

Socio-cultural factors in the development of anorexia nervosa

DAVID M. GARNER¹ AND PAUL E. GARFINKEL

*From the Psychosomatic Medicine Unit, Clarke Institute of Psychiatry,
and the Department of Psychiatry, University of Toronto, Canada*

SYNOPSIS A population of professional dance ($N = 183$) and modelling ($N = 56$) students, who by career choice must focus increased attention and control over their body shapes, was studied. Height and weight data were obtained on all subjects. In addition, a questionnaire that is useful in assessing the symptoms of anorexia nervosa, the Eating Attitudes Test (EAT), was administered. Results of these tests were compared with those of normal female university students ($N = 59$), patients with anorexia nervosa ($N = 68$), and music students ($N = 35$).

Anorexia nervosa and excessive dieting concerns were overrepresented in the dance and modelling students. Twelve cases (6.5%) of primary anorexia nervosa were detected in the dance group. All but one case developed the disorder while studying dance. Within the dance group those from the most competitive environments had the greatest frequency of anorexia nervosa. These data suggest that both pressures to be slim and achievement expectations are risk factors in the development of anorexia nervosa. The influence of socio-cultural determinants are discussed within the context of anorexia nervosa as a multidetermined disorder.

INTRODUCTION

Since Gull's and Lasègue's initial descriptions, it has been repeatedly noted that anorexia nervosa is more common in females, and usually develops during adolescence (Crisp, 1970; Bemis, 1978). A century ago Fenwick (1880) commented that anorexia nervosa was more common in 'the wealthier classes of society than amongst those who have to procure their bread by daily labour' (p. 107). This overrepresentation in the upper social classes has frequently been observed (Crisp, 1965; Bruch, 1973; Morgan & Russell, 1975; Crisp *et al.* 1976). These observations that anorexia nervosa occurs with a particular age, sex and social class distribution suggest that socio-cultural factors may be important determinants of the disorder. Furthermore, despite the possible biasing effects of referral and exposure factors, there is growing evidence that anorexia nervosa is increasing in frequency (Sours, 1969; Duddle, 1973; Kendell *et al.* 1973;

Halmi, 1974; Ikemi *et al.* 1974; Crisp *et al.* 1976). This apparent increase in the disorder has been paralleled by our culture's aesthetic preference for thinness in women. If social variables are of significance, the increased emphasis for women to appear slim, to diet and to exercise may be linked to the expression of anorexia nervosa.

In addition to reports of an increased prevalence of severe cases, recent studies have also described the existence of mild or 'forme fruste' anorexia nervosa (Nylander, 1971; Russell, 1972; Fries, 1977). This raises fundamental questions about aetiology and diagnosis; in particular, is anorexia nervosa a distinct entity or is it simply an extreme form of a relatively common dieting disorder?

One factor which may play a role in the increasing incidence of anorexia nervosa relates to the cultural pressure for women to diet and to assume a thin body shape. It may be viewed as one of several predisposing factors leading to the expression of anorexia nervosa. (Other predisposing factors have been identified in the individual (Bruch, 1973; Crisp, 1965, 1970; Palazzoli, 1974) and in the family (Crisp *et al.*

¹ Address for correspondence: Dr D. M. Garner, Clarke Institute of Psychiatry, 250 College Street, Toronto, Canada, M5T 1R8.

1974; Kalucy *et al.* 1977; Minuchin *et al.* 1978). This relatively recent cultural expectation for thinness is specifically directed towards women, and particularly those of higher social class. It appears to be a reflection of contemporary fashion's promotion of thinness as a symbol of beauty and success. While the ideal body form has varied over time and between cultures, there is some support for the contention that the preferred shape for women in Western cultures has shifted toward a thinner ideal over the past 20 years. Data from magazine centrefolds and Miss America Pageant contestants (Garner *et al.* 1980) reveal a significant trend towards a thinner standard. These changes have occurred within the context of increasing North American standard weight norms for young women (Garner *et al.* 1980).

The impact of this aesthetic ideal is indicated by the pervasiveness of dieting among women. Huenemann *et al.* (1966) reported that between 63 and 70 % of high school girls were dissatisfied with their bodies and wanted to lose weight; by contrast, males wanted to gain. For girls, 'feeling fat' increased during high school and one fifth were actively trying to diet. Jakobovits *et al.* (1977) reported that 11 % of college women were on a diet and a further 75 % were consciously trying to limit their food intake. Garner *et al.* (1980) have shown that there has been a significant increase in diet articles in women's magazines over the past 20 years. Furthermore, for North American women, higher social class is strongly related to thinness (Stunkard, 1975) and dieting (Goldblatt *et al.* 1965; Dwyer & Mayer, 1970).

Anorexia nervosa may be viewed as a multi-determined disorder with individual, family and possible cultural predisposing factors. Crisp (1977) has suggested that there is an interaction between 'mounting concerns with shape' and psychopathology which pushes certain vulnerable adolescents below the menstrual weight threshold which leads to the expression of anorexia nervosa. It could be hypothesized that subcultures in which pressures to be slim and diet are augmented may give rise to a greater expression of the disorder in vulnerable adolescents.

We examined a population of professional dance students and fashion models, who by career choice must focus increased attention and

control over their body shapes. Since they should encounter, in a more intense form, the demand for dieting which is experienced by most females in our culture, we predicted that anorexia nervosa and 'anorexic like' symptoms would be overrepresented in these dancers and models.

METHODS

Subjects

Five independent groups totalling 423 female subjects were surveyed. Dancers and models, who must be thin to meet professional expectations, were compared with patients with anorexia nervosa and 2 groups of normal weight control subjects. The specific groups were:

(1) Ballet students ($N = 183$) from 3 national calibre professional dance schools. Two of the schools ($N = 103$) had highly competitive programmes with an emphasis on preparing dancers for membership in professional dance companies. The third programme ($N = 80$) had a more general and academic focus aimed at training students for a mixture of professional or teaching careers in dance.

(2) Fashion students ($N = 56$) from a leading Canadian modelling school. This group was heterogeneous, in that some students were pursuing modelling for 'self improvement' and others were in the course to pursue a career.

(3) Patients with anorexia nervosa (AN, $N = 68$) who were seen consecutively in consultation at the Clarke Institute of Psychiatry. All patients conformed to the Feighner *et al.* (1972) criteria for primary AN. This group was somewhat diverse in that patients were at various stages of treatment when tested; however, none could be considered recovered.

(4) Normal controls (NC, $N = 81$) were 2nd and 3rd year undergraduate university students who were within 10 % of average weight for their age and height (Canadian Average Weights for Height, Age and Sex (Pamphlet), 1954). Students who had ever been < 10 % of average weight were interviewed to rule out anorexia nervosa.

(5) A small group ($N = 35$) of students from a conservatory of music were also studied. They were included as a control group because they are similar to the dance students in that they undergo demanding and competitive training; however, they are not required to maintain a thin body shape for their careers. This group

Table 1. Demographic characteristics of subjects

Group	N	Age* (years)	Height† (cm)	Present weight† (kg)	% deviation from average weight† (mean)
Anorexia nervosa	68	23.2±0.8	161.7±0.8	43.3±1.0	-30.2
Dance students	183	18.6±0.3	162.6±0.5	49.4±0.5	-13.3
Modelling students	56	21.4±0.5	169.5±0.8	54.1±0.6	-11.9
Normal controls	81	21.5±0.3	160.0±1.3	56.8±0.5	-3.0
Music students	35	15.2±0.3	163.6±1.2	52.9±0.9	-6.3

* Mean±standard error.

† $P < 0.001$, one-way analysis of variance.

was matched for age with a subgroup of the dance students from the more competitive programmes.

Demographic characteristics of all subjects are presented in Table 1. Subjects were assessed for social class membership, using the Hollingshead method (Hollingshead, 1965). For those on whom data were available (75% of the total sample), social class was similar across all groups. Between 69 and 75% of each group came from families in social classes I, II or III. Only 14% of the subjects were from social class VI or VII. The social class data were most complete on the subset of 103 dance students; they had a social class distribution very similar to the AN population. Thus, the majority of dance students were from upper or middle class backgrounds which have been associated with a higher risk for AN. Given this fact alone, a prevalence of the disorder of the order of 1 in 100 could be expected (Crisp & Toms, 1972; Crisp *et al.* 1976).

Procedure

Each school was approached with the explanation that we wished to study the prevalence of AN and dieting problems in students. The staff of the dance schools were aware of the existence of cases of AN among their pupils, for several students had been previously referred for treatment. One modelling agency that was approached declined to participate; however, all other schools contacted agreed to participate and written informed consent was provided.

All subjects completed the Eating Attitudes Test (EAT). This is a 40-item, objective, self-report instrument designed to measure a broad range of symptoms characteristic of AN. The validation of the EAT has been reported elsewhere (Garner & Garfinkel, 1979). In addition,

weight, age, and menstrual and weight histories were obtained on all subjects. Data were not obtained on 5 dance students (3%); however, they had not shown precipitous weight loss or 'anorexic' symptoms according to the staff of the schools. All of the students approached in the NC, music and modelling groups agreed to participate in the study.

The Hopkins Symptom Checklist (HSCL) was administered to the 'high performance' expectation dance samples ($N = 103$) and to a subsample of AN ($N = 31$) and NC ($N = 55$) subjects. This self-report checklist is a measure of the psychological symptoms of somatization, depression, obsessive-compulsive tendencies, interpersonal sensitivity, and anxiety (Derogatis *et al.* 1974).

RESULTS

Scores on the Eating Attitudes Test (EAT)

The frequency distribution of the EAT scores for the subjects (except the music students) is illustrated in Fig. 1. Using a one-way analysis of variance, there were significant group differences in mean EAT scores ($F = 135.5$; $P < 0.001$). The dance and model groups had significantly higher mean EAT scores than did the NC group ($P < 0.05$; Duncan's Multiple Range Test) (Duncan, 1955). As can be seen, there was little overlap between the EAT scores of the AN group and NC group. A 'cut-off score' of 30 was established on the basis of previous validation of the EAT (Garner & Garfinkel, 1979). Comparing the AN and NC groups, this score minimizes false negatives (6% of subjects with AN were not identified as symptomatic) and yields a relatively low false positive rate of 12% (i.e. subjects without AN but identified as symptomatic with the EAT). For the AN and NC

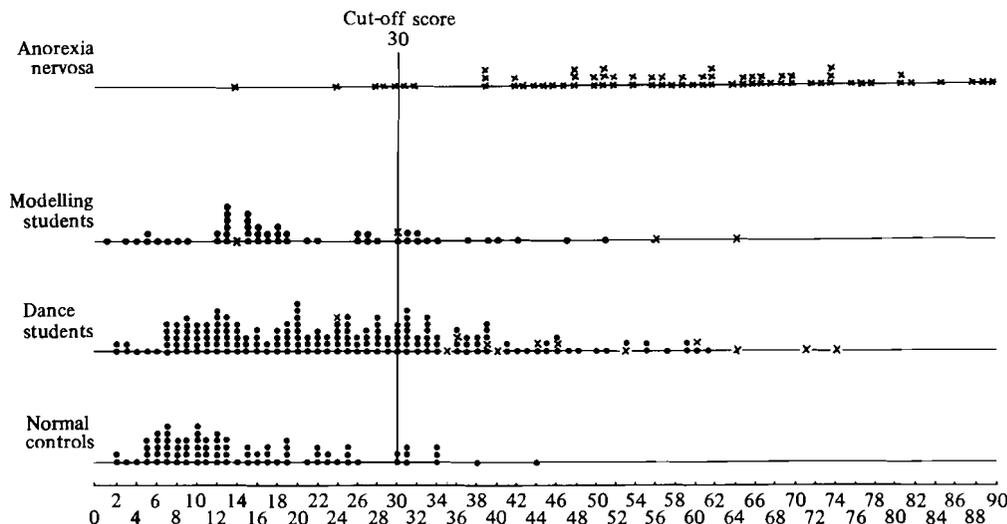


FIG. 1. Eating Attitudes Test (EAT) frequency distribution. Anorexia nervosa: $N = 68$, mean = 58.3, s.d. = 16.7; mean group differences significant ($P < 0.001$) by one-way analysis of variance. Modelling students: $N = 56$, mean = 21.8, s.d. = 13.7. Dance students: $N = 183$, mean = 25.6, s.d. = 14.6. Normal controls: $N = 81$, mean = 15.4, s.d. = 10.3. x, Anorexia nervosa (according to criteria of Feighner *et al.* 1972); ●, not identified as anorexia nervosa.

groups, the test was efficient in correctly identifying group membership 90.6 % of the time.

Prevalence of anorexia nervosa and excessive dieting

All NC subjects scoring 30 or over on the EAT (12 %) were interviewed clinically and none met the Feighner *et al.* criteria for AN. Other NC subjects were also interviewed because of past weight fluctuations or a history of amenorrhoea; however, despite their being weight or diet conscious, they were not identified as cases of AN.

In the dance group, 69 subjects (37.7 %) displayed scores on the EAT which were at or above the cut-off score (i.e. ≥ 30). Dance students who scored in this range were interviewed, and 11 cases of primary anorexia nervosa were identified. Again, based upon menstrual and weight history, other students were interviewed and this procedure revealed one additional case who had scored less than 30 on the EAT. Thus 12 cases (6.5 % of the total dance sample) were detected as having primary AN. All but one of these subjects had developed AN after beginning to study dance.

In the modelling student sample, 4 cases (7 %) of primary anorexia nervosa were identified;

however, 2 of these subjects had an onset prior to commencing the modelling course.

Sixteen per cent of those in the dance and modelling samples who scored 30 or greater on the EAT had definite cases of AN. Of the subjects from these groups scoring higher than 34 on the test, 25 % were confirmed cases of AN.

Anorexia nervosa and competitiveness of setting

Since 2 of the dance samples were drawn from highly competitive settings, it could be argued that the competitive environment alone was responsible for the high prevalence of anorexia nervosa. The expectations for achievement may not have been as intense in the university students (NC group) as in the dance students. Thus an attempt was made to evaluate a group from a more competitive environment but where low weight and dieting were irrelevant to professional achievement. A small group of music students from a private conservatory was studied. They were closely matched for age to the students from one of the dance schools. As shown in Table 2 the mean EAT score for the dance sample was significantly higher than the music students ($t = 4.45$, $P < 0.001$); the music students' EAT scores were similar to the NC group. The dancers were also significantly

Table 2. EAT scores for groups matched for age and competitive environment

Group	N	Age* (mean)	% deviation from average body weight† (mean)	EAT score (mean)	% with EAT scores > 30‡	Clinically identified AN (%)
Dance students from high expectation setting	49	15.4	-17.9	25.9	43	8
Music students from high expectation setting	35	15.2	-6.3	13.7	3	0

* NS.

† $P < 0.001$, two-tailed *t*-test.‡ $P < 0.001$, chi square.

Table 3. Prevalence and symptoms of anorexia nervosa

Group	N	% deviation from average body weight†	Mean EAT score	Frequency of EAT ≥ 30 (No. (%))	Cases of AN identified (No. (%))	Cases developing AN while in course of study (No. (%))
Total dance group	183	-13.3	25.6 ± 1.1	69 (38)	12 (7)	11 (6)
More competitive setting	103	-16.8	27.6 ± 1.5	46 (45)	8 (8)	8 (7.6)
Less competitive setting	80	-8.6	23.2 ± 1.5	23 (29)	4 (5)	3 (3.8)
Modelling students	56	-11.9	21.8 ± 1.8	19 (34)	4 (7)	2 (3.5)
University and music students	116	-3.7	14.7 ± 0.9	11 (9)	0	0

† $P < 0.001$, one-way analysis of variance.

thinner (-17.9% of average) than the music students (-6.3%). Only one music student scored ≥ 30 on the EAT and no subjects with AN were discovered. Therefore, the competitive setting alone did not appear to be related to elevated EAT scores or AN for the small, relatively young group of music students studied.

However, within the dance samples the more competitive settings with greater performance expectations yielded higher EAT scores. The dance sample was composed of 2 categories based on competitiveness. The curriculum of one of the schools ($N = 80$) was more academic with less professional focus, while the other schools were intensely competitive with an emphasis upon preparing students for professional careers in ballet. The dancers from the more competitive settings had significantly more EAT scores ≥ 30 compared with dancers from the less competitive environment ($\chi^2 = 4.85$, $P < 0.05$). As shown in Table 3, the prevalence of definite cases of AN developing in training was twice as high with the dancers from the more competitive (7.6%) as with those from the

less competitive setting (3.8%) or models (3.5%).

Body weight and menses

The dancers from the more competitive settings weighed significantly less than those from the less competitive school (Table 3). Thus, high EAT scores could simply reflect starvation effects from being at a low weight. However, the findings of insignificant correlations within the dance sample between EAT score and weight ($r = 0.10$, NS) or EAT score and per cent deviation from normal weight ($r = 0.09$, NS) do not support this contention.

Weight was, however, related to the menstrual status of the dancers. Of the dancers from the more competitive schools for whom menstrual data were available ($N = 100$), 28% were amenorrhoeic and another 11% menstruated only rarely (once every 6 months). Amenorrhoeic dancers weighed significantly less than dancers who menstruated ($\bar{X} = 19.6\%$ of average vs. $\bar{X} = -15.5\%$; $P < 0.001$, two-tailed *t*-test).

Table 4. Correlations between HSCL-58 and EAT scores

Group's EAT score	Somatization	Depression	Obsessive compulsive	Interpersonal sensitivity	Anxiety	Total HSCL score
Dance students (N = 103)	0.22*	0.48***	0.29**	0.26**	0.31***	0.41***
Anorexia nervosa patients (N = 31)	0.36*	0.44**	0.34*	0.51**	0.41**	0.53***
Normal controls (N = 55)	0.17	0.23*	0.09	0.02	0.20	0.15

Pearson correlation coefficients: * $P < 0.05$; ** $P < 0.01$; *** $P < 0.001$.

The relationship between psychological symptoms and EAT scores

The HSCL was administered only to the dance samples from the more competitive settings and a subsample of the AN and NC subjects. For both the dancers and AN patients psychological symptoms were positively correlated with EAT scores (Table 4). The correlation between the total HSCL score and total EAT score was 0.41 ($P < 0.001$) for the dancers and 0.53 ($P < 0.001$) for the AN patients. For the NCs on whom data were available there was no relationship between EAT score and psychological symptoms except for depression.

DISCUSSION

Results of this study indicate that anorexia nervosa is more common in dance and modelling students than in other women of a similar age and social class. The prevalence of 7% in these groups, using rigorous diagnostic criteria, is higher than in a preliminary report (Garner & Garfinkel, 1978) and supports the hypothesis that individuals who must focus increased attention on a slim body shape are at risk for anorexia nervosa. Alternatively, it is possible that persons at high risk of developing anorexia nervosa may have been preferentially selected into the dance and modelling groups. However, it is unlikely that the results simply reflect selective enrolment of pre-existing or incipient cases, since the majority of students at the school with the highest incidence (8%) were enrolled at 10 to 12 years of age and developed the disorder while actively studying ballet. Furthermore, since the highest incidence for anorexia nervosa previously reported for an independent or

boarding school setting is approximately 1% (Crisp *et al.* 1976), it is doubtful that social class bias alone would account for the high prevalence of the disorder in the dance sample.

Within the dance sample there was a higher risk for anorexia nervosa in those programmes in which there was greater pressure to succeed as a professional. In these groups, all cases of anorexia nervosa developed after students began to study dance. These findings support the view that heightened performance demands may play a role in the disorder (Bruch, 1973; Kalucy *et al.* 1977); however, a more direct assessment of perceived performance expectations is required to determine its relationship to the disorder.

If the pursuit of thinness in women has aetiological significance for anorexia nervosa, then the recent cultural shift in the aesthetic ideal for women towards a thinner body shape could be one factor accounting for the increased prevalence of the disorder. Although it may appear superficial to ascribe to cultural ideals a role in the development of anorexia nervosa, the potential impact of the media in establishing identificatory role models cannot be over-emphasized. This, within the context of excessive performance demands, may be of major significance. Others have conceptualized anorexia nervosa as a 'weight phobia' (Crisp, 1970) or 'desire to be thin' (Ushakov, 1971); it has even been suggested that the 'need to grow thinner' is 'the sole motive force' involved in its expression (Palazzoli, 1974). This study has provided evidence indicating that a certain vulnerable subgroup of women who must exaggerate the need to grow thin are at high risk for the development of anorexia nervosa.

Coincident with 'slimness consciousness' over the past 2 decades, there has also been an

increased pressure on women for a wider range of roles for vocational achievement. Although this unquestionably represents a desirable transition for women, the dramatic shift in roles and expectations may pose adjustment problems for some. Palazzoli (1974) relates these new, and often contradictory, roles for women as a potential factor in the increase in anorexia nervosa. She feels that women must maintain traditional standards for attractiveness while also rapidly assimilating the heightened demands for professional performance and success. Boskind-Lodahl (1976) interprets the anorexic's symptoms as a reflection of contemporary women's often desperate striving to please others and validate their self-worth by controlling their appearance. Bruch (1973, 1978) has described the struggle to live up to perfectionistic or unrealistic performance standards to be characteristic of people with anorexia nervosa and it could be one determinant of the disorder. The relationship between achievement pressures and anorexia nervosa is indirectly supported by the current investigation. Dancers from more intensely competitive settings experienced more 'anorexic symptoms' than those from more relaxed programmes. However, young women under pressure to achieve in the music conservatory did not display these symptoms. Thus, a competitive environment alone did not lead to a greater expression of anorexia nervosa. These findings would favour the hypothesis that the pressure for thinness when augmented by high performance expectations is the ideal social medium for the expression of anorexia nervosa in vulnerable adolescents. However, these results are inconclusive, since the music group was small and younger than the optimal age for the expression of the disorder (Crisp *et al.* 1976), and 'performance expectations' were not directly measured.

Within the dance group there was a significant positive relationship between a variety of psychological symptoms and high EAT scores. The anorexia nervosa patients scored higher than the dance group on all psychological symptom areas of the HSCL. However, the same positive relationship existed between the EAT and symptom scores in both groups. This may represent a response style within all subjects, or it may suggest a common constellation of psychological disturbances in people experienc-

ing excessive concerns about weight, food and their bodies (i.e. 'anorexic symptoms'). These findings did not extend to the normal control group, probably because of their relatively narrow dispersion of EAT scores. Using EAT scores as an operational index of anorexic symptoms,¹ there appears to be a range of severity of symptomatic expression in the disorder within both the clinical AN patients and the 'high risk' group of models and dancers. Similarly, the range of symptoms and outcomes (Garfinkel *et al.* 1977; Russell, 1970; Hsu *et al.* 1979) for patients presenting with classical anorexia nervosa suggests a spectrum of severity within this group. Moreover, the EAT was not meaningfully related to weight within the dance sample. Thus, the EAT did not appear simply to be measuring the effects of maintaining a low body weight.

The presence of such high EAT scores in the dance students who were not diagnosed as unequivocal anorexia nervosa raises fundamental questions regarding diagnosis. These women express concerns regarding weight and food which go beyond the typical dieter's benign attempts to limit intake. For example, many had lost weight, were obsessed with food and displayed a morbid fear of 'fat'; 28% of the professionally oriented dance sample were amenorrhoeic. Lowenkopf & Vincent (1979) described similar findings in a group of 58 professional dancers. Thirty per cent of their sample reported amenorrhoea. Should they be seen as having a mild variant of anorexia nervosa, or are they simply women at a low body weight, suffering from the effects of under-nutrition? Are they qualitatively or quantitatively different from anorexics, or some combination of magnitude and 'like type' differences?

Nylander (1971) has suggested that the disorder may be expressed in mild or incipient forms where those meeting the usual diagnostic criteria may represent extreme points on a continuum. Bruch (1973) has used the term 'thin fat' syndrome to describe individuals with the psychological characteristics of anorexia nervosa but without significant weight loss. Crisp (1970,

¹ It should be emphasized that the EAT is designed to be used as a screening device or as an objective self-report measure of symptoms of anorexia nervosa and is not appropriate as a substitute for accepted diagnostic criteria.

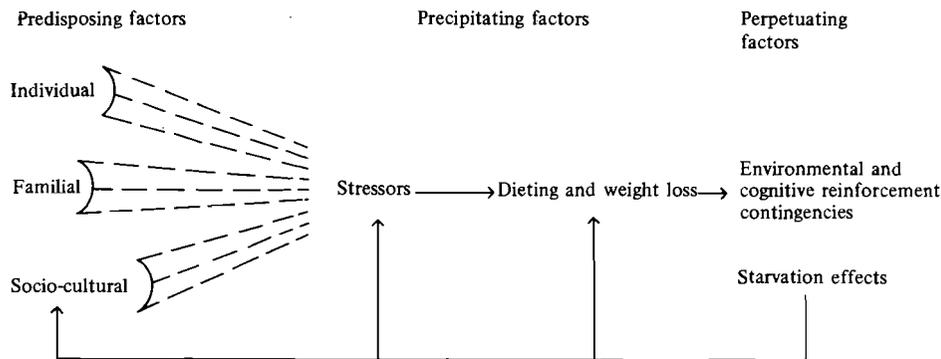


FIG. 2. Anorexia nervosa as a multidetermined disorder.

1977), however, has emphasized the qualitative difference between anorexia nervosa and the milder expression of 'anorexic' symptomatology, in that weight loss inhibits or reverses the mechanism responsible for menses at puberty and allows the anorexic patient to 'regress' in a biological and experimental sense to a pre-pubertal state. In any case, there is insufficient evidence at present to resolve the diagnostic question of whether anorexia nervosa is an extreme point on a continuum or a qualitatively distinct entity.

It is not clear from the current study what leads to the expression of anorexia nervosa in some but not in others, as well as what factors differentiate the severe case from the milder presentation of anorexic symptoms. Although it is being suggested that pressure to assume a thin shape may be one salient factor in the development of some cases of anorexia nervosa, the bulk of evidence suggests that the disorder is multidetermined. Fig. 2 illustrates the possible relationship between various predisposing, precipitating, and perpetuating factors in the development of the disorder. Individual predisposing characteristics have been identified, including personality characteristics (Crisp, 1970; Dally, 1969; King, 1963; Smart *et al.* 1976), perceptual-conceptual disturbances (Bruch, 1973; Garner *et al.* 1976, 1978; Slade & Russell, 1973), and a proclivity towards overweight or early maturity (Crisp, 1965, 1970). Family interactional patterns (Minuchin *et al.* 1978), personality features in parents (Kalucy *et al.* 1977) and parental attitudes towards weight control, shape or fitness (Crisp, 1967; Kalucy *et al.* 1977) have also been described as potential

determinants. It could be hypothesized that many people possess the individual, familial or cultural antecedents and that these become pathogenic within the context of stressors which initiate dieting, weight loss and pursuit of thinness. Precipitants (stressors, Fig. 2) such as interpersonal separation or loss, sexual conflicts, heightened achievement demands or distressing pubertal shape changes have been identified in some cases (Crisp, 1965; Theander, 1970; Warren, 1968), but the onset may be triggered by an apparently innocuous event or comment leading to the 'fixed idea' (Theander, 1970) that weight loss will ameliorate feelings of ineffectiveness or inadequacy. Weight loss and the emergence of starvation effects may have a feedback effect which perpetuates the disorder. For example, delayed gastric emptying (Dubois *et al.* 1979) may add to the experience of bloating which contributes to unrealistic dieting. Also, starvation has been shown to accentuate depression, anxiety, obsessionality, introversion leading to social withdrawal (Keys *et al.* 1950) and may amplify premonitory perceptual or cognitive disturbances (Bruch, 1973; Garner *et al.* 1976, 1978). This self-perpetuating cycle, whereby starvation fuels the fire of psychopathology, has been commented on previously (Casper & Davis, 1977; Nylander, 1971). Weight loss can assume a functional role within a disturbed family (Minuchin *et al.* 1978). It can also provide temporary relief from the stress associated with pubertal shape changes (Crisp, 1965) or exemption from overwhelming achievement demands. Finally, personal effectiveness may come to be defined in terms of dietary restraint or weight loss (Garner & Bemis, 1980) which are

exaggerations of a prominent contemporary value endemic to women in our culture. Therefore, cultural pressures for thinness may act in conjunction with other predisposing factors by forcing a certain number of vulnerable adolescents below a threshold which triggers some of the perpetuating features described above.

The respective roles of these factors, as well as certain biological variables (Katz *et al.* 1978; Russell, 1970), should be explored in a prospective study designed to follow 'high risk' individuals from an early age. Identification of the psychobiological determinants or protective factors would thus not be contaminated by the dramatic physical and psychological consequences of this disorder.

In summary, results of this study indicate that serious cases of anorexia nervosa and possibly milder variants of the disorder were over-represented in dance and modelling students. These data support the hypothesis that individuals who must focus increased emphasis on a thin body shape are at risk to develop anorexia nervosa and related dieting problems. Intense performance expectations are also relevant to the expression of the disorder. These observations underscore the possible importance of our society's current value of thinness in women as a determinant of the purported increase in the prevalence of anorexia nervosa.

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