

## **Psychological Aspects of Childhood Obesity: A Controlled Study in a Clinical and Nonclinical Sample<sup>1</sup>**

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*Explored the relationship between obesity and psychosocial adjustment in a combined clinical and nonclinical sample of 139 obese children and 150 non-obese children (ages from 9 to 12 years and matched for age, socioeconomic status, and gender) who filled out the Perceived Competence Scale for Children; their parents completed the Child Behavior Checklist. All obese children, independent of their help-seeking status, reported more negative physical self-perceptions than their nonobese peers and they scored lower on general self-worth. According to their parents, the obese children of the clinical sample appeared to have more behavior problems. Findings suggest that psychopathology depends on a clinical obese status, and they provide evidence for a psychosocial at-risk profile for a subgroup of obese children.*

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Research on psychosocial characteristics of childhood obesity has focused primarily on an undifferentiated comparison between obese and nonobese children. Studies have been limited to either clinical or nonclinical subjects but failed to

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include both groups at the same time in clinical settings: Banis et al., 1988; Israel & Shapiro, 1985; Kimm, Sweeney, Janosky, & MacMillan, 1991; in nonclinical settings: Kaplan & Wadden, 1986; Strauss, Smith, Frame, & Forehand, 1985; Wadden, Foster, Brownell, & Finley, 1984. Therefore, the first objective of the present study was to explore the relationship between obesity and psychological aspects in a clinical as well as a nonclinical sample of obese children and in a nonobese control group. Research on adults was hampered by the same shortcoming, until it was recently demonstrated that obese adults seeking treatment have more psychological distress than obese adults in a community sample (Fitzgibbon, Stolley, & Kirschenbaum, 1993). The present study seeks to replicate these findings in obese children.

There is still substantial disagreement concerning the psychological consequences of childhood obesity. Lerner (1972, 1973; Lerner & Pool, 1972) provided a theoretical framework for the understanding of the relationship between physical appearance and psychosocial functioning and suggested that people differentially attribute psychosocial traits to body types and that the individual's self-perception may be influenced by these appearance-based stereotypes. Baum and Forehand (1984) tested Lerner's model and focused on differences in social interactions among obese and nonobese children: Overweight children received more negative peer reactions. Strauss et al. (1985) replicated this study. On the basis of Lerner's model, these authors examined further implications of negative social interactions and reported more depression and lower self-esteem in obese children, confirming the findings of Sallade (1973), who was the first to report lower scores on self-esteem in obese children. However, some large-scale studies found that self-esteem scores of obese children fell well within the normal range (Kaplan & Wadden, 1986; Wadden et al., 1984). These results tentatively suggested that the psychological consequences of childhood obesity should not be viewed as problematic.

How are these contradictory findings to be explained? A unidimensional measure of self-esteem is perhaps not broad enough. In the studies mentioned above, highly recommended assessment strategies were used but only few studies started from a theoretical view on the structure of the self-concept in children. On the basis of Harter's (1982) model of the development and structure of the self-system in children, different components of self-esteem have been assessed with a multidimensional self-esteem scale. Harter suggested the existence of three independent self-esteem domains (cognitive, social, physical) and a (hierarchically higher) independent domain of general self-worth. Much of a child's life centers around activities with peers and physical performances. From Harter's point of view we could expect that negative experiences in these domains are associated with negative competence feelings. This was the second objective of the present study. For obese children, we expected lower scores on self-competence in the physical and the social domain. The relationship between feelings about the body and overall feelings about the self remains unclear and

there is only sparse theoretical evidence for a positive association. Mendelson and White (1982, 1985) reported already overall lower body esteem in obese children, while lower overall self-esteem was found only for some overweight youngsters. For this purpose we followed the suggestion made by Kimm et al. (1991), who found that the use of subscales might provide greater insight into the study of obesity and self-concept.

The third objective of this study was to refute the popular notion that overweight persons as a group are emotionally disturbed. Stunkard and Wadden (1992) suggested that social rejection often leads to problems with self-esteem, though not necessarily to psychopathology. They criticized the uncontrolled clinical studies that reported elevated levels of psychopathology among obese adults. It was hypothesized that the status of help-seeking persons is associated with psychopathology, whereas a nonclinical group of obese children is expected to show no more psychopathology than a group of normal weight children.

In an earlier publication, Wadden and Stunkard (1989) mentioned that the stigma attached to being overweight does take its toll on the emotional health of some obese persons. If it should turn out to be true that psychopathology in clinical samples of obese persons is the result of long-term discrimination and its associated consequences, such as a low self-concept, then these two variables must already be significantly related from childhood onwards. In the present study we assessed to what extent a negative self-concept is related to psychopathology in children. Furthermore, the reverse claim, that emotional disturbance leads to overweight, has not been proven either. Klesges et al. (1992), for instance, indicated that childhood obesity may not have its origin in psychosocial factors.

To explore the relationship between obesity and psychopathology, a variety of psychological inventories have been administered, including measures of behavior problems, anxiety, family distress, depression, and symptoms of psychiatric dysfunction. Attempts to assess the psychological implications of obesity in children are impeded by the low validity of self-reports from children. It has been proposed that reliable problem behavior checklists should be filled in by the parents (Israel & Shapiro, 1985; Strauss et al., 1985; Banis et al., 1988). We adopted this suggestion by including the Child Behavior Checklist as one of our instruments.

## METHOD

### *Participants*

A total of 289 children, ages 9 to 12 years, participated in the present study. Normative data on the 50th percentile for weight (according to height, age, and gender) were used to determine the ideal body weight (IBW) (Van Wieringen &

Groede, 1985). Each child's weight was expressed as a percentage of IBW. Children with 120% or more were categorized as obese.

The *clinical obese* group consisted of 92 children seeking treatment. They came to the pediatric outpatient clinic because of obesity. Most subjects learned about the treatment program from others, mouth by mouth, or from the newspaper, or were referred by physicians. All the parents of the patients who were seen between December 1989 and June 1991 were asked to participate in this study. Of the clinical population, about 90% agreed to participate in the project.

The *nonclinical obese* and *normal weight control* participants were recruited in various schools representative of the Flemish community. Weight and height were determined by the school physician before selection. We recruited 70 obese 9- to 12-year-old children. For each obese child, three normal weight controls were randomly selected from the same school. Informed consent was obtained from the parents for all subjects. In the sample of schoolchildren, about 77% of the obese and 84% of the nonobese consented to participate in the project. Characteristics of the dropout group in the obese and nonobese sample were comparable. Table I summarizes the general characteristics of the subjects. No significant differences were found between the groups for age, gender, and socioeconomic background. There were differences in degree of overweight and these are taken into account in the analysis.

### Instruments

In an interview format with a trained psychologist, all children completed the Perceived Competence Scale for Children (PCSC; Harter, 1982) at their first clinical contact or during a special class period. The PCSC was used to operationalize the construct of the obese child's self-perception or self-concept. The PCSC consists of 28 items and assesses the child's self-perceptions in four different areas of perceived competence: cognitive abilities, physical activity, peer relations, and general self-worth. The structured alternative answer format of this scale is purported to minimize the influence of social desirability on the

Table I. General Characteristics of Obese and Nonobese Children

	<i>n</i>	Age (months)	Weight % IBW <sup>a</sup>	Boys		Girls	
				<i>n</i>	%	<i>n</i>	%
Clinical obese	92	124 ± 15	154 ± 21	32	35	60	65
Nonclinical obese	47	125 ± 5	140 ± 12	18	38	29	62
Normal weight controls	150	124 ± 8	99 ± 10	58	39	92	61

<sup>a</sup>Ideal body weight.

child's responses. The child's psychological and social adjustment was assessed with the Dutch version of the Child Behavior Checklist (CBCL; Achenbach & Edelbrock, 1983) completed by one parent at the first clinical contact or at home, visited by a trained psychology student. This 138-item rating scale yields scores for total behavior problems, internalizing and externalizing behavior, and three scores for competence (activity, social competence, school competence). We obtained valid PCSC test forms and CBCL test forms from 289 children and their parents.

## RESULTS

The mean scores on the PCSC-scales and the CBCL-scales for the clinical and nonclinical obese children and for the normal weight controls are presented in Table II. One-way ANOVAs with condition (clinical obese, nonobese, nonclinical obese) as the between-subjects factor were completed on the scores of each scale.

**Table II.** Average Scores for Preadolescent Obese and Nonobese Children on the Perceived Competence Scale for Children (PCSC) and the Child Behavior Checklist (CBCL)<sup>a</sup>

	Clinical obese ( <i>n</i> = 92)	Nonclinical obese ( <i>n</i> = 47)	Normal weight controls ( <i>n</i> = 150)	<i>F</i> (2, 286)
<b>PCSC</b>				
Cognitive	19.13	19.47	19.17	0.10
Social	19.09 <sub>b</sub>	17.81 <sub>a</sub>	19.59	4.54 <sup>c</sup>
Physical	16.15 <sub>a,b</sub>	17.49 <sub>a</sub>	19.35	25.33 <sup>d</sup>
Self-worth	17.64 <sub>a</sub>	17.96 <sub>a</sub>	19.09	4.79 <sup>c</sup>
<b>CBCL</b>				
Total problem score	59.91 <sub>a,b</sub>	51.30	49.37	30.89 <sup>d</sup>
Internalizing behavior	59.09 <sub>a,b</sub>	50.87	50.53	23.46 <sup>d</sup>
Externalizing behavior	56.80 <sub>a,b</sub>	51.13	49.39	16.29 <sup>d</sup>
Activity competence	37.76 <sub>a</sub>	39.02	41.18	3.36 <sup>b</sup>
Social competence	39.33 <sub>a</sub>	42.38	44.36	7.03 <sup>d</sup>
School competence	48.01 <sub>a,b</sub>	51.38	51.92	11.91 <sup>d</sup>

<sup>a</sup>Subscript a indicates a group mean significantly ( $p < .05$ ) different from the mean of the normal control on this scale (= significantly higher on the CBCL-problem behavior scales and significantly lower on the PCSC and the CBCL-competence scales) (Newman-Keuls analysis). Subscript b indicates a group mean of the clinical obese sample significantly ( $p < .05$ ) different from the mean of the nonclinical obese sample on this scale (= significantly higher on the CBCL problem behavior scales and significantly lower on the PCSC and the CBCL competence scales) (Newman-Keuls analysis).

<sup>b</sup> $p < .05$ .

<sup>c</sup> $p < .01$ .

<sup>d</sup> $p < .001$ .

Significant differences were found for three PCSC subscales, namely, social competence, physical competence, and self-worth: one-way ANOVA  $F(2, 286) = 25.33$  on physical competence  $p < .001$ ; and  $F(2, 286) = 4.79$  on general self-worth and  $F(2, 286) = 4.54$  on social competence; both  $p < .01$ .

Post hoc analysis, using the Newman-Keuls procedure, for the PCSC, indicated that both clinical and nonclinical obese children showed differences with the control subjects for two subscales (physical and general self-worth). In addition, the scores for social competence were significantly lower for the nonclinical obese group. Clinical and nonclinical obese subjects also differed significantly from each other for physical and social self-esteem.

Significant differences were found for the behavioral CBCL scales: one-way ANOVA  $F(2, 286) = 30.89$  on total problem score;  $F(2, 286) = 23.46$  on internalizing behavior,  $F(2, 286) = 16.29$  on externalizing behavior; all  $p < .001$ . The CBCL competence scales also yielded significant results: one-way ANOVA  $F(2, 286) = 3.36$  on activity competence,  $p < .05$ ,  $F(2, 286) = 7.03$  on social competence  $p < .001$ , and  $F(2, 286) = 11.91$  on school competence;  $p < .001$ .

These data needed to be explored further. Post hoc analysis, using the Newman-Keuls procedure, indicated that the total problem score for the clinical obese condition was significantly higher than the scores in the two other conditions (normal controls and nonclinical obese children). The latter two did not differ from each other. The same differences between both groups of the present obese sample, with no significant differences between nonclinical obese children and normal control groups for the CBCL, were found for the other behavior problem subscales of internalizing and externalizing behavior. For the three competence subscales of the CBCL, the clinical obese condition was significantly lower than the scores of the normal controls only. Again, no significant differences between nonclinical obese children and normal control groups for the CBCL competence scales were found. Between clinical and nonclinical obese children, only one competence score (namely, the score for school competence) on the CBCL was significantly different.

Analyses were also performed to identify the percentage of obese children whose scores were in a clinical range (i.e., a  $T$  score on the CBCL higher than 69). About 20% of the clinical obese children were in this range for the total problem score, while only 3% of the controls and 4% of the nonclinical obese children had a CBCL score higher than 69 ( $\chi^2$ ;  $p < .001$ ). To identify the percentage of obese children whose scores were in a clinical range for the PCSC, we counted the subjects who were a minimum 1 standard deviation below mean scores (based on the present control sample). About 39% of the clinical obese sample and 30% of the nonclinical obese sample had a strikingly negative score on the PCSC subscale physical competence, and 14% of the normal controls fell within this range ( $\chi^2$ ;  $p < .001$ ). On the social competence scale, the percentages

in the clinical range were 28% for the clinical obese, 34% for the nonclinical obese, and 17% for the normal controls ( $\chi^2: p < .01$ ). On general self-worth, about 28% of the clinical obese and 32% of the nonclinical obese fell in the clinical range; here 18% of the normal controls scored significantly lower ( $\chi^2: ns$ ).

Intercorrelations between the scales of the PCSC and the CBCL were low, ranging from .29 (cognitive competence and school competence) to  $-.25$  for the correlation between physical competence and internalizing (both  $p < .001$ ; see Table III).

We also found some negative correlations between the degree of overweight and certain subscales of the PCSC (Table III): physical competence ( $r = -.38, p < .001$ ) and self-worth ( $r = -.20, p < .001$ ); there was no correlation with cognitive competence ( $r = .01$ ) and social competence ( $r = -.10$ ). Table III shows similar findings of (weak) negative correlations for the competence subscale scores on the CBCL and stronger positive correlations between the degree of overweight and problem scores ( $r = .35$  for total problem score;  $r = .31$  for internalizing behavior;  $r = .23$  for externalizing behavior, all  $p < .001$ ). Correlations between the subscales were within the range of .44 and .21 for the PCSC.

A stepwise regression analysis was carried out to examine the relationship between psychopathology, self-concept, and weight in the obese sample. Other variables entered were age, gender, and clinical status (clinical vs. nonclinical). We used the total CBCL score (psychopathology measure) as dependent variable.

**Table III.** Correlation Between Percentage Overweight and Scores on the Perceived Competence Scale for Children (PCSC) and the Child Behavior Checklist (CBCL) ( $N = 289$ ) and Intercorrelations Between Subscales of the PCSC

Scale	PCSC				Overweight
	Cognitive	Social	Physical	Self-worth	
<b>PCSC</b>					
Cognitive					.01
Social	.26 <sup>b</sup>				-.09
Physical	.21 <sup>b</sup>	.44 <sup>b</sup>			-.37 <sup>b</sup>
Self-worth	.42 <sup>b</sup>	.38 <sup>b</sup>	.34 <sup>b</sup>		-.20 <sup>b</sup>
<b>CBCL</b>					
Total problem score	-.13	-.17 <sup>a</sup>	-.24 <sup>b</sup>	-.20 <sup>b</sup>	.35 <sup>b</sup>
Internalizing behavior	-.14	-.21 <sup>b</sup>	-.25 <sup>b</sup>	-.21 <sup>b</sup>	.31 <sup>b</sup>
Externalizing behavior	-.10	-.13	-.17 <sup>a</sup>	-.14 <sup>a</sup>	.23 <sup>b</sup>
Activity competence	.10	.12	.24 <sup>b</sup>	.11	-.19 <sup>a</sup>
Social competence	.04	.22 <sup>b</sup>	.28 <sup>b</sup>	.14	-.19 <sup>a</sup>
School competence	.29 <sup>b</sup>	.16 <sup>a</sup>	.26 <sup>b</sup>	.18 <sup>a</sup>	-.21 <sup>b</sup>

<sup>a</sup> $p < .01$ .

<sup>b</sup> $p < .001$ .

All independent variables were eligible for stepwise entry. There was no specification of the order in which the variables had to be added. Two significant predictors were found. The first was the variable of clinical versus nonclinical status ( $\beta = .40$ ,  $T = 5.05$ ,  $p < .001$ ). The second significant variable was the social competence score ( $\beta = -.19$ ;  $T = -2.39$ ;  $p < .02$ ). Neither age nor gender, overweight or any other PCSC criteria were found to be significantly related to psychopathology.

## DISCUSSION

The first major finding of the present study is that obese children have less positive self-perceptions on physical competence than nonobese children, independently of their help-seeking status. Expressions of negative self-feelings were found in all obese children for one other important area of childhood functioning: general self-worth. The multifactorial self-esteem measure clearly differentiated earlier findings. Obese children do not suffer from negative body esteem feelings alone. Similarly, Banis et al. (1988) reported lower scores on the same subscales of PCSC for a small obese sample. In agreement with Mendelson and White (1985) we can conclude that obese children who are dissatisfied with their personal appearance are also dissatisfied with other aspects of their lives, which are not related to their looks.

The clinical and nonclinical group of obese children were significantly different: The clinical group scored lower on physical self-esteem and higher on social competence. We did not expect the higher PCSC score on social competence for clinical obese subjects and we have no logical explanation for this. We assume that there is still a lot of heterogeneity in samples of obese children. The absolute difference between scores on the PCSC was, however, very small and we cannot say that the scores of the obese sample fell within a pathological range. Findings in groups of children within a community sample could be interesting, but for clinical purposes the status of the individual child is even more important. Harter (1982) suggested identifying those children who scored a minimum 1 standard deviation below normative mean scores. On general self-worth, about 32% (nonclinical) and 28% (clinical) of the obese children fell within this range; on social competence, about 34% (nonclinical) and 28% (clinical) were in the clinical range, suggesting an at-risk profile for at least a subgroup of obese children. Banis et al. (1988) found, in a very small sample, that 24% of the obese children scored 1 standard deviation below the normative mean for general self-worth, and 23% fell within this range on social competence.

These effects are assumed to be influenced by the prevailing negative view of obesity in Western society and the impact of the social stigma of obesity even on children (Staffieri, 1967, 1972). Recent studies (Gortmaker, Must, Perrin,



Sobol, & Dietz, 1993; Stunkard & Wadden, 1992) showed that discrimination may account for important social consequences of obesity in childhood, adolescence, and later adulthood.

Another major finding is that a clinical group of obese children turned out to have more behavioral and emotional problems than a nonclinical group of obese children. The results of the present study extend and further elaborate the CBCL findings of Israel and Shapiro (1985) and Banis et al. (1988) in clinical settings and those of Strauss et al. (1985), who found few behavior problems in a nonclinical school setting.

The regression analysis clearly shows that the higher scores for psychopathology are to be explained mainly by the subjects' clinical status. Most studies contrasted clinical samples of obese children with nonclinical samples of non-obese children. With such comparisons it is impossible to establish the independent effects of obesity, regardless of the clinical status. Our controlled study avoids such inconsistencies: Obesity is not in itself related to psychological problems, but rather to characteristics associated with the status of helpseeker and with being a subject in a clinical sample.

It seems necessary to further analyze the comorbidity of psychopathology and obesity in clinical samples. What exactly explains the differences between clinical and nonclinical obese children? The question still has to be answered.

The higher incidence of psychopathology for the clinical obese group compared with the nonclinical group, can be explained as a perceiver effect (Merielde & Pot, 1989). In fact, the findings concerning psychopathology were based solely on perceptions of the parents. Is there a difference between parents who ask for help and those who do not? More research is required to subject this hypothesis to further tests. Epstein, Klein and Wisniewski (1994) found that parental psychiatric symptoms were related to child psychological problems for six of eight problem behavioral scales of the CBCL. Child obesity made no independent contribution to child psychological problems. Because the CBCL scores were based on parental reports of the child's behavior, parents of obese children that were more helpless or more pathological, could be more inclined to seek external help and at the same time be more willing to admit or report behavioral problems of their obese children. Moreover these parents may be more familiar with or more responsive to information about psychological or therapeutic services for problem children because of their own problems. This would account for the fact that they were more likely to bring their children to the pediatric clinic and report a higher incidence of CBCL problem behaviors than parents not referring their obese children to a clinic. If this interpretation of the difference as a perceiver effect is correct, more CBCL psychopathology would be reported for all kinds of clinical groups and the elevated psychopathology scores should be not found when these children are rated by their schoolteachers. There is one more study in this area, that by Wallander, Varni, Babani, Banis, and

Wilcox (1988). They compared the CBCL scores of clinical obese children (seeking help) with other help-seeking samples in a pediatric clinic. No psychological differences were found between the groups. The authors concluded that all parents of children seen at the pediatric clinic (chronically ill, handicapped, and obese children), reported significantly more behavior problems and a lower level of social competence on the CBCL.

Other explanatory models are possible as well. The elevated psychopathology scores of the clinical group could also be explained as reflecting real differences in the degree of psychopathology. Obese children with a higher incidence of psychopathology could be more difficult to manage for the parents and seeking clinical help may be one way for the parents to cope with these problems. In this case one would expect elevated psychopathology CBCL scores from both parents and teachers. Because both genetic transmission and environmental effects may jointly contribute to higher psychopathology in children, psychopathology in children could be related with psychiatric symptoms in the parents as well. In this light, the findings of Epstein et al. (1994) concerning the relation between psychopathology in obese children and their parents need further exploration.

Looking at the percentage of obese children with a clinical *T* score of 69 or more on the CBCL checklist, we found that the clinical group stood at 20%. In other words, even within the clinical group it was only a subgroup that could be labeled psychopathological. Future research could focus on differences among subgroups of clinical obese children. Allison and Heshka (1991) too advocated the differentiation among clinical subgroups. Consequently, it is clearly advisable to test this hypothesis further in the case of children as well.

With regard to the third objective of the present study, that is, to look into the heterogeneity in the occurrence of psychopathology in obese children, our conclusions must be qualified carefully. The hypothesis is confirmed only in the nonclinical obese group, in which psychopathology does not occur more or less often than in the normal weight group.

Although the present study did not seek to establish a causal relationship between self-esteem and psychopathology, we did try to test the hypothesis formulated by Wadden and Stunkard (1989). They viewed obesity-related psychopathology as the ultimate price to be paid by some obese people for the discrimination they suffer. Psychopathology is then considered to be associated with long-lasting negative body image feelings. Evidence of this relationship is provided in the present study by the low but significant negative links between psychopathology, as measured by means of the CBCL total problem score, and three of four PCSC subscales. Analyses show that especially the clinical group scored significantly lower on the PCSC for physical self-image, and higher on the CBCL criteria of psychopathology. However, the regression analysis points out that it is not the physical self-image but primarily the subject's clinical status that explained the psychopathology score. In this case, the low score on social

self-esteem was the second best predictor. Follow-up studies of obese children could be helpful to test further the hypothesis on the relationship between self-esteem and psychopathology. Hence it is reasonable to assume that a low self-image is a necessary though not a sufficient condition for the development of psychopathology.

As a result the consequences of obesity might be assumed to grow more serious as the children become more obese and continue to be so for a longer time. The correlations we found, although statistically small in an absolute sense, between the degree of overweight and some subscales of the PCSC and the CBCL, confirm this hypothesis. This is in line with Sallade (1973), Kaplan and Wadden (1986), Mendelson and White (1982, 1984), Strauss et al. (1985), and Kimm et al. (1991), who all reported a major effect of weight for at least a number of parameters of self-esteem.

We expected that the impact of self-esteem also becomes more important as children grow older. Klesges et al. (1992) found no correlation between measures of developing obesity in young children (3–5.7 years) and self-esteem on the PCSC, whereas Mendelson and White (1985) pointed out that for obese children (8–17 years) the results of the analysis support an age effect on self-esteem not attributable to relative weight. Lerner (1972, 1973) suggested that children's construction of the self-concept is based on the reactions of significant others to various personal dimensions including the body. These perceptions become more important as the child's environment shifts from a family-oriented to a peer-dominated environment. This hypothesis, formulated by Kimm et al. (1991), is supported by our findings in 9- to 12-year-old children. Further studies are needed to assess self-esteem in obese teenagers and to explore the possible relationships of age, degree of overweight, the self-image, and psychopathology.

Much of children's life centers around physical activities with peers. From this point of view we could expect at least some relations between self-competence feelings in the physical domain, the social domain, and general self-worth feelings. In contrast with the theory of "independent domains of the self," Harter (1982) reported correlations within the range of .46 and .58 for the PCSC scales. This explains the correlations we found between the subscales. For 9- to 12-year-old children, general self-worth, popularity, and one's athletic abilities were not totally independent of each other. There is therefore a greater chance that children with a low physical self-image will view themselves in a negative way in other domains of the self as well. It follows that the psychological effects of obesity on the self-image are not negligible.

Our findings may have some interesting implications for clinicians who are faced with obese children. Although psychological problems were not present in all obese children, one should at least consider the possibility of greater psychological vulnerability in clinical groups of obese children. Hence, a multidimensional psychosocial assessment of each obese child is required. It will include at

least several domain-specific measures of the self-image, a screening for psychopathology, and the assessment of factors related to seeking treatment, such as the degree of psychopathology in the parents (see Epstein et al., 1994). For a more objective assessment, independent teacher ratings of the obese child are valuable. Within this psychological context, effective weight management, physical activities, training in group, and positive reinforcement strategies could enhance self-competence feelings and prevent the development of obesity-related problems in adults.

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