coffmann & Linke, 1980), and, females generally have lower body-esteem than males (Dwyer et al., 1969; Gray, 1977; Miller et al., 1980). However, there has not been a systematic developmental study of body-esteem.

One of the problems has been the instruments used

to measure body-esteem. Some studies employed open-ended interviews (Allon, 1979; Guggenheim et al., 1973, 1977; Miller et al., 1980; Stunkard & Burt, 1967; Stunkard & Mendelson, 1967) and questionnaires (Dwyer et al., 1967; Dwyer et al., 1969; Huenemann et al., 1966).. These methods are loosely structured and make the reliability of the results difficult to determine. The Body-Cathexis Scale (Hammar et al., 1972) and six affective dimensions of the semantic differential scale (Hendry & Gillies, 1978) are extremely difficult to use with children because they tend to consistently choose a position on the scale and persist with it. Lastly, self-report items on body-esteem (Gray, 1977) are often too short to be meaningful or are difficult for younger children to interpret. This thesis used a measure of body-esteem suitable for children aged 8 to 17 years that was developed by Mendelson and White (1982) to conduct a thorough developmental study.

Body-Image: Body-Concept

Another aspect of body-image concerns an individual's spontaneous description of his body, i.e., body-concept. Body-concept has only been investigated in normal children (McGuire & Padawer-Singer, 1976) and there has not been a systematic developmental study of body-concept. This thesis will use a free-description method designed to

elicit spontaneous statements about aspects of the body that readily come to mind (McGuire & Padawer-Singer, 1976).

Research on trait-salience may be relevant to body-concept in overweight youngsters. A trait is spontaneously salient in a person's body-concept to the extent that the trait is distinctive for the person in a social group (McGuire & Padawer-Singer, 1976). Using a free-description method, children with unusual characteristics were 1½ times as likely to spontaneously mention it than those with more typical characteristics. Specifically as regards weight, excessive mention was shown about equally by over- and under-weight children. McGuire and Padawer-Singer (1976) took this as evidence of the distinctiveness hypothesis which predicts that we notice any aspects of ourselves to the extent that our characteristics on that dimension are unusual in our social milieu.

The Relation between Self-Esteem and Body-Esteem

Self-esteem and body-esteem are both affective aspects of the self. Thus, it is not surprising that researchers have found a noteworthy relation between feelings about the body and feelings about the self in normal adults (Clifford, 1971; Rosen & Ross, 1968; Secord & Jourard, 1953). However, it is surprising that,

with one exception (Mendelson & White, 1982), there is no developmental research on the issue nor research with overweight populations.

Mendelson and White (1982) tested 36 overweight and normal children between 7.5 and 11 years of age. Self-esteem was measured with the Piers-Harris Children's Self-Concept Scale and body-esteem was tested with a new measure called the Body-Esteem Scale. The Body-Esteem Scale proved to be reliable ($r = .85$, $p < .001$ between odd and even scores) and to have construct validity ($r = .67$, $p < .002$ with the six-item subscale of the Piers-Harris called "Physical Appearance and Attributes").

Relative weight and self-esteem were not related ($r = -.27$, $p > .05$), contrary to earlier findings (Felker, 1968; Felker & Kay, 1971; Sallade, 1973). The contradiction is likely due to the younger age range in this study. However, overweight children did have lower body-esteem than normal weight children ($r = -.55$, $p < .002$). Children may be aware of cultural stereotypes and apply them to themselves or perhaps overweight children incorporate others' opinions about their weight.

Body-esteem and self-esteem were correlated for children over a wide range of weight ($r = .68$, $p < .002$). This result is similar to findings with adults and

adolescents that feelings about the body are associated with feelings about the self (Clifford, 1971; Rosen & Ross, 1968; Secord & Jourard, 1953). Apparently, children who are dissatisfied with their personal appearance are also dissatisfied with aspects of their lives unrelated to their looks, aspects such as intellectual and school status, behaviour and anxiety.

Most importantly, relative weight was the best predictor of body-esteem with self-esteem accounting for a small additional amount of variance. In contrast, only body-esteem was a good predictor of self-esteem. Thus, being overweight was related to children's feelings about their bodies, but not about themselves; furthermore, independent of weight, feelings about the body and the self were correlated.

Mendelson and White (1982) provided the first developmental data on the relation between self-esteem and body-esteem. However, they investigated a narrow age span. The present thesis will extend their work and explore the relation between self-esteem and body-esteem over a wide age range.

Statement of the Problem

One goal of this thesis was to clarify the terms self-image (i.e., self-esteem and self-concept) and body-

image (i.e., body-esteem and body-concept). Another broad aim was to address an important question in the field of obesity, namely whether self-body-image problems cause obesity (Bruch, 1973) or result from obesity (Rodin, 1982). The answer was sought in a developmental study of self-body-image. If self-body problems cause obesity, even young children who are overweight should have such difficulties. If, however, obesity causes self-body problems, a developmental study would indicate when these problems emerge in overweight youngsters. A developmental study limited to overweight children would be incomplete, so another important dimension of the research involved comparing overweight and normal youngsters. Moreover, since society reacts more negatively to overweight females than overweight males (Hammar et al., 1972), this research also examined sex differences in self-body-image. Finally, the thesis examined the relation between self-esteem and body-esteem. Although the two terms are often used indiscriminately, they are in fact quite different. Self-esteem is a general self-evaluation specific to one's body and appearance. These two types of self-evaluation may or may not be related in children of different ages and weight.

It was reasonable to expect certain findings based

on previous research. With respect to self-esteem, overweight youngsters were expected to have lower self-esteem than normal youngsters, but the specific age and sex differences were unclear (Felker, 1968; Felker & Kay, 1971; Mendelson & White, 1982; Sallade, 1973).

The self-concept literature also suggested some possible results. Older children were expected to make more statements than younger children (McGuire & Padawer-Singer, 1976) and to have a higher proportion of internal statements (Kikuchi, 1968; Livesley & Bromley, 1973; Montemayor & Eisen, 1977; Rosenberg, 1979). Furthermore, females were expected to make more statements about themselves than males (McGuire & Padawer-Singer, 1976). However, the literature provided no basis for predicting differences between normal and overweight youngsters.

With reference to body-esteem, overweight youngsters were expected to have lower body-esteem than normal youngsters (Allon, 1979; Davis et al., 1980; Hammar et al., 1973; Hendry & Gillies, 1978; Mendelson & White, 1982), and females were expected to have lower body-esteem than males (Dwyer et al., 1969; Gray, 1977; Miller et al., 1980). However, there was no firm basis for making predictions about age-related changes in body-esteem.

With reference to body-concept, overweight youngsters were expected to mention their absolute and relative weight more than normal youngsters (McGuire & Padawer-Singer, 1976). Females were expected to mention their relative weight more than males (Dwyer et al., 1969; Gray, 1977; Miller et al., 1980), and to make more body-concept statements than males (McGuire & Padawer-Singer, 1976). As well, older children were expected to make more body-concept statements than younger children (McGuire & Padawer-Singer, 1976).

Finally, self-esteem and body-esteem were expected to be positively correlated (Clifford, 1971; Mendelson & White, 1982; Rosen & Ross, 1968; Secord & Jourard, 1953). Relative weight was expected to be a better predictor of body-esteem than self-esteem, at least at the youngest age if not at all ages (Mendelson & White, 1982). Lastly, body-esteem was expected to predict self-esteem better than relative weight predicted self-esteem at the youngest age, if not all ages (Mendelson & White, 1982).

Method

Subjects

A large sample of children and adolescents ranging in age from 8 years to 17 years was used for this

study. Both males and females were to be represented at each age. Half of the subjects of each sex were to be overweight and half normal weight according to specific criteria. To equate for socioeconomic status across the age range, both an elementary and high school with similar populations were needed for the study. Two working class English schools in Montreal, Quebec agreed to participate. A complicating factor was that the children were of mixed ethnic and language backgrounds. Many children spoke English as a second language with Greek and Chinese being the languages often spoken at home. Therefore, it seemed necessary to assess English comprehension to ensure both that the subjects could understand the tests being given and that overweight and normal weight youngsters were comparable. The Peabody Picture Vocabulary Test (Dunn, 1965) was selected as an estimate of verbal comprehension. It is appropriate for the full age range of subjects and requires less than 15 minutes to administer.

In the high school, overweight children were targetted by visual impression (U.S. Public Health Service, 1975) by the experimenter, the school nurse, or the gym teachers. In the elementary school, overweight children were targetted primarily by the classroom teacher or the principal. Normal weight children were chosen from

the same classrooms as the overweight children. Each child's relative weight was assessed with the Baldwin-Wood sex appropriate weight-for-height-for-age norms intended for international use (Baldwin, 1925; Jelliffe, 1966). Relative weight was defined as actual weight divided by appropriate weight for height and age multiplied by 100.

Informed consent was obtained for all participants. The children were told they would be asked questions about how they viewed themselves, their school situation, their peers, their home environment, and their bodies. The children were given consent forms (Appendix A) to be signed by the parents. Approximately 125 forms were distributed in the high school and the return rate was about 50%. Although this may seem low, it is higher than at least one other similar study using consent forms (McCarthy & Hoge, 1982). Although students seemed interested in participating, they often "lost" or "forgot" the forms. Parental consent did not seem to be the problem; parents signed forms if youngsters brought the forms home. Students' ambivalence to the study might be an explanation; however, the principal confirmed that her students generally had problems returning forms. The return rate in the elementary

school was about 90%, perhaps due to the greater supervision and compliance of younger children.

Ninety-seven children comprised the final sample. The children's ages ranged from 8.5 yr to 17.4 yr ($\bar{X} = 12.9 \pm .3$ yr). The subjects constituted three age groups (see Table 1). The youngest subjects ranged in age from 8.5 to 11.4 yr ($\bar{X} = 10$ yr). The middle age group ranged in age from 11.5 to 14.4 yr ($\bar{X} = 13$ yr); the oldest age group ranged in age from 14.5 to 17.4 yr ($\bar{X} = 16$ yr). There were 47 females and 50 males. Forty-eight children were overweight, defined as 112% or more of their ideal body weight (range = 112% to 169%; $\bar{X} = 130\% \pm 14\%$); forty-nine children were normal weight, defined as less than 107% of their ideal body weight (range = 83% to 107%; $\bar{X} = 96\% \pm 7\%$)¹. The Peabody IQ scores were computed as well (range = 60 to 141; $\bar{X} = 94.6 \pm 17.7\%$). Given the low Peabody IQ scores of some of the subjects, it is important to note that the Peabody probably does not accurately reflect intelligence in our sample. Rather it compares English vocabulary to that of a white sample in and around Nashville, Tennessee on which the test was standardized in 1958.

Nonetheless, a question remains as to whether or not the youngsters with low Peabody scores could read

the tests administered in the study. There are several reasons to believe they could. First, all students were functioning adequately at their grade level and were all at or above the minimum grade level for the tests. Second, the experimenter was always present to answer any questions that the subjects might have about the tests. Only three or four questions were asked, all of which were relatively minor. Finally, if children misunderstood the tests, they would have responded randomly, which, as the results make clear, was not the case. Random answers would have increased the error variance and would only have lessened the probability of obtaining results.

The mean for IQ^2 and relative weight are presented in Table 1. All the groups were fairly similar in IQ and most were in the average range. To ensure that there were no differences in IQ across the groups, the data were subjects to a $2 \times 3 \times 2$ least-squares analysis of variance with Weight, Sex and Age as between-subjects variables (Winer, 1971) (Table 2). Although none of the main effects or interactions reached significance, the effect of Age approached significance, $F(2,85) = 2.92$, $p < .06$; that is, the older children seemed to have slightly higher IQ scores ($\bar{X} = 91.6, 91.8, 102.1$).

Table 1

Mean IQ and Mean Relative Weight (RELWT)
for Each Weight x Age x Sex Group

Weight	Age	Sex	IQ	RELWT(%)	N
Normal	10a	Female	95.0	92	6
		Male	88.4	98	7
	13	Female	83.6	94	10
		Male	94.7	96	10
	16	Female	104.1	99	7
		Male	102.8	99	9
Overweight	10	Female	89.1	129	8
		Male	93.7	125	10
	13	Female	93.2	126	11
		Male	96.6	128	8
	16	Female	94.2	140	5
		Male	105.5	140	6

$\bar{X} = 94.6$ $\bar{X} = 113$
S.D. = 17.7 S.D. = 20

a In this table and all subsequent tables and figures,

10 refers to 8.5 to 11.4 years
13 refers to 11.5 to 14.4 years
16 refers to 14.5 to 17.4 years

Table 2

Summary of the Analysis of Variance
for IQ Scores

Source	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>
Weight (W)	8.6321	1	8.6321	0.03
Sex (S)	321.7084	1	321.7084	1.04
Age (A)	1813.2836	2	906.6418	2.92
W X S	166.1125	1	166.1125	0.54
W X A	365.3119	2	182.6560	0.59
S X A	295.9164	2	147.9582	0.48
W X S X A	543.1515	2	271.5757	0.88
Error	26355.4134	85	310.0637	

respectively for the three age groups). It is not surprising that children in this second-language group improve with age on a verbal-comprehension task. Most importantly, however, the effect of Weight was not significant, $F(1,85) = .03$, $p > .05$; that is, there were no differences between the overweight ($\bar{X} = 94.8$) and normal weight ($\bar{X} = 94.4$) children in IQ. It is also important to note that IQ did not correlate with any of the dependent variables in the study (Appendix B).

Relative weight for the normal groups was predictably constant; relative weight was about the same for the two youngest overweight groups, with the third group being slightly higher. To test the differences in relative weight, the data were subjected to a least-squares analysis of variance with Weight, Sex and Age as between-subjects variables (Winer, 1971) (Table 3). In addition to the expected main effect of Weight, $F(1,85) = 228.29$, $p < .001$, the analysis revealed a significant effect of Age, $F(2,85) = 5.46$, $p < .01$; post-hoc Newman-Keuls tests however, did not reveal any significant differences among the age groups. Still, an explanation is necessary, since the oldest age group had a relative weight that was about 10% higher than the two younger age groups. This difference is consistent with Garn and Clark's

Table 3

Summary of the Analysis of Variance
for Relative Weight

Source	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>
Weight (W)	2.7799	1	2.7799	228.29***
Sex (S)	0.0028	1	0.0028	0.23
Age (A)	0.1329	2	0.0665	5.46**
W X S	0.0057	1	0.0057	0.47
W X A	0.0352	2	0.0176	1.45
S X A	0.0032	2	0.0016	0.13
W X S X A	0.0091	2	0.0046	0.37
Error	1.0350	85	0.0122	

** $p < .01$

*** $p < .001$

(1976) observation that girls become fatter during adolescence. Thus, it may be difficult to find older female adolescents who are comparable in relative weight to their younger counterparts. There are no comparable data on overweight males at this age. In contrast, boys who are initially lean become even leaner in later adolescence (Garn & Clark, 1976); indeed some of the subjects with low relative weight were adolescent boys. Thus, the inequalities in relative weight across subsamples realistically reflect known inequalities in the population. Nonetheless, to ensure that any observed differences in the dependent variables were due to age and sex differences rather than to initial differences in relative weight, analyses of covariance using relative weight as a covariate were used where appropriate.

General Procedure

The study was conducted in two English schools of the Protestant School Board of Greater Montreal over a period of 2½ months. Each subject was seen individually during school hours for approximately 25 minutes. Testing was done in a quiet room in the school. The subject was assured that the information would be confidential and was shown the tape recorder that would be used to record verbal responses.

The same female experimenter tested all the subjects, and the experimental session consisted of five parts:

(a) Self-concept test: "Tell me about yourself"; (b) Body-concept test: "Describe what you look like"; (c) Coopersmith Self-Esteem Inventory; (d) Body-Esteem Scale; and (e) Peabody Picture Vocabulary Test. The tests were always administered in the same order and the experimenter was always present to answer any questions. Afterwards, the height and weight of each subject was noted.

Experimental Measures

Self-concept test. The test used to measure self-concept is called "Tell me about yourself" (McGuire & Padawer-Singer, 1976). It is an unstructured test and provides a verbal indication of a person's spontaneous self-concept. The measure allows an individual to choose the dimensions for self-description. Each subject was given the following instructions:

"I want you to think about yourself for a few minutes. Then I'm going to turn on the tape-recorder and write down what you say. Pretend that we have never met before. I don't know anything about you. Tell me about yourself."

The subject was given approximately one minute to think about the response and five minutes to respond. The youngster was prompted by the remarks "What else" and

"Anything else" to encourage additional comments. The test was discontinued when the subject did not respond for 30 seconds.

The responses were scored to yield the following dependent variables: (a) number of statements, and (b) proportion of internal statements. The first dependent variable was simply the total number of statements made by the subjects. The proportion of internal statements was calculated as the number of internal self-descriptions (Gordon, 1968) divided by the total number of statements made by the subject. Internal statements were statements that reflected the thoughts, feelings, beliefs or attitudes of the subject.

Body-concept test. The test used to measure body-concept is called "Describe what you look like" (McGuire & Padawer-Singer, 1976). This is an unstructured test designed to measure physical self-concept; that is, it provided a verbal statement of how an individual views his own body. The responses could be used to assess whether the characteristic of overweight was more salient to overweight subjects. Following the self-concept test, each subject was given the following instructions: "Now describe what you look like." The subject was given three minutes to respond and was prompted with the comments

"What else" and "Anything else" to encourage additional remarks. The test was discontinued if the subject did not respond for 30 seconds.

The following dependent variables were scored: a) number of statements, b) mention of absolute weight, and c) mention of relative weight. The first dependent variable was simply the total number of statements made by the subject. Each subject was then assigned a 1 for the mention of absolute weight (e.g., "I weigh 83-lb.") and a 1 for mention of relative weight (e.g., "I am chubby" or "I am skinny") or 0 if the weights were not mentioned.

Self-esteem test. The Coopersmith Self-Esteem Inventory (Coopersmith, 1967) was used to assess self-esteem (Appendix C). It consists of 58 items which are derived from Rogers and Dymond's (1954) self-concept scale and reworded by Coopersmith for 8- to 10-year-olds. The items constitute five subscales: (a) General Self, (b) Social Self and Peers, (c) Home and Parents, (d) School and Academic Self, and (e) Lie. The General Self has 26 items and all other subscales have eight items. All subscale items appear cyclically throughout the inventory. The Self-Esteem Inventory scores range from 0 to 100 where a high score indicates high self-

esteem. Coopersmith's (1967) normative study indicated a mean score of 70.1 ± 13.8 for females and 72.2 ± 12.8 for males. The Self-Esteem Inventory has a 5-week test-retest reliability of .88, a 3-year test-retest reliability of .70 (Coopersmith, 1967), and a split-half reliability of .87 (Fullerton, 1972).

The validity of the Self-Esteem Inventory is more difficult to assess than its reliability. Nonetheless, it has convergent validity in that it correlates .45 with the self-acceptance scale of the California Psychological Inventory (Taylor & Reitz, 1968). Predictive validity of the Self-Esteem Inventory is suggested by significant correlations with such variables as creativity, academic achievement, and resistance to group pressure (Coopersmith, 1967).

Body-esteem test. This thesis used a measure of body-esteem that had been used successfully with 7- to 11-year olds (Mendelson & White, 1982). It is a 24-item self-report instrument suitable for second-graders (Appendix D). The items, all of which have obvious face validity, reflect how a person values his/her appearance and body (e.g., "I like what I look like in pictures"; "I really like what I weigh") or how a person believes his looks are evaluated by others (e.g., "Kids my own age like

my looks"; "Other people make fun of the way I look"). There are an equal number of "yes" and "no" high esteem responses both in the first and second halves of the scale, and in the odd and even items. The scale is scored simply by counting the number of high esteem responses out of 24. A high score on the scale indicates high body-esteem.

Split-half reliability of the Body-Esteem Scale was calculated for odd and even items (Mendelson & White, 1982). Pearson product moment correlation between the sum of odd scores and the sum of even scores was high, $r = .85$, $p < .002$, indicating good reliability. The Pearson product moment correlation between the Body-esteem Scale and the subscale of the Piers-Harris Children's Self-Concept Scale called "Physical Appearance and Attributes" was significant, $r = .67$, $p < .002$, indicating that the Body-Esteem Scale has construct validity. However, the "Physical Appearance and Attributes" subscale has only six items related to appearance. So the Body-Esteem Scale was used in the present study since it had more items, and is probably less subject to response error.

Results

Self-Esteem

Analysis of variance. Self-esteem was measured with the Coopersmith Self-Esteem Inventory and the basic datum was the number of high-esteem responses out of 100 for each subject. Self-esteem was expected to be lower in overweight children than in normal weight children (Felker, 1968; Felker & Kay, 1971; Sallade, 1973) and it was unclear how age and sex would affect the self-esteem of normal children (Rosenberg, 1979; Wylie, 1979). It was also unclear how age and sex would affect the self-esteem of overweight children; part of the data on the only developmental study on self-esteem on overweight children (Sallade, 1973) were not supported by subsequent research (Mendelson & White, 1982). Figure 1 presents the mean self-esteem scores for each group of subjects. Children in the youngest group had similar self-esteem scores regardless of sex or weight. In the middle age group, overweight boys had lower self-esteem than normal boys, but the overweight and normal girls had similar self-esteem. In the oldest age group, overweight girls had lower self-esteem than the other groups. To test the significance of these results, the Coopersmith Self-Esteem scores were subjected to a least-squares analysis

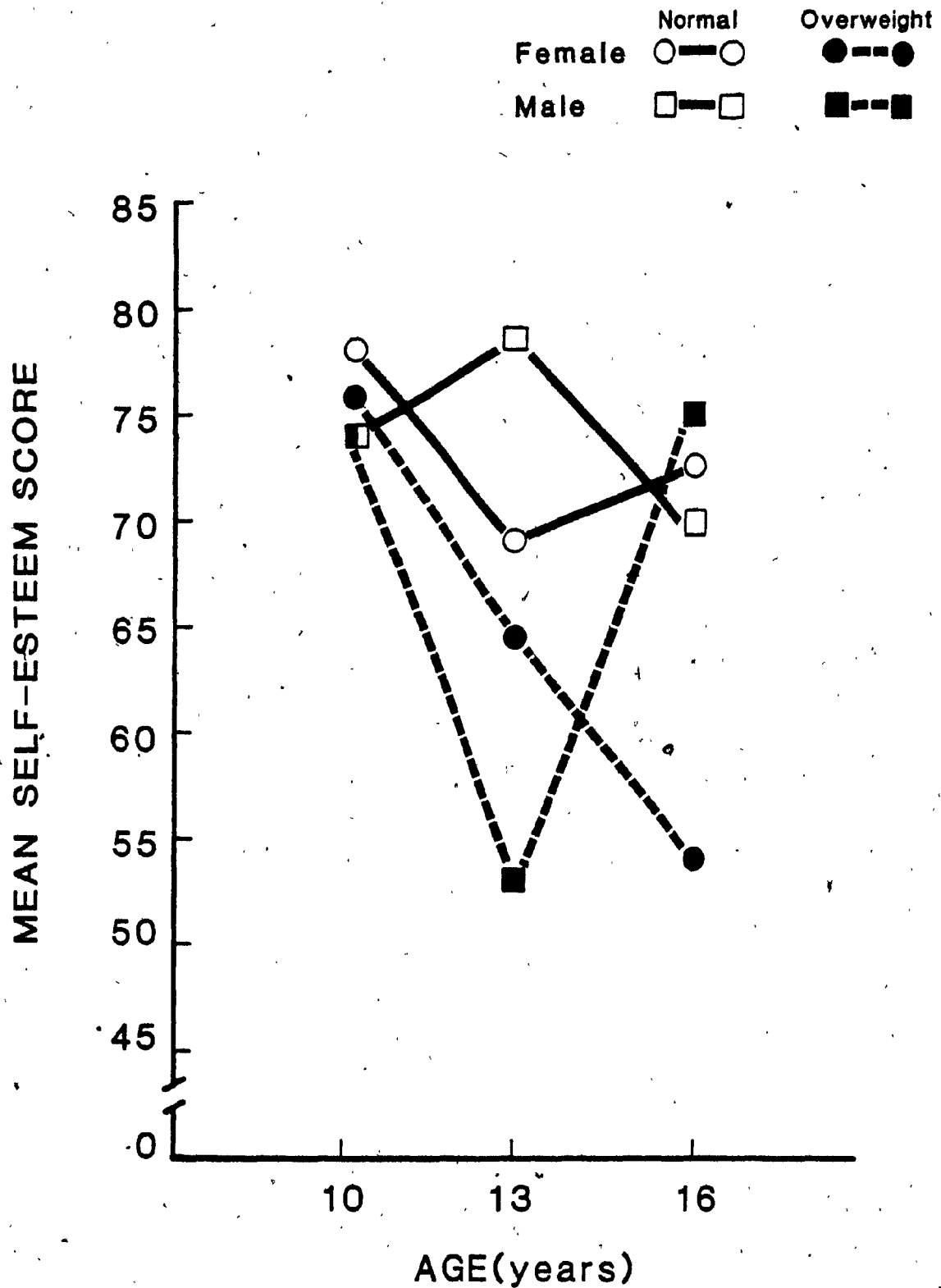


Figure 1. Mean self-esteem score as a function of age for each weight x sex group

of variance ($2 \times 2 \times 2$) with Weight, Sex, and Age as between-subjects variables (Winer, 1971) (Table 4).

Although the main effects of Weight, $F(1,85) = 6.31$, $p < .05$ and Age, $F(2,85) = 3.15$, $p < .05$ were significant, the effects were qualified by the Weight \times Sex \times Age interaction, $F(2,85) = 4.85$, $p < .05$. Hence, only the triple interaction is discussed. Tests of simple interaction effects and simple main effects were used to provide additional insight into the triple interaction (Winer, 1971).

Tests of simple interaction were done to determine how Weight and Sex affected self-esteem scores at each age (Winer, 1971). The Weight \times Sex interaction was not significant at the youngest age, $F(1,85) = 1.27$, $p > .05$. In contrast, the interaction was significant at the middle age, $F(1,85) = 6.09$, $p < .05$. Therefore, simple main effects were then computed to assess the differences between the individual means at this age. Overweight males had significantly lower self-esteem scores than normal males, $t(85) = 3.94$, $p < .01$, and marginally lower scores than overweight females, $t(85) = 1.85$, $p < .07$. However, normal males did not differ significantly from normal females ($t(85) = 1.58$, $p > .10$). In addition, the difference between the overweight females and normal

Table 4
Summary of the Analysis of Variance
for Self-Esteem Scores

Source	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>
Weight (W)	1308.5813	1	1308.5813	6.31*
Sex (S)	43.6862	1	43.6862	0.21
Age (A)	1306.5123	2	653.2562	3.15*
W X S	1.6924	1	1.6924	0.01
W X A	920.7504	2	460.3752	2.22
S X A	467.7960	2	233.8980	1.13
W X S X A	2011.1840	2	1005.5920	4.85*
Error	17626.4456	85	207.3700	

* $p < .05$

females failed to reach significance $t(85) = 4.45$, $p > .05$. At age 13, being overweight adversely affected self-esteem in boys but not in girls.

At the oldest age, there was also a significant Weight x Sex interaction, $F(1,85) = 4.02$, $p < .05$, simple main effects were again used to assess the differences between the individual means. Overweight females had significantly lower self-esteem scores than normal females, $t(85) = 2.03$, $p < .05$, and overweight males $t(85) = 2.21$, $p < .05$. There was no significant difference between the overweight males and normal males ($t(85) = 5.37$, $p > .05$), nor between the normal males and normal females ($t(85) = 5.13$, $p > .05$). At age 16, being overweight affected self-esteem in girls but not in boys.

Analysis of covariance. The previous analysis indicated that being overweight affected girls' self-esteem at the oldest age, but not at the two younger ages. Recall, however, that the overweight girls in the oldest age group had a relative weight that was about 10% higher than the overweight girls in the younger two age groups. Therefore, the following analysis was conducted to covary out Weight and determine the effects of Age on the self-esteem of girls at the oldest age.

Self-esteem scores of overweight youngsters were subjected to an analysis of covariance (2 x 2) with Sex and Age as between-subjects variables (Winer, 1971) (Table 5).

Although the main effect of Age, $F(2,41) = 6.58$, $p < .01$ was significant, this effect was qualified by the Sex x Age interaction, $F(2,41) = 5.00$, $p < .05$. Therefore, tests of simple effects on the adjusted means were used to provide additional insight into the two-way interaction (Winer, 1971).

Tests of simple effects were done to determine how Sex affected self-esteem at each age (Winer, 1971). The effect of Sex was not significant at the youngest age, $F(1,41) = .08$, $p > .05$. In contrast, the effect of Sex was significant at the middle age, $F(1,41) = 4.16$, $p < .05$, with males having lower self-esteem scores than females. At the oldest age, there was also a significant effect of Sex, $F(1,41) = 5.86$, $p < .05$ but at this age females had lower self-esteem scores than males. Thus, the results from the ANOVA were supported and the age-related effects on self-esteem are not attributable to the confound between age and relative weight.

Self-Concept

Analysis of variance Measures of self-concept were taken using an unstructured test called "Tell me about

Table 5

Summary of the Analysis of Covariance
for Self-Esteem Scores

Source	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>
Sex (S)	31.2576	1	31.2576	0.18
Age (A)	2288.7254	2	1144.3627	6.58**
S X A	1737.6265	2	868.8133	5.00*
1st Covariate	18.2816	1	18.2816	0.74
Error	7129.5608	41	173.8917	

* $p < .05$

** $p < .01$

yourself" (McGuire & Padawer-Singer, 1976). The responses were scored to yield the following dependent variables:

(a) number of self-concept statements, and (b) proportion of internal statements. The total number of statements was expected to increase with age (McGuire & Padawer-Singer, 1976) and females were expected to make more statements about the self than males (McGuire & Padawer-Singer, 1976).

Results of a standard test for the homogeneity of variance applied to the age groups was significant, $F(30,38) = 2.18$, $p < .05$. The relations between the means and the variances of the cells indicated that a square root transformation would be appropriate (Ferguson, 1981). Figure 2 presents the transformed number of self-concept statements for each group of subjects. In the youngest age group, girls made slightly more statements than the boys. At the other two age groups, the pattern of results was similar for all children, regardless of weight or sex. The transformed number of self-concept statements were subjected to a least-squares analysis of variance ($2 \times 2 \times 3$) with Weight, Sex and Age as between-subjects variables (Winer, 1971) (Table 6). None of the main effects or interactions reached significance. The present study did not support previous findings of age and sex

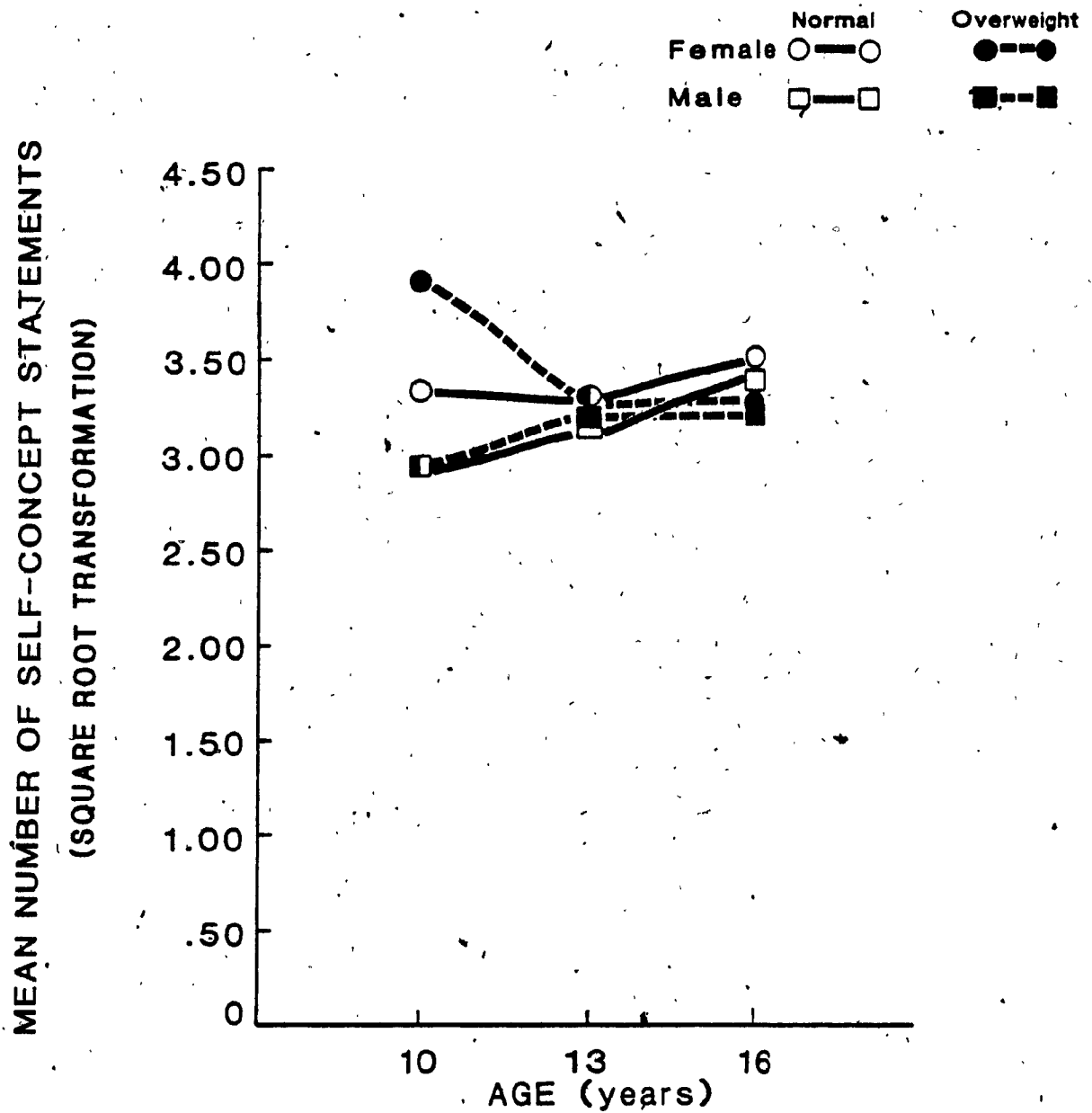


Figure 2. Mean number of self-concept statements (square root transformation) as a function of age for each weight x sex group

Table 6

Summary of Analysis of Variance for Number
of Self-Concept Statements

Source	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>
Weight (W)	0.1122	1	0.1122	0.18
Sex (S)	1.9556	1	1.9556	3.10
Age (A)	0.7165	2	0.3583	0.57
W X S	0.1247	1	0.1247	0.20
W X A	0.7429	2	0.3714	0.59
S X A	2.2955	2	1.1478	1.82
W X S X A	0.7881	2	0.3940	0.62
Error	53.6043	85	0.6306	

differences.

The second dependent variable was the proportion of internal self-concept statements which was expected to increase with age (Livesley & Bromley, 1973; Rosenberg, 1979). It was unclear however, how overweight youngsters would choose to describe themselves since there were no empirical studies on self-concept development in the overweight.

A standard test for the homogeneity of variance applied to the data from the age groups was significant, $F(30,26) = 2.21$, $p < .05$, and the relation between the means and variances of the cells indicated that a logarithmic transformation would be appropriate (Ferguson, 1981). Figure 3 presents the transformed proportion of internal self-concept statements for each group of subjects. The proportion of internal self-concept statements seemed to increase with age. There did not seem to be any particular pattern of results due to weight or sex. To test the significance of these results, the transformed proportion of internal self-concept statements were subjected to a least-squares analysis of variance ($2 \times 2 \times 3$) with Weight, Sex and Age as between-subjects variables (Winer, 1971) (Table 7). The analysis of variance revealed a main effect of Age, $F(2,85) = 4.17$,

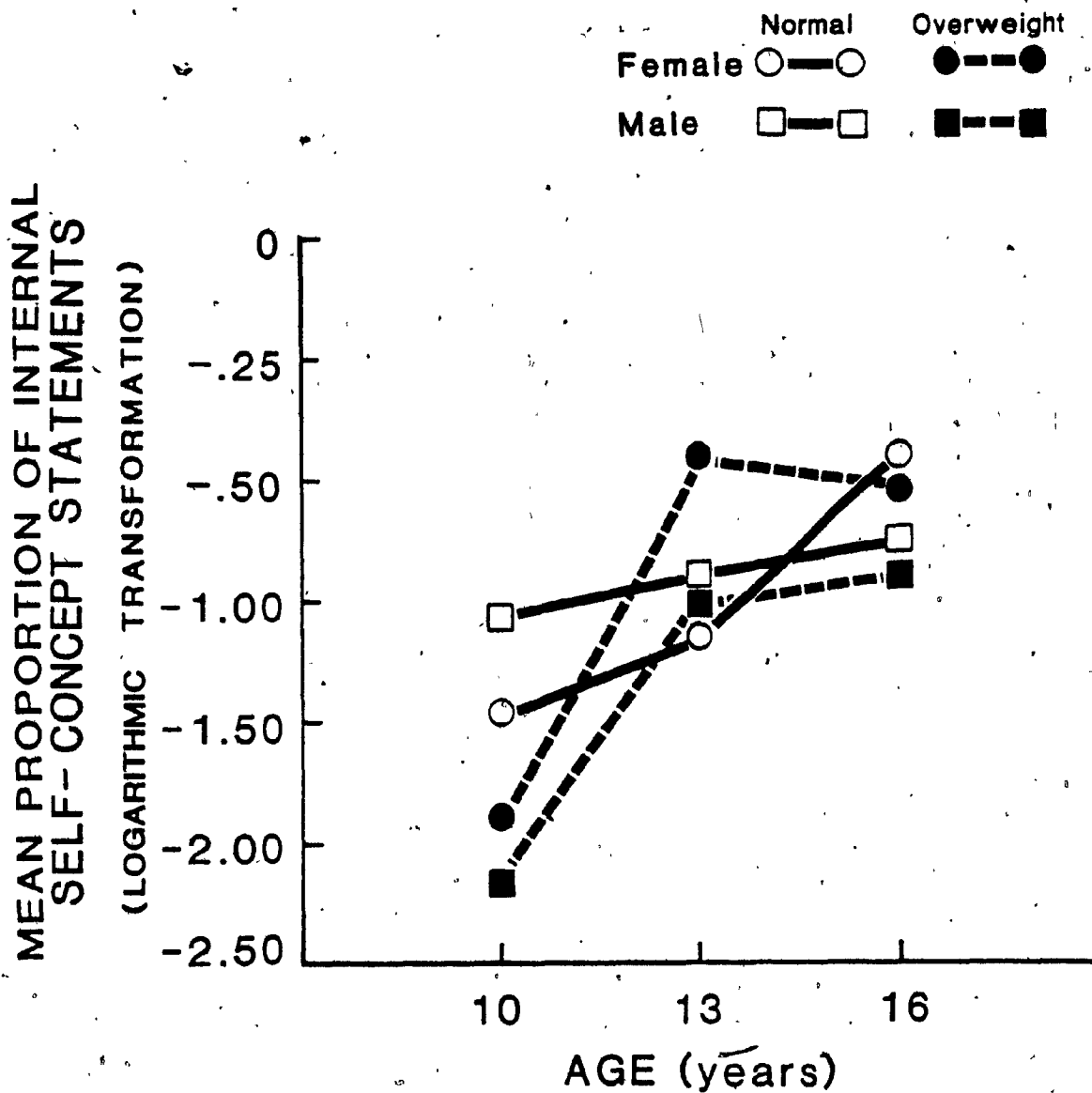


Figure 3. Mean proportion of internal self-concept statements (logarithmic transformation) as a function of age for each weight x sex group

Table 7

Summary of the Analysis of Variance
for Proportion of Internal
Self-Concept Statements

Source	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>
Weight (W)	0.8102	1	0.8102	0.47
Sex (S)	1.3321	1	1.3321	0.77
Age (A)	14.4942	2	7.2471	4.17*
W X S	2.5133	1	2.5133	1.45
W X A	5.3060	2	2.6530	1.53
S X A	0.8766	2	0.4383	0.25
W X S X A	0.5942	2	0.2971	0.17
Error	147.6795	85	1.7374	

* $p < .05$

$p < .05$. Newman-Keuls tests revealed a significant difference between age 10 and age 13 ($q = 3.67, p < .05$) and between age 10 and age 16 ($q = 4.14, p < .05$) but not between age 13 and age 16 ($q = .47, p > .05$). These data corroborate the finding in the literature that children shift from proportionally fewer to proportionally more internal statements with age. (An analysis of covariance on the transformed data with relative weight as a covariate revealed the same pattern of results, so results of the ANOVA were supported).

Body-Esteem

Analysis of variance. Body-esteem was measured using the Body-Esteem Scale. The basic datum was the number of high body-esteem responses out of 24 for each subject. The Pearson product-moment correlation between the sum of odd scores and the sum of even scores was high, $r = .83, p < .001$ and replicates an earlier finding with another population (Mendelson & White, 1982). Body-esteem was expected to be lower in overweight children than in normal children (Allon, 1979; Davis et al., 1980; Hammar et al., 1972; Hendry & Gellies, 1978; Mendelson, & White, 1982). Body-esteem was also expected to vary as a function of sex. Females were expected to have lower body-esteem than males (Dwyer et al., 1969,

Gray, 1977; Miller et al., 1980).

Figure 4 presents the mean body-esteem scores for each group of subjects. The mean body-esteem scores seemed to vary as a function of Weight and Sex; that is, overweight children had lower body-esteem than normal children, girls had lower body-esteem than boys. To test the significance of these results, the body-esteem scores were subjected to a least-squares analysis of variance ($2 \times 2 \times 3$) with Weight, Sex, and Age as between-subjects variables (Winer, 1971) (Table 8).

The analysis of variance for body-esteem revealed a significant main effect of Weight, $F(1,85) = 56.11$, $p < .001$ indicating that normal weight subjects scored higher on body-esteem than overweight subjects. There was also a main effect of Sex, $F(1,85) = 4.62$, $p < .05$, indicating that males scored higher on body-esteem than did females. Lastly, there was a significant main effect of Age, $F(2,85) = 3.32$, $p < .05$. Newman-Kuels tests were applied to the data, but none of the pairs of means were significantly different from each other (10 vs. 13: $q = 2.69$, $p > .05$; 10 vs. 16: $q = 1.41$, $p > .05$; 13 vs. 16: $q = 1.28$, $p > .05$); thus, the data cannot be interpreted with any confidence.

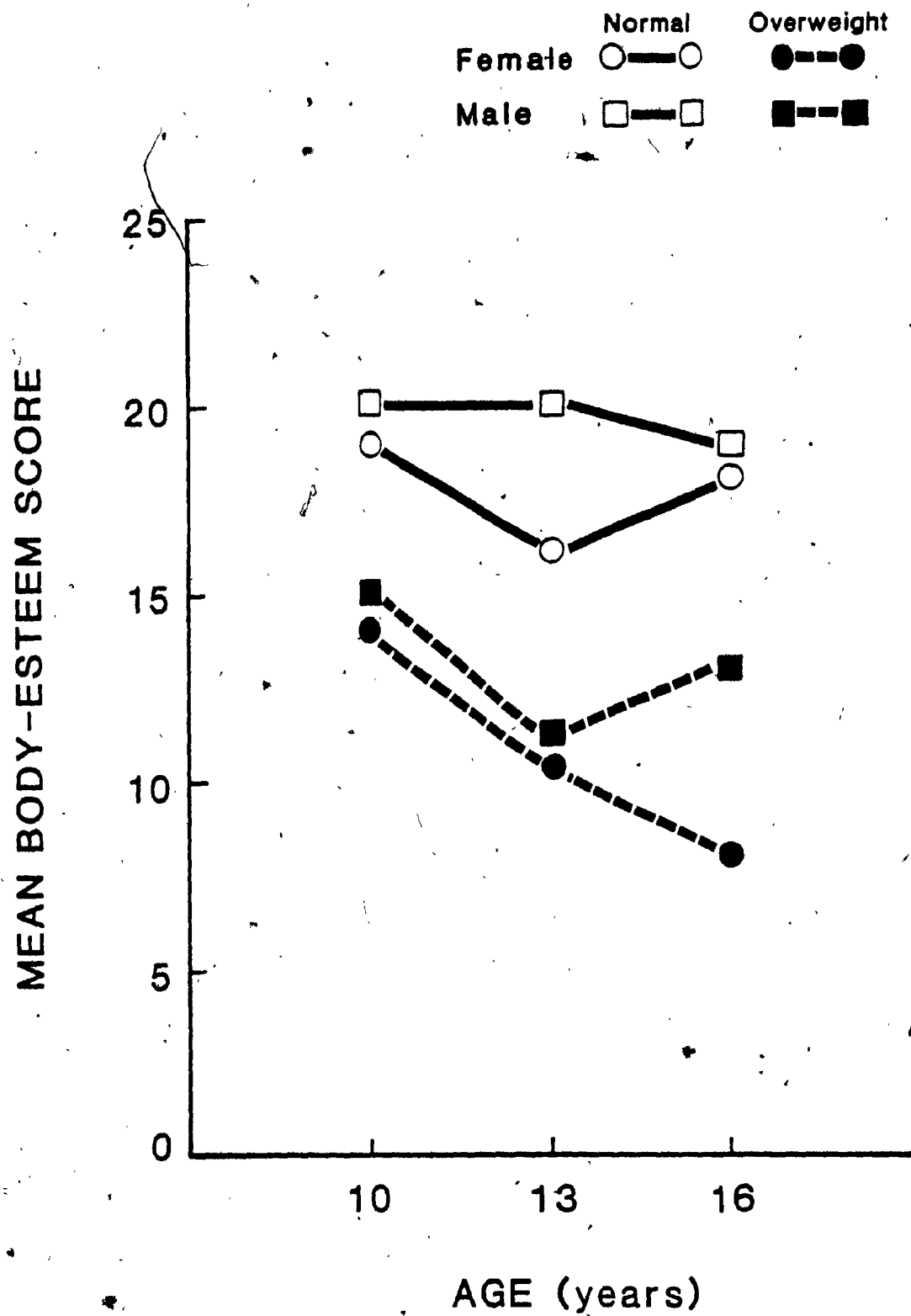


Figure 4. Mean body-esteem score as a function of age for each weight x sex group

Table 8

Summary of the Analysis of Variance
for Body-Esteem Scores

Source	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>
Weight (W)	1082.8414	1	1082.8414	56.11***
Sex (S)	89.1377	1	89.1377	4.62*
Age (A)	127.9989	2	64.9994	3.32*
W X S	1.6469	1	1.6469	0.09
W X A	29.4420	2	14.7210	0.76
S X A	27.3783	2	13.6892	0.71
W X S X A	23.8488	2	11.9244	0.62
Error	1640.3757	85	19.2985	

* $p < .05$

*** $p < .001$

Body-Concept

Analysis of variance. Measures of body-concept were taken using an unstructured test called "Describe what you look like" (McGuire & Padawer-Singer, 1976). The responses were scored to yield the following dependent variables: (a) number of body-concept statements, (b) mention of absolute weight, and (c) mention of relative weight. The total number of statements was expected to increase with age. (McGuire & Padawer-Singer, 1976); females were expected to make more statements than males (McGuire & Padawer-Singer, 1976). A standard test for the homogeneity of variance applied to the data from the age groups was significant, $F(30, 26) = 3.29$, $p < .05$, and the relation between the means and the variances of the cells indicated that a square root transformation would be appropriate (Ferguson, 1981). Figure 5 presents the transformed number of body-concept statements for each group of subjects. There appeared to be a sex difference in the number of body-concept statements, with females making more statements about their bodies than males. The transformed number of body-concept statements were subjected to a least-squares analysis of variance ($2 \times 2 \times 3$) with Weight, Sex and Age as between-subjects variables (Winer, 1971) (Table 9). The analysis of variance

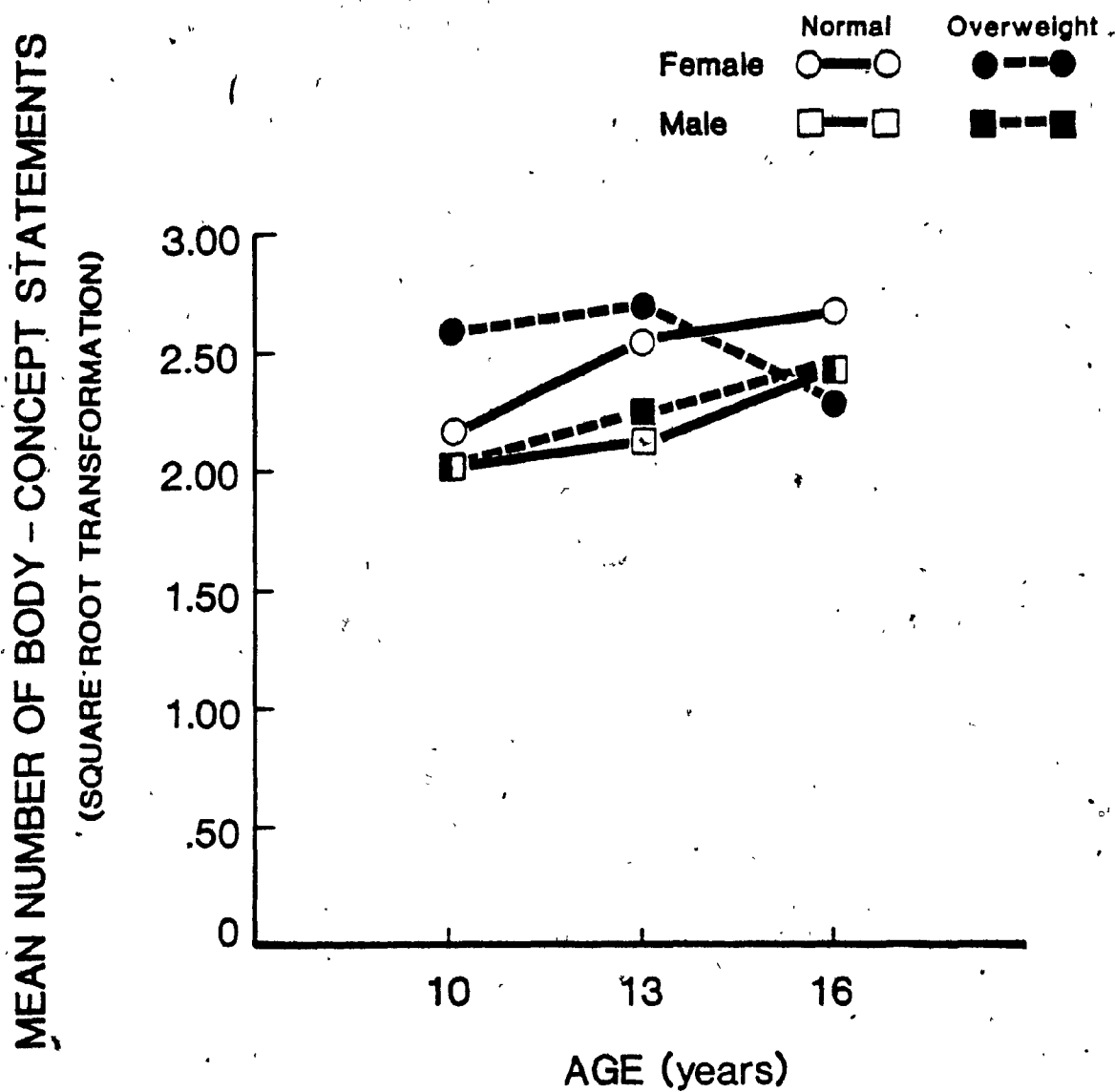


Figure 5. Mean number of body-concept statements (square root transformation) as a function of age for each weight x sex group

Table 9

Summary of Analysis of Variance for
Number of Body-Concept Statements

Source	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>
Weight (W)	0.0384	1	0.0384	0.14
Sex (S)	2.0419	1	2.0419	7.47**
Age (A)	0.9724	2	0.4862	1.78
W X S	0.0235	1	0.0235	0.09
W X A	0.4878	2	0.2439	0.89
S X A	0.3689	2	0.1844	0.67
W X S X A	0.3569	2	0.1785	0.65
Error	23.2385	85	0.2734	

** $p < .01$

revealed a significant main effect of Sex, $F(1,85) = 7.47$, $p < .01$, indicating that females made more statements about their bodies than did males.

The second dependent variable was the mention of absolute weight. Using the body-concept protocol, each subject was assigned a 1 for the mention of absolute weight or a 0 if the absolute weight was not mentioned. Overweight children were expected to mention their absolute weight more than normal children (McGuire & Padawer-Singer, 1976). Figure 6 presents the proportion of subjects in each group that mentioned absolute weight. The mention of absolute weight seemed to increase with age. The data were subjected to a least-squares analysis of variance ($2 \times 2 \times 3$) with Weight, Sex and Age as between-subjects variables (Winer, 1971) (Table 10)³. An analysis of variance revealed a main effect of Age, $F(2,85) = 8.38$, $p < .001$, and Newman-Keuls tests were applied to the data. The difference between age 10 and 13 was not significant, ($q = 1.36$, $p > .05$). However, there was a significant difference between age 10 and 16 ($q = 6.27$, $p < .01$) and between age 13 and 16 ($q = 4.91$, $p < .01$), with more older children mentioning absolute weight. (An analysis of covariance on the data with relative weight as a covariate revealed the same pattern

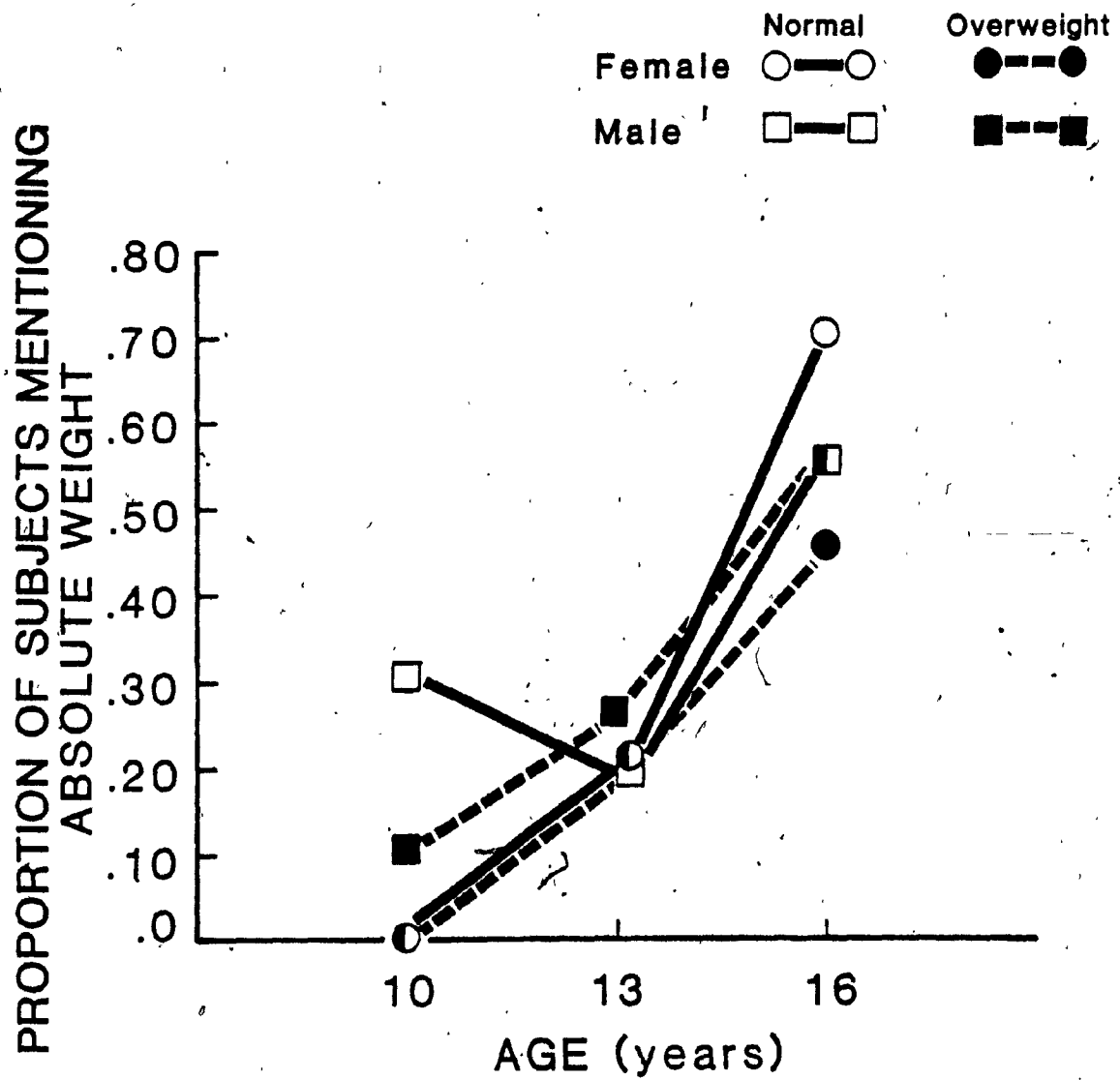


Figure 6. Proportion of subjects mentioning absolute weight as a function of age for each weight x sex group

Table 10

Summary of the Analysis of Variance for
Mention of Absolute Weight

Source	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>
Weight (W)	0.1746	1	0.1746	0.99
Sex (S)	0.0994	1	0.0994	0.56
Age (A)	2.9604	2	1.4802	8.38***
W X S	0.0127	1	0.0127	0.07
W X A	0.1597	2	0.0799	0.45
S X A	0.1888	2	0.0944	0.53
W X S X A	0.1743	2	0.0872	0.49
Error	15.0157	85	0.1767	

*** $p < .001$

of results, so results of the ANOVA were supported.)

The third dependent variable was the mention of relative weight. Using the body-concept protocol; each subject was assigned a 1 for the mention of relative weight or a 0 if relative weight was not mentioned. Overweight children were expected to mention their relative weight more than normal weight children (McGuire & Padawer-Singer, 1976), and females were expected to mention their relative weight more than males (Dwyer et al., 1969; Gray, 1977; Miller et al., 1980). Figure 7 presents the proportion of subjects that mentioned relative weight for each group of subjects. Overweight children apparently mentioned their relative weight more than normal children, females mentioned it more than males and the oldest children mentioned it more than the two younger groups. The data were subjected to a least-squares analysis of variance ($2 \times 2 \times 3$) with Weight, Sex and Age as between subjects variables (Winer, 1971) (Table 11). The analysis of variance revealed a main effect of Weight, $F(1,85) = 18.82$, $p < .001$, indicating that more overweight youngsters mentioned their relative weight than normal weight youngsters. There was also a significant main effect of Sex, $F(1,85) = 5.39$, $p < .05$ indicating that more females mentioned their relative

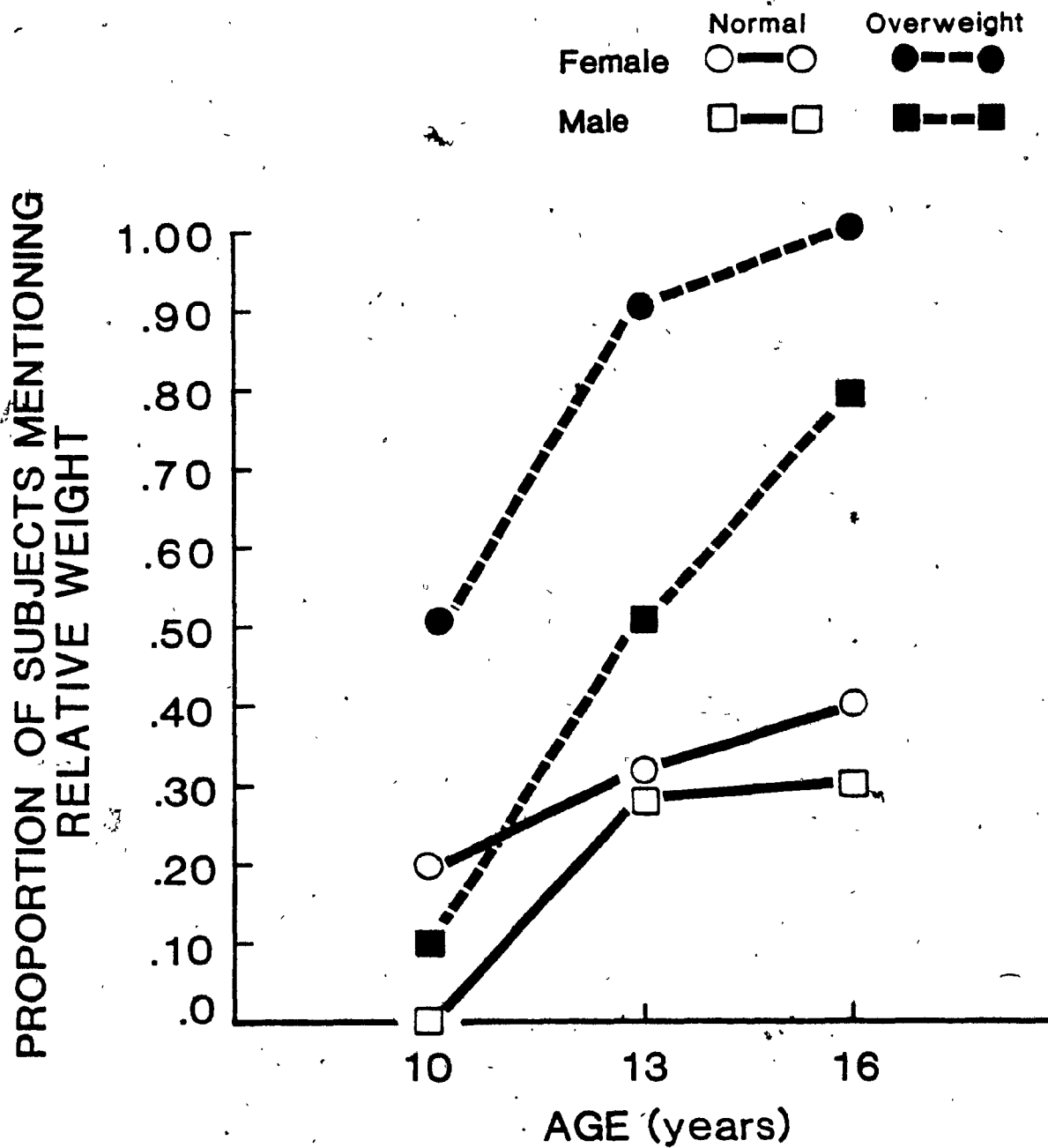


Figure 7. Proportion of subjects mentioning relative weight as a function of age for each weight x sex group

Table 11

Summary of the Analysis of Variance for
Mention of Relative Weight

Source	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>
Weight (W)	3.4078	1	3.4078	18.82***
Sex (S)	0.9750	1	0.9750	5.39*
Age (A)	3.1179	2	1.5590	8.61***
W X S	0.3244	1	0.3244	1.79
W X A	0.3617	2	0.1809	1.00
S X A	0.0808	2	0.0404	0.22
W X S X A	0.1121	2	0.0560	0.31
Error	15.3900	85	0.1811	

* $p < .05$

*** $p < .001$

weight than did males. Lastly, there was a significant main effect of Age, $F(2,85) = 8.61, p < .001$. Newman-Keuls tests revealed a significant difference between age 10 and 13 ($q = 4.23, p < .01$) and between age 10 and 16 ($q = 5.29, p < .01$), but no significant difference between age 13 and 16 ($q = 1.06, p > .05$), indicating that relative weight becomes a salient aspect of body-concept between ages 10 and 13. (An analysis of covariance on the data with relative weight as a covariate revealed the same pattern of results, so results of the ANOVA are supported).

In summary, females make more statements about their bodies than males; mention of absolute weight comes in later adolescence while mention of relative weight appears at early adolescence. Finally, overweight subjects mentioned relative weight more than normal subjects and females mentioned relative weight more than males.

Relation between Self-Esteem and Body-Esteem

One goal of this research was to examine the relation between self-esteem and body-esteem. A related goal was to determine the importance of relative weight compared to each esteem variable in predicting the other esteem variable. To this end, simple correlations and multiple regression analyses were conducted. The analyses were

applied first to the data from the entire sample. However, the analyses were also applied to five sub-samples to answer questions about the three age groups as well as the questions about normal and overweight groups. Three separate analyses were conducted for three reasons: (a) there were significant main effects of age or interactions with age in the analyses of variance of body-esteem and self-esteem and more importantly, (b) it would be possible to examine age-related changes in the relation between self-esteem and body-esteem, and (c) it would be possible to corroborate Mendelson and White's (1982) finding that body-esteem and self-esteem were related similarly for overweight and normal youngsters.

Simple correlations. Table 12 presents the simple correlations among self-esteem, body-esteem and relative weight for the total sample and for the five sub-samples. Body-esteem and self-esteem were correlated in all cases ($r_s = .31$ to $.69$, $p_s < .01$). That is, whether considering the total sample, each age subsample, or each weight subsample, individuals with high self-esteem tended to have high body-esteem. It is worth stressing that the correlation for overweight and normal subsamples was virtually the same, indicating that body-esteem and self-esteem were related similarly for the two subsamples.

Table 12

Cross-Correlations: Body-Esteem,
Self-Esteem with Relative Weight

(a) Total Sample

	<u>SE</u>	<u>RELWT</u>
Body-Esteem	.53**	-.63**
Self-Esteem		-.20**

(b) Age Subgroups

	<u>10</u>		<u>13</u>		<u>16</u>	
	<u>SE</u>	<u>RELWT</u>	<u>SE</u>	<u>RELWT</u>	<u>SE</u>	<u>RELWT</u>
Body-Esteem	.31**	-.60**	.69**	-.70**	.42**	-.65**
Self-Esteem	-.06		-.45*		-.06	

(c) Weight Subgroups

	<u>Normal</u>		<u>Overweight</u>	
	<u>SE</u>	<u>RELWT</u>	<u>SE</u>	<u>RELWT</u>
Body-Esteem	.57**	-.08	.48**	-.39**
Self-Esteem		-.14		.02

* $p < .05$ ** $p < .01$

Body-esteem and relative weight were negatively correlated in the total sample ($\underline{r} = -.63, p < .01$), in each age group (10: $\underline{r} = -.60, p < .01$; 13: $\underline{r} = -.70, p < .01$; 16: $\underline{r} = -.65, p < .01$), and the overweight group ($\underline{r} = -.39, p < .01$), but were not correlated in the normal group ($\underline{r} = -.08, p > .05$). At all ages, youngsters who weighed more had lower body-esteem. From the analysis of variance reported above, overweight individuals had lower body-esteem than their normal weight counterparts. The correlations corroborate this finding indicating that although weight and body-esteem were not related within the normal weight range, they were related within the overweight range.

Self-esteem and relative weight were negatively correlated for the whole sample ($\underline{r} = -.20, p < .02$), but the correlation was attributable to the data from the 13-year-old age group ($\underline{r} = -.45, p < .01$). In the other subsamples, the correlations were virtually 0 (\underline{r} s = $-.14$ to $.02$). At least for the middle age group, youngsters who weighed more had lower self-esteem. The results of the analyses of variance of self-esteem should be recalled however. At 13, overweight boys had lower self-esteem than the other groups, but at 16, overweight girls had lower self-esteem.

Multiple regressions predicting body-esteem. Step-wise multiple regression was used to predict body-esteem as a function of self-esteem, relative weight, age and sex (Cohen & Cohen, 1975). Again the analysis was applied to the five subsamples. Table 13 presents the multiple R^2 change for each variable in the final regression equation as well as the total R^2 for each of the samples. Two criteria for including a predictor variable in the equation were used: (a) the partial F for the final equation had to be significant at the .05 level and (b) the predictor variable had to account for a meaningful amount of variance of the criterion variable, which was defined a priori as at least 5%.

For the total sample, only relative weight and self-esteem accounted for significant contributions to body-esteem. The overall R^2 was .57, $F(2,94) = 12.10$, $p < .001$. Body-esteem and relative weight shared 40% of their variance while self-esteem shared an additional 17% of the variance with body-esteem.

At age 10, only relative weight accounted for a significant contribution to body-esteem (see Table 13b); the overall R^2 was .35, $F(1,29) = 15.92$, $p < .001$. That is, body-esteem and relative weight shared 35% of their variance. At this age, heavier children tended to have

Table 13

Multiple Regression: Predicting Body-Esteem

(a) Total Sample

REL WT	.40***
SE	.17***
SEX	
AGE	
Multiple R ²	.57

(b) Age

	(i) 10	(ii) 13	(iii) 16
REL WT	.35***	.49***	.42***
SE		.17***	.14***
SEX		.08***	
AGE			
Multiple R ²	.35	.74	.56

(c) Weight

	(i) Normal	(ii) Overweight
REL WT		.16***
SE	.32***	.23***
SEX		
AGE		
Multiple R ²	.32	.39

*** p < .001

lower body-esteem than lighter children.

At age 13, relative weight, self-esteem and sex accounted for significant contributions to body-esteem (see Table 13b). The overall R^2 was .74, $F(3,35) = 33.23$, $p < .001$. Body-esteem and relative weight shared 49% of their variance while self-esteem shared an additional 17% and sex shared an additional 8% of the variance with body-esteem. At this age, heavy adolescents tended to have low body-esteem; independent of weight, youngsters with low self-esteem tended to have low body-esteem; finally, independent of weight and self-esteem, girls tended to have lower body-esteem than boys.

At age 16, relative weight and self-esteem accounted for significant contributions to body-esteem (see Table 13b). The overall R^2 was .56, $F(2,24) = 15.74$, $p < .001$. Body-esteem and relative weight shared 42% of their variance while self-esteem shared an additional 14% of the variance with body-esteem. At this age, heavy youngsters tended to have low body-esteem and independent of weight, adolescents with low self-esteem tended to have low body-esteem.

Looking at the normal youngsters, only self-esteem accounted for a significant contribution to body-esteem (see Table 13c). The overall R^2 was .32, $F(1,42) = 22.24$,

$p < .001$. Body-esteem and self-esteem shared 32% of their variance. Normal youngsters with low self-esteem tended to have low body-esteem. Looking at the overweight youngsters, self-esteem and relative weight accounted for a significant contribution to body-esteem (see Table 13c). The overall R^2 was .39, $F(2,45) = 14.58$, $p < .001$. Body-esteem and self-esteem shared 23% of the variance while relative weight shared an additional 16% of the variance with body-esteem⁴. The overweight youngsters as a whole had lower body-esteem than normal youngsters; nonetheless, among the overweight group, children with low self-esteem tended to have low body-esteem and independent of self-esteem, heavier overweight youngsters tended to have low body-esteem.

Multiple regressions predicting self-esteem. Step-wise multiple regression was also used to predict self-esteem as a function of body-esteem, relative weight, age and sex (Cohen & Cohen, 1975). Again the analysis was applied to the five subsamples. Table 14 presents the multiple R^2 change for each variable in the final regression equation as well as the total R^2 for each of the samples. The same criteria for inclusion apply here as for body-esteem.

The results of these analyses can be easily summarized.

Table 14

Multiple Regression: Predicting Self-Esteem

(a) Total Sample

BE .29***

REL WT

SEX

AGE

(b) Age

(i) 10

(ii) 13

(iii) 16

BE .09

.47***

.17*

REL WT

SEX

AGE

(c) Weight

(i) Normal

(ii) Overweight

BE .32***

.23***

REL WT

SEX

AGE

* $p < .05$ *** $p < .001$

For the total sample, and all the subsamples except the youngest age group, self-esteem was correlated with body-esteem (R^2 s = .17 to .47, $ps < .05$ to $< .001$), but no other variable accounted for additional variance in self-esteem. That is, only feelings about the body were correlated with feelings about the self. Moreover, the relation was not present at the youngest age group.

Discussion

Youngster's self-esteem, self-concept, body-esteem and body-concept were assessed as a function of weight, sex and age. One goal of the thesis was to ask whether self-body-image problems cause obesity (Bruch, 1941) or result from obesity (Rodin, 1982), so findings will be discussed within this framework whenever possible. The generalizability of the results will also be addressed. Finally, the results will be reviewed for possible implications for treatment of overweight youngsters.

Self-Image

Self-esteem. Overall, the age pattern observed in normal youngsters supports Wylie's (1979) position that self-esteem does not undergo systematic developmental changes. However, the pattern appears to be different in overweight youngsters. At the youngest age, all four groups (i.e., overweight and normal boys and girls) had similar self-esteem. At the middle age, overweight males had lower self-esteem than normal males whereas overweight and normal females did not differ. That is, being overweight adversely affected self-esteem in 13-year-old boys, but not in 13-year-old girls. At the oldest age, in contrast, overweight females had lower self-esteem than normal females, whereas overweight and normal males

did not differ. That is, being overweight adversely affected self-esteem in 16-year-old girls, but not in 16-year-old boys.

Although children as young as 6 or 7 prefer the mesomorph body type (Staffieri, 1967, 1972) and express an aversion to photographs of chubby children (Lerner, 1969), the youngest overweight children did not have lower self-esteem than their normal peers. This finding replicates earlier research (Mendelson & White, 1982) with both another self-esteem instrument and another population. Thus, contrary to Bruch's (1941) speculation, not all overweight children are unhappy, maladjusted and insecure. The discrepancy between children's evaluation of others and their self-evaluations may reflect the fact that parents and the home environment are such important factors in pre-adolescents' self-esteem (Coopersmith, 1967; Kokenes, 1974); the overweight child may simply not yet be affected by peers' negative evaluations of his body. Furthermore, an overweight child's behavior may mitigate peers' negative impressions (Young & Avdzej, 1979), so stereotyping may simply not apply in each particular case.

At the middle age, only overweight boys' self-esteem suffered. This result replicates previous

findings of a difference in self-esteem at puberty between overweight and normal boys (Felker, 1968; Felker & Kay, 1971). Social pressure in pubescent boys may revolve around participation in sports; thus, boys with higher instructor ratings for extra-mural sports participation had higher self-esteem (Felker & Kay, 1971). Overweight boys who find sports difficult may be rejected by their peers, which would damage their self-esteem. In addition, Rosenberg's (1979) hypothesis may explain the dip in overweight boys' self-esteem at puberty. The environmental shift from elementary to high school would be particularly difficult for overweight boys if their new class-mates were not receptive to them; being an object of observation by others might also lower self-esteem. In contrast, overweight girls who could still participate in the activities of same-sex peer groups unrelated to sports would not have markedly lower self-esteem than normal girls.

In later adolescence, overweight girls' self-esteem suffered. Overweight females do not fulfil the desirable slender stereotype of womanhood. Thus, they may be left out of social activities involving boys. In addition, they may be discriminated against by their teachers (Canning & Mayer, 1966, 1968). In contrast, the expect-

tation for males seems to be different since being overweight did not affect males' self-esteem at this age, a finding that replicates previous research (Felker, 1968; Felker & Kay, 1971). In fact, excess poundage may be an advantage in contact sports. Also, the popular stereotypes for older males emphasize bulk, so males who are hefty are considered attractive and desirable (Hammar et al., 1972). Any combinations of these factors could raise male adolescents' self-esteem which was low in early adolescence.

It should be noted that the hypothesized explanations for reduced self-esteem in overweight boys at 13 and in overweight girls at 16 are analogous. For both sexes, being overweight may disrupt social activities with peers. However, the important activities may differ for the two sexes: sports for boys and opposite-sex relations for girls.

The overall pattern of results did not replicate Sallade's (1973) results; collapsing across ages, she found poorer self-esteem in overweight youngsters. Sallade used the Piers-Harris Children's Self-Concept Scale, and the subscale that incorporates physical appearance and attributes may have accounted for her finding. Nonetheless, Mendelson and White (1982), who also used

the same measure, did not find a difference in self-esteem between overweight and normal children between 7.5 and 11 years of age. Their results were replicated here with the Coopersmith Self-Esteem Inventory, in an ethnically different population. However, differences did emerge in the self-esteem of overweight boys at puberty and overweight girls in later adolescence. Thus, Sallade's findings notwithstanding, differences in self-esteem seem to emerge in early or late adolescence.

Several areas related to self-esteem need further investigation before a complete picture emerges. These include the influence of home, school, peers and extra-curricular activities of self-esteem on overweight youngsters at puberty and later adolescence. Such information might indicate sources of reinforcement for the maintenance of self-esteem. As a specific example, one might examine males' participation in sports and how it affects acceptance by peers. It would be necessary to survey both the sports interest and participation using a direct measure of physical abilities (Felker & Kay, 1971) during early and late adolescence. Differences between overweight and normal males in physical abilities might correlate with difference in self-esteem. Another hypothesis worth pursuing is that overweight girls are accepted by their

Asame-sex peers in early adolescence. Sociometric or popularity ratings might provide an explanation for the maintenance of self-esteem in pubescent girls. A drop in sociometric ratings in later adolescence and an increase in the importance of males' evaluations could support the hypothesis that being overweight interfered with social activities at this age.

The developmental findings for overweight youngsters' self-esteem suggest a tentative solution to the cause-and-effect dilemma in obesity. Overweight children at the youngest age did not have lower self-esteem than their normal peers. Although a correlation between relative weight and self-esteem is not sufficient to demonstrate a causal link, it is a necessary pre-requisite to a causal argument. Therefore, at least at this age, lowered self-esteem cannot reasonably be said to cause obesity.

Older overweight children did have lower self-esteem than their normal peers, which is at least consistent with the conclusion that obesity disrupts self-esteem (Rodin, 1982). However, in a cross-sectional study, it is necessary to rely on Charney et al.'s (1976) data to argue that overweight children will probably become overweight adolescents. It is important to note

that obesity may be disrupting essential social interactions thereby lowering self-esteem. The sex-differences in the self-esteem of overweight adolescents is consistent with the hypothesis that overweight boys and girls are differentially affected by their social environment at different ages.

A longitudinal study is necessary, however, to draw such a conclusion definitively. If overweight children initially do not differ in self-esteem from normal children, but develop lower self-esteem with time, then one might argue more firmly that being overweight leads to lowered self-esteem. Nonetheless, studies looking for causal links between obesity and lowered self-esteem would have to control for other factors that might inadvertently affect overweight youngsters' self-esteem.

Self-concept. Contrary to expectations, the total number of spontaneous statements made by children about themselves did not increase with age (McGuire & Padawer-Singer, 1976). Also contrary to expectations, females made only slightly more statements about themselves than males. However, as predicted, the proportion of internal (e.g., emotional, attitudinal and feeling) statements did increase with age (Kikuchi, 1968; Livesley & Bromley, 1973; Montemayor & Eisen, 1977; Rosenberg, 1979).

The important contribution here was the data comparing self-concept development in overweight and normal youngsters, data that are new to the areas of both self-concept and obesity. The intriguing finding was the similarity between overweight and normal youngsters. One might expect an overweight person to be pre-occupied with questions of weight and thus focus on external (e.g., physical or familial) characteristics. However, overweight youngsters did not make more external statements about themselves. As concerns self-concept, overweight youngsters seemed to be very much like their normal counterparts.

Since self-concept and self-esteem are closely related, the developmental changes in self-concept may help explain weight related developmental differences in self-esteem. Since younger overweight children focus on external characteristics, they may not critically evaluate themselves in general; thus, they may maintain their self-esteem. In contrast, older children who increasingly focus on their internal characteristics may critically evaluate themselves and hence, suffer from lowered self-esteem. For example, overweight boys at puberty may have poorer physical abilities and the internalization of this trait may contribute to their

lowered self-esteem. Research on specific aspects of self-concept that relate to self-esteem might clarify this issue.

Future studies of self-concept of overweight adolescents might use more reactive methods, with dimensions chosen by the researcher. As a first attempt with overweight children, the free-description method (McGuire & Padawer-Singer, 1976) offered some important data. One difficulty experienced with this technique was obtaining sufficient data. Perhaps multi-dimensional instruments such as semantic differential scales would enable more detailed analysis (Dusek & Flaherty, 1981; Monge, 1973). These instruments would elicit more information about the self-concept since subjects would be forced to comment on a variety of aspects of the self. These techniques would be particularly suited to older subjects. Younger subjects would be more apt to respond randomly, however. A variety of self-concept instruments would allow cross-validation of the initial thesis results.

Body-Image

Body-esteem. Although body-esteem has been looked at in groups of varying weight (Allon, 1979; Davis et al., 1980; Dwyer et al., 1967; Dwyer et al., 1969;

Gray, 1977; Guggenheim et al., 1973, 1977; Hammar et al., 1972; Hendry & Gillies, 1978; Huenemann et al., 1966; Mendelson & White, 1982; Miller et al., 1980), this was the first thorough developmental study of body-esteem with groups of overweight and normal youngsters. The research confirmed past findings; specifically, overweight youngsters had lower body-esteem than normals and females were generally less satisfied with their bodies than males. Apparently, females readily incorporate the sex-role stereotype into a general dislike of their bodies. Of particular interest here, the youngest group of overweight children had lower body-esteem than their normal counterparts. The causality issue of whether body-esteem or obesity appears first cannot be adequately resolved, although it seems unreasonable that low body-esteem would cause childhood obesity. It is more reasonable to assume that young children appropriately evaluate their overweight condition. After all, children even younger than subjects in this study negatively evaluate their overweight peers (Lerner & Gellert, 1969; Staffieri, 1967, 1972). Nonetheless, research with children younger than those here is necessary to resolve this problem.

Also of interest, the Body-Esteem Scale looks

promising as a measure of body-esteem. Previously, studies have used open-ended interviews (Allon, 1979; Guggenheim, 1973, 1977; Miller et al., 1980; Stunkard & Burt, 1967; Stunkard & Mendelson, 1967) and questionnaires (Dwyer et al., 1967; Dwyer et al., 1969; Huenemann et al., 1966). These methods are open to interpretation. Semantic differential scales (Hendry & Gillies, 1978) or word-association scales (Secord & Jourard, 1953) are difficult for children. The Body-Esteem Scale proved suitable for children as young as 7 years to adolescents as old as 17 years. The split-half reliability of the Body-Esteem Scale was the same as in a previous study (Mendelson & White, 1982), even though the population was different and the age range was wider.

It would now be beneficial to investigate the correlation between the Body-Esteem Scale and older measures of body-esteem.

Body-concept. Although body-concept has been looked at as the physical counterpart to self-concept (McGuire & Padawer-Singer, 1976), it has not been examined developmentally in overweight and normal youngsters. Contrary to expectations, the total number of statements about the body did not increase with age (McGuire & Padawer-Singer, 1976). Nonetheless, children in the

two older groups mentioned their relative weight more than the youngest children. Moreover, the oldest age group mentioned their absolute weight more than the two younger groups. Perhaps younger children are less concerned about the evaluations of their peers and thus, only mention their relative weight some of the time. Older overweight children, seeing themselves as objects of observation, are more inclined to mention their relative weight. Knowledge of absolute weight may simply involve attention to detail more characteristic of older adolescents.

As expected, females made more spontaneous statements about their bodies than did males. Females also mentioned their relative weight more than males. Perhaps sex-role pressures are focusing females' attention on their bodies. The desire to be slim may be so pervasive that females, regardless of their weight, might be pre-occupied with their bodies and their weight.

Also, overweight children mentioned their relative weight more than normal children. These data confirm the distinctiveness hypothesis (McGuire & Padawer-Singer, 1976) which states that individuals notice characteristics about themselves that are unusual in the social milieu. Focusing attention on themselves may be contri-

buting to lower self-esteem in overweight individuals. More importantly, although the youngest overweight children know that they are fat, their self-esteem remains intact. These children realistically describe themselves, realistically evaluate their bodies negatively, and yet maintain good self-esteem.

Future research on body-concept would parallel that of self-concept. Again it may be fruitful to use more reactive measure to get additional information. One of the difficulties in this thesis was obtaining sufficient data from the subjects; information from different self-report measures might solve this problem.

The Relation between Self-Esteem and Body-Esteem

Body-esteem and self-esteem were correlated at all ages and for both normal and overweight youngsters, a result that corroborates previous findings with adults (Secord & Jourard, 1953), adolescents (Lerner, Karabenick, & Stuart, 1973), and younger children (Mendelson & White, 1982). That is, children who are dissatisfied with their appearance also dislike other aspects of their lives, such as school, behaviour and anxiety, that are unrelated to their looks.

Although self-esteem was correlated with body-esteem, relative weight was the best predictor of body-esteem.

That is, being overweight is related to feelings about one's body. Independent of relative weight, however, self-esteem still predicted body-esteem for children at the middle and oldest age groups. That is, independent of weight, youngsters with low self-esteem tended to have low body-esteem. Furthermore, independent of relative weight and self-esteem, girls had lower body-esteem than boys.

Overweight youngsters as a whole had lower body-esteem than normal youngsters. Of particular interest here, in the overweight children, feelings about the self are related to feelings about the body, and the degree of overweight still is related to feelings about the body. However, only self-esteem was a good predictor of body-esteem in normal youngsters.

In contrast, only body-esteem predicted self-esteem. Moreover, the relation was not present at the youngest age. The major contribution of these findings is to lend credibility to the fact that in young, overweight children, self-esteem has not yet eroded (Mendelson & White, 1982). Overweight is related to body-esteem but not yet related to self-esteem. Children at the youngest age may still be incorporating negative stereotypes of chubbiness into a general dislike of themselves.

By the middle age, the adjectives associated with an unattractive body may have become part of one's self-esteem. In particular, overweight males' self-esteem suffers. At the oldest age, overweight females' self-esteem suffers, perhaps because slimness is equated with interpersonal and social success.

Generalizability of Results

The subjects in this thesis were drawn from working class, English elementary and high schools. The sample was 64% white, 27% black, and 5% oriental; it was predominantly a second-language group, with Greek and Chinese being the languages often spoken at home. Two points are worth noting. First, the sample is similar to inner-city ethnic communities in Canada and the U.S. where English is a common denominator. Second, the percentage of black students may increase the generalizability of the results to some areas of the U.S.

Future directions for research would include replications of the present study in other demographic areas with students of different socioeconomic backgrounds. Before such research is completed, any generalizations beyond the present sample would remain tentative. Nonetheless, the results do replicate some earlier findings on self-esteem and body-esteem (Mendelson &

White, 1982), a replication that is noteworthy since Mendelson and White (1982) used a different self-esteem instrument with a white, middle class, Jewish population. Regardless of generalizability, the results of the thesis may apply to the treatment of overweight youngsters with the same demographic characteristics as the present sample.

Implications for Treatment

This thesis in conjunction with past research suggests different profiles of overweight individuals depending upon sex and age. On the basis of these data, a "cost-benefit" analysis of treatment for overweight youngsters at various ages will be considered.

An overweight child between 8 and 11, regardless of sex, has good self-esteem; that is, areas of his life unrelated to his looks such as school, peers and home are apparently unaffected by his physical appearance. The child is surprisingly content, yet still demonstrates a realistic appraisal and negative evaluation of his body. Children at the youngest age still predictably refer to themselves in external terms.

An 8- to 11-year-old child might be a good candidate for weight loss, since he describes himself as chubby and has low body-esteem; that is, he knows he is fat and

does not like it. Treatment could proceed in any of a variety of behavioural approaches (Brownell & Stunkard, 1980) without having to deal with secondary problems such as bolstering self-esteem. Successful weight loss at the youngest age could maintain good self-esteem, an essential psychological trait. This might actually be more important for boys since their self-esteem declines at puberty. Weight loss could also be encouraged at the youngest age because of later health risks.

In contrast, a young child might be a bad candidate for weight loss, finding it hard to remain on a diet. Since access to food is limited on a diet, the overweight child might find it hard to delay gratification when food is present. In addition, because self-esteem is intact, motivation may be low. Assuming that a diet were attempted, it would be critical that the child have reasonable goals. Failure at weight loss might reinforce negative body-esteem and precipitate a loss in self-esteem.

Unfortunately, the suggested treatment approaches at the middle age are less clear. Overweight adolescents have started to incorporate interpersonal traits, feelings and abilities into their thoughts. These ideas may be lowering overweight boys' self-esteem. For example, since sports participation is important in pubescent

boys, the overweight boys' lack of physical agility may trigger a drop in self-esteem.

Treatment approaches for overweight boys at the middle age might focus on the possible link between improved physical abilities after weight loss and an increase in self-esteem. Since body-esteem is also low, the goal of a new mesomorphic body and a desire to participate in sports might also be an incentive. Perhaps attention should also be directed to improving physical abilities which might be essential for good self-esteem later. If low self-esteem is a motivating factor for weight loss, overweight boys at puberty might be good candidates for treatment before self-esteem rises in later adolescence.

Boys and girls at the middle age might be separated for treatment because of differences in their self-esteem. Overweight girls have lower self-esteem than younger girls but do not differ from normal girls at the middle age. The maintenance of overweight girls' self-esteem may be due to their same-sex peer groups which do not depend on their physical desirability. Successful weight loss at this age could maintain their self-esteem which will drop in later adolescence. Since body-esteem is low, body-enhancement through emphasis on health and

appearance might also be an incentive for weight loss. However, since self-esteem is still good and social relations are intact, girls at this age might not be motivated for weight loss, and repeated failures at dieting might add to the loss of self-esteem in later adolescence.

At the oldest age, the profiles of overweight youngsters change again. Overweight boys' self-esteem rises tremendously. Now participation in contact sports may be a newly acquired physical ability that is contributing to high self-esteem. Treatment might emphasize toning the body and building stamina. Repeated mention of good health and nutrition might encourage weight loss.

Again, different sexes might need different treatments for weight loss at the oldest age. Overweight females' self-esteem plummets in late adolescence. Females are incorporating the sex-role stereotypes of slimness and desirability, so overweight females recognize their disadvantage with the opposite sex. This knowledge might be impinging on their self-esteem. Females at this age might be good candidates since their motivation should be high. They dislike their bodies and would like to look more attractive. They might need to focus on the possible link between increased awareness of restraint attempts after weight loss and an increase in

self-esteem.

Future clinical research might investigate whether self-esteem and body-esteem are related to motivation for weight loss. If so, different treatment options like the ones mentioned earlier might be considered. The instruments used in the thesis could also be incorporated into pre- and post-tests in treatment studies. Differences in self-esteem and body-esteem after weight loss could be explored as predictors of maintenance of weight loss. Perhaps low body-esteem improves after weight loss, but low self-esteem remains unchanged; if this is the case, the clinician might want to initiate treatment before self-esteem drops. Hopefully, more information on self-body-image would sensitize the clinician to the psychological needs of overweight boys and girls at different ages.

Footnotes

1. The pattern of self-esteem scores for subjects whose relative weights ranged between 83% and 90% was similar to the pattern of results for normal subjects. As well, an analysis of variance omitting these subjects revealed a pattern of significant findings to the analyses reported in the text.
2. Although the interpretation of the Peabody is that it did not reflect intelligence, it will be referred to as IQ.
3. These results were confirmed using a multivariate frequency table analysed with a logarithmic-linear model.
4. Because degree of overweight and age were confounded in the oldest age group, the multiple regression analysis was rerun on the overweight sample forcing age in as the first predictor variable. Relative weight still accounted for a significant amount of the variance in body-esteem which indicates its importance independent of age.

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Appendix A
Parental Consent Form

Appendix B

Correlations Between IQ and the
Dependent Variables

Appendix BCorrelations Between IQ and theDependent Variables

<u>Dependent Variable</u>	<u>r</u>	<u>p</u>
Self-Esteem	.09	>.30
Number of Self-Concept Statements	.10	>.30
Proportion of Internal Self-Concept Statements	.01	>.80
Body-Esteem	.07	>.40
Number of Body-Concept Statements	.05	>.60
Mention of Absolute Weight	.12	>.20
Mention of Relative Weight	.09	>.30

Appendix C

Coopersmith Self-Esteem Inventory

Appendix CCoopersmith Self-Esteem InventoryForm A - 58 items

	LIKE ME	UNLIKE ME
1. I spend a lot of time day-dreaming.	()	()
2. I'm pretty sure of myself.	()	()
3. I often wish I were someone else.	()	()
4. I'm easy to like.	()	()
5. My parents and I have a lot of fun together.	()	()
6. I never worry about anything.	()	()
7. I find it very hard to talk in front of the class.	()	()
8. I wish I were younger.	()	()
9. There are lots of things I'd change about myself if I could.	()	()
10. I can make up my mind without too much trouble.	()	()
11. I'm a lot of fun to be with.	()	()
12. I get upset easily at home.	()	()
13. I always do the right thing.	()	()
14. I'm proud of my school work.	()	()
15. Someone always has to tell me what to do.	()	()
16. It takes me a long time to get used to anything new.	()	()

	LIKE ME	UNLIKE ME
17. I'm often sorry for the things I do.	()	()
18. I'm popular with kids my own age.	()	()
19. My parents usually consider my feelings.	()	()
20. I'm never unhappy.	()	()
21. I'm doing the best work that I can.	()	()
22. I give in very easily.	()	()
23. I can usually take care of myself.	()	()
24. I'm pretty happy.	()	()
25. I would rather play with children younger than I am.	()	()
26. My parents expect too much of me.	()	()
27. I like everyone I know.	()	()
28. I like to be called on in class.	()	()
29. I understand myself.	()	()
30. It's pretty tough to be me.	()	()
31. Things are all mixed up in my life.	()	()
32. Kids usually follow my ideas.	()	()
33. No one pays much attention to me at home.	()	()
34. I never get scolded.	()	()

	LIKE ME	UNLIKE ME
35. I'm not doing as well in school as I'd like to.	()	()
36. I can make up my mind and stick to it.	()	()
37. I really don't like being a boy - girl.	()	()
38. I have a low opinion of myself.	()	()
39. I don't like to be with other people.	()	()
40. There are many times when I'd like to leave home.	()	()
41. I'm never shy.	()	()
42. I often feel upset in school.	()	()
43. I often feel ashamed of myself.	()	()
44. I'm not as nice looking as most people.	()	()
45. If I have something to say, I usually say it.	()	()
46. Kids pick on me very often.	()	()
47. My parents understand me.	()	()
48. I always tell the truth.	()	()
49. My teacher makes me feel I'm not good enough.	()	()
50. I don't care what happens to me.	()	()
51. I'm a failure.	()	()
52. I get upset easily when I'm scolded.	()	()

LIKE ME UNLIKE ME

53. Most people are better liked
than I am.

() ()

54. I usually feel as if my parents
are pushing me.

() ()

55. I always know what to say to
people.

() ()

56. I often get discouraged at
school.

() ()

57. Things usually don't bother me.

() ()

58. I can't be depended on.

() ()

Appendix D
Body-Esteem Scale

Appendix DBody-Esteem Scale

- | | | | |
|-----|---|------|-----|
| 1. | I like what I look like in pictures... | yes* | no |
| 2. | Kids my own age like my looks..... | yes* | no |
| 3. | I'm pretty happy about the way
I look..... | yes* | no |
| 4. | Most people have a nicer body than
I do..... | yes | no* |
| 5. | My weight makes me unhappy..... | yes | no* |
| 6. | I like what I see when I look in
the mirror..... | yes* | no |
| 7. | I wish I were thinner..... | yes | no* |
| 8. | There are lots of things I'd change
about my looks if I could..... | yes | no* |
| 9. | I'm proud of my body..... | yes* | no |
| 10. | I really like what I weigh..... | yes* | no |
| 11. | I wish I looked better..... | yes | no* |
| 12. | I often feel ashamed of how I look... | yes | no* |
| 13. | Other people make fun of the way
I look..... | yes | no* |
| 14. | I think I have a good body..... | yes* | no |
| 15. | I'm looking as nice as I'd like to... | yes* | no |
| 16. | It's pretty tough to look like me.... | yes | no* |
| 17. | I wish I were fatter..... | yes | no* |
| 18. | I often wish I looked like someone
else..... | yes | no* |

19. My classmates would like to look like me..... yes* no
20. I have a high opinion about the way I look..... yes* no
21. My looks upset me..... yes no*
22. I'm as nice looking as most people.... yes* no
23. My parents like my looks..... yes* no
24. I worry about the way I look..... yes no*

* High body-esteem response.