

Assessment of eating behaviours and attitudes to eating, dieting and body image in pre-adolescent Swedish girls: a one-year follow-up

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A 1-y follow-up of fifty 8-y-old Swedish girls was performed to assess changes in eating attitudes and dieting behaviour. Individual structured interviews using the Children's Eating Attitudes Test (ChEAT) and Body Image silhouettes were used. The question, "Have you ever tried to lose weight?" was employed to discriminate dieters from non-dieters. Dieting behaviours according to the ChEAT increased over the follow-up period.

Conclusion: Discrimination between dieters and non-dieters on the basis of a single question is highly unstable. A classification based on repeated assessment appears to be more promising.

Key words: *Body image, dieting, eating attitudes, follow-up, pre-adolescent girls*

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Dieting behavior and the ideal of slimness as an attribute of physical attractiveness are present at an early age (1–3). In a study of 9-y-olds, Hill and Silver (4) demonstrated that an overweight body size is perceived to be associated with poor social functioning, impaired academic success, bad health, unhealthy eating and low fitness. This indicates that children's views of thinness and overweight reflect a widespread norm in Western societies. Moses et al. (5) revealed a fear among adolescent high school students of becoming obese that was independent of actual weight. Concerns with thinness and dieting have been linked to an increasing prevalence of eating disorder symptoms among adolescent girls (6). A strong desire for thinness is also associated with problematic eating behaviors (7). Cross-sectional research (8–10) suggests that body weight concerns tend to increase with age and with increasing weight.

Recently, an increasing proportion of young girls (<12 years), have been found to demonstrate symptoms characteristic of anorexia nervosa. Although these cases are relatively rare, they have been estimated to constitute 5% of patients with anorexia nervosa (11). A long-term follow-up of children diagnosed with anorexia before the age of 11 has suggested early onset to be associated with a poor prognosis (12).

Most research in the area of dieting behavior has focused on adolescent girls, despite indications that pre-pubertal girls start worrying at an early age about their weight and body image (3, 4, 13, 14). There are also,

reports of clinical cases of anorexia nervosa in this age range (15–17). It has been suggested that documentation of dieting attitudes, behaviors and body image in children under the age of 12 is important in order to advance the knowledge in this area (14).

The aim of the present paper is to study the development of reported eating behavior, attitudes, dieting behavior and body image over a 1-y follow-up period in a group of 50 Swedish girls who participated in an earlier study at the age of 7 (13). At the original assessment, approximately 25% of the 7-y-olds had concerns about their body weight, and a similar proportion reported attempts to lose weight (13). Comparisons at follow-up were made of those who reported weight loss attempts on both occasions, those who changed from dieting to non-dieting and vice versa and those who did not diet on either occasion.

Method

At the time of the first assessment, the girls were 7-y-old and in the first grade in four schools in central Uppsala (pop. 178000). The sample was selected to represent a variety of housing standards, such as personally owned homes or apartments and rented apartments. A written invitation was sent to all girls in Grade 1 in the chosen schools (64 girls and their parents). Permission from the parents was required for the girl to be able to participate. Three girls were not permitted by their parents to do so,

and 11 girls were reported to be ill, or had permission to be absent on the day of the data collection. The final sample consisted of 50 girls (78%).

At the second assessment, 1 y later, the same 50 girls and their parents were contacted. The same procedure was followed regarding invitation and permission to participate. Three girls were not allowed by their parents (reasons unknown) to participate in the follow-up assessment ($n = 47$).

A demographic and dieting questionnaire was used to assess dieting, dieting habits in the family, body shape, physical activity and eating habits (1). Girls who reported that they had tried to lose weight (in response to the question, "Have you ever tried to lose weight?") will be referred to as dieters (D), and those who had not tried to lose weight as non-dieters (ND).

A Swedish version (1) of the Children's Eating Attitudes Test (ChEAT) (18) was used to assess attitudes and behaviours associated with eating disorders. Each item is rated on a 6-point Likert scale from 1 ("never") to 6 ("always"). For each question, the most eating disordered-symptomatic response is scored 3, the adjacent response 2, and the next response 1. The remaining three responses are scored 0. This procedure is in accordance with Garner and Garfinkel (19).

A ChEAT score of 20 has been suggested as a cut-off value for developing clinical eating disorders (20). There are three subscales in the ChEAT: "Dieting" (13 items), "Bulimia and Food Preoccupation" (6 items) and "Oral Control" (7 items). Items 19 ("I can show self-control around food") and 25 ("I enjoy trying new rich foods") were excluded in accordance with previous research, because they have been reported to have low item-total correlations (8, 21, 25). As a consequence, the overall ChEAT scores may be lower than if all items had been employed. The exclusion of these two items lowers the potential maximum ChEAT score by 6 points.

An instrument assessing body image was employed (22). It consists of five body silhouettes ranging from very thin (1) to obese (5). The girls were asked to estimate their current shape and their ideal shape. Height and weight were recorded by the school nurse at the first assessment and by the first author conducting the interviews at the second assessment.

Table 1. Percentage (n) of dieters vs. non-dieters at original assessment and follow-up.

		Original assessment		
		Dieters	Non-dieters	Total
Follow-up assessment	Dieters	50.0 (5)	18.9 (7)	25.5 (12)
	Non-dieters	50.0 (5)	81.1 (30)	74.5 (35)
	Total	100 (10)	100 (37)	100 (47)

Three girls did not participate at the follow-up assessment.

After permission from the school and the parents, the girls participated in an interview during regular class time. The interview was structured and performed individually by the same research assistant (first author) for all children at both assessments.

Analyses of variance (repeated measures) were used to compare ChEAT data from dieters and non-dieters at the two assessments. It was also used to compare ChEAT data and body image between the following groups: dieter Year 1 and 2 (DD), dieter Year 1 and non-dieter Year 2 (DN), non-dieter Year 1 and dieter Year 2 (ND), and non-dieter Years 1 and 2 (NN). It should be noted that group DN represents girls with inconsistent responses to the question, "Have you ever tried to lose weight?".

Results

At the first assessment, 21.0% ($n = 10$) answered "yes" to the question "Have you ever tried to lose weight?", and 1 y later the corresponding figure was 25.5% ($n = 12$) (Table 1). These girls will henceforth be referred to as "dieters", including those who replied "yes" at either or both of the assessments. Only 10.6% ($n = 5$) scored as dieters at both assessments (DD), 10.6% ($n = 5$) "changed" from being dieters to non-dieters (DN), 14.9% ($n = 7$) from non-dieters to dieters (ND) and 63.8% ($n = 30$) were identified as non-dieters at both assessments (NN). Considering that 50% of the girls changed from being dieters to non-dieters, these results suggest that the classification of dieters and non-dieters among 7-y-olds on the basis of the single question used is highly unstable.

Table 2. Mean ChEAT and subscale scores for dieters vs. non-dieters at baseline (Year 1) and 1-y follow-up (Year 2).

n	Dieters (D)			Non-dieters (ND)			Year 1 Total	Year 2 Total
	Year 1	Year 2	Total	Year 1	Year 2	Total		
	11	12		39	35		50	47
ChEAT-score	5.90	6.40	6.10	2.90	5.50	4.20*	3.56	5.72††
Dieting	3.30	4.00	3.60	1.70	4.50	3.10	2.02	4.36†††
Bulimia	0.55	0.64	0.59	0.54	0.18	0.36	0.54	0.28
Oral Control	2.10	1.73	1.91	0.69	0.90	0.89*	1.00	1.08

ANOVA, repeated measures.

* $p < 0.05$ for dieters vs non-dieters comparisons.

†† $p < 0.01$, ††† $p < 0.0001$ for Year 1 vs. Year 2 comparisons.

Table 3. Mean ChEAT scores, subscale scores, body image ratings and BMI at original assessment and 1-y follow-up for dieters at both assessments (DD), dieters Year 1 and non-dieters Year 2 (DN), non-dieters Year 1 and dieters Year 2 (ND), and non-dieters at both assessments (NN).

	DD			DN			ND			NN			<i>p</i> -values*	
	<i>n</i> = 5			<i>n</i> = 5			<i>n</i> = 7			<i>n</i> = 30			Group	Time
	Year 1	Year 2	Total	Year 1	Year 2	Total	Year 1	Year 2	Total	Year 1	Year 2	Total		
<i>n</i> = (47)														
ChEAT-score	6.8	9.6	8.2	2.8	4.4	3.6	2.1	7.3	4.7	2.8	5.5	4.2	<0.005	<0.0001
Subscales														
Dieting	4.0	5.2	4.6	1.2	3.6	2.4	1.6	5.7	3.6	1.6	4.5	3.0	<0.05	<0.0001
Bulimia	0.6	1.2	0.9	0.2	0.2	0.2	0.4	0.3	0.4	0.4	0.2	0.3	n.s.	n.s.
Oral Control	2.2	3.2	2.7	1.4	0.6	1.0	0.1	1.3	0.7	0.8	0.9	0.8	<0.05	n.s.
Body Image														
Current shape	3.0	3.0	3.0	3.0	2.2	2.6	2.6	2.7	2.6	2.7	2.7	2.7	n.s.	n.s.
Ideal shape	2.4	2.6	2.5	2.6	2.2	2.4	2.3	2.4	2.4	2.7	2.5	2.6	n.s.	n.s.
Current-Ideal discrepancy	1.6	0.4	0.5	0.4	0.0	0.2	0.3	0.3	0.2	0.0	0.2	0.1	n.s.	n.s.
BMI	17.7	18.9	18.3	15.8	15.5	15.7	17.1	18.7	17.9	15.6	16.5	16.0	n.s.	<0.0001

* ANOVA, repeated measures.

Mean BMI (adapted for children and adolescents; 23) was 16.0 (range 13.0–25.9) at the first assessment and 17.0 (range 14.0–28.0) at the second. Four girls (3 overweight and 1 slightly underweight) were outside the range for normal BMI values (23) at the first assessment, and 3 (2 overweight and 1 slightly overweight) were so at the second assessment.

Analysis of variance (Table 2) showed that dieters scored significantly higher on the ChEAT than did non-dieters ($F = 5.2$, $df = 1/48$, $p < 0.05$), and that scores increased significantly between the two assessments ($F = 8.3$, $df = 1/48$, $p < 0.01$). Thus, ChEAT scores of dieters remained above those of non-dieters over a 1 y period. There were no interactions.

For the ChEAT subscale "Dieting", the scores increased significantly between the two assessments ($F = 26.36$, $df = 1/48$, $p < 0.0001$), but there was no group difference. For "Bulimia and Food Preoccupation", there were no significant differences either between dieters and non-dieters or between the two assessments. For "Oral Control", dieters scored significantly higher than non-dieters ($F = 6.2$, $df = 1/48$, $p < 0.05$), but there was no difference between the assessments. There were no group-by-assessment interactions.

Analysis of variance was also used for comparing ChEAT data and body image ratings between groups formed on the basis of change vs. no change in dieter/non-dieter status between assessments (Table 3). There was a significant overall group difference for the ChEAT scores ($F = 5.0$, $df = 1/43$, $p < 0.005$). *Post hoc* between-group comparisons (Scheffé) showed the DD group to have significantly higher scores than the DN and NN groups. There was also a significant group difference for "Dieting" ($F = 3.4$, $df = 1/43$, $p < 0.05$), and *post hoc* testing demonstrated that the DD group achieved a higher mean than did the DN group. The DD group also scored significantly higher than remaining groups on "Oral Control" ($F = 3.1$, $df = 1/43$, $p < 0.05$).

There was a significant increase between assessments in total ChEAT scores ($F = 24.1$, $df = 1/43$, $p < 0.0001$) and also for the Dieting subscale ($F = 53.3$, $df = 1/43$, $p < 0.0001$). There were no interactions.

There were no significant differences either between dieters and non-dieters or between assessments with respect to Current shape or Ideal shape (Table 3). Further, no significant difference was demonstrated for the discrepancy between Current shape and Ideal shape. As expected, BMI increased significantly for all groups between the two assessments ($F = 21.0$, $df = 1/41$, $p < 0.0001$).

Discussion

The results of the present study confirm previous research (e.g., 1–3, 18) demonstrating that children report weight loss attempts at an early age. A total of 11% reported weight loss attempts at both assessments, and 15% changed from being non-dieters to dieters at the second assessment. These groups deserve particular attention, the NDs since their responses changed over a 1-y period, and the DDs since they reported consistent dieting at both assessments. Fifty percent of the girls who reported in Year 1 that they had tried to lose weight sometime stated in Year 2 that they had never tried to lose weight. Thus, the determination of dieter/non-dieter status on the basis of a single question is highly unreliable among 7-y-olds. However, it should be noted that our earlier studies (1, 2) of somewhat older girls (9–16 years) have indicated that the question, "Have you ever tried to lose weight?" is potent enough to single out girls who display more disturbed eating attitudes than their peers, as assessed by eating disorders instruments (e.g., the ChEAT, the Eating Disorders Inventory for Children and the Dutch Eating Behavior Questionnaire; 1, 8, 28), which indicates adequate discriminative validity for this question.

The overall ChEAT scores increased from the original assessment to follow-up regardless of reported weight loss attempts. Although the non-dieters' scores increased more than did the dieters', the latter group demonstrated higher scores at both assessments. This suggests a general increase in awareness of cultural demands to be thin with increasing age among these young girls, although the composition of groups did change, some dieters becoming non-dieters and vice versa. Further, this increase in reported dieting behaviours is in accordance with previous results of cross-sectional research with Swedish children and adolescents (1, 2, 8).

Total ChEAT and "Dieting" subscale scores increased significantly for the DD, DN, ND and NN groups. Interestingly, those who were dieters at both assessments (DD) had the highest ChEAT scores throughout, and the ChEAT scores of the group that changed from non-dieters to dieters (ND) at Year 2 increased most as compared to Year 1. The DN and NN groups showed the fewest changes in ChEAT scores over time. This indicates that eating attitudes and dieting scores follow reported dieting behaviour. Thus, although dieting behaviour as reflected by a single question in 7–8-y-old girls is unstable over time, repeated assessments may have better discriminant validity, since the ChEAT scores correspond well with changes in reported dieting attempts.

It should be noted that girls who were dieters at both assessments also had the highest BMI, which may have contributed to their weight loss attempts. Those who were non-dieters in Year 1 and dieters in Year 2 showed the second highest BMI. This is also the group that shows the largest increase in ChEAT total and "Dieting" scores. The mean BMI of all four groups was within the normal range at both assessments. Although not significant, the body dissatisfaction score (discrepancy between estimated and ideal body shape) was highest for the DD group, followed by the ND group. Thus, DD girls are bigger (BMI), estimate themselves to be larger, but have about the same ideal body image as girls in the remaining groups.

A potential problem in interviewing young children is the risk that they may have trouble fully understanding the questions. We have attempted to avoid that problem by conducting structured individual interviews. This allows the opportunity to explain difficult words, and to make sure that the child does not misunderstand the content of the questions. According to our experience, children are willing to share their thoughts, attitudes and behaviours regarding dieting and eating patterns when asked, provided that confidentiality is assured. Our assessment method accords with the procedure used by a number of researchers (4, 26, 29–33). In these reports, issues related to eating behaviours were studied in children as early as age 7–10 y. The conclusions from this research are that children in that age range are aware of the cultural demands of Western society, and

engage in restrictive eating behaviors (34–38). Thus, there is little reason to question the validity of our procedure, although the issue has been raised of whether children as young as 8 y fully understand all the questions of the ChEAT (38).

According to Sasson et al. (24), an age-related landmark for the developmental process leading to an eating disorder may be the expression of discontent over feeling overweight and taking actions toward thinness. These behaviours have been shown to appear as early as age 9 y (18, 24). Our results suggest that such behaviours and discontent may start as early as 7 y of age, and that repeated dieting attempts correlate with ChEAT scores in Swedish girls.

The main limitation of the present study lies in the size of the samples. By decreasing power, the small size of three of the groups in the analyses of variance increases the risk for Type II errors. Thus, true group differences may have gone undetected. However, the fact that several significant between-group differences were demonstrated argues against this notion. Still, the results of the analyses of variance need to be interpreted with caution and replication in a larger sample is warranted.

The results indicate that repeated dieting attempts reported by young children are accompanied by elevated scores on the ChEAT. Studies with longer follow-up periods using a larger sample are badly needed. Assessment of dieting behaviours and eating disturbances in young children in longitudinal studies may be one step towards mapping risk factors for developing eating disorders as well as allowing us to obtain knowledge of their etiology. In addition, further studies on the validity of using self-report/structured interview methodology among young children are warranted, although there are indications that young children are able to handle these types of questions.

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