



Brief research report

An examination of body tracing among women with high body dissatisfaction

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ABSTRACT

Within eating disorder treatment programs, a body tracing activity is often used to address body dissatisfaction and overestimation of body size; however, the effects of this activity have never been empirically evaluated. This research examined the effects of body tracing on body dissatisfaction and mood among 56 female participants assigned to either a body tracing or control group. Scores were collected on trait body dissatisfaction and a series of Visual Analogue Scales (VAS). Results showed that trait body dissatisfaction moderated the relationship between group and levels of state appearance dissatisfaction and anxiety. These results suggest that individuals experiencing higher levels of trait body dissatisfaction demonstrated greater state body dissatisfaction following participation in the body tracing activity. Individuals with lower trait body dissatisfaction experienced greater anxiety after drawing a human body. These findings have potential implications for the use of this strategy in the treatment of eating disorder patients.

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Introduction

Given the role that body image disturbance plays in the onset, maintenance, and relapse of eating disorders (Farrell, Shafran, & Lee, 2006; Stice & Shaw, 2002), addressing body image disturbance is central to eating disorder (ED) treatments (Fairburn, 2008). Perceptual measures of body image disturbance are often used as a method of body image assessment, and feedback regarding the results of the assessment can be shared with patients as part of treatment (Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999). One common method of treating body image disturbance involves in vivo exposure to the patient's body (Cash, 2008). These exposure exercises are typically conducted in front of a mirror, with the goal of producing habituation to the cognitive and affective issues that may arise when confronted with the sight of one's own body (Delinsky & Wilson, 2006; Trentowska, Bender, & Tuschen-Caffier, 2013).

One technique, which combines both perceptual and exposure components of body image treatment, is body tracing. Typically, this technique involves having patients draw an outline of their

perceived body on a life-sized sheet of paper and then tracing the outline of their actual body on the same paper (e.g., Anderson, 2008). It is assumed that the insight produced by the perceived/actual discrepancy, the exposure to their own body in the form of a traced outline, and the opportunity to process feelings associated with this activity lead to a more accurate and realistic view of their body. Research suggests that a more accurate view of one's body coupled with realistic expectations of body shape and weight improve body image and decrease the negative affect associated with high levels of body dissatisfaction (BD; Delinsky & Wilson, 2006; Thompson et al., 1999).

While the body tracing technique appears to be frequently practiced in ED treatment programs (an informal survey of ED treatment programs on the NEDA (2013) website conducted by Gail A. Williams revealed 8 of 10 programs providing responses acknowledged using some variation of a body tracing task), the little that has been written about body tracing tends to be descriptive (e.g., Anderson, 2008). Given the lack of previous research on its efficacy, the potential positive and adverse effects of participating in a body tracing activity should be considered.

Traditional behavioral principles (e.g., habituation and sensitization) and theories underlying the development and maintenance of ED thoughts and behaviors (e.g., overevaluation of shape and weight, BD, and body checking) would suggest the possibility that a body tracing task could have negative effects, at least in the short term. In fact, research indicates that mirror

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exposure initially elicits increases in negative cognitions and mood among participants with ED symptomatology (Trentowska et al., 2013), while participants who critically scrutinized their bodies in a mirror experienced significant but temporary increases in BD, self-critical thoughts, and feelings of fatness (Shafran, Lee, Payne, & Fairburn, 2007).

It is likely that individual responses to a body tracing task vary as a function of the severity of the ED symptoms, specifically level of BD. It is expected that individuals with higher levels of BD have more entrenched body-related schema (Vitousek & Hollon, 1990); therefore, to the extent that this task triggers such schema (Williamson, White, York-Crowe, & Stewart, 2004), it is anticipated that these individuals would become more distressed as a result of exposure to their body. If the individual engages in any form of avoidance behavior prior to the reduction of anxiety, sensitization may occur, leading to increased negative affect during and perhaps following the activity (Watts, 1979).

This research examined the impact of a body tracing activity on state BD and current mood. Based on behavior therapy principles and findings from the mirror exposure literature, it was hypothesized that participants in the body tracing would experience greater increases in negative mood and state BD than participants in the control group. Additionally, it was hypothesized that trait BD would moderate the relationship between group and state BD and negative mood following the body tracing, such that those participants with higher BD would experience more significant negative effects immediately following the body tracing activity.

Method

Participants

Participants were 56 female undergraduates (Age: $M = 19.71$ years, $SD = 4.39$; 92.9% Caucasian) recruited from introductory psychology classes at a Midwestern university. Participants with a BMI of <25 ($M = 21.79$, $SD = 1.69$) and a score on the Body Shape Questionnaire of at least 109 (Cooper, Taylor, Cooper, & Fairburn, 1987; BSQ $M = 132.11$, $SD = 18.67$) were recruited for this study.

Of the 973 participants screened, 20.3% ($n = 197$) were eligible for the study. Of those eligible, 28.6% participated. Analyses comparing eligible participants who did and did not participate on BSQ and BMI were non significant: $t(194) = -0.175$, $p = .862$; $t(194) = 0.950$, $p = .343$, respectively. Participants were randomly assigned to either the body trace ($n = 28$) or control ($n = 28$) condition.

Measures

Demographic Questionnaire. Items assessed basic demographic information, including current height and weight. Since Kuczmarski, Kuczmarski, and Najjar (2001) demonstrated that self-report in younger adults is more accurate and precise classification of BMI was not our primary aim, self-reported weight and height were used. Each participant's BMI was calculated using the following formula: $BMI = \text{weight (lb)} / [\text{height (in)}]^2 \times 703$.

Body Shape Questionnaire. The BSQ (Cooper et al., 1987) is a 34-item self-report measure of trait BD. Participants rate each question on a 6-point Likert scale, with higher scores indicating higher levels of BD. The BSQ was administered to screen for participants with high trait BD; those with total scores of 109 and higher were invited to participate. This cutoff score is consistent with that demonstrated by individuals with high body concerns (Cooper et al., 1987). The BSQ demonstrates high concurrent validity (Cooper et al., 1987) as well as adequate reliability and validity among undergraduate women (Rosen, Jones, Ramirez, & Waxman, 1996). For this sample, Cronbach's alpha was .87.

Visual Analogue Scales (VAS). Four Visual Analogue Scales, drawn from Heinberg and Thompson (1995), were administered before and immediately following the task to assess mood and state body satisfaction. The Overall Appearance Dissatisfaction, Anger, Anxiety, and Depression were utilized. Participants indicate their feelings "right now" by placing a mark on a 100 mm line anchored from "none" to "extreme." Scores were calculated by measuring the distance between the zero anchor point and the participant's mark on the line. These scales have demonstrated concurrent validity with measures of mood and BD (Heinberg & Thompson, 1995).

Materials and Procedure

White paper (36 by 77 in.) and two markers were used to distinguish participants' drawings and researchers' tracings.

Following informed consent, participants completed the demographic questionnaire and BSQ online and eligible participants were contacted via email. An individual session was scheduled with each participant within three months post-screening. Participants were assigned to conditions, which were randomly allocated by day each week, before arriving at the lab. Upon arrival, participants completed the VAS.

Next, participants in the body trace condition were asked to think of the paper hanging on the back of a door as a mirror and to imagine what their bodies would look like in the mirror. A female researcher drew a horizontal line on the paper at the top of the participant's head to provide an accurate scale for the tracing. Participants were then instructed to trace the outline of their body as they perceived it. After completing their tracing, participants stood with their back against the paper so the outline of their actual body could be traced by the researcher. Participants in the control condition were asked to simply draw an outline of a human body on the life-sized sheet of paper; no further guidelines or restrictions were provided.

Once the drawings were complete, participants completed a second set of VAS in a different room, were debriefed, and received course credit for participation.

Results

For Hypothesis 1, separate hierarchical multiple regressions examined condition (dummy coded) as a predictor of post-task VAS scores, controlling for pre-task levels of the same variable. Results were nonsignificant (see Table 1.)

For Hypothesis 2, separate hierarchical multiple regressions examined whether trait BD moderated the relationship between condition and post-task levels of overall appearance dissatisfaction and negative mood (VAS anger, VAS anxiety, or VAS depression). Consistent with Baron and Kenny (1986), the relevant pre-task variable was entered as a control variable into the first block of the regression, condition (dummy coded) and trait BD (standardized) were entered into the second block, and the Condition \times Trait BD interaction was entered last.

As Table 1 indicates, the Condition \times Trait BD interaction was significant for state appearance dissatisfaction ($\beta = .338$, $t(55) = 2.991$, $p = .004$) and anxiety ($\beta = .216$, $t(55) = 2.122$, $p = .039$). Although the ΔR^2 for the interactions indicate a small effect (Ferguson, 2009), trait BD moderated the relationship between condition and overall appearance dissatisfaction and condition and anxiety. Although the main effect of BSQ was significant for VAS Anxiety, $\beta = -.245$, $t(55) = -2.46$, $p = .017$, the remaining main effects and interactions were nonsignificant.

For state levels of overall appearance dissatisfaction and anxiety, the interaction accounted for an additional 5.1% and 2.1% of the variances, respectively. (See Fig. 1 for a depiction and explanation of

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