



A comparison of mindfulness, nonjudgmental, and cognitive dissonance-based approaches to mirror exposure

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ABSTRACT

This study compares different versions of mirror exposure (ME), a body image intervention with research support. ME protocols were adapted to maximize control and comparability, and scripted for delivery by research assistants. Female undergraduates ($N = 168$) were randomly assigned to receive mindfulness-based (MB; $n = 58$), nonjudgmental (NJ; $n = 55$), or cognitive dissonance-based (CD, $n = 55$) ME. Participants completed the Body Image Avoidance Questionnaire (BIAQ), Body Checking Questionnaire (BCQ), Satisfaction with Body Parts Scale (SBPS), Beck Depression Inventory-II (BDI-II), and Eating Disorders Examination Questionnaire (EDE-Q) at pre-treatment, post-treatment, and 1-month follow-up. Mixed models ANOVAs revealed a significant main effect of time on all measures, and no significant time by condition interaction for any measures except the SBPS. Post-hoc analysis revealed that only CD ME significantly improved SBPS outcome. Results suggest that all versions of ME reduce eating disorder risk factors, but only CD ME improves body satisfaction.

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Introduction

Body image disturbance is viewed as the core psychopathology for eating disorders such as bulimia nervosa and anorexia nervosa (*DSM-IV-TR*, 2000). It is the key factor that sets eating disorders apart from other psychological disorders that occasionally involve abnormal eating or weight loss (Rosen, 1990), and it plays a central role in the onset (Killen et al., 1996; Stice, 2002), maintenance (Fairburn et al., 2003; Stice, 2002), and relapse of eating disorders (Fairburn, Peveler, Jones, Hope, & Doll, 1993; Freeman, Beach, Davis, & Solym, 1985). Research has documented residual body image disturbance in post-treatment follow-up of weight-recovered anorexic patients (Widenauer, Lennerts, Talbot, Touyz, & Beumont, 1993), and in patients with bulimia nervosa after receiving empirically supported therapies (Fairburn et al., 1993). Treating body image disturbance should therefore be a central focus of therapy and research.

Many researchers have investigated mirror exposure (ME) as a possible treatment for body image disturbance (Delinsky & Wilson, 2006; Hilbert, Tuschen-Caffier, & Vögele, 2002; Jansen et al., 2008; Key et al., 2002). Research suggests that incorporating ME into body

image treatment enhances outcomes for anxiety, avoidance behaviors, and body dissatisfaction (Key et al., 2002). During ME, clients observe their bodies in a mirror and focus on different parts of their body non-critically and for equal amounts of time. This exercise is usually guided by a comprehensive list of body parts or areas of the body to address. Providing such a list prevents clients from dismissing certain areas that they may be uncomfortable with and might otherwise avoid during the mirror exposure exercise.

One suggested model for ME proposes that ME works by extinguishing a conditioned relationship between the body and feelings of disgust or anxiety (Jansen et al., 2008). Jansen et al. postulated that the body may act as the conditioned stimulus and, after being paired repeatedly with the unconditioned stimulus of negative body-related thoughts, becomes linked to negative feelings such as anxiety and disgust. Thus, subsequent exposure to the body alone could directly cause negative feelings. ME might work by exposing clients to their body in the absence of negative body-related thoughts, thereby extinguishing the relationship between the image of the body and negative emotions (Jansen et al., 2008). Previous studies have not validated this model in full, though research indicates that negative emotional reactivity and body-related cognitions are significantly reduced in both non-clinical and eating disordered participants during ME (Vocks, Legenbauer, Wächter, Wucherer, & Kosfelder, 2007).

Various types of mirror exposure have been used in previous research, including a cognitive dissonance-based ME (CD ME), a neutral ME (in this paper, referred to as a nonjudgmental ME; NJ ME), and a mindfulness-based ME (MB ME). Stice and Presnell

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(2007) incorporated a CD ME into their cognitive dissonance-based eating disorders prevention program. In their CD ME, participants described positive aspects of their physical, emotional, intellectual, and social qualities while looking at their image in a mirror. For an individual with body dissatisfaction, the act of complementing his or her self while looking in the mirror should induce cognitive dissonance. Though several studies have documented the effectiveness of cognitive dissonance-based prevention programs in reducing risk factors for eating disorders (Stice, Shaw, Becker, & Rhode, 2008), the specific contribution of CD ME to this effect remains to be determined.

In addition to CD ME, researchers have recently studied a mindfulness-based version of ME (Delinsky & Wilson, 2006). An essential component of mindfulness is maintaining a nonjudgmental frame of mind, which is incompatible with the perspective of someone with body dissatisfaction because these individuals primarily hold a negative viewpoint (Stewart, 2004). A mindfulness-based treatment may therefore be particularly well suited for treating body image disturbance. In the MB ME used by Delinsky and Wilson, participants were encouraged to engage in a state of mindfulness while viewing their bodies in a mirror and making nonjudgmental observations about each body part aloud. When compared with a nondirective body image treatment control group, Delinsky and Wilson found that the MB ME intervention led to significantly greater improvements in body checking, body avoidance, weight and shape concerns, depression, and self-esteem (Delinsky & Wilson, 2006).

Mindfulness may be sufficient for body image improvement, but all of its components may not be necessary. Research suggests that a nonjudgmental stance alone during ME is effective in reducing body dissatisfaction. Hilbert et al. (2002) tested the effectiveness of a neutral, or nonjudgmental (NJ), ME.¹ In this ME exercise, participants answered a series of questions about their appearance by describing their body “as precisely and neutrally as possible” (Hilbert et al., 2002, p. 138). Research suggests that this type of NJ ME reduces negative cognitions and mood, and increases appearance-related self-esteem in a non-clinical group and in a group with binge-eating disorder (Hilbert et al., 2002). Preliminary data also suggests that this type of ME reduces anxiety and improves body satisfaction in obese adolescents (Jansen et al., 2008).

Though various approaches to ME have been used in isolated studies, the effectiveness of these approaches has not been directly compared. In this study, we hypothesized that using neutral body descriptions during ME, the approach taken in both MB and NJ ME, would be more effective than the positive descriptions used in CD ME. Overall, we theorized that it would be more difficult to replace negative body-related cognitions with positive cognitions, rather than neutral cognitions. Voicing positive opinions about one’s own appearance directly opposes the social norm of feminine modesty. Previous research suggests that women who speak well of themselves are rated as less socially attractive in situations such as job interviews (Rudman, 1998). Research specifically related to conversation about appearance furthermore suggests that women are expected to engage in fat talk, and are more likely to be accepted by their female friends when they do so (Britton, Martz, Bazzini, Curtin, & LeaShomb, 2006). Generally speaking, fat talk consists of a self-deprecating conversation between girls or women in which each describes *herself* as fat while reassuring others that *they* are thin (Nichter, 2000, p. 45). The positive self-talk used during CD ME would be a direct challenge to the established norms of fat talk

and feminine modesty, whereas expressing an objective opinion (i.e., nonjudgmental comments) would not run contrary to social norms. In fact, research suggests that women already have more neutral than positive body-related cognitions (Hilbert & Tuschen-Caffier, 2005). Hilbert and Tuschen-Caffier (2005) coded the valence of body-related cognitions verbalized in a free-response setting by women (with and without eating disorders) looking at their mirror image, and found that neutral cognitions were more frequent than positive cognitions in both groups. This research supports the idea that women may be more willing to adopt a neutral perspective rather than a positive perspective about their bodies.

The current study investigated the effectiveness of three approaches to mirror exposure, including two neutral approaches, MB and NJ, and one positive approach, CD. These three versions of ME were selected because previous studies have demonstrated the effectiveness of these approaches for improving eating disorder-related variables (Delinsky & Wilson, 2006; Hilbert et al., 2002; Jansen et al., 2008; Stice & Presnell, 2007). Consistent with this previous evidence, we hypothesized that all three conditions would reduce eating disorder risk factors. Based on previous research regarding feminine modesty, as well as observed body-related cognitions during ME (Hilbert & Tuschen-Caffier, 2005), we furthermore hypothesized that the neutral approach used by both the NJ and the MB MEs would result in outcomes superior to CD ME. If NJ ME and MB ME are equally effective, this would suggest that neutrality is the active component of the MB approach.

Method

Participants

Participants were female undergraduates attending a small liberal arts university in the southern United States. A non-clinical sample was used because previous research comparing the effectiveness of ME in populations with and without eating disorders suggests improvement in both groups (Hilbert et al., 2002; Vocks et al., 2007). Data collected in non-clinical populations also can provide groundwork for eating disorder prevention programs. In order to reduce the chance of a ceiling effect, we attempted to recruit individuals with more body image disturbance by advertising the ME experiment as a program for improving body image.

In the first and second year of the study, first-year female students were recruited via email and poster advertisement, and incentives included two raffles for a \$100 American Express gift card, and participatory credit in introductory psychology courses. In the third year, female students were recruited from introductory psychology classes and only received participatory credit. When appointments were scheduled, experimenters requested that participants refrain from eating for 2 h prior to ME so as to standardize a variable that may have an effect on feelings of guilt or fatness.

A total of 192 females participated in the study. Out of these participants, 12 participants were excluded from analyses because they did not complete the second session and/or the 1-month follow-up, and 1 was excluded because of an error in the experimental procedure. Furthermore, because the aim of this study was to address body image dissatisfaction in a non-clinical population, 6 participants were excluded because they met criteria for anorexia or bulimia nervosa based on their responses to the Eating Disorder Examination-Questionnaire (EDE-Q; Fairburn & Beglin, 1994). Additionally, participants were excluded if they were visibly pregnant ($n = 1$), or if they met the National Institutes of Health’s (1998) definition of obesity ($BMI \geq 30$; $n = 4$). Obese participants were excluded because they may experience higher levels of concern about shape and weight due to a realistic and health-related need to lose weight (rather than internalization of the thin ideal).

¹ The neutral approach to ME used by Hilbert et al. (2002) is sometimes referred to as a nonjudgmental (NJ) approach in this paper to indicate its similarity to the nonjudgmental aspect of the MB approach.

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