



The impact of an implicit manipulation of self-esteem on body dissatisfaction

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ABSTRACT

Background and objectives: Given the theoretically postulated causal pathway from low self-esteem on body dissatisfaction, the aim of the present study was to experimentally test this linkage before and after a mirror exposure in body dissatisfied females.

Method: Thirty-six women with high body dissatisfaction (HBD) and 39 women with low body dissatisfaction (LBD) received either a positive or a negative implicit manipulation of self-esteem and participants' actual body dissatisfaction and negative emotions were assessed (T1). Following that, they underwent a one minute mirror exposure and actual body dissatisfaction and emotions were assessed once more (T2).

Results: In the HBD group no effects of the self-esteem manipulation were found prior to the mirror exposure. However, the negative manipulation of self-esteem led to a significant increase of body dissatisfaction over the course of the mirror exposure. The positive manipulation of self-esteem did not decrease body dissatisfaction over the course of the mirror exposure. No effects of self-esteem on body dissatisfaction were found in the LBD group.

Limitations: Formal eating disorder diagnosis in study participants was not established. Therefore, the extension of the results to an eating disordered population is recommended.

Conclusions: The results yield evidence of a close linkage between negative self-esteem and body dissatisfaction in individuals high on body dissatisfaction. Consistent with cognitive theories, this link is only apparent when shape and weight schemas are activated, e.g. by the confrontation with one's own body.

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1. Introduction

Body dissatisfaction is one of the empirically best validated etiological and maintenance factors of eating disorders (ED; [Jacobi, Hayward, de Zwaan, Kraemer, & Agras, 2004](#); [Stice, 2002](#)). Therefore, identifying factors that trigger or maintain body dissatisfaction can be considered a major goal for ED prevention, treatment and relapse prevention. According to the transdiagnostic theory of ED ([Fairburn, Cooper, & Shafran, 2003](#)), "core low self-esteem" is a major factor contributing to the overvaluation of shape and weight. Specifically, low self-esteem is thought to foster body dissatisfaction, thereby obstructing changes with regard to eating pathology. However, to date only a few studies have empirically tested this causal link. In one study [Meijboom, Jansen, Kampman, and Schouten \(1999\)](#) adopted a priming paradigm to test the effects of self-esteem on shape and weight concerns. Specifically, high and low restrained eaters were experimentally either primed

or not primed with low self-esteem before completing a subliminal and a supraliminal lexical decision task. Results revealed that compared to all other groups, the primed high restrained group classified more shape and weight than neutral words correctly in the subliminal lexical decision task. No group differences were found on the supraliminal task. Hence, the link was shown to be prevalent at a rather spontaneous level only. Furthermore, as the implemented explicit self-esteem induction procedure lead to a significant increase of negative mood, it remains unclear in as far the increased access to body-related words was a consequence of the negative self-esteem or a negative mood induction.

It is of note that – in individuals at risk for developing ED – the proposed causal link seems to be unidirectional only. [Hoffmeister, Teige-Mocigemba, Blechert, Klauer, and Tuschen-Caffier \(2010\)](#) tested self-esteem before and after a mirror exposure by means of the implicit association test (IAT; [Greenwald, McGhee, & Schwartz, 1998](#)). Self-esteem was not affected by the mirror exposure in restrained eaters. However, unrestrained eaters reacted with a significant increase of self-esteem following the mirror exposure. Considering the [Meijboom et al. \(1999\)](#) and the [Hoffmeister et al. \(2010\)](#) study together, low self-esteem seems to increase the

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accessibility of subliminally presented body-related words in restrained, but not unrestrained eaters; by contrast, increasing the salience of body shape and weight by mirror exposure leads to an increase of self-esteem in unrestrained, but not restrained eaters. Hence, the direction of causality may differ between individuals at risk for ED and healthy individuals. On the other hand, the differences found could also be the result of the measure used. There is an ongoing debate on what the IAT exactly measures, as IAT effects may also reflect attributes such as salience, perceptual similarity and overall cognitive abilities (De Houwer, Teige-Mocigemba, Spruyt, & Moors, 2009a; De Houwer, Teige-Mocigemba, Spruyt, & Moors, 2009b; Greenwald & Farnham, 2000). This could also explain why individuals with bulimia nervosa and binge eating disorder were found to score even higher on self-esteem when measured by the IAT and lower by more explicit measures when compared to healthy controls (Cockerham, Stopa, Bell, & Gregg, 2009).

Given the preliminary evidence of a causal pathway from low self-esteem on body dissatisfaction, the aim of the present study was to experimentally test this link. In contrast to the Meijboom et al. (1999) study we compared participants with high and low body dissatisfaction instead of high and low restrained eaters. Participants in our study also underwent a short mirror exposure after the self-esteem manipulation because cognitive theories of ED postulate that body-related schemas are usually triggered in the context of salient situations (e.g., Williamson, Muller, Reas, & Thaw, 1999). This additionally enabled us to test whether self-esteem also affects the attention devoted to specific liked and disliked body parts. Specifically, we hypothesized that compared to the group with low body dissatisfaction, participants in the high body dissatisfied group would react with an increase of body dissatisfaction in the negative, but not in the positive self-esteem condition. Additionally, we hypothesized this effect to be especially pronounced after the mirror exposure. Second, we hypothesized that participants in the negative self-esteem condition would focus their attention more towards body parts they are more dissatisfied with and self-report being less attractive. By contrast, participants in the positive self-esteem condition were expected to devote more attention towards body parts they are more satisfied with and self-report being more attractive. While Meijboom et al. (1999) used an explicit method to manipulate self-esteem, we decided to test our hypotheses by means of an implicit measure. We did so, because the manipulation of self-esteem by explicit methods could possibly lead to effects of reactance, social desirability and mood induction.

2. Method

2.1. Participants

75 women were recruited by means of announcements at the local university and an advertisement in a local newspaper which asked for females to take part in a study testing vigilance as well as the impact of a mirror exposure on well-being. Participants were categorized into a group of women with high body dissatisfaction (HBD; $n = 36$) and one with low BD (LBD; $n = 39$) by calculating the median split of their scores on the Body Shape Questionnaire (BSQ; Cooper, Taylor, Cooper, & Fairburn, 1987). Approximately one week after completing the BSQ, the participants took part in the experiment. All participants were given a detailed study description and signed informed consent.

2.2. Materials

2.2.1. Questionnaires & instruments

The following questionnaires were administered: (1) The Body Shape Questionnaire (Cooper et al., 1987; Waadt, Laessle, & Pirke,

1992) assesses weight and shape concerns over the past four weeks on a six response scale for each item ranging from 1 (never) to 6 (always). Split-half reliability was shown to be good (Pook & Tuschen-Caffier, 2004; Pook, Tuschen-Caffier, & Stich, 2002). Internal consistency is very high (Pook et al., 2002). (2) The Rosenberg Self-Esteem Scale (RSE; Rosenberg, 1965; Ferring & Filipp, 1996) is a 10-item self-report questionnaire that assesses global trait self-esteem on a four response scale for each item ranging from 1 (strongly disagree) to 4 (strongly agree). Its psychometric properties are good with an internal consistency of Cronbach's $\alpha = 0.91$ and a test-retest reliability above 0.85 (Blaskovich & Tomaka, 1991; Rosenberg, 1979; Sinclair et al., 2010). (3) The Name Letter Task (NLT; Kitayama & Karasawa, 1997; Nuttin, 1985, 1987) was administered as a manipulation check for the positive (negative) self-esteem manipulation. In this task, participants are presented the letters of the alphabet and are told that the study aim concerns people's preference for different letters in the alphabet. They are then asked to rate each letter on a scale ranging from 1 (I dislike it very much) to 7 (I like it very much). To establish a name letter effect, it is important to control for a potential confound of more attractive letters being used more frequently in names than less attractive letters (Greenwald & Banaji, 1995) and for individual baseline response tendencies. We used the *ipsatized double-correction algorithm* (I-algorithm), which controls both for baseline levels of attractiveness of the different letters as well as individual differences in baseline response tendencies. This algorithm is strongly recommended as the preferred scoring procedure for the calculation of the NLT scores (LeBel & Gawronski, 2009) based on the combination of favourable characteristics (i.e., highest reliability estimate, least variability in reliability estimates across samples, correction for both types of systematic error, no outliers, relatively low deviation from normality and no negative Cronbachs' α). A higher NLT score indicates higher ratings (liking) for letters of one's own initials compared to the other letters of the alphabet. Likewise, higher NLT scores reflect a more positive self-esteem level. (4) The State Self-Esteem Scale (SSES; Heatherton & Polivy, 1991; Hohler, 1997) is a 20-item self-report that measures state self-esteem on a five response scale ranging from 1 (not at all) to 5 (extremely). Higher sum scores indicate higher state self-esteem. It comprises three subscales (performance, social relationships, appearance self-esteem), all of which have good psychometric properties (Heatherton & Polivy, 1991). (5) A self-constructed 'Body Questionnaire' assessed participants' satisfaction and attractiveness scores for specific body parts. Included items were 1) *How satisfied are you generally with your...* (specific body part) and 2) *How attractive do you generally find your...* (specific body part). Included body parts were shoulders, arms, décolleté, breasts, belly, hips, thighs, bottom, hands, waist, legs, back, neck and the body silhouette. The items were presented on Likert-Like scales ranging from 1 (not at all) to 6 (very much).

The BSQ, RSE and Body Questionnaire were administered online one week prior to the experiment. The SSES and the NLT were part of the conducted experiment (see procedure).

2.2.2. Implicit manipulation of self-esteem

For the implicit manipulation of self-esteem (ISEM) we followed a procedure developed and validated by Riketta and Dauenheimer (2003). The whole experiment was presented in Presentation (Neurobehavioral Systems, 2007). Participants were seated in front of a 38cm/60 Hz monitor. In order to ensure that the adjectives and referent word ('I') appeared in the appropriate position of the participant's visual field, a screen – eye distance of 50 cm was chosen.

Participants were instructed to focus their gaze on an asterisk which was presented in the middle of the screen throughout the experiment. In order to correspond to participants' parafoveal

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