Shorter communication

“I Feel Fat”: An experimental induction of body displacement in disordered eating

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ABSTRACT

Body displacement, the theory that predicts that individuals with eating disorders will displace negative feelings about themselves onto their body, was tested experimentally in this study. Unrestrained eaters (n = 61), restrained eaters (n = 33), and individuals with eating disorders (n = 26) were randomly assigned to a control condition or an ineffectiveness induction. In the ineffectiveness condition participants were asked to recall and reflect on a past experience when they felt useless or incapable (i.e., ineffective). Results showed that individuals with eating disorders who were made to feel ineffective reported more implicit appearance/body concern than those in the control condition. Unrestrained and restrained eaters did not show this effect. This is the first experimental study to support body displacement theory. These data can be used clinically to educate and encourage patients with eating disorders to address thoughts and feelings related to ineffectiveness directly, instead of displacing this distress onto their body and potentially perpetuating their eating disorder.

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Clinicians in the eating disorder field report that a common response reported by those struggling with eating disorders is, “I feel fat”. However, fat is not a traditional feeling, and clinicians working with individuals with eating disorders often help to connect the experience of “feeling fat” with underlying issues related to rejection, failure, and ineffectiveness. In clinical settings, it has been seen that those coping with an eating disorder often report intense feelings of fatness within minutes of an upsetting experience (despite the fact that their body and appearance have not changed). In 1978, Hilde Bruch, a pioneer in the conceptualization and treatment of anorexia nervosa, proposed that the body dissatisfaction seen in individuals with disordered eating may be a result of the displacement of negative affect. Specifically, negative feelings are displaced onto one’s body in an attempt to localize the distress thereby making the distress more controllable (e.g., through restriction, exercise, weight loss). Once the negative feeling has been displaced onto the body, the feeling becomes less threatening and individuals believe that they can assert control over the feeling by changing their body (Harper-Giuffre & Mackenzie, 1992; Jasper, 1993). More recently, Fairburn (2008) has included education about body displacement theory (i.e., feeling fat) as part of his transdiagnostic cognitive behavioral therapy (CBT) for eating disorders. Additionally, the process of body displacement may play an important role in the development and maintenance of eating disorder pathology. Despite widespread clinical use, body displacement theory has not been extensively studied or supported in the literature.

Forbush and Watson (2006) established some support for the body displacement hypothesis by showing that individuals with eating disorders demonstrated higher levels of emotional inhibition than did non-clinical controls. The authors suggested that emotional inhibition may lead to handling emotional distress by turning it inwards, and confusing real affect with body affect, thereby experiencing increased feelings of fatness when in emotional distress (Forbush & Watson, 2006). To our knowledge, only two experimental studies have been conducted to directly test the body displacement hypothesis.

In the first, Eldredge, Wilson, and Whaley (1990) randomly assigned restrained and unrestrained eaters to either a success or a failure condition, and measured body dissatisfaction with the Eating Disorder Inventory (EDI: Garner, Olmsted, & Polivy, 1983) and the Body Shape Questionnaire (BSQ: Cooper, Taylor, Cooper, & Fairburn, 1987). It was predicted that restrained eaters would exhibit the body displacement predicted in eating disorders because restrained eaters possess a self-schema in which weight is a central component (similar to those with eating disorders). However, neither restrained nor unrestrained eaters felt worse about their bodies in the failure condition. It is possible that body...
displacement is unique to disordered eating or that the measures used (i.e., EDI, BSQ) are less sensitive to detecting body displacement which is likely a more labile and subtle effect.

In another study, Coelho, Carter, McFarlane, and Polivy (2008) randomly assigned eating disordered participants, restrained eaters and unrestrained eaters to either a control condition or an anxiety condition\(^1\), and feelings of fatness were measured via the Thought-Shape Fusion Scale (Shafran, Teachman, Kerry, & Rachman, 1999). Results showed that only restrained eaters reported significantly more feelings of fatness in the anxiety condition than in the control condition. Surprisingly, eating disordered participants did not show this effect. One possibility is that the anxiety manipulation used in this study (i.e., imagine delivering a speech) did not trigger the ineffectiveness or lowered self-esteem that may be necessary to induce body displacement in participants with eating disorders. A more direct manipulation of ineffectiveness may be required.

Given the paucity of research in this area an experiment was designed to test body displacement theory. This study used an ineffectiveness induction and a body dissatisfaction measure. We chose the Body Image States Scale (Cash, Fleming, Alindogan, Steadman, & Whitehead, 2002) because it is a psychometrically supported short state measure that we thought would be sensitive to the inductions. We were also interested in using a dependent measure that detected body/appearance concern implicitly, given that the more obvious measures may lead to demand characteristics and/or a ceiling effect [asking someone with an eating disorder about body (dis)satisfaction can in and of itself trigger body dissatisfaction across conditions].

Method

Participants

Clinical participants

A total of 26 participants with eating disorders were recruited through the Eating Disorder Program at the Toronto General Hospital, University Health Network. All participants were female, and had received a diagnosis of anorexia nervosa (\(n = 8\), bulimia nervosa (\(n = 12\)) or eating disorder not otherwise specified (EDNOS; \(n = 6\)) according to the Diagnostic and Statistical Manual, 4th edition (American Psychiatric Association, 1994). A modified Eating Disorder Examination was used to determine diagnoses (Fairburn & Cooper, 1993). In terms of the EDNOS category, 2 participants were normal weight but significantly restricting, and 4 were vomiting without binge eating. The mean age of the clinical participants was 23.2 years (SD = 4.5), and the mean Body Mass Index (BMI) was 21.3 (SD = 3.6). Importantly, the clinical participants who were randomly assigned to the control condition did not differ from those who were assigned to the experimental condition with respect to age [control: \(M = 24.1, \text{SD} = 4.1\); experimental \(M = 22.5, \text{SD} = 4.8, F(1,24) = .775, p = .39\)] or BMI [control: \(M = 20.9, \text{SD} = 4.1\); experimental \(M = 21.6, \text{SD} = 3.1, F(1,24) = .27, p = .6\)].

Non-clinical participants

A total of 94 female undergraduates were recruited to participate in the study in exchange for partial course credit toward their introductory psychology course. Non-clinical participants were classified as restrained or unrestrained eaters based on the Reliminary Scale (Polivy, Herman, & Howard, 1988). The Relriment Scale is a 10-item self-report scale that has been used extensively in the literature to differentiate between restrained and unrestrained eaters. Restrained eaters are individuals who are overly concerned with their weight, and who regularly attempt to diet to lose weight. The Relriment Scale has been shown to have good psychometric properties including construct validity (Polivy et al., 1988; Van Strien, Herman, Engels, Larsen, & van Leeuwe, 2007). As is usual in the restraint literature, participants with a score of 15 or above were classified as restrained eaters (\(n = 33\)), while those with a score below 15 were classified as unrestrained eaters (\(n = 61\)). Unfortunately, ages and BMIs were not collected from control participants.

Measures

Word-Stem Completion Task (WSCT; Tiggemann, Hargreaves, Polivy, & McFarlane, 2004)

The WSCT consists of 20 word-stems, which can be completed to form either an appearance-related word, or at least one higher frequency alternative word that is not related to appearance. For example, the word OBE___ could be completed as obese (word frequency 1/1,000,000) or obey (word frequency 75/1,000,000). Participants are asked to complete the word-stems with the first word that comes to their mind first. Scoring is carried out by categorizing each word as an appearance or nonappearance word, and then summing the number of appearance-related words generated out of 20. Participants are unaware of what the WSCT is measuring, and it is therefore an implicit measure of appearance/body-related attentional focus. The WSCT has been shown to have construct validity (Tiggemann et al., 2004).

Body Image States Scale (BISS; Cash et al., 2002)

The BISS is a six-item self-report measure of state appearance-related affect and satisfaction. The BISS is scored by obtaining the mean of the responses; higher BISS scores on a nine-point dimension indicate more favorable body image states. This scale has been shown to be internally consistent, and moderately stable (Cash et al., 2002).

State Self-Esteem Scale (SSES; Heatherton & Polivy, 1991)

The SSES is a 20-item self-report questionnaire that measures state self-esteem. Higher scores reflect higher state self-esteem. The SSES has been shown to have sound psychometric properties (Heatherton & Polivy, 1991).

Procedure

Participants were recruited for a study ostensibly investigating “the effects of autobiographical memory on concentration”. This cover story was used to prevent demand characteristics that may have arisen if participants were aware of the full purpose of the study. All participants were scheduled for an individual session with an experimenter. Each participant was randomly assigned to either the ineffectiveness induction condition (i.e., recall and reflect on an ineffectiveness memory) or the control condition (i.e., recall and reflect on a neutral memory).

Induction procedures have been used in the laboratory as an analogue for real world experiences that prime cognitive vulnerabilities that are not normally activated under usual conditions (Ingram, Miranda, & Segal, 1998). The ineffectiveness induction was modeled after sad mood induction techniques utilized in the literature on depression (Ingram, Bernet, & McLaughlin, 1994; Segal, Gema, & Willimas, 1999; Timbremont & Braet, 2004). For example, Segal, Gema, and Williams (1999) successfully induced sad mood by asking the participant to think about a past sad

\(^{1}\) There was also a thought-shape fusion induction that is not relevant to body displacement theory.
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