



Explicit vs. implicit body image evaluation in restrictive anorexia nervosa

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ABSTRACT

In the present study we investigated the evaluation of body shapes in patients with restrictive anorexia nervosa (AN) on both automatic and controlled levels. The first aim of the study was to examine whether an ultra-thin ideal or negative attitudes toward overweight might be the motivation behind pathological restriction. The second aim was to investigate the relationship between body figure evaluations, eating disorder symptoms and mood. A Modified Affective Priming Test was used to measure implicit evaluations of body silhouettes, while a Likert scale was used to assess explicit evaluations. The study involved 35 women with restrictive anorexia nervosa and 35 age- and education-level-matched controls with normal body weight. In contrast to the control group, the patients did not show a positive attitude toward the ultra-thin body shape on the automatic level. The AN group both on the automatic and the self-reported levels evaluated the overweight body as negative. Depression and anxiety did not influence body evaluation. Strong negative evaluation of overweight appears to be a key issue in AN rather than positive evaluation of ultra-thin role models.

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1. Introduction

Anorexia nervosa (AN) is a condition of self-initiated weight loss, usually found in adolescents and young women, and characterised by a profound disturbance of body image, distorted self-perception, starvation and an obsessive fear of gaining weight (American Psychiatric Association, 2000). Self-report studies in the general population have suggested that the promotion of underweight celebrity models leads to a negative body image and body dissatisfaction among adolescent girls and young adults (Groesz et al., 2002; Bell et al., 2007; Legenbauer et al., 2008). Studies of this type also suggest that dissatisfaction with body weight and physical appearance is primarily associated with unhealthy weight reduction practices and eating disorders in young females (Grigg et al., 1996; Hill, 2006). Unrealistic assumptions about weight, body shape and eating have been found to be significantly higher among anorexic patients relative to controls and dieters (e.g., Cooper and Turner, 2000), suggesting that the desire for extreme thinness may be influenced by social pressures relating extreme thinness to desirability and beauty (Friedman et al., 2002; Simon, 2007). An alternative hypothesis is that AN may be

caused by a negative view of fatness and an intensive fear of becoming overweight (Bruch, 1982; Vartanian et al., 2005).

Rucker and Cash (1992) proposed that the body image includes at least two components: a perceptual body image (i.e., estimation of one's body size) and an attitudinal body image (i.e. cognitive, affective and behavioural concerns with one's body size); and Skrzypek et al. (2001) suggested that the second factor is more important than the former in causing body image disturbance in AN. Explicit attitudes are self-reported evaluations that people give when they are asked how much they like an object. Implicit attitudes are preferences that do not require introspective access to mental representation; implicit attitudes are thought to reflect an evaluation of which the respondent is not aware (Dovidio et al., 2002; Gawronski et al., 2007). Implicit evaluations are mostly activated automatically and quickly, and can be identified through sophisticated experiments using individuals' response times to stimuli (i.e. without directly asking people how they feel or think about an object, Greenwald and Banaji, 1995). The explicit and implicit evaluations appear to affect people's behaviour through different pathways (Fazio et al., 1986). The main advantage of implicit evaluation is that it can estimate the patient's automatic responses toward various stimuli without directly asking them, thereby reducing the risk of socially desirable answering (Rudman, 2004).

In the current research we were firstly interested in whether positive association with ultra-thin models or negative association with fatness could be the key motivation behind the ongoing

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pathological restrictive dieting behaviour in anorexia nervosa. Secondly, we wanted to investigate the representations of the ideal body figure in a healthy and a patient group. Thirdly, we wanted to examine the relationship between body dissatisfaction, drive for thinness and body figure evaluation. We used standard self-report methods to assess explicit evaluations and body dissatisfaction; and a modified version of the Affective Priming Test for implicit evaluation. Until now no study has investigated the implicit attitudes toward body figures in AN.

Co-morbidity with anxiety and mood disorders has been reported frequently in AN (Kaye et al., 2004; Godart et al., 2005a,b; Wildes et al., 2007). According to clinical observations, AN patients evidence mostly unipolar depression and half of the patients show anxiety disorders, too (Blinder et al., 2006). Depressed mood and anxiety disorder may have an influence on how people generally judge or evaluate an object. Therefore, we also examined whether anxiety and depression might influence the body image evaluation and body dissatisfaction in anorexia nervosa.

2. Methods

2.1. Participants

The participants included 35 female patients with a diagnosis of AN of restrictive subtype (patients are not regularly engaged in binge-eating or purging behaviour) hospitalized in a psychiatric clinic and 35 female controls with normal body weight and with no diagnosis of any psychiatric disorders. The patients were recruited at the Psychiatry Service of the Clinique Le Domaine, through the Eating Disorders Program, Belgium. Recruitment methods included posted advertisement in patient areas; in addition the project research assistant provided information to the patients in each setting and the clinical staff assisted in identifying potential candidates for the study. The project was approved by the ethical committee of the ULB Erasme University Hospital.

The diagnosis of AN was based upon DSM-IV-TR criteria (American Psychiatric Association, 2000) by highly trained clinicians. Other types of eating disorders (bulimia, binge-eating) or psychiatric problems such as major depressive disorder, substance abuse or psychosis were exclusion criteria for the study. The volunteer control females were recruited through the university and the local high school associated with the university. The control participants were eligible for inclusion if they did not meet the criteria for any psychiatric disorders, substance dependence, major depression or regular dieting as determined through a semi-structured interview with a psychologist. During the recruitment of participants the education level and the age of the patients and the control participants. All participants were residents of Belgium. Their native language was French and they had no vision problems. Examinations were performed in accordance with institutional and international (Declaration in Helsinki, 1964; European Union Council Directive 86/609/EEC) ethical standards. Prior to their inclusion into the study participants gave their verbal consent; the patients' written permission was documented. In the case of 16 minor age adolescents parental consent was obtained prior to their participation.

2.2. Mood and trait measures

2.2.1. Eating Disorder Inventory

The Eating Disorder Inventory (EDI) is a 64-item self-report questionnaire designed to provide information on eight separate dimensions of cognitive and behavioural

aspects of AN and bulimia (Garner et al., 1983). The EDI assesses attitudes, feelings and behaviours related to food, eating and body image. The eight subscales included in the EDI are as follows: drive for thinness (DT; "I am terrified of gaining weight"), bulimia (B; "I stuff myself with food"), body dissatisfaction (BD "I think my hips are too big"), ineffectiveness (I; "I feel inadequate"), perfectionism (P; "I have extremely high goals"), interpersonal distrust (ID; "I need to keep people at a certain distance"), interoceptive awareness (IA; "I don't know what's going on inside me"), and maturity fears (MF; "I wish that I could be younger"). Participants were asked to respond on a 6-point Likert scale by rating how much an item applied to them. The cut-off score of the EDI is 43; for scores above 43 eating disorder is considered pathological. In our study we used the French translation of the EDI (Criquillon-Doulet et al., 1995). As we wanted to examine the relationship between body dissatisfaction, drive for thinness and body figure evaluation, the following three subscales were included in our analysis: drive for thinness (DT), bulimia (B), and body dissatisfaction (BD).

2.2.2. State-Trait Anxiety Inventory

The State-Trait Anxiety Inventory (STAI, Spielberger, 1983) is a self-rating measure of anxiety, consisting of two parts: the State (describing the actual situation) and the Trait (general measure of anxiety). The participants indicated their degree of approval on 20 items for each form of anxiety (e.g. "I am satisfied", "I have thoughts that disturb me") on a 4-point Likert scale ranging from 1 "No" to 4 "Yes". Possible scores range from 20 to 80 for each form. We used the validated French language version of the STAI questionnaire (Bruchon-Schweitzer and Paulhan, 1993).

2.2.3. Beck Depression Inventory II

The Beck Depression Inventory II (BDI-II) is a 21-item self-report inventory measuring characteristic attitudes and symptoms of depression (Beck et al., 1996). Each item is rated on a 4-point scale (from 0 "I do not feel sad" to 3 "I am so sad or unhappy that I can't stand it"). The score is calculated by summing each item (range 0–63). Individuals scoring from 10 to 18 are classified as having mild to moderate depression, those scoring between 19 and 29 are classified as having moderate to severe depression, and severe depression is evidenced by scores ranging from 30 to 63. We used the validated French version of the BDI-II (Beck et al., 1998).

2.3. Implicit measure

The Affective Priming Task (Fazio et al., 1986; Banse, 2001) was used to measure the implicit associations and affective processes related to different body shapes. The Affective Priming relies on early attention allocation and individuals' automatic reactions when affective information is present (Winkielman et al., 1997; Lamote et al., 2004; Vermeulen et al., 2006). The goal of the task is to measure how the first stimulus (prime) modifies the processing speed and/or the accuracy of evaluating a subsequent target, which is evaluated as positive or negative (Hermans et al., 2001). When the affective valence of the prime is similar to that of the target stimuli (positive-positive; negative-negative), a congruency or facilitation effect occurs, which leads to faster and more accurate responses. In contrast, an incongruent prime-target combination (positive-negative; negative-positive) leads to slower and less accurate responses. The difference in response latencies (RL) or error percentage (accuracy) between congruent and incongruent trials is called the priming effect (Roefs et al., 2005). The pattern of RL is informative regarding the positive and negative associations people have with the primes (i.e. silhouettes). Applied to the body figures, if people respond faster on congruent trials (normal body figure-positive target or overweight body figure-negative target) than on incongruent trials (normal body figure-negative target or overweight body figure-positive target), it can be inferred that they like the normal body figure more than the overweight body figure at a relatively automatic level. The advantages of using implicit measure are twofold. First, these measures can estimate people's responses toward various stimuli by reducing the risk of receiving socially desirable answers. Second, because stimuli are presented only briefly and in quick succession, implicit measures leave insufficient time for the participants to strategically control their responses. Even if people may very well be aware of their associations, they may not be aware of what the task is assessing (Fazio and Olson, 2003).

2.3.1. Stimuli

Primes: In our experiment three schematic body figures depicting an ultra-thin body; an attractive average-size young female body; and an overweight body image were used (see Fig. 1). The three silhouettes were selected from the body figure scale of Mouches (1992). The attractive average-size female body was chosen based on a previous pilot study. In this pilot study 20 female university students with normal body shape and not on a strict diet were asked to rank each silhouette from the Mouches scale on a 7-point scale (from 1 very negative to 7 very positive). The silhouette that received the highest score (the most positive, $M = 6.1$, $S.D. = 0.3$) was chosen as an attractive body figure for our study. The ultra-thin and the overweight body silhouettes were taken from the two extreme sides of the Mouches scale.

The targets were 12 positive (e.g., joyful) and 12 negative (e.g., sorrowful) French adjectives, which were selected as target stimuli (see Appendix) from a previous study (Vermeulen et al., 2006). No differences were found (Vermeulen et al., 2006) for frequency of usage in the language or for familiarity measured on a 7-point scale from 0 to 6 ($F[1,11] < 1$, ns; positive: $M = 4.93$, $S.D. = 0.52$; negative $M = 4.80$, $SD = 0.40$). The positive and negative target words did not differ in length, ($F[1, 11] < 1$, ns; positive:

Table 1
Demographic and clinical characteristics of the participants.

	Control $N = 35$		Patients with restrictive anorexia $N = 35$	
	M (S.D.)	Range	M (S.D.)	Range
Age	20.27 (3.93)	14–27	19.61 (3.42)	13–27
Weight (kg)	54.43 (4.67)	49–59	38.56 (4.32)**	32–45
BMI	19.79 (1.42)	18–22	14.76 (1.31)**	13–17
Scholar years	10.78 (2.6)	7–17	10.45 (3.5)	6–17
Duration of the problem (year)			5.32 (4.1)	1–10
Depression (BDI)	8.5 (6.73)		25.32 (8.96)**	
State anxiety (STAI)	36.90 (13.23)		54.00 (10.93)**	
Trait anxiety (STAI)	43.58 (9.54)		56.36 (9.31)**	
Drive for thinness (EDI)	5.16 (5.42)		9.63 (7.17)*	
Bulimia (EDI)	0.64 (1.37)		3.00 (1.20)*	
Body dissatisfaction (EDI)	10.22 (7.48)		13.89 (8.71)	

** $P < 0.01$.

* $P < 0.05$.

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