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Transcultural Comparison of Eating Attitudes in Young Females and Anorectic Patients

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Summary. Eating attitudes were assessed by use of the Eating Attitude Test (EAT) in two samples of normal German female adolescents and young adults. In addition scores from clinical samples of anorectic patients were available. The EAT contributed to an adequate differentiation between normal controls and clinical patients. There were marked transcultural differences with regard to mean and cut-off scores obtained in Anglo-Saxon studies where the present samples scored lowest. Reliability in terms of internal consistency and stability was more satisfactory. Neither age nor SES were significantly related to the total score. Subjects with extreme obesity had significantly increased scores on the EAT.

Key words: Eating attitudes – Body image – Anorexia nervosa

Introduction

The increasing scientific interest in investigating the psychological symptoms of anorexia nervosa has led in recent years to various ways of developing objective methods of measurement. This has involved developing different scales for judging what is seen as typical anorectic behaviour. In addition to objective ratings (e.g. Slade 1973), questionnaires have been developed with which the patient can carry out self-assessment (e.g. Folstein et al. 1977; Fichter and Keeser 1980; Goldberg et al. 1980). In this latter category is the Eating Attitude Test (EAT) developed by Garner and Garfinkel (1979, 1980) which can record in respect of 40 items a broad spectrum of behaviour patterns and attitudes associated with anorexia nervosa.

In contrast to the other above-mentioned questionnaires the EAT is primarily concerned with eating attitudes while the other methods cover wider aspects of the anorexia nervosa syndrome (e.g. feeling of insufficiancy, sexual anxiety etc.). Items of the EAT are presented in a Likert format where the subjects are required to judge whether the item applies 'very often', 'often', 'sometimes', 'rarely' or 'never'. Among the items statements like the following are included: 'I find myself preoccupied with food', 'I feel extremely guilty after eating' or 'I feel that food controls my life'.

This questionnaire was at first used on female patients with anorexia nervosa and on female healthy controls, whereby it was possible to establish validity. By means of the distribution of these two groups the authors ascertained a cut-off score of ≥ 30 for anorectic patients. In further comparisons they established that obese female subjects and male subjects both achieved significantly reduced scores in the EAT and that clinically recovered patients with anorexia nervosa produced scores which according to the test are normal (Garner and Garfinkel 1979).

In a further study the authors ascertained significantly increased EAT scores in dance and model students as well as a high prevalence of primary anorexia nervosa. On the basis of these observations the authors emphasized the sociocultural factors in the development of anorexia nervosa by pointing to achievement expectations and to ideals of slimness as elements of risk (Garner and Garfinkel 1980). The further development of the EAT has led to a shortened form containing on the basis of factor analysis only 26 of the original 40 items (Garner et al. 1982). At the same time, the authors have undertaken a validation of these factors and presented norms for the shortened form, the longer form and for the factors.

In accordance with the method of screening, Button and Whitehouse (1981) applied the EAT to a larger sample of students from a college of technology and identified, using a cut-off score of 32, a group of high scorers with subclinical anorexia nervosa. The problems of using this form of screening in respect of the above-cited studies' use of the EAT have been dealt with recently by Williams et al (1982). Using the data of Garner and Garfinkel (1979, 1980) and Button and Whitehouse (1981) the latter authors proved that the positive predictive value for the series produced with the EAT is extremely low. This fact, which is determined essentially by the low prevalence, has two consequences. On the one hand, it is not necessarily possible to deduce the classification of individual clinical cases from the differentiation of groups obtained using a questionnaire such as the EAT, and, on the other hand, the so-called high score has a different significance depending on the rates of prevalence which themselves differ in the various groups of subjects. Finally, Hood et al. (1982) have recently reported on a connection between high EAT scores and "External Locus of Control" in anorectic patients, and Vandereycken and Vanderlinden (1983) found a remarkably heterogenous distribution of EAT scores among their sample of Dutch anorectic patients.

The present study embraced several aims. First, an attempt was made to compare eating attitudes in different samples from a transcultural point of view. At the same time data from patients with anorexia nervosa were tested against those from female adolescents and young adults as control subjects to see to what extent one group distinguishes itself from the other. Furthermore based on an adequate sample, reliability in terms of internal consistency and stability was examined. Finally, a last stage of the investigations was devoted to the question of the extent to which eating attitudes among female adolescents

and young women are influenced by age, socio-economic status (SES) and body weight. Here it was hypothesized that the psychological impact of adolescence and early adulthood with its increasing awareness of body shape would affect EAT scores. Since SES and body weight have been found to correlate negatively in most Western societies (e.g. Moore et al. 1962, Silverstone 1970) it was expected that both variables would also correlate with eating attitudes.

Samples

A total of 169 female adolescents and young adults took part in the investigation. Of these, 109 adolescents between the ages of 14 and 18 were attending a local secondary school and comprised six classes from three different grades. Parent's consent to participate in the study was not given in 11 cases. A further 60 subjects were nursing students between the ages of 18 and 27, these being the total number (three classes) of students enrolled in a training programme of a pediatric university hospital. After 36 days, 37 nursing students were re-examined in order to test the reliability of the method employed. At this time one class ($n = 23$) was not available due to individual practical training on the ward. The first sample of older nursing students was chosen to enable transcultural comparisons while the second sample of younger secondary school students was collected for prospective comparisons with our very young anorectic sample.

The sample characteristics including size and weight are shown in Table 1. For the purposes of comparison, several non-clinical and clinical samples were used. These included samples reported in the literature (Garner and Garfinkel 1979, 1980; Button and Whitehouse 1981; Vandereycken and Vanderlinden 1983) as well as our own samples (Steinhausen and Glanville 1981, 1983a, b) and comprised non-clinical groups and anorectic patients. As one may see only our second sample of secondary school students is slightly younger than the Canadian samples obtained by Garner and Garfinkel (1979, 1980) while our sample of nursing students lies in the same age range. On the other hand height and weight of all non-clinical samples are in the same range. Among the clinical groups our own sample of acute anorectic patients again is significantly younger than all the other samples and shows the widest deviation from average weight.

Methods

The study was based on the EAT, (Garner and Garfinkel 1979) with the subjects answering the questionnaire in groups at

Table 1. Sample characteristics

Study	Subjects	Nationality	n	Mean age (y.) at onset of A.N.	Age at assessment		Height (cm)		Weight (kg)		Deviation from average weight (%)	Socio-economic Status (%)	
					$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	LC	MC/UC
A. Non-Clinical Group													
1. This study	Normal controls (Nursing students)	D	60		20.7	2.5	166.5	7.1	58.5	5.1	+ 4.4	20.0	80.0
2. This study	Normal controls (Secondary school students)	D	109		15.1	1.0	164.3	6.4	53.9	6.2	− 0.1	33.0	67.0
3. Garner and Garfinkel 1979	Normal controls	CDN	59		21.8	2.8	158.8	13.6	57.7	4.3	+ 3.3		
4. Garner and Garfinkel 1980	Normal controls	CDN	81		21.5	0.3	160.0	1.3	56.8	0.5	− 3.0	14	69–75[a]
	Modelling students	CDN	56		21.4	0.5	169.5	0.8	54.1	0.6	−11.9		
	Dance students	CDN	183		18.6	0.3	162.6	0.5	49.4	0.5	−13.3		
5. Button and Whitehouse 1981	Female college students	GB	446		Range: 16–22								
B. Clinical Groups													
6. This study	Acute anorectic patients	D	22	13.9	15.0	1.7	161.9	5.3	34.2	4.5	−32.8	36.4	63.6
7. Steinhausen and Glanville 1981, 1983a, b	Former anorectic patients at follow-up	D	21	14.0	24.6	8.5	NA		52.8	9.2	− 8.8	14.0	86.0
8. Garner and Garfinkel 1979	Anorectic patients	CDN	33	18.4	22.5	7.0	162.0	6.8	43.2	8.3	−24.6		
9. Garner and Garfinkel 1980	Anorectic patients	CDN	68	NA	23.2	0.8	161.7	8.8	43.3	1.0	−30.2		
10. Button and Whitehouse 1981	Anorectic patients	GB	14	15.0	Range: 13–38 + NA				42.4	5.1	−20.3		
11. Vandereycken and Vanderlinden 1983	Anorectic patients	NL	40	19.3	22.9	6.2	NA		NA		−32.1		

CDN = Canadian; D = German; GB = British; MC = Middle class; UC = Upper class; LC = Lower class; NA = Not Assessed
[a] = Incomplete data

Table 2. Comparisons of EAT scores

Study	Subjects	EAT score		Scoring %	
		$\bar{x}$	SD	≥ 30[a]	≥ 32[b]
A. Non-Clinical Groups					
1. This study	Normal controls (Nursing students)	9.3	7.5	3.3	3.3
2. This study	Normal controls (Secondary school students)	11.0	8.3	4.6	3.7
3. Garner and Garfinkel 1979	Normal controls	15.6	9.3	15.2	
4. Garner and Garfinkel 1980	Normal controls	15.4	10.3	12.3	
	Modelling students	21.8	13.7	28.6	
	Dance students	25.6	14.6	37.7	
5. Button and Whitehouse 1981	Female college students	12.0	15.4		6.3
B. Clinical Groups					
6. This study	Anorectic patients at admission	34.2	20.9	36.4	36.4
7. Steinhausen and Glanville 1983a, b	Former anorectic patients at follow-up	28.8	21.5	47.1	47.1
8. Garner and Garfinkel 1979	Anorectic patients	58.9	13.3	100.0	
9. Garner and Garfinkel 1980	Anorectic patients	58.3	16.7	92.6	
10. Button and Whitehouse 1981	Anorectic patients	43.4	20.6		64.3
11. Vandereycken and Vanderlinden 1983	Anorectic patients	41.9	20.0	67.5	

[a] cut-off score reported by Garner and Garfinkel (1979)
[b] cut-off score reported by Button and Whitehouse (1981)

school during classes. Height and weight were both measured on the same occasion.

The data of our own clinical groups derive from interviews given either in the case of the former patients at follow-up in their own home or in the case of the acutely ill patients in the clinic during treatment. In each case the diagnoses had to meet the criteria of Feighner et al. (1972). Our criterion for weight loss was even more stringent inasmuch as we used standard weight rather than absolute weight (Steinhausen and Glanville 1981; 1983a, b). Social status was based on the profession of the father or of the principal earner in accordance with the social class scheme of Kleining and Moore (1968).

Results

Table 2 represents the EAT scores. As far as our own four samples are concerned, it can first of all be stated that the total score is significantly different ($F = 33.56$, $df = 3;198$, $P = <0.00001$). The post-hoc tests revealed significantly higher scores for the two series of former patients at follow-up and acute anorectic patients than for the two groups of normal controls (in each case: $P = 0.0001$), while neither the two samples of patients nor the two series of controls differed significantly from one another. Furthermore, it is clearly possible to establish transcultural differences for the various samples. Here the normal German subjects as well as their anorectic counterparts have a total score very much lower than those of the original normative Canadian groups, with the British and Dutch data being intermediate. With a more limited comparability, this assertion also appears valid for the cut-off scores suggested by Garner and Garfinkel (1979) (i.e. >30) and Button and Whitehouse (1981) (i.e. >32). On the other hand, it must be added that both the cut-off scores in our own group of acute anorectic patients show insufficient differentiation.

In our two groups of normal controls, the internal consistency (Cronbachs's alpha) was determined for the total score

Table 3. Reliability coefficients for the EAT in normal controls

Internal consistency ($n = 169$)	0.79
Retest reliability ($n = 37$)	0.85

Table 4. Effects of SES, age, and weight on EAT scores

		EAT				
	n	$\bar{x}$	SD	*F*	*df*	*P*
SES[a]						
I	4	8.75	4.57	0.28	4;164	N.S.
II	44	9.65	6.19			
III	76	10.39	8.14			
IV	31	11.25	9.31			
V	14	11.50	10.69			
Age (years)						
14–15	69	11.69	8.25	2.13	3;165	N.S.
16–17	38	9.94	8.48			
18–19	20	6.65	3.20			
20	42	10.52	8.48			
Weight (%)						
3	7	6.85	2.54	4.55	7;161	0.001
3– 9	12	10.33	3.28			
10–24	26	10.27	6.77			
25–49	37	7.05	3.82			
50–74	46	11.09	8.60			
75–89	25	11.08	8.56			
90–97	6	9.50	4.37			
97	10	21.60	15.06			

[a] I = lowest class

of the EAT, the findings being shown in Table 3. Both scores point to adequate reliability in terms of internal consistency and stability.

Lastly, social status, age and weight were tested for any significant influence they might have on test scores in our combined samples of normal controls. As can be seen from Table 4, only weight had a significant relation to the EAT score. Here post-hoc analyses revealed that only the groups of subjects with an extremely high weight (>97 percentile) had significantly higher test scores than the rest of the subjects.

Discussion

By way of correspondence to the available studies from Canada and Great Britain, the present investigation of German subjects revealed that the EAT made it possible to differentiate between the groups of anorectic patients and normal controls. This transcultural comparability does, however, suffer from limitations. The German subjects revealed the lowest scores in each case, whereby they were closer to the data of the British studies than the Canadian studies. Theoretically, in view of the younger age of secondary school students in the present study, it could be that factors of either age or culture are significant. Proof against assuming that the observed differences are essentially determinded by age is offered by several findings of this study. First, even among older German nursing students of the same age as the Canadian controls the EAT scores were strikingly lower and, secondly, no significant age factor was observable within the group of our total sample of normal controls. Recent studies have led to analogous conclusions for our series of former patients with anorexia nervosa (Steinhausen and Glanville 1983a, b). The homogeneity of age with little variation and the small size of the sample do not allow, for the time being, a corresponding analysis of our series of acute anorectic patients. It must, of course, be emphasized that in comparison to the other clinical series this group of patients is the youngest.

The second limitation on transcultural comparability rests on the non-transferability of the various cut-off scores suggested for the EAT. In our own German sample too many falsely-negative patients with anorexia nervosa are obtained by applying the criterion of Garner and Garfinkel (1979) and that of Button and Whitehouse (1981) as a basis. This conclusion must also apply to the group of British (Button and Whitehouse 1981) and Dutch (Vandereycken and Vanderlinden 1983) patients. Because our sample of adolescent patients with acute anorexia nervosa has up until now been too small, it is not yet possible to analyse further the extent to which other criteria could show more comprehensive validity. Since it is well known that denial of illness is a key feature of anorexia nervosa future studies must also address this issue in relation to the age of the patients and its impact on EAT scores.

In a further step of the study reliability of the EAT score in a large sample of German controls was examined. Here very satisfactory coefficients were obtained pointing to adequate internal consistency and stability of the concept. Interestingly, this internal consistency coefficient of the EAT is identical with the analogous calculations of Garner and Garfinkel (1979).

Finally, contrary to our expectation the study revealed that eating attitudes do not vary significantly according to either social status or age while subjects who were overweight (>97 percentile) had more negative eating attitudes. The last-mentioned finding appears at first to be an contradiction, particularly because it neither corresponds with the test's purpose of recording eating disorders in anorexia nervosa nor with the comparisons undertaken by Garner and Garfinkel (1979), where obese subjects had reduced scores in the EAT. This supposed contradiction could, however, be explained in the present study by the fact that the high scores of the small group of 10 overweight patients were determined by items especially concerned with food and thus also adequately reflect the experience of obese people. These observations may lead to further limitations of the utility of the EAT as a screening device for undetected cases of anorexia nervosa.

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