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Impulsivity and Eating Disorders

THOMAS FAHY and IVAN EISLER

Sixty-seven patients with bulimia nervosa and 29 patients with anorexia nervosa completed the Impulsiveness Questionnaire and questionnaires detailing severity of eating disorder. Bulimic patients had higher impulsivity scores than anorexic patients. Bulimics with high impulsivity scores did not have more severe eating disorders than low scorers. When 39 bulimics and 25 anorexics were interviewed about other impulsive behaviour, 51% of bulimics and 28% of anorexics reported at least one other impulsive behaviour. Patients with so-called 'multi-impulsive' bulimia reported more severe eating disturbance, but this was not reflected on more reliable measures of symptoms. Thirty-nine bulimics entered an eight-week treatment trial and their progress was assessed at eight weeks, 16 weeks and one year. 'Non-impulsive' bulimics had a more rapid response than 'impulsives' during treatment, but there was no difference at follow-up. There was no evidence of an association between high impulsivity trait scores and poor treatment response. It is concluded that impulsivity may shape the expression of eating disorders, but that 'multi-impulsives' do not constitute a categorically distinct subgroup of bulimics.

Impulsive behaviour is characterised by a lack of deliberation and a failure to consider risks and consequences before acting. Many psychiatric disorders, including substance abuse, pathological gambling and bulimia nervosa, have as their main symptom an apparent disorder of impulse control. A central problem in the investigation of impulsivity relates to how the characteristic is conceptualised. Impulsivity may be defined as the presence of behaviour which is presumed to be impulsive in nature. The protagonists of this approach view the 'impulsivist' as categorically different, and investigators such as Lacey & Evans (1986) suggest that these cases should be identified by the title of 'multi-impulsive personality disorder'. Impulsivity can also be viewed as a dimensional personality trait, an approach employed in the development of the Impulsivity Questionnaire (Eysenck *et al*, 1985).

Since Russell's (1979) description of bulimia nervosa, personality differences between the various subgroups of eating disorders have been the subject of several studies. De Silva & Eysenck (1987) compared scores on the Eysenck Personality Questionnaire (EPQ; Eysenck & Eysenck, 1975) of 59 women with anorexia nervosa with those of 122 women with bulimia nervosa. The bulimics scored significantly higher on psychoticism and neuroticism, but lower on social desirability. The bulimics also recorded higher scores on an addiction scale which was derived from the EPQ. These data lent some weight to the view that bulimia nervosa, unlike anorexia nervosa, could be seen as a form of addictive behaviour.

McCown (1988) has shown that drug addicts have raised impulsivity scores, and that impulsivity correlates negatively with abstinence in poly-drug abusers. Although Feldman & Eysenck (1986) have reported certain similarities between addicts and bulimics, the effect of impulsivity on treatment response and outcome of eating disorders is unclear.

Lacey & Evans (1986) argue that a subgroup of bulimics have increased rates of impulsive behaviour not related to food, and that these patients have a worse outcome. In an uncontrolled series of 112 consecutive attenders at an eating disorder clinic, these authors reported that 41% had a history of theft, 28% had abused drugs, and 26% abused alcohol. These observations led the authors to devise a set of diagnostic criteria for the 'multi-impulsive form of bulimia', in which the bulimia was associated with at least one of the following types of behaviour: gross alcohol or drug abuse, multiple overdoses, repeated self-harm, sexual disinhibition, or shoplifting. These types of behaviour should be associated with a sense of being out of control; they are interchangeable and impulsive, and their suppression leads to depression or anger.

These diagnostic criteria have not been applied with rigour to other samples, but the concept of multi-impulsive bulimia would appear to have gained widespread clinical acceptance. However, the role of impulsivity in the aetiology and maintenance of multi-impulsive bulimia, and of uncomplicated eating disorders, remains obscure. The aim of this study was to clarify the psychopathological importance of impulsivity in eating disorders, and to define its prognostic significance in bulimia nervosa using both behavioural and trait-based measures of this characteristic.

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Method

Study 1

Ninety-six consecutive new referrals to the Maudsley Hospital Eating Disorder Clinic were asked to complete the following questionnaires.

The Impulsiveness Questionnaire (I_7; Eysenck *et al*, 1985) is a 54-item questionnaire that measures three personality traits – impulsivity, venturesomeness, and empathy. Impulsivity as measured by this instrument is related to decision making without an awareness of risk, whereas venturesomeness describes decision making with due consideration of risks and consequences. Impulsivity and venturesomeness are positively correlated. The instrument has been assessed in some detail by Eysenck and colleagues, who have found good reliability and derived age norms. Elevated impulsivity scores have been reported in certain behavioural disorders such as severe drug abuse and aggression (McCown, 1988; Kennedy & Grubin, 1990).

The Eating Attitudes Test (EAT; Garner & Garfinkel, 1979) measures abnormal attitudes to food, eating and body image.

The Bulimic Investigatory Test (BITE; Henderson & Freeman, 1987) measures bulimic symptoms and behaviour on symptom and severity subscales.

After clinical assessment, DSM-III-R diagnoses (American Psychiatric Association, 1987) were established and 29 patients with anorexia nervosa, 23 with bulimia with a history of anorexia, and 44 with bulimia nervosa without a history of anorexia entered the study. It was hypothesised that the bulimics with a history of anorexia would have impulsivity scores between those of the two other groups.

Study 2

A random subsample of 39 patients with bulimia nervosa and 25 patients with anorexia nervosa were interviewed about other types of impulsive behaviour. The description of multi-impulsive bulimia (Lacey & Evans, 1986) was used as a basis for this interview, which covered drug abuse, alcohol abuse, self-harm, and shoplifting, all during the previous year.

The 39 bulimic patients were asked to give an estimate of binge frequency during the two weeks before assessment and were administered the Montgomery-Asberg Depression Rating Scale (MADRS; Montgomery & Asberg, 1979). They were then encouraged to complete food diaries, in which they entered details of all food consumed during the course of treatment, and of binges and self-induced vomiting. After a two-week assessment period, patients entered an eight-week course of cognitive-behaviour therapy, an abbreviated form of the treatment described by Fairburn (1985). These patients also took part in a placebo-controlled trial of d-fenfluramine, but as there was no difference in outcome between treatment groups, this factor was disregarded in subsequent analyses. The patients were reassessed eight weeks after completing treatment, and a questionnaire follow-up was obtained at one year. Changes in binge frequency during treatment were derived from the food diaries.

Groups were compared using one-way analysis of variance with Scheffe's procedure. Other analyses were performed using *t*-tests, Mann-Whitney *U*-tests, and Pearson correlation coefficients.

Results

Study 1

The three eating groups recorded high scores on the EAT and BITE questionnaires, reflecting severely disturbed eating patterns and attitudes (Table 1). The relatively high average age of anorexic subjects most likely reflects the unit's role as a tertiary referral centre. Patients with bulimia nervosa had significantly higher impulsivity and venturesomeness scores than the anorexic patients. However, impulsivity and venturesomeness scores in bulimia nervosa were not significantly higher than the normal control values derived for women aged 20–29 years (9.0 (s.d. 4.2) and 8.8 (s.d. 3.9), respectively) (Eysenck *et al*, 1985). Bulimic patients with a history of anorexia nervosa had intermediate scores on impulsivity and venturesomeness which did not differ significantly from other groups.

Table 1
Means (s.d.) of scores on the Impulsiveness Questionnaire, BITE and EAT, and age of anorexics, bulimics and bulimics with a history of anorexia nervosa

	Anorexics ($n=29$)	Bulimics with history of anorexia ($n=23$)	Bulimics ($n=44$)	P
Impulsiveness Questionnaire				
impulsiveness	7.1 (4.9)	8.4 (5.1)	10.9 (4.3)	0.003[1]
venturesomeness	6.6 (3.8)	8.8 (4.2)	9.3 (3.8)	0.014[1]
empathy	14.5 (2.3)	15.6 (2.7)	14.8 (2.5)	0.271
BITE				
severity	4.3 (4.8)	15.9 (4.2)	13.7 (5.2)	<0.0001[1,2]
symptoms	15.9 (7.8)	24.8 (3.9)	24.2 (5.5)	<0.0001[1,2]
EAT	45.4 (18.3)	59.4 (15.2)	50.5 (17.5)	0.023[2]
Age: years	24.5 (5.7)	23.9 (3.7)	24.5 (4.8)	0.866

1. Significant difference between anorexics and bulimics.
2. Significant difference between anorexics and bulimics with a history of anorexia.

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Table 2
Association between number of impulsive types of behaviour (other than bingeing) and mean (s.d.) scores for impulsivity, venturesomeness, empathy, and depression (MADRS) in 39 bulimic patients

	No. of impulsive types of behaviour		
	0 ($n=19$)	1 ($n=17$)	2 ($n=3$)
Impulsivity	9.8 (4.9)	9.5 (4.5)	11.3 (7.0)
Venturesomeness	10.2 (3.1)	9.0 (5.0)	10.3 (0.6)
Empathy	15.4 (2.6)	15.6 (2.4)	14.0 (3.6)
MADRS score	11.3 (6.0)	15.2 (6.7)	11.0 (6.6)

Study 2

Twenty of the 39 patients (51%) reported at least one impulsive behaviour in addition to bingeing (the 'multi-impulsive' group); only three (8%) reported two additional such types of behaviour. The commonest types of behaviour were self-harm ($n=10$) and alcohol abuse ($n=8$). Seven of 25 anorexics (28%) reported one or more additional type of impulsive behaviour (6 self-harm, 1 drug abuse). Four anorexic patients also binged on occasions, but two of these engaged in other types of impulsive behaviour.

There was no significant difference in impulsivity and venturesomeness scores between those with and without more impulsive behaviour (i.e. fulfilling criteria for 'multi-impulsive bulimia') (Table 2). Only three patients had two or more types of impulsive behaviour in addition to their bulimic behaviour (impulsivity scores of 4, 12, 18), and there was no significant difference between this small group and the other cases.

During their first clinical assessment, patients were also asked to give an estimate of their average binge frequency during the preceding two weeks. The 'multi-impulsive' group gave a significantly higher frequency than non-impulsives. Multi-impulsive cases had higher BITE severity scores, reflecting the patients' own estimated frequency of bingeing, vomiting and purging combined. However, on measures derived from food diaries, there was no difference in bingeing between groups. The difference in depression scores between impulsive and non-impulsive bulimics did not reach statistical significance.

Treatment response is summarised in Table 3. At eight weeks multi-impulsives were bingeing more frequently than non-impulsives. The size of this difference is of clinical relevance. Non-impulsives also had a more rapid reduction in EAT scores, but this difference failed to reach statistical significance. After one year, there were no significant differences between groups.

Bulimics with high impulsivity scores were then compared with low scorers (Table 3). A cut-off point of 13 was chosen, which was one standard deviation above the mean score of normal women (see above). There were no significant differences between high- and low-scoring groups in the severity of eating disorder at any time (Table 3). In fact, mean binge frequency scores were higher in the low-impulsivity group. There was no significant correlation

Table 3
Severity of eating disorder in multi-impulsive bulimics and those with no other impulsive types of behaviour, and in bulimics with high and low impulsivity (I_7) scores

	No other impulsive behaviour ($n=19$)		Multi-impulsive ($n=20$)		P	Impulsivity score under 13 ($n=30$)		Impulsivity score 13 or more ($n=9$)		P
	mean	(s.d.)	mean	(s.d.)		mean	(s.d.)	mean	(s.d.)	
Binge estimate[1]	11.0	(12.6)	18.7	(13.6)	0.02	-	-	-	-	-
Binge frequency[2]										
after assessment	10.9	(7.5)	11.9	(11.8)	0.76	12.0	(10.6)	9.8	(7.6)	0.65
8 weeks	4.4	(7.2)	8.2	(9.1)	0.05	7.0	(8.8)	3.1	(5.6)	0.13
16 weeks	5.2	(7.9)	7.7	(8.5)	0.35	6.5	(7.9)	5.6	(9.4)	0.34
EAT score										
after assessment	51.8	(14.2)	58.5	(19.4)	0.22	56.2	(18.0)	52.1	(14.8)	0.50
8 weeks	28.6	(15.1)	39.2	(19.8)	0.08	32.9	(17.4)	33.4	(22.2)	0.96
16 weeks	27.9	(15.2)	38.3	(23.8)	0.13	33.9	(20.4)	30.4	(20.4)	0.69
1 year	31.3	(19.3)	31.7	(20.8)	0.96	32.6	(19.7)	27.5	(19.5)	0.53
BITE score, severity										
after assessment	12.7	(4.0)	16.8	(3.4)	0.002	15.2	(4.4)	13.3	(3.6)	0.27
8 weeks	6.7	(6.6)	8.9	(4.7)	0.07	7.5	(4.7)	8.1	(9.2)	0.63
16 weeks	6.2	(3.8)	8.8	(6.1)	0.15	8.1	(5.2)	5.0	(4.6)	0.18
1 year	4.9	(3.7)	7.6	(6.3)	0.21	7.0	(5.5)	3.5	(3.5)	0.10
BITE score, symptom										
after assessment	26.2	(2.4)	25.3	(4.2)	0.85	25.7	(3.8)	25.7	(1.7)	0.35
8 weeks	17.5	(8.8)	18.9	(6.6)	0.78	18.7	(7.6)	16.0	(7.8)	0.28
16 weeks	18.3	(8.1)	18.4	(8.9)	0.75	19.2	(7.7)	14.6	(10.4)	0.18
1 year	16.3	(8.0)	16.3	(8.7)	0.63	17.4	(7.7)	15.2	(10.0)	0.67

1. Patients' own estimate of binge frequency over two weeks before assessment.
2. Binge frequency recorded from food diaries over two weeks.

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between impulsivity score and binge frequency (−0.038) or BITE severity and symptom scores (−0.098 and 0.115).

Discussion

Patients with bulimia nervosa had significantly higher impulsivity scores than patients with anorexia nervosa. This finding is consistent with the form of the patients' eating disorders, which in bulimia may be punctuated by sudden decisions to binge and purge, with little regard for the considerable physical risks incurred, or for the inevitable dysphoria afterwards. It is unlikely that the impulsivity scores simply reflect the presence or absence of impulsive eating patterns since those patients with higher scores do not have more severe bulimia.

This study reports a high prevalence of impulsive behaviour in bulimia nervosa, a finding which is consistent with the findings of Lacey & Evans (1986). The present study also suggests that impulsive behaviour is common among patients with anorexia nervosa.

If multi-impulsives represent a separate category of bulimia, then it is possible, as Lacey & Evans (1986) suggest, that the course of their illness may differ from that of other patients. This hypothesis appears to derive support from the work of Sohlberg *et al* (1989), who recorded the presence or absence of impulsive behaviour (alcohol or drug abuse, recent suicide attempt, bingeing or stealing) in 29 patients with an eating disorder. At two- to three-year follow-up, poor outcome was associated with a greater number of impulsive types of behaviour. However, Sohlberg's study included both anorexic and bulimic patients and since bingeing was rated as an impulsive behaviour, the poor prognosis of severe bulimia may have been mistakenly attributed to impulsivity.

The present study takes account of this possible confounding variable by looking at outcome in bulimics only. This reveals that 'non-impulsive' bulimic patients have a better immediate response to treatment than multi-impulsives. At the end of eight weeks of therapy, 'multi-impulsives' have a more severe eating disturbance and higher binge frequency than non-impulsives. However, at 16-week and one-year follow-up, there is no clear difference in outcome between groups. Because there were only three patients in our sample with more than one impulsive behaviour in addition to the bulimia, it is still possible that such patients generally have a poorer long-term outcome.

Using the criteria suggested by Lacey & Evans (1986), the Impulsivity Questionnaire fails to distinguish patients with 'multi-impulsive bulimia' from other bulimics. It cannot be ruled out that patients with several impulsive types of behaviour may have higher scores on this instrument, but only one of the three such cases in this study had a high score.

There were no differences in treatment response when impulsivity was defined as a high score on the Impulsivity Questionnaire. This is consistent with the clinical observation that behaviour such as self-harm, substance abuse and shoplifting are not always characterised by a lack of deliberation. Such behaviour is commonly associated with affective disturbance. Sohlberg *et al* (1989) found that depression and impulsivity were equally significant prognostic indicators in eating disorders, but they did not assess the independence of these two variables. Pope & Hudson (1989) argue that there is a considerable overlap in bulimia between depression and borderline personality disorder, a syndrome which has many features in common with multi-impulsive personality disorder. The current study found a weak relationship between 'multi-impulsive' bulimia and depression, but the use of an instrument more suited to diagnosis of depressive disorder than the MADRS might have clarified this relationship.

This study suggests that bulimia nervosa does not simply represent an extreme variant of an impulsivity trait, but it is likely that differences in impulsivity act as a pathoplastic factor influencing the expression of eating disorders as anorexia nervosa or bulimia nervosa in at-risk populations. Self-harm, substance abuse and shoplifting are, as Lacey & Evans (1986) propose, associated with a poor response during treatment. However, there is insufficient evidence to conceptualise these types of behaviour as arising from an underlying disorder of impulse control. We would propose that, in the absence of convincing evidence to the contrary, most so-called impulsive behaviour arises from affective disturbance rather than a failure to consider the self-destructive consequences of the relevant actions. Closer scrutiny of the affective, cognitive and personality disturbances associated with such behaviour may point the way to more rational treatment interventions in these challenging patients.

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*Thomas Fahy, *Lecturer in Psychological Medicine, King's College Hospital, and Institute of Psychiatry, De Crespigny Park, London SE5 8AF*; Ivan Eisler, *Senior Lecturer in Psychology, Institute of Psychiatry*

*Correspondence

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