

Association of Anger with Bulimic and Other Impulsive Behaviours Among Non-Clinical Women and Men

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Objectives: The literature on links between anger and bulimic behaviours has focused largely on clinical populations of female patients. This study of a non-clinical group explores whether the relationship between anger and bulimia is specific to binge-eating (rather than other eating or impulsive behaviours) and whether the links are gender-specific.

Methods: A non-clinical population of 72 women and 49 men completed Spanish translations of self-report measures on anger, bulimia and impulsivity. Non-parametric correlations (Spearman's rho) were used.

Results: Women with higher levels of trait anger were more likely to engage in binge-eating, and fasted less. In contrast, men who experienced higher levels of anger used more impulsive behaviours (such as substance abuse and self-harm). External expression of anger was related to binge-eating regardless of gender, but was associated with different facets of impulsivity for males and females.

Conclusions: These findings suggest that different behaviours are associated with anger among males and females. Further research and potential implications for preventative programmes are discussed. Copyright © 2004 John Wiley & Sons, Ltd and Eating Disorders Association.

Keywords: anger; bulimia; impulsivity; gender

INTRODUCTION

Anger is strongly associated with the eating disorders, especially among bulimic patients (Arnow,

Kenardy, & Agras, 1995; Fichter, Quadflieg, & Brandl, 1993; Tiller, Schmidt, Ali, & Treasure, 1995). The uncontrolled expression of anger is particularly common among bulimic individuals with high levels of impulsivity (Fassino, Daga, Piero, Leombruni, & Rovera, 2001; Fichter, Quadflieg, & Rief, 1994; Tiller et al., 1995). Anger is associated with treatment dropout in the eating disorders (Fassino, Daga, Piero, & Rovera, 2002) and impulsive bulimics have a poor treatment outcome (Agras,

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Crow, Halmi, Mitchell, Wilson, & Kraemer, 2000; Sohlberg, Norring, Holmgren, & Rosmark, 1989), stressing the potential importance of anger in this group. The link between anger and bulimia might be explained by the use of bulimic behaviours (especially binge-eating) to block awareness of negative emotional states (e.g. Arnow et al., 1995; McManus & Waller, 1995). Baumeister, Heatherton, and Tice's (1994) model suggests that other impulsive behaviours are functionally equivalent to binge-eating, in that all can reduce the awareness of intolerable affect.

The relationship between bulimia, impulsivity and anger is complicated by the fact that each is a multifactorial construct, involving a range of cognitive and behavioural characteristics. Bulimic behaviours involve binge-eating, purging and compensation (e.g. restriction and exercise). Anger can be understood in terms of a state, a trait, and behaviours such as expression and avoidance of the affect (e.g. Spielberger, 1996). Milligan and Waller (2001) have shown that impulsive behaviours can be divided into those that are internally directed (e.g. self-harm, drug use, alcohol abuse, binge-eating) and those that are externally directed (e.g. theft, uncontrolled buying, risky sexual behaviours, risky driving). Furthermore, each of these constructs seems to show gender differences. Women are more likely to engage in: bulimia (Woodside et al., 2001); self-harm (e.g. Hawton, Rodham, & Evans, 2002); theft (e.g. Goldman, 1991); uncontrolled buying (e.g. Lejoyeux, Ades, Tassain, & Solomon, 1996; Christenson et al., 1994); and risky, unprotected sexual encounters (Bailey, Pollock, Martin, & Lynch, 1999). In contrast, men are more prone to consume alcohol and marijuana (Thomas, 1995; Young, Corley, Stallings, Rhee, Crowley, & Hewitt, 2002; Windle, 1990) and to engage in risky driving (e.g. Begg & Langley, 2001). The evidence regarding gender differences in anger is less consistent. Deffenbacher et al. (1996) failed to identify differences between men and women in the experience or expression of anger, and others show that apparent differences may be related more to gender role identification than to gender *per se* (e.g. Milovchevich, Howells, Drew, & Day, 2001).

Since the eating disorders literature to date has focused largely on the links between anger and binge-eating, it is not clear whether this emotion is related to other eating behaviours (particularly restriction and purging). Nor is it clear whether the anger–bulimia links are specific to this eating behaviour or whether they are reflective of a general association with impulsive behaviours. Equally, as

most of the data about the multifactorial/complex relationship between bulimia, impulsivity and anger apply to female clinical populations with high comorbid psychopathology, the use of an explicitly homogeneous non-clinical group could shed some light on the origins of these links. Finally, given differences in these characteristics across males and females, it remains to be determined whether the associations of anger with bulimia and other impulsive behaviours apply equally to both genders. Thus, the present study aims to clarify whether the relationship between anger and bulimia is specific to binge-eating rather than other eating behaviours or other impulsive characteristics. The second aim is to determine whether the links are gender-specific.

METHOD

Participants

The participants were 131 undergraduate volunteers. Of these, eight women and two men were excluded because they reported present or past treatment for any psychological problem, and/or did not complete the measures. Thus, the final sample consisted of 72 women and 49 men. The women's mean age was 20.7 years ($SD = 2.10$) and the men's was 20.5 years ($SD = 2.20$). Based on self-reports of height and weight, the women's mean body mass index ($\text{weight}[\text{kg}]/\text{height}[\text{m}]^2$) was 21.2 ($SD = 2.53$) and the men's was 22.7 ($SD = 2.32$).

Measures and Procedure

The participants each completed Spanish translations of three self-report measures. The measures were completed in the order given below, as part of a broader assessment. In all cases, higher scores reflect more pathological attitudes and behaviours. The participants also gave demographic details, and were asked to report any previous history of eating disorders or other psychological disturbances.

State–Trait Anger Expression Inventory (STAXI; Spielberger, 1996)

The STAXI is a self-report questionnaire, which measures the experience and expression of anger. It consists of six primary scales, which have good psychometric properties. However, only three of those scales were used for the present study, as they remain valid following translation into Spanish (Miguel-Tobal, Casado, Cano-Vindel, & Spielberger, 2001). The trait anger scale measures individual differences in the disposition to experience anger. Anger suppression measures the extent to which

angry feelings are held in. Externally directed anger measures how anger is expressed towards other people or objects in the environment. Participants rate themselves on four-point scales, assessing the frequency with which anger is experienced, expressed or suppressed.

Impulsive Behaviours Scale—Revised
(IBS; Rossotto, Yager, & Rorty, 1994)

This self-report scale assesses the degree to which the individual uses 25 different impulsive behaviours (Peñas-Lledó & Waller, 2001). The frequency of each behaviour is rated on a five-point Likert-type rating scale. The items can be used to form two scales—those reflecting internally directed impulsive behaviours and those reflecting externally directed impulsive behaviours (Milligan & Waller, 2001). The 11 internally directed impulsive behaviours (e.g. self-harm, alcohol abuse, drug abuse) are characterized by self-harm. In contrast, the 14 externally directed impulsive behaviours (e.g. theft, compulsive buying, unsafe sexual encounters) involve only an unintended risk of self-harm. Peñas-Lledó and Waller (2001) and Peñas-Lledó, Vaz, Ramos, and Waller (2002) have demonstrated the psychometric utility of the overall IBS scale in non-clinical British women and in clinical Spanish women. The internally directed and externally directed impulsive behaviour scales had acceptable levels of internal consistency in this study (respectively, Cronbach's alpha = 0.73 and 0.79 for the women, and 0.70 and 0.78 for the men).

Bulimic Investigatory Test, Edinburgh
(BITE; Henderson & Freeman, 1987)

This is a 33-item self-report questionnaire, which was developed to assess bulimic attitudes and beha-

viours. Henderson and Freeman (1987) have shown the BITE to have strong reliability and validity. The questionnaire includes two subscales—symptoms, and severity. For the present study, three measures were derived from the BITE severity score—the reported severity of bingeing, of fasting and of purging behaviours (sum of the frequency of vomiting and the use of diet pills, laxatives and diuretics).

Data Analysis

Non-parametric tests were used throughout, due to skewed data. Gender differences in anger levels (STAXI), bulimic pathology (BITE) and impulsivity (IBS) were tested using Mann–Whitney tests. Anger measures were correlated (Spearman's rho) with severity of eating behaviours and impulsivity. Two-tailed tests were used throughout.

RESULTS

Table 1 shows the mean scores and standard deviations on all measures for the males and females. Women reported a greater severity of bingeing and purging behaviours than men. However, the men's levels of both internally and externally directed impulsivity were higher than the women's.

Table 2 shows the correlations (Spearman's rho) of the anger dimensions with levels of eating and impulsivity in females and males. Among the females, trait anger was positively associated with the frequency of bingeing and negatively with the frequency of fasting. In contrast, it was associated with internally directed impulsive behaviours among men. The external expression of anger was correlated with the frequency of bingeing and

Table 1. Severity of bingeing, fasting and purging behaviours (BITE severity), anger (STAXI) and impulsivity (IBS) among non-clinical women and men

	Gender				Mann–Whitney	
	Women Mean	(N = 72) (SD)	Men Mean	(N = 49) (SD)	z	p
Eating behaviours (BITE)						
Binge-eating	1.49	(1.45)	0.92	(1.37)	2.30	0.02
Fasting	0.27	(0.77)	0.33	(0.90)	0.22	NS
Purging behaviours	0.58	(1.18)	0.17	(0.81)	2.59	0.01
Anger (STAXI)						
Trait anger	22.0	(5.18)	21.0	(5.36)	1.32	NS
Externally directed anger	18.7	(4.63)	17.5	(4.51)	1.49	NS
Anger suppression	14.2	(3.58)	14.9	(4.25)	0.67	NS
Impulsivity (IBS)						
Internally directed	14.8	(4.24)	16.5	(4.93)	2.30	0.02
Externally directed	20.1	(5.99)	23.5	(7.55)	2.72	0.01

Table 2. Correlations (Spearman's rho) of anger (STAXI) with eating behaviours (BITE) and impulsivity (IBS) among non-clinical females ($N = 72$) and males ($N = 49$)

	Anger (STAXI)					
	Trait		External		Suppression	
	Female	Male	Female	Male	Female	Male
Eating behaviours (BITE)						
Bingeing	0.23*	0.08	0.30**	0.31*	0.01	0.02
Fasting	-0.25*	-0.10	-0.05	0.15	-0.03	-0.02
Purging	-0.05	-0.18	0.07	0.06	-0.02	-0.08
Impulsivity (IBS)						
Internally directed	0.18	0.30*	0.23	0.45**	-0.03	0.22
Externally directed	0.20	0.25	0.27*	0.27	0.10	0.26

* $p < 0.05$; ** $p < 0.01$.

impulsivity among both men and women. However, the link was with externally directed impulsive behaviours among women but internally directed behaviours among men. Anger suppression was not associated with bulimic behaviours or impulsive behaviours for either males or females.

DISCUSSION

This study of a non-clinical sample has explored whether different aspects of anger are related to bulimia and other impulsive behaviours, and whether those links differ across males and females. While women showed higher levels of bulimic behaviours (bingeing and purging), the link with bulimic features was found particularly among those women who were more likely to experience angry feelings (i.e. high levels of trait anger). In contrast, the men's higher levels of anger experience was associated with internally directed impulsive behaviours (such as substance abuse and self-harm). External expression of anger was related to binge-eating regardless of gender, but was associated with different facets of impulsivity for males and females.

The finding of an anger-eating link in the female population is consistent with the existing literature in clinical and non-clinical populations (Arnow et al., 1995; Milligan & Waller, 2000). Various authors (e.g. Arnow et al., 1995; McManus & Waller, 1995) have suggested that binge-eating may act to block awareness of negative emotional states. The general anger-impulsivity links found here provide indirect support to a model (Baumeister et al., 1994) where impulsive behaviours serve this equivalent function. However, the pattern of linkage shown here

suggests that different behaviours are associated with anger among males and females. The finding of a link between the uncontrolled expression of anger and bingeing and impulsivity is consistent with existing research on female populations (Milligan & Waller, 2001; Fassino et al., 2001). These links might be explained from a temperamental perspective, where a personality pattern characterized by general impulsivity and affect dysregulation predicts bulimic attitudes, alcohol and drug use, risky sexual behaviour and risky driving (e.g. Vollrath & Torgersen, 2002; Westen & Harnden-Fischer, 2001). The specific association of externalized anger and internally directed impulsive behaviours (such as alcohol and recreational drug use) among males might be explained by alcohol-induced disruption of higher cognitive functions, and by alcohol's anxiolytic and disinhibiting effects on the subcortical structures implicated in anger and aggression (e.g. Lyvers, 2000). Women may use alcohol to deal with different emotional states, such as anxiety and sadness (e.g. Bjork, Dougherty, & Moeller, 1999).

The absence of any link of anger suppression with impulsivity and bulimic characteristics does not provide support for the hypothesized role of such behaviours as emotional blocking agents (e.g. McManus & Waller, 1995). Yet, the absence of such a link in this non-clinical population may be an indication that anger suppression is a more prominent feature of restrictive disorders rather than impulsive problems (Geller, Cockell, & Goldner, 2000; Horesh, Zalsman, & Apter, 2000; Tiller et al., 1995).

This study has a number of limitations that need to be addressed in future research. First, the cross-sectional nature of these associations makes it impossible to determine causal directions from this study, and future studies need to use longitudinal designs.

Second, the associations found in the present study were modest, encouraging substantial further research into the role of anger in the eating disorders and related behaviours. Such research might use other measures of bulimic behaviours (e.g. BULITR—Welch, Thompson, & Hall, 1993) or measures of a broader range of eating characteristics (e.g. EDE-Q—Luce & Crowther, 1999). Those studies would need to include larger samples of non-clinical females and males and clinical subgroups, while controlling for factors such as age and education. They would also benefit from using other, more comprehensive measures of eating behaviours, in order to determine the relationship between trait anger and fasting/bingeing in clinical and non-clinical samples. It will also be important to validate the Impulsive Behaviours Scale more fully, including comparison with interview measures. It might be hypothesized that the experience and expression of anger will be associated most robustly with bulimic and impulsive features, while the suppression of anger will be associated with the more compulsive pathology of restrictive characteristics (e.g. Geller et al., 2000). Therefore, such research might be more meaningful if it were to be focused on eating characteristics (e.g. bulimic and restrictive attitudes and behaviours, which commonly coexist within patients), rather than on diagnosis *per se*. Potential associations might be addressed with related psychopathologies (e.g. other affect-based disorders, obsessive compulsive disorder), in order to determine whether the differences and associations found here are definitively related to the eating psychopathology. If the results are replicated by research with clinical populations, they would support the proposed relevance of emotional skills training (Linehan, 1993) to reduce the behavioural consequences of anger dyscontrol (e.g. loss of relationships, failure to achieve personal goals).

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