



Shorter communication

Decreasing body dissatisfaction using a brief conditioning intervention



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ABSTRACT

Objective: Body dissatisfaction in females is common and a risk factor for the development of an eating disorder. This study tested whether body dissatisfaction could be improved using a brief conditioning intervention in which photographs of participants' bodies were selectively paired with positive social stimuli (smiling faces) and photographs of other bodies were paired with neutral or negative social stimuli (neutral and frowning faces).

Method: 39 women (mean age = 22.46; 64.1% Caucasian) with high body dissatisfaction were randomized to either the evaluative conditioning intervention ($n = 22$) or to a delayed waitlist control condition ($n = 17$). Body dissatisfaction (specifically, shape and weight concern), restraint, eating concern, and self-esteem were assessed at baseline, post treatment and again after four and 12 weeks.

Results: Compared to women in the delayed waitlist control condition, women in the treatment condition demonstrated a significant decrease in shape and weight concern, and a significant increase in self-esteem. Similar trends were found for the control condition after they completed the intervention. Changes at post treatment related to body dissatisfaction were maintained at 12-week follow-up.

Conclusions: Repeatedly pairing photographs of an individual's body with positive social feedback may lead to improved body image and self-esteem.

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Body dissatisfaction (BD), generally defined as dissatisfaction with one's weight and shape, is pervasive amongst the general population especially in women (Cash, Morrow, Hrabosky, & Perry, 2004; Tiggemann, 2004). This widespread phenomenon is cause for serious concern given that BD is associated with depression, anxiety (Paxton, Neumark-Sztainer, Hannan, & Eisenberg, 2006; Stice & Shaw, 2002) and an increased risk of developing and maintaining an eating disorder [ED; (Jacobi, Hayward, De Zwaan, Kraemer, & Agras, 2004; Johnson & Wardle, 2005; Stice & Shaw, 2002)].

Several authors have suggested that “automatic processes” help to perpetuate body dissatisfaction (e.g., Henderson-King, Henderson-King, & Hoffmann, 2001). For example, individuals with body dissatisfaction automatically compare their bodies to

others in generally unfavorable ways (Want, 2009). Likewise, Watts and Cranney (2010) observed that women automatically associate thin bodies with “good” and larger bodies with “bad” and have argued that these evaluations are often hard to change (Watts, Cranney, & Gleitzman, 2008). Jansen, Nederkoorn, and Mulken (2005) found that women with body dissatisfaction automatically attend to their self-defined unfavorable body parts and to what they considered the most beautiful parts in other women; non-BD women showed the exact opposite selective attention pattern.

Other evidence suggests that women's evaluations of their bodies are highly influenced by how they think others might judge them (Crocker & Wolfe, 2001; Tantleff-Dunn & Gokee, 2002). These and other data suggest that women with body dissatisfaction may engage in biased cognitive processing that reinforce body dissatisfaction (Martijn, Alleva, & Jansen, in press). Cognitive psychologists have argued that changing evaluations and attitudes, such as an evaluation of one's body, can be accomplished through two different systems; a reflective system that learns via logic and

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conscious reasoning, and an automatic system that learns via the gradual accumulation of associations (Smith and DeCoster, 2000; Strack & Deutsch, 2004).

Martijn, Vanderlinden, Roefs, Huijding, and Jansen (2010) developed a strategy to alter some aspects of these automatic evaluative processes. The aim of their study was to test whether a simple conditioning procedure could teach women to associate their bodies with positive social feedback and to see whether this learned association increased body satisfaction. Twenty-six women with low and high body concerns completed a conditioning procedure in which pictures of their bodies were selectively linked to positive social stimuli (pictures of smiling faces). Even after one conditioning session, women with high body concerns demonstrated an increase in body satisfaction and global self-esteem.

Given these encouraging findings, we were interested in evaluating the efficacy of Martijn et al.'s (2010) intervention using a sample of women at high risk for developing an ED. Furthermore, we also wanted to investigate whether the effects could be maintained. We hypothesized that: (1) women who received the evaluative conditioning intervention would experience an improvement in body image and in self-esteem; and (2) the changes achieved by the evaluative conditioning intervention would be maintained at four- and 12-week follow-up.

1. Method

1.1. Participants

Thirty-nine college women ages 18–30 (average age 22.46) deemed at high risk for developing an ED and with a body mass index (BMI) ranging from 19 to 30 were recruited by email and through flyers posted on the Stanford University campus. The participants were 64.1% Caucasian, 12.8% other (mixed race most commonly endorsed), 7.7% Asian Indian, 5.1% African American, and 2.6% Latino/Hispanic, 2.6% Filipino, 2.6% Japanese and 2.6% Chinese. The majority of the sample had at least one parent with a graduate degree (66.7%). Participants were undergraduates or graduate students at Stanford University and were ineligible if they were deemed low risk for developing an ED (see below for details) or were receiving ongoing therapy related to body image or eating issues. This study was approved by the human subjects committee at Stanford University.

1.2. Procedure

A participant was considered eligible for the study if they were at high risk for developing an ED (i.e., >47 on the Weight Concerns Scale; see measures for details). Women interested in the study completed a screening (via email or telephone) and if eligible were scheduled for a pre-intervention assessment. Height and weight were measured to ensure that all participants were within a 19–30 BMI range. A trained assessor administered the SCID and all other measures (self-esteem and body dissatisfaction) were completed by the participant using an online program. Afterward, the participants were asked to change into standard fitted clothing (black t-shirt and pants) and three full body photos (front; right profile; left profile) were taken. Participants were then randomized into the treatment ($n = 22$) or waitlist control condition ($n = 17$); randomization was predetermined for each subsequent participant using an online program. If randomized into the treatment condition, the assessor scheduled the participants for four weekly sessions. If randomized to the waitlist control condition, participants were scheduled to complete a second pre-intervention measurement in four weeks from that date and

then to complete their four weekly sessions. Research assistants met the participants on campus each week at a convenient location (e.g. library) to minimize participant burden. Four weeks and 12 weeks after their last treatment sessions, participants again completed the self-esteem and body satisfaction measurements using an online survey. Participants were given five dollar gift cards for completing each follow-up. In total, six participants dropped out and we were unable to get follow-up data for an additional four women. Information about recruitment, retention and follow-up assessments, and the experimental design (i.e., cross over) is summarized in Fig. 1.

1.3. Measures

1.3.1. Rosenberg Self-Esteem scale (RSES)

The RSES (Rosenberg, 1965) consists of ten items rated on 4-point Likert scales (1 = *strongly agree* to 4 = *strongly disagree*). After recoding the reverse-scored items, the items were summed to create a global self-esteem measure. In our sample, Cronbach's α (internal consistency) of the RSES at pre-test, post-test, four-week follow-up and 12-week follow-up varied between .88 and .93.

1.3.2. Eating Disorder Examination Questionnaire (EDE-Q)

The Eating Disorder Examination – Questionnaire (EDE-Q) is a 39-item, self-report version of the EDE used to assess ED psychopathology in the last 28 days, yielding a global score and four subscale scores (restraint, eating concern, weight concern, and shape concern; Fairburn & Beglin, 1994). The EDE-Q has demonstrated good internal consistency, temporal stability, and reliability (Berg, Peterson, Frazier, & Crow, 2012; Luce & Crowther, 1999). Scores from the weight and shape concern subscales were used to indicate level of BD. At pre-test, post-test, four-week follow-up and 12-week follow-up, α 's for our sample were as follows: weight concern subscale .74–.78; the shape concern subscale .80–.90; the restraint subscale .71–.79; and the eating concern subscale .55–.76.

1.3.3. Weight Concerns Scale (WCS)

The WCS (Killen et al., 1994), a 5-item self-report questionnaire measuring weight and shape concerns, fear of weight gain, dieting frequency, importance of weight, and feelings of fatness. The WCS has demonstrated good test-retest reliability and good predictive validity of identifying individuals who will develop partial or full syndrome EDs and (Killen et al., 1994, 1996). Scores >47 are associated with increased risk for developing an eating disorder (Jacobi et al., 2011; Taylor et al., 2006). In our sample, the internal consistency of the WCS was low and varied between .33 and .58 across measurements.

1.3.4. Structured clinical interview for DSM IV (SCID)¹

The eating disorder module of the SCID (First, Spitzer, Gibbon, & Williams, 2002) was administered at baseline to determine whether participants met criteria for an eating disorder.

1.4. Evaluative conditioning intervention

Each participant was informed that pictures of her own body and of other women's bodies would appear randomly in one of four quadrants of the computer screen. She was instructed to click on each picture as quickly as possible and was told that after doing so

¹ While the SCID is often considered a gold standard diagnostic tool a recent study suggests that it may underestimate the actual prevalence of EDs (Swanson, Brown, Crosby, & Keel, 2014).

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