

# Factors influencing eating attitudes in secondary-school girls in South Africa — a preliminary study

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**Objectives.** To establish factors in the environment, e.g. family, peer or media, as well as individual factors, e.g. self-perception, which may influence eating attitudes.

**Design.** Cross-sectional survey.

**Setting.** Non-clinical, community-based.

**Subjects.** Female high-school pupils.

**Outcome measures.** Responses to questions pertaining to environmental as well as individual factors for each respondent ('dieting questionnaire'; self report). Total scores derived from a self-report questionnaire pertaining to eating attitudes (Eating Attitudes Test (EAT-26)). Statistical analysis, using analysis of variance procedures, to determine significant associations between the two questionnaires.

**Results and conclusions.** Specific individual wishes, perceptions, behaviours and topics of conversation appear to influence as well as predict eating attitudes. Family, especially maternal, factors play a role in determining eating attitudes. Peer and media (television) factors are not significantly influential. The findings provide preliminary data on factors that influence eating attitudes in a group at risk for the development of eating disorders. The findings have implications for the formulation of preventive strategies within a comprehensive treatment approach.

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A study of eating attitudes in secondary-school girls (mean age = 14.75 years; SD = 1.39) attending a private, all-girl school in Johannesburg was recently completed by the authors.<sup>1</sup> With the Eating Attitudes Test (EAT-26)<sup>2</sup> used as a screening instrument, 21.66% of the sample scored in a range ( $\geq 20$ ) indicative of eating-related psychopathology. Abnormal eating attitudes may represent current eating disorders<sup>3</sup> as well as pre- or subclinical forms of these conditions.<sup>4</sup>

Of concern to clinicians working in the field of eating disorders are factors which may contribute to the onset and maintenance of these disorders. Although the precise

aetiology of eating disorders remains obscure, the role of the family has received considerable attention, with various patterns of family interaction being described for both anorexia nervosa and bulimia nervosa.<sup>5</sup> Of interest is the role of parental behaviour and the way in which interaction with the daughter — or son — precipitates and promotes abnormal eating attitudes. While most studies of eating disorders pertain exclusively to females, the existence of eating disorders in males is well documented.<sup>6</sup> Abnormal eating attitudes have been documented in male high-school pupils in South Africa, using the EAT-40.<sup>7</sup> It has been established that maternal concerns about physical appearance and food intake are associated with similar self-appraisal concerns in daughters.<sup>8</sup> Furthermore, negative self-approval with regard to body image in young adolescent girls has been found to be associated with subsequent development of eating problems.<sup>9</sup> In this regard, the ability of children generally to perceive parental opinion on body shape or weight accurately has been documented.<sup>10</sup> This may impact on self-esteem, leading to attempts to address the perceived situation with consequent onset of eating problems. Dietary restraint has previously been documented to be associated with low self-esteem and body dissatisfaction in children.<sup>11</sup>

The current study aimed to explore the relationship between eating attitudes — in a population at risk for the development of eating disorders — and a host of family variables that have previously been documented to play a role in their development; personal attitudes as well as the possible influence of peers and television on eating attitudes were also explored. This does not appear to have been attempted before in a South African sample and is part of an initiative to develop prevention strategies.

## Method

The study was conducted at an all-girl, racially diverse, private secondary school in Johannesburg. It was part of a study to investigate the prevalence of abnormal eating attitudes, and involved use of the EAT-26<sup>2</sup> as a screening instrument.

Respondents were required to complete a 'dieting questionnaire' which explored personal feelings about weight as well as the possible influence of peer and family factors on eating attitudes. The questionnaire was recently used in a Japanese study<sup>12</sup> and we used a partially adapted version.<sup>13</sup> Questions dealing with the specific factors under consideration were the focus of the study (Table I). Prior to conducting the study, full approval was obtained from the headmistress of the school. The study received clearance from the Ethics Committee of the University of the Witwatersrand. Consent to participation in the study was signed by both the scholar and one of her parents.

## Statistical analysis

In order to establish which items from the 'dieting questionnaire' had a significant effect on EAT-26 scores (dependent variable), analysis of variance tests were carried out to ascertain differences between the groups (determined by response to specific questions). Where a significant difference was observed and there were more than two

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**Table 1. Responses to questions ('dieting questionnaire') based on EAT-26 score**

	EAT $\geq$ 20 (N = 46)		EAT < 20 (N = 167)		P-value*
	No.	%	No.	%	
Desire to be thinner (Yes)	46	100	137	82	< 0.0002
Attempts at weight loss (Yes)	46	100	116	70	< 0.0001
Mother on diet (Yes)	37	80	120	72	= 0.4052
Father on diet (Yes)	20	44	54	33	= 0.1625
Self perception					< 0.0001
Fat	42	91	56	34	
Just right	4	9	99	60	
Thin	0	0	10	6	
Mother thinks I am					= 0.01
Fat	11	24	19	11	
Just right	28	61	124	76	
Thin	7	15	21	13	
Frequency of weighing					< 0.0001
> 1/day	17	39	8	5	
1 - 6/week	12	27	30	18	
1/month	8	18	61	37	
< 1/month	7	16	67	40	
Mother thinks I eat					< 0.0001
Too much	11	24	34	21	
Just right	15	33	114	69	
Too little	19	44	15	10	
Conversation with mother about:					
(i) Food					< 0.0001
Always	7	15	3	2	
Often	18	39	26	15	
Sometimes	12	26	71	43	
Rarely/Never	9	20	66	40	
(ii) Dieting					< 0.0001
Always	10	22	3	2	
Often	13	28	22	13	
Sometimes	9	20	49	30	
Rarely/never	14	30	90	55	
Encouragement to lose weight					< 0.0008
Yes	27	59	55	33	
No	19	41	112	67	

\* Relationship between mean EAT score and response to questions (ANOVA).

groups, a Bonferroni multiple comparison test was performed to determine where the differences were. Tests were performed at the 5% level of significance.

## Results

A total of 213 scholars, representing the entire school present on the day of the study, participated. As mentioned, 21.66% of the respondents scored positively ( $\geq$  20) on the EAT-26.

One hundred per cent of EAT-positive respondents had at some time wanted to be thinner and attempted to lose weight. Both desire to be thinner and attempting to lose weight predicted higher EAT scores ( $F(1.211) = 13.89, P < 0.0002; F(1.211) = 35.09, P < 0.0001$ ). Among EAT-negative respondents, 82% had at some time wanted to be thinner

and 70% had attempted to achieve this. Desire to be thinner was therefore an almost universal phenomenon (86% of the total sample), with a sizeable majority of the sample (76%) having attempted weight control. Dieting by mothers did not seem to play a role in determining eating attitudes, given that this behaviour was noted by 80% of EAT-positive respondents and 73% of EAT-negative respondents.

This was confirmed when mean EAT scores of those whose mothers had ever been on diet were compared with the scores of those whose mothers had not; the difference between mean scores was not significant ( $F(1.209) = 0.7, P = 0.4052$ ). The overall figure of 75% of mothers having at some time been on diet is almost identical to that percentage of the total sample that had attempted to lose weight (76%). With regard to paternal dieting, 44% of EAT-positive respondents reported this phenomenon, which was also observed in 33% of the fathers of EAT-negative respondents. Paternal dieting did not influence mean EAT scores ( $F(1.209) = 1.96, P = 0.1625$ ). Those who perceived themselves as fat had higher mean EAT scores than those who felt just right or thin ( $F(2.208) = 54.74, P < 0.0001$ ). Frequency of weighing was predictive of EAT score in that the lower the frequency, the lower the score ( $F(4.205) = 19.30, P < 0.0001$ ). Daily weighing was predictive of the highest mean score. Girls who believed their mothers viewed them as fat had the highest mean EAT scores, as did those whose mothers thought they ate too little ( $F(2.207) = 4.17, P = 0.0168; F(3.205) = 13.63, P < 0.0001$ ). Of interest was that 33% of mothers whose daughters had abnormal eating attitudes felt that their eating was appropriate (according to the daughters). Communication about food as well as about dieting to lose weight was both predictive of higher mean EAT scores ( $F(3.208) = 12.72, P < 0.0001; F(3.206) = 16.13, P < 0.0001$ ). Of those who were EAT-positive, 54% always or often discussed food with their mothers, whereas 83% of EAT-negative respondents sometimes or never did. Among those girls with abnormal eating attitudes, a wide spectrum of frequency of talk about dieting occurs, ranging from always (22%) to never (30%). Among girls with normal eating attitudes, the majority (55%) never talk to their mothers about dieting, while only 2% always talk to their mothers about dieting. The majority of girls (59%) within the group that scored positively on the EAT had been encouraged to lose weight, whereas the majority of girls scoring negatively had not (67%). Being encouraged to diet to lose weight was associated with a higher EAT score than where this was not the case ( $F(1.211) = 11.7, P < 0.0008$ ). Of those encouraged to do so, 50% were encouraged by their mothers, 20% by a female friend and 10% by their fathers. The remaining 20% were encouraged to do so by a variety of individuals ranging from 'others' to sisters, aunts/uncles and brothers. Hours spent watching television did not have an impact on EAT scores ( $F(3.209) = 2.17, P = 0.0926$ ).

## Discussion

The purpose of the study was to establish possible individual and environmental factors which may influence eating attitudes in a non-clinical population at risk of developing eating disorders.

Although desire to be thinner and attempts at weight loss predicted higher mean EAT scores, such a desire and behaviour were not exclusive to EAT-positive respondents and were almost universal phenomena within the sample. Recently documented body dissatisfaction scores — using the Eating Disorders Inventory — in a sample of female college students<sup>14</sup> were higher than those reported in the original normative data of a decade earlier for this questionnaire.<sup>15</sup> In another study of female college students, it was established that 86% were engaging in some form of dieting behaviour.<sup>16</sup> Over a 6-month period, this figure was essentially stable. Collectively, these findings highlight the extent to which weight concerns exist in certain sections of the community. Perception of weight was an important predictor of mean EAT score, with those who perceived themselves to be fat having the highest scores compared with those who felt just right or thin. The perception of being overweight — rather than actually being overweight — correlates with eating problems in adolescence.<sup>17</sup> Of the sample, 46% perceived themselves to be too fat, yet the mean body mass index (BMI) of the sample was 19.015 (SD = 2.68). According to data,<sup>18</sup> a BMI of 20.2 would be appropriate for 15 - 16-year-olds with a height of 1.67 m and a weight of 56.7 kg. The mean age of our sample was 14.75 years (SD = 1.39), the mean height was 1.67 m (SD = 0.064) and the mean weight was 53.15 kg (SD = 8.518). Hence those in the sample (overall) were marginally below optimal BMI given their body dimensions. The mean BMI of those who perceived themselves to be too fat was 20.01 (SD = 2.59). The likelihood of more intense dieting in this sample seems strong given that 76% had at some time attempted to lose weight and approximately 50% still felt they were too fat. By implication, the potential for dieting which may lead to the onset of an eating disorder is great, given the findings of Drewnowski *et al.*<sup>19</sup> that new cases of bulimia nervosa in a college sample were drawn from previously intensive dieters. Their recommendation that intervention strategies should be aimed at the pre-college level is certainly borne out by our findings. Detection of an eating disorder is often problematic unless there are overt physical manifestations or behavioural patterns. However, given that daily weighing was associated with the highest mean EAT score in this sample, such behaviour may provide a parent with an indication that a disturbed eating attitude — and possible eating disorder — is present in their child. Communication about food and dieting to lose weight were both predictive of higher mean EAT scores; mothers therefore need to be aware of the potential significance of such topics of conversation. Both of these findings have previously been documented<sup>12</sup> using the same questionnaires in a sample of Japanese high-school students. Mukai *et al.*<sup>12</sup> found a significant correlation between higher mean EAT scores and daughters' perceptions that their mothers viewed them as eating too much. In our sample, however, those daughters who thought their mothers viewed them as eating too little had the highest mean EAT scores. This may indicate that if a mother perceives this to be the case, she may have grounds for concern with regard to the basis of the reduced intake. Where family factors are concerned, maternal dieting appeared to have little impact — if any — on eating attitudes (as evidenced by EAT-26 scores in this sample). However, there may be an impact on its encouraging of dieting behaviour given that 75% of mothers had at one

time been on diet and 76% of the sample had at one time attempted to lose weight — which may in itself ultimately lead to the onset of an eating disorder. The concordance of maternal and daughter dieting figures appears to lend credence to the modelling theory of eating disorders (discussed by Thelen and Cormier<sup>19</sup>) whereby parental weight concern serves as a strong influence for same-sex children to engage in similar behaviour. However, although mothers' behaviour — in our sample — may have promoted similar behaviour in their daughters, it did not necessarily result in abnormal eating attitudes in their daughters.

Maternal influence was noted directly in that those girls whose mothers thought they were too fat had the highest mean EAT scores. Communication about their perception of their daughters' weight therefore had a significant impact on eating attitudes. These findings are in accordance with those of Mukai *et al.*,<sup>12</sup> as well as an earlier study<sup>20</sup> which found that mothers of bulimia nervosa sufferers (college sample) more often perceived their daughters to be overweight and encouraged dieting and exercise than did mothers of normal controls. Regarding maternal perception of daughters' eating, it is of concern that 33% of girls with abnormal eating attitudes felt that their mothers viewed their eating as just right. Inadvertent maternal collusion could thus perpetuate such attitudes in certain individuals. This may be a function of maternal eating-related psychopathology. It has been found that mothers of adolescents with eating disorders tend to be significantly more prone to eating disorders than mothers of adolescents without eating disorders.<sup>3</sup> Alternatively, such respondents may not report accurately or do not perceive parental views on their eating correctly. Similar to the findings of Mukai *et al.*,<sup>12</sup> 38.5% of all the girls had been encouraged to lose weight: 50% of these girls reported that their mothers had been the ones to do so, 20% had been encouraged by a female friend, 1% by a male friend and 10% by their fathers. Encouragement to lose weight was associated with higher mean EAT scores. Given that 59% of girls within the EAT-positive group had been encouraged to lose weight whereas 67% of EAT-negative girls had not, this is an area requiring sensitivity within the family setting. While a small percentage of girls encouraged to lose weight had been encouraged to do so by a female friend, 90% of girls did not believe they needed to be thinner to be liked more by a friend (of either sex). Hours spent watching television were not correlated with EAT scores; this may be a function of this sample's watching very small amounts of television daily (50% < 1 hour; 43% 1 - 3 hours). Alternatively, this form of media is not influential with regard to eating attitudes.

## Conclusion

While the extent to which weight concerns affect this sample is worrying in terms of possible implications for the development of eating disorders, there is the possibility that such concerns represent a transient development-related phase. Evidence for this emerged in a British study<sup>21</sup> where 40% of patients interviewed after initial screening for abnormal eating attitudes had improved spontaneously within 12 months. In addition, the same study found that the majority of dieters had not intensified their behaviour or were no longer dieting.

The current study provides preliminary local data on factors that may influence eating attitudes, as well as behaviour and topics of conversation that may indicate the presence of abnormal eating attitudes (which may be associated with an eating disorder). Awareness of such factors is important within the contexts of prevention and detection of eating attitudes, which may represent current, pre- or subclinical eating disorders.<sup>4</sup> It appears that the primary focus of education in such matters is the mother. However, it seems that paternal influence should not be ignored.

Based on the data, a preliminary educative model for parents aimed at prevention and early detection of abnormal eating attitudes can be formulated. In a country such as South Africa, with limited resources for treating eating disorder patients and with prevalence figures that appear to be in line with international data,<sup>1</sup> this is a pressing need.

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