Brit. J. Psychiat. (1983), **142,** 139–144

Binge-eating and Self-induced Vomiting in the Community
A Preliminary Study

PETER J. COOPER and CHRISTOPHER G. FAIRBURN

Summary: This study examined by questionnaire the prevalence of binge-eating and self-induced vomiting among a sample of 369 consecutive attenders at a family planning clinic. 20.9 per cent reported current episodes of uncontrollable and excessive eating ('binges'), 2.9 per cent currently induced vomiting as a means of weight control; and 4.9 per cent reported using laxatives. Binge-eating and self-induced vomiting were strongly associated with disturbed attitudes to food, eating, body weight and shape; and with psychiatric disturbance. Menstrual dysfunction was not associated with either body weight or binge-eating; it was however associated with psychiatric state. Applying conservative rules, 1.9 per cent appeared to fulfil diagnostic criteria for the recently described syndrome bulimia nervosa.

Recently an eating disorder has been described in which episodes of binge-eating are a central feature. Patients with this condition experience a loss of control over their eating (Fairburn, 1982; Mitchell and Pyle, 1982) which leads to distressing eating binges during which large amounts of food are rapidly consumed. As these episodes are often followed by extreme dieting, self-induced vomiting or purgative abuse, the patients' body weight usually remains within the normal range.

In Britain, Russell (1979) has termed this disorder 'bulimia nervosa', and has specified three diagnosic criteria: the patients have powerful and intractable urges to overeat; they seek to avoid the 'fattening' effects of food by inducing vomiting or abusing purgatives, or both; and they have a morbid fear of becoming fat. In the United States, the third edition of the Diagnostic and Statistical Manual of the American Psychiatric Association has used the term 'bulimia' to describe a similar clinical phenomenon (DSM–III, 1980).

The prevalence of bulimia nervosa is not known. Using self-report questionnaires two studies have suggested that binge-eating is widespread amongst American female college students (Hawkins and Clement, 1980; Halmi *et al,* 1981). Both studies found that self-induced vomiting was considerably less common. A recent British study of bulimia nervosa has shown that binge-eating and self-induced vomiting are by no means confined to student populations (Fairburn and Cooper, 1982); less than a quarter of this community-based sample of bulimia nervosa cases were students or at school, and the majority were aged over 20. All were female. However, since there have been no studies of the eating habits and attitudes of adult women who are not students, the findings of this study were difficult to place in perspective.

The principal aim of the present study was to determine the prevalence of binge-eating and self-induced vomiting amongst a sample of adult women. A subsidiary aim was to obtain additional normative data with which to compare the earlier sample of bulimia nervosa cases.

Methods

The population studied were attenders at a family planning clinic in southern England. This clinic provides a comprehensive family planning service offering advice on all methods of contraception. Its premises are shared with an entirely separate cytology clinic and a monthly psychiatric outpatient clinic. The family planning clinic does not cater for any particular ethnic or religious groups, nor does it offer any other specialized services such as psychosexual counselling which might attract a particular type of patient. Instead, the clinic is exclusively concerned with family planning, and its doctors prescribe no drugs other than contraceptives. More than 90 per cent of its patients are self-referrals, the remainder being referred by general practitioners.

Between October 1981 and February 1982 each women attending one of two afternoon sessions of the clinic was asked to complete a brief questionnaire while she was waiting to see the doctor. The average waiting time in the clinic was 20 minutes and

the questionnaire took approximately 10 minutes to complete. The questionnaires were collected as each woman left the clinic. In order to facilitate comparison with the bulimia nervosa sample of the earlier study (Fairburn and Cooper, 1982), women over the age of 40 years were excluded.

The questionnaire was a shortened version of that used in the earlier study. It was designed to elicit information on weight and on eating habits and attitudes. It included two reputable self-administered measures: the Eating Attitudes Test, or EAT (Garner and Garfinkel, 1979), a measure of abnormal eating attitudes and behaviour; and the scaled version of the General Health Questionnaire, or GHQ (Goldberg and Hillier, 1979), a measure of probable psychiatric disorder.

Results

Three hundred and eighty four consecutive attenders of the clinic were given the questionnaire, of whom 369 (96.1 per cent) returned it satisfactorily completed. One patient refused to participate. The 14 women who failed to complete the questionnaire satisfactorily were unable to comply because of the distracting influence of their young children. Of the sample of 369, 32.1 per cent were married and 7.1 per cent were divorced. 24.4 per cent were students or at school, and 9.5 per cent were in medical or paramedical professions.

Since the two previous epidemiological studies were based on student populations, an initial analysis was conducted comparing students with the remainder of the sample. No differences were found between these two groups in either eating habits or attitudes, or in psychiatric status. Results will therefore be presented for the group as a whole.

Age of the sample

The mean age of the sample was 24.1 years (SD = 5.5). Most of the women were in their twenties (63.6 per cent), none were aged under 15, and 6.5 per cent were aged over 34 years. The age distribution (shown in Table I) closely resembled that of the community-based sample of 499 women with bulimia nervosa recently reported by Fairburn and Cooper (1982). This latter sample will hereafter be referred to as the 'bulimia nervosa cases'. These women closely resembled patients with bulimia nervosa attending psychiatric hospitals (Fairburn, 1982).

Frequency of binge-eating

An eating 'binge' was defined as 'an episode of uncontrollable excessive eating'. More than a quarter of the sample (26.4 per cent) reported ever having experienced an eating episode of this nature, and 20.9 per cent reported having had such an episode in the previous two months. Only two women (0.5 per cent) reported binge-eating at least daily, but a further 25 (6.8 per cent) did so at least weekly.

Frequency of self-induced vomiting and other methods of weight control

Self-induced vomiting was considerably less common than binge-eating. 24 women (6.5 per cent) admitted to having ever used vomiting as a means of weight control, and 11 (2.9 per cent) reported that they had induced vomiting during the previous two months. Only two women (0.5 per cent) reported vomiting at least daily, and a further two (0.5 per cent) vomited at least weekly.

Some women used other methods for controlling their weight: 7.3 per cent used exercise and 4.9 per cent used purgatives.

Weight histories

Eighty-six per cent of the sample currently weighed between 85 per cent and 115 per cent of matched population mean weight, or MPMW (Geigy, 1962). The mean weight for the sample was 98.0 per cent MPMW. 6.6 per cent weighed over 115 per cent MPMW and 3.6 per cent over 120 per cent MPMW. One-quarter (24.5 per cent) reported a highest weight since menarche of over 115 per cent MPMW, and 16.1 per cent had weighed over 120 per cent MPMW. The mean highest weight was 108.3 per cent MPMW. 28.2 per cent reported a lowest weight of less than 85 per cent MPMW. The mean lowest weight since menarche was 90.3 per cent MPMW.

TABLE I

Age distribution: community sample (n = 369) and previous sample of bulimia nervosa cases (n = 499)*

	Age (years)						
	15–19	20–24	25–29	30–34	≥35	mean	SD
Present sample (%)	19.8	40.8	22.8	10.1	6.5	24.1	5.5
Bulimia nervosa cases (%)	19.5	46.0	21.5	8.4	4.6	23.8	5.5

*(Fairburn and Cooper, 1982)

https://doi.org/10.1192/bjp.142.2.139 Published online by Cambridge University Press

Subjects who reported binge-eating or practised self-induced vomiting were compared as distinct groups with the remainder in terms of their present, highest, lowest and desired weights. No significant associations emerged.

Menstruation

Of the 138 women (37.4 per cent) not taking the oral contraceptive pill, 61.6 per cent had been menstruating regularly during the preceding six months, 29.7 per cent were menstruating irregularly, and 8.7 per cent reported amenorrhoea. The prevalence of irregular menstruation was somewhat higher than that found amongst a student sample of British women (Sheldrake and Cormack, 1976). There was no association between menstrual dysfunction and binge-eating, self-induced vomiting or significant weight disturbance in the present or past. The only factor associated with menstrual dysfunction was psychiatric state: compared with the remainder, those with mentrual irregularity were more likely to be probable psychiatric cases on the GHQ ($\chi^2 = 4.08$, df = 1, $P < 0.05$).

Psychopathology

Although the great majority of these women were of normal body weight, 39.1 per cent thought that they were well over the appropriate weight for their height and age, and 59.6 per cent reported that they persistently felt overweight. 21.1 per cent responded positively to the question on the EAT concerning being 'terrified about being overweight' (10.6 per cent 'always', 4.6 per cent 'very often', and 6.0 per cent 'often'). 18.4 per cent answered positively to the related question concerning preoccupation 'with the thought of having fat on my body' (8.4 per cent 'always', 2.4 per cent 'very often', and 7.6 per cent 'often'). 4.6 per cent reported weighing themselves several times a day.

The mean total score on the EAT was 11.4 (SD = 11.2). There was a strong association between a high score on the EAT and past and present binge-eating, and past and present self-induced vomiting. This EAT score was not significantly different from a sample of 446 British female students (Button and Whitehouse, 1981), whose mean total EAT score was 12.0 (SD = 15.4).

33.7 per cent of the present sample (n = 123) scored above the threshold (4/5) on the GHQ indicating the probable presence of significant psychiatric disorder. This figure is similar to that found in samples of patients attending general practitioners (Goldberg *et al*, 1976). The mean total GHQ score was 4.4 (SD = 6.0). Past and present binge-eating, and past and present self-induced vomiting were both strongly associated with a high score on the GHQ.

Prevalence of bulimia nervosa

The psychopathology of bulimia nervosa is complex and variable in its form. It is not possible to establish the presence of a 'morbid fear of fatness' without a systematic clinical interview. One therefore cannot make a firm diagnosis of bulimia nervosa purely on the basis of responses to self-report questionnaires. However, an attempt was made to identify those in the present sample with probable bulimia nervosa. The criteria used were derived from those of Russell (1979), and were the same as those used in the earlier study:

(i) subjects had to be *currently* binge-eating (established by a positive response to the question 'In the past two months have you experienced an episode of uncontrollable and excessive eating'); and

(ii) they had to be *currently* vomiting as a means of weight control (established by a positive response to the question 'In the past two months have you used self-induced vomiting as a means of controlling your weight?'); and

(iii) they had to have a 'morbid fear of fatness'. In the absence of a clinical interview, this was judged to be present if there was a positive response to the question on the EAT concerned with 'being terrified of being overweight'. In addition, corroborative checks were made.

Seven subjects fulfilled these criteria, representing a probable prevalence of bulimia nervosa of 1.9 per cent. Amongst these women, it was found that six answered affirmatively to the question concerning a preoccupation with a 'desire to be thinner', and five to the question concerning a preoccupation 'with the thought of having fat on my body', All of them answered affirmatively to at least one of the two questions.

A further six women (1.6 per cent) who were not inducing vomiting reported binge-eating, had a morbid fear of fatness, and took laxatives. They may therefore have also fulfilled Russell's criteria for bulimia nervosa. However, since it was difficult to determine whether their laxative use was intended as a means of weight control, bulimia nervosa was not judged to be present in these cases.

Comparison with the 'bulimia nervosa cases'

The second aim of the study was to obtain normative information with which to compare the earlier sample of bulimia nervosa cases (Fairburn and Cooper, 1982). Table II shows the eating habits of the two samples.

Compared with the present population, a significantly greater proportion of the bulimia nervosa cases ate in binges, practised self-induced vomiting, abused purgatives, exercised as a means of weight control and frequently weighed themselves (P <0.001 for all comparisons). However, the figures for menstrual dysfunction were not significantly different ($\chi^2 = 4.67$, df = 2, NS). The table also shows the samples' mean total scores on the EAT and GHQ. Again the bulimia nervosa cases were significantly more disturbed (P <0.001 for both comparisons).

Table III shows the weight histories of the present population together with the equivalent data on the bulimia nervosa cases. The table also shows the distribution of desired weights of the two populations. Comparison of these figures indicates that bulimia nervosa cases are prone to have been overweight in the past ($\chi^2 = 35.2$, df = 1, P <0.001). They are also more likely to have been significantly underweight ($X^2 = 16.7$, df = 1, P <0.001). The mean desired weight was 91.5 per cent MPMW for the present sample and 88.0 per cent for the bulimia nervosa cases (t = 7.50, P <0.001).

TABLE II

Eating habits and attitudes, and psychiatric state: community sample (n = 369) and previous sample of bulimia nervosa cases (n = 499)*

	Present sample	Bulimia nervosa cases
Current binge-eating (%)	20.9	100
Current self-induced vomiting (%)	2.9	100
Purgative abuse (%)	4.9	18.8
Exercise as weight control (%)	7.3	61.3
Frequent weighing (%)	4.6	25.9
Menstruation: regular (%)	61.6	53.4
irregular (%)	29.7	39.7
absent (%)	8.7	6.9
EAT score (mean)	11.4	49.8
GHQ score (mean)	4.4	10.1

*(Fairburn and Cooper,1982)

Discussion

The present investigation has methodological limitations. Its reliance on self-report questionnaires meant that complex behaviour and attitudes could not be explored and individual differences were likely to be obscured. Furthermore, it was difficult to unravel the temporal sequence of events. These findings should therefore be regarded as preliminary, and further investigations are required which could usefully employ standardised, but flexible interviewing procedures. However, despite the limitations of the present study, it is possible that the prevalence figures obtained for binge-eating, self-induced vomiting and bulimia nervosa may be more accurate than those which would be obtained by interview methods. People with bulimia nervosa are extremely secretive about their eating habits because of the shame and guilt associated with binge-eating and self-induced vomiting (Fairburn and Cooper, 1982). They therefore may be reluctant to admit to these habits when their anonymity is not preserved.

Previous studies of the eating habits and attitudes of non-patient populations were based on school children or students. However, since the majority of those with bulimia nervosa are neither school children nor students, there was a need for an investigation of a community sample which included a significant pro-

TABLE III

Weight history and desired weights: community sample (n = 369) and previous sample of bulimia nervosa cases (n = 499)*

	Present weight		Highest weight since menarche		Lowest weight since menarche		Desired weight	
% MPMW	Present sample %	Bulimia nervosa cases %	Present sample %	Bulimia nervosa cases %	Present sample %	Bulimia nervosa cases %	Present sample %	Bulimia nervosa cases %
<75	0	1.0	0	0.2	4.4	12.4	0	11.2
75–85	7.4	10.5	2.1	0.0	23.8	30.6	17.9	52.0
86–100	52.3	54.0	23.0	9.7	56.2	50.3	71.5	36.9
101–115	33.7	29.2	50.4	44.8	14.3	6.4	10.5	0
>115	6.6	5.5	24.5	45.2	1.3	0.2	0	0
Mean	98.0	97.6	108.3	116.2	90.3	86.7	91.5	88.0
SD	10.3	11.2	14.0	15.4	9.8	10.1	6.3	7.0
t	0.52		7.37		4.87		7.50	
P	(NS)		<0.001		<0.001		<0.001	

*(Fairburn and Cooper, 1982)

https://doi.org/10.1192/bjp.142.2.139 Published online by Cambridge University Press

portion of adults who were not students. This was achieved by studying attenders at a family planning clinic. The response rate in the present study was satisfactory: 96 per cent. Two factors were probably responsible for the high degree of cooperation: the questionnaires were personally handed-out and collected and it was stressed that the responses were anonymous. However, since this population may have contained biases, other community samples need to be investigated.

Over 20 per cent of the present sample reported current binge-eating, and a further 5 per cent said that they had experienced such episodes in the past. However, it is difficult defining what constitutes a 'binge' (Fairburn, 1982). In this study the subjective nature of the notion was acknowledged and a binge was defined as an episode of eating experienced as both excessive and outside the subject's control. The prevalence figures obtained, while high, are considerably lower than in the studies of American female college students. Hawkins and Clement (1980) found that 79 per cent reported binge-eating episodes and Halmi *et al* (1981) found that 68 per cent had ever engaged in a binge-eating episode. Since in the present study students did not differ from the remainder in their eating attitudes and behaviour, it is unlikely that the explanation for the discrepancy between the American figures and our findings is that students represent a special group. It is more likely that the discrepancy reflects both the differing definitions of the term 'binge' used in these studies and cultural differences in the interpretation of the term.

Self-induced vomiting does not present the same problem of definition and the rates found in the present investigation are comparable with those reported by the American studies. 6.5 per cent of the current sample reported having used self-induced vomiting as a means of weight control. It is interesting that almost half of these (2.9 per cent) were currently inducing vomiting, which possibly reflects the habit-forming nature of the behaviour. Halmi *et al,* (1981) found that 11.9 per cent of female college students made themselves vomit after eating too much and Hawkins and Clement (1980) found that 5 per cent of a similar group had ever induced vomiting after a binge. In Britain, Crisp (1981) reported that 3.2 per cent of a sample of school girls aged 12 to 20 frequently vomited in relation to eating.

The second aim of this study was to provide comparative data for the earlier community-based investigation of bulimia nervosa. As there were no differences in the age and weight distributions of the two samples, they could be directly compared. While differences were to be expected, the purpose of the comparison was to determine the nature and magnitude of such differences. The bulimia nervosa cases were twice as likely to be significantly psychiatrically disturbed, and their score on the EAT was four times that of the community sample. An interesting difference emerged when weight histories were compared: the bulimia nervosa cases were much more likely to have been significantly overweight in the past, and this may be of aetiological significance (Fairburn, 1982). The bulimia nervosa cases were also more likely to have been significantly underweight in the past. This probably reflects the association between bulimia nervosa and a previous history of anorexia nervosa. Despite these differences in weight history, the two groups were very similar in terms of their current weight. This confirms the clinical observation that, although patients with bulimia nervosa have grossly disturbed eating habits, they usually have a normal body weight.

Amongst the present sample, 38 per cent of those not using oral contraceptives had irregular or absent menstruation, a figure which is somewhat higher than that previously found amongst a British student population. Contrary to our expectations, there was no association between menstrual disturbance and either body-weight or binge-eating. The only factor associated with menstrual irregularity was psychiatric state which suggests that psychological factors may be more important than dietary ones in disrupting menstruation.

While earlier studies have shown that concerns about body weight and shape are common amongst adolescent females (Huenemann *et al,* 1966; Nylander, 1971), this study indicates that adult women have similar concerns. Although only 7 per cent weighed over 115 per cent MPMW, 60 per cent reported persistently feeling overweight. The fact that the mean desired weight of this sample was almost 10 per cent below the mean matched population mean weight indicates that on average women in this population wanted to lose 11 pounds in weight.

The proportion of this sample with probable psychiatric disorder is comparable with that found in studies of similar populations. The strong association between psychiatric disturbance and both binge-eating and self-induced vomiting is of interest. Clinical experience suggests that there is a complex interaction between psychological state and eating habits and attitudes (Fairburn, 1982).

Acknowledgements

We are grateful to George Waterman and Marianne O'Connor for their help with the data collection and analysis respectively. We should also like to thank Professor Michael Gelder for his helpful comments on the manuscript.

References

BUTTON, E. J. & WHITEHOUSE, A. (1981) Subclinical anorexia nervosa. *Psychological Medicine,* **11,** 509–16.

CRISP, A. H. (1981) Anorexia nervosa at normal body weight: The abnormal/normal weight control syndrome. *International Journal of Psychiatry in Medicine,* **11,** 203–33.

Diagnostic and Statistical Manual of Mental Disorders (3rd edition) (1980) Washington DC: American Psychiatric Association.

FAIRBURN, C. G. (1982) Binge-eating and bulimia nervosa. *SK&F Publications,* **1**(4), 1–20.

—— & COOPER, P. J. (1982) Self-induced vomiting and bulimia nervosa: an undetected problem. *British Medical Journal,* **284,** 1153–55.

GARNER, D. M. & GARFINKEL, P. E. (1979) The Eating Attitudes Test: an index of the symptoms of anorexia nervosa. *Psychological Medicine,* **9,** 273–79.

GEIGY (1962) Average weights of adults (Society of Actuaries: Build and Blood Pressure Study, Chicago, 1959). p. 623, Documenta Geigy. Scientific Tables. Manchester: Geigy Pharmaceuticals.

GOLDBERG, D. P. & HILLIER, V. F. (1979) A scaled version of the General Health Questionnaire. *Psychological Medicine,* **9,** 139–45.

—— KAY, C. & THOMPSON, L. (1976) Psychiatric morbidity in general practice and the community. *Psychological Medicine,* **6,** 565–69.

HALMI, K. A. FALK, J. R. & SCHWARTZ, E. (1981) Binge-eating and vomiting: a survey of a college population. *Psychological Medicine,* **11,** 697–706.

HAWKINS, R. C. & CLEMENT, P. F. (1980) Development and construct validation of a self-report measure of binge-eating tendencies. *Addictive Behaviours,* **5,** 219–26.

HUENEMANN, R. L., SHAPIRO, L. R. HAMPTON, M. C. & MITCHELL B. W. (1966) A longitudinal study of gross body composition and body conformation and their association with food and activity in a teen-age population *American Journal of Human Nutrition,* **18,** 325–38.

MITCHELL, J. E. & PYLE, R. L. (1982) The bulimic syndrome in normal weight individuals: a review. *International Journal of Eating Disorders,* **1,** 61–73.

NYLANDER, I. (1971) The feeling of being fat and dieting in a school population. *Acta Socio-medica Scandinavica,* **1,** 17-26.

RUSSELL, G. (1979) Bulimia nervosa: an ominous variant of anorexia nervosa. *Psychological Medicine,* **9,** 429–48.

SHELDRAKE, P. & CORMACK, M. (1976) Variations in menstrual cycle symptom reporting. *Journal of Psychosomatic Research,* **20,** 169–77.

Peter J. Cooper, D.Phil., Dip.Psych., *Research Fellow in Clinical Psychology,*

Christopher G. Fairburn, M.A., M.Phil., M.R.C.Psych., *Research Psychiatrist,*

Department of Psychiatry, University of Oxford, Warneford Hospital, Oxford OX3 7JX