Empirical Research

Body image avoidance: An under-explored yet important factor in the relationship between body image dissatisfaction and disordered eating

C. Alix Timko a,b,* , Adrienne S. Juarascio c , Lindsay M. Martin a,1 , Ashley Faherty a , Cynthia Kalodner a

a Department of Psychology, Towson University, USA
b Department of Behavioral and Social Sciences, University of the Sciences, 600 S. 43rd Street, Philadelphia, PA 19104, USA
1 Department of Psychology, Drexel University, USA

ABSTRACT

Body dissatisfaction is highly predictive of disordered eating cognitions and behavior, however many more individuals experience body dissatisfaction than disordered eating. While several variables appear to influence the relationship between body dissatisfaction and disordered eating, one potential under-studied construct is experiential avoidance (EA) of body image. Individuals with high body image EA may be more likely to engage in behaviors designed to reduce body dissatisfaction and its associated cognitions and emotions, including disordered eating (i.e., restricting, purging, laxative use, etc.). The Body Image-Acceptance and Action questionnaire (BI-AAQ; Sandoz, Wilson, Merwin, & Kellum, 2013) was recently developed to assess EA of body image, however despite promising initial validation data, it is still a relatively novel instrument and additional validation is warranted. The present study includes a series of cross-sectional studies designed to accomplish three goals: (1) to provide additional validation data for the BI-AAQ, (2) to assess the potential indirect effect of EA on the relationship between body image dissatisfaction and disordered eating cognition and behavior, and (3) to compare the BI-AAQ to an existing measure of body avoidance. Overall, results indicate that the BI-AAQ is a valid measure of body image EA; it partially explains the relationship between body image dissatisfaction and disordered eating. The measure also appears to have incremental validity over pre-existing measures. Future research is needed to further clarify the role of body image EA and to examine whether treatments targeting this construct can prevent or treat disordered eating.

© 2014 Association for Contextual Behavioral Science. Published by Elsevier Inc. All rights reserved.

1. Introduction

Body image dissatisfaction is the negative subjective experience of one’s weight and shape (Stice & Shaw, 2002), and often leads to various forms of eating disorder symptomatology (Branman & Petrie, 2008; Corning, Krumm, & Smitham, 2006). However, the fact that many individuals with body image dissatisfaction do not go on to develop disordered eating habits suggests that body image dissatisfaction may be causally linked to disordered eating through mediating variables. Several variables have been found to influence the relationship between body image dissatisfaction and disordered eating behavior and cognition, including neuroticism, self-esteem, perfectionism, body surveillance, and having a family member with an eating disorder (Brennan & Petrie, 2008; Twamley & Davis, 1999; Tylka, 2004). One potential under-studied factor that may causally influence the relationship between body image dissatisfaction and disordered eating is experiential avoidance (EA).

EA consists of two phenomena: (1) the unwillingness to experience negative internal events (i.e., thoughts, feelings, and physiological experiences), and (2) actions directed at altering or removing the stimuli that invoke these aversive experiences (Hayes, Wilson, Gifford, Follette, & Strosahl, 1996; Orsillo, Roemer, Lerner, & Tull, 2004). EA is an increasingly influential construct pertaining to the etiology and maintenance of various forms of psychopathology (Hayes, Luoma, Bond, Masuda, & Lillis, 2006; Hayes, Masuda, Bissett, Luoma, & Guerrero, 2004; Hayes, Strosahl & Wilson, 2012). Individuals high in EA are thought to have lower psychological flexibility and greater difficulty engaging in value consistent behavior (Hayes et al., 2004). While the relationship is still unclear, EA may function similarly to other constructs that have a negative impact on psychological adjustment, including thought suppression and overt avoidance of distressing contexts (Chawla & Osta, 2007).

* Corresponding author at: Department of Behavioral and Social Sciences, University of the Sciences, 600 S. 43rd Street, Philadelphia, PA 19104, USA.
E-mail address: timko@uscience.edu (C.A. Timko).
1 Now at: The Department of Psychology, Drexel University, USA.

http://dx.doi.org/10.1016/j.jcbs.2014.01.002
2212-1447 © 2014 Association for Contextual Behavioral Science. Published by Elsevier Inc. All rights reserved.
In the context of body dissatisfaction, body image EA refers to efforts to avoid, suppress, modify, or otherwise escape from distressing negative thoughts, feelings, or sensations about the body. These distressing psychological experiences might include negative thoughts (e.g., “I’m so fat—I look disgusting”), negative physical sensations (e.g., tight clothing), or negative feelings (e.g., shame, guilt, or embarrassment about the body). For persons with high levels of body image EA, these experiences evoke escape efforts. Various maladaptive behaviors such as extreme dieting, restrictive eating, compulsive exercising, binge eating, and purging may function to attempt to eliminate or reduce these distressing psychological experiences (Merwin et al., 2011; Timko, Merwin, Herbert, & Zucker, 2013). Conversely, individuals with low EA are theorized to be more willing to experience negative body image and are therefore less motivated to change this experience. Consider the following example: one woman is distressed about the size of her thighs, feels uncomfortable having this distress, and in response, compulsively restricts her food intake in an effort to neutralize her discomfort. Another woman also notices negative thoughts about her thighs, is also distressed by the thoughts; however, instead of engaging in behaviors aimed to minimize her distress (i.e., restriction, excessive exercise, binging, and/or purging) she is willing to experience the discomfort and continues to engage in activities that are meaningful or highly valued. Notably, both women experience distress, but only one actively engages in EA as a means of reducing this distress. Thus, in the context of body disturbance, EA refers not to whether or not an individual is distressed by negative body image, but rather the degree to which body disturbance, EA refers not to whether or not an individual is distressed by negative body image, but rather the degree to which the size of her thighs, feels uncomfortable having this distress, and in response, compulsively restricts her food intake in an effort to neutralize her discomfort. Another woman also notices negative thoughts about her thighs, is also distressed by the thoughts; however, instead of engaging in behaviors aimed to minimize her distress (i.e., restriction, excessive exercise, binging, and/or purging) she is willing to experience the discomfort and continues to engage in activities that are meaningful or highly valued. Notably, both women experience distress, but only one actively engages in EA as a means of reducing this distress. Thus, in the context of body disturbance, EA refers not to whether or not an individual is distressed by negative body image, but rather the degree to which the size of her thighs, feels uncomfortable having this distress, and in response, compulsively restricts her food intake in an effort to neutralize her discomfort. Another woman also notices negative thoughts about her thighs, is also distressed by the thoughts; however, instead of engaging in behaviors aimed to minimize her distress (i.e., restriction, excessive exercise, binging, and/or purging) she is willing to experience the discomfort and continues to engage in activities that are meaningful or highly valued. Notably, both women experience distress, but only one actively engages in EA as a means of reducing this distress. Thus, in the context of body disturbance, EA refers not to whether or not an individual is distressed by negative body image, but rather the degree to which the size of her thighs, feels uncomfortable having this distress, and in response, compulsively restricts her food intake in an effort to neutralize her discomfort. Another woman also notices negative thoughts about her thighs, is also distressed by the thoughts; however, instead of engaging in behaviors aimed to minimize her distress (i.e., restriction, excessive exercise, binging, and/or purging) she is willing to experience the discomfort and continues to engage in activities that are meaningful or highly valued. Notably, both women experience distress, but only one actively engages in EA as a means of reducing this distress. Thus, in the context of body disturbance, EA refers not to whether or not an individual is distressed by negative body image, but rather the degree to which the size of her thighs, feels uncomfortable having this distress, and in response, compulsively restricts her food intake in an effort to neutralize her discomfort. Another woman also notices negative thoughts about her thighs, is also distressed by the thoughts; however, instead of engaging in behaviors aimed to minimize her distress (i.e., restriction, excessive exercise, binging, and/or purging) she is willing to experience the discomfort and continues to engage in activities that are meaningful or highly valued. Notably, both women experience distress, but only one actively engages in EA as a means of reducing this distress. Thus, in the context of body disturbance, EA refers not to whether or not an individual is distressed by negative body image, but rather the degree to which...
Participants ranged in age from 18 to 25, measures in the packet and were included in this analysis. To date, no study has examined the potential indirect effect of body image EA on the relationship between body dissatisfaction and eating cognition and behavior. Thus, the following series of cross-sectional studies aimed to: (1) provide additional validation data for the BI-AAQ, (2) assess the potential indirect effect of body image EA in the relationship between body image dissatisfaction and disordered eating cognition and behavior, and (3) compare the BI-AAQ to an existing measure of body avoidance.

2. Study 1

The purpose of Study 1 was to explore the relationship between body image EA and various correlates of body dissatisfaction and to provide additional validation data by examining body image EA in a population of female dieters and non-dieters. A large percentage of normal weight women self-identify as dieting to lose weight (Fayet, Petocz, & Samman, 2012; Schembre, Nigg, & Albright, 2011; Timko & Perone, 2005; Timko, Perone, & Crossfield, 2006). Self-identified dieters tend to have greater body dissatisfaction (Massey & Hill, 2012), desire a lower body weight than their current weight (Schembre et al., 2011), are more likely to engage in extreme weight control behaviors (Timko et al., 2006), are more likely to report cravings (Massey & Hill, 2012), and have a higher body mass index (Massey & Hill, 2012; Timko & Perone, 2005; Timko et al., 2006) than non-dieters. Frequent dieting is associated with greater eating disorder symptomatology, low self-esteem, poor emotion regulation, high body dissatisfaction, and depression (Ackard, Croll, & Kearney-Cooke, 2002). Indeed, body dissatisfaction is a greater predictor of disordered eating in women who self-identify as dieting to lose weight (Juarascio, Perone, & Timko, 2011) compared to those who are not dieting. Thus, participants who self-identified as dieting to lose weight in this study were compared to those who reported not dieting in order to establish between groups validity for the BI-AAQ and to serve as an analog for a clinical population.

2.1. Method

2.1.1. Participants

109 female students were recruited from the Psychology Department’s subject pool at a large public Northeastern university. College women were chosen because they represent a population with high body dissatisfaction and disordered eating (Fairburn, Cooper, Doll, Norman, & O’Connor, 2000), thus making the hypothesized relationships easier to assess. A total of 136 women consented to participate, however, only 109 completed all measures in the packet and were included in this analysis. Participants ranged in age from 18 to 25, \( M=18.18, SD=0.78 \). This sample was primarily Caucasian (76.1%), followed by African American (9.2%), Asian (6.4%), Hispanic, (1.8%), Pacific Islander (0.9%), and 4.6% who identified as "other."
A small percentage of the sample was either underweight (6.4%) or overweight (15.6%) individuals. The majority of the sample was within the normal weight range (75.2%), followed by overweight (15.6%) individuals. A similar pattern emerged across variables, with women who self-identified as dieting to maintain weight and women who self-identified as dieting to lose weight having significantly lower scores on the BI-AAQ (indicating more experiential avoidance) compared to women who self-identified as dieting to maintain weight and women who self-identified as dieting to lose weight having significantly higher BMIs [F(2, 106) = 5.91, p < 0.01, \( \eta^2_p = 0.21 \), observed power = 0.99]; women who self-identified as dieting to lose weight had significantly lower scores on the BI-AAQ (indicating more experiential avoidance) compared to women who self-identified as dieting to maintain weight and women who self-identified as dieting to lose weight. A similar pattern emerged across variables, with women dieting to lose weight having significantly higher body dissatisfaction [F(2, 106) = 19.32, p < 0.01, \( \eta^2_p = 0.27 \), observed power = 0.99], higher drive for thinness [F(2, 106) = 23.35, p < 0.01, \( \eta^2_p = 0.31 \), observed power = 0.99], higher scores on the bulimia subscale of the EDI-3 [F(2, 106) = 3.61, p = 0.03, \( \eta^2_p = 0.06 \), observed power = 0.66], and greater overall internalization of the thin ideal [F(2, 106) = 11.58, p < 0.01, \( \eta^2_p = 0.18 \), observed power = 0.99]. Means and standard deviations are presented in Table 1. This replicates prior data indicating that women who diet tend to be more dissatisfied with their shape and weight and provides support for the use of self-identified dieting to lose weight as an analog for disordered eating. Overall, body image EA is higher in those with greater eating and body image pathology. This contention was further supported by the significant negative correlation between body image EA and other variables included in this study [BMI: \( r = -0.31 \); SATAQ-Internalization: \( r = -0.57 \); SATAQ-Pressure: \( r = -0.54 \); SATAQ-Information: \( r = -0.45 \); SATAQ-Athletic ideal: \( r = -0.24 \); and SATAQ-total: \( r = -0.57 \), all p < 0.05].

Next, the indirect effect of body image EA in the relationship between body dissatisfaction and disordered eating (as assessed by the drive for thinness) and bulimia subscales of the EDI-3) was explored. The 99% confidence interval for the bootstrapping method for drive for thinness (0.09–0.31) and bulimia (0.05–0.26) did not cross zero, indicating the presence of an indirect effect of body image EA on the relationship between body dissatisfaction and bulimic symptoms/drive for thinness. In both models, the direct effect from body image dissatisfaction to bulimia and drive for thinness remained significant, suggesting that body image EA partially mediated the relationship between body dissatisfaction and disordered eating. See Fig. 1 for a graphic depiction.

### 2.6. Study 1 discussion

The purpose of this study was to both provide additional validation data for the BI-AAQ and to investigate the relationship between body image EA, body dissatisfaction, and disordered eating cognitions. The inclusion of women who were dieting to lose weight preoccupation. Overall, the results support Sandoz et al. (2013) findings that their measure of body image EA, the BI-AAQ, is valid. Scores on the BI-AAQ were negatively correlated with all measures such that higher body weight, more internalization of the thin ideal, less body satisfaction, and more disordered eating cognitions were all associated with greater body image EA. Furthermore, body image EA was higher in individuals who self-identified as dieting to lose weight—a group who had more

### Table 1

Means and standard deviations for all variables by dieting status from studies 1, 2, and 3.

<table>
<thead>
<tr>
<th>Measure</th>
<th>Dieting to lose (N=27)</th>
<th>Dieting to maintain (N=39)</th>
<th>Not dieting (N=43)</th>
<th>Total sample</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>BI-AAQ</td>
<td>53.30</td>
<td>13.01</td>
<td>64.79</td>
<td>11.87</td>
</tr>
<tr>
<td>BMI</td>
<td>24.51</td>
<td>4.70</td>
<td>23.82</td>
<td>5.25</td>
</tr>
<tr>
<td>SATAQ-P</td>
<td>29.93</td>
<td>6.44</td>
<td>23.10</td>
<td>6.44</td>
</tr>
<tr>
<td>SATAQ-Q</td>
<td>25.22</td>
<td>5.75</td>
<td>29.38</td>
<td>7.19</td>
</tr>
<tr>
<td>SATAQ-A</td>
<td>15.81</td>
<td>3.76</td>
<td>16.36</td>
<td>4.50</td>
</tr>
<tr>
<td>SATAQ-T</td>
<td>103.04</td>
<td>20.97</td>
<td>97.60</td>
<td>16.49</td>
</tr>
<tr>
<td>EDI-BDI</td>
<td>40.30</td>
<td>9.57</td>
<td>32.23</td>
<td>8.39</td>
</tr>
<tr>
<td>EDI-DT</td>
<td>26.96</td>
<td>6.00</td>
<td>21.72</td>
<td>5.88</td>
</tr>
<tr>
<td>EDI-BUL</td>
<td>17.81</td>
<td>7.10</td>
<td>14.31</td>
<td>5.00</td>
</tr>
</tbody>
</table>

Note: BI-AAQ: Body Image Acceptance and Action Questionnaire, BMI: Body Mass Index, EDI-BD: Eating Disorder Inventory Body Dissatisfaction Subscale, EDI-DT: Eating Disorder Inventory Drive for Thinness Subscale, EDI-BUL: Eating Disorder Inventory-Bulimia Subscale, SATAQ-P: Sociocultural Attitudes towards Appearance Questionnaire-General Internalization Subscale; SATAQ-Q: Sociocultural Attitudes towards Appearance Questionnaire-Pressure Subscale; SATAQ-A: Sociocultural Attitudes towards Appearance Questionnaire-Atletic Subscale; and SATAQ-T: Sociocultural Attitudes towards Appearance Questionnaire-Total.

- indicates a significant difference between current dieters and those maintaining or not dieting.
- indicates a significant difference between current dieters and those not dieting.
- indicates a significant difference between those not dieting and maintainers.

Please cite this article as: Timko, C. A., et al. Body image avoidance: An under-explored yet important factor in the relationship between body image dissatisfaction and... Journal of Contextual Behavioral Science (2014), http://dx.doi.org/10.1016/j.jcbs.2014.01.002
negative attitudes toward their bodies and were more likely to engage in disordered eating; this between group difference provides evidence for known groups validity of the BI-AAQ. Finally, the bootstrap analysis indicated that body image EA plays a role in the relationship between body dissatisfaction on disordered eating.

3. Study 2

The purpose of Study 2 was to replicate the results of Study 1 in a larger, community-based sample to ensure the reliability and generalizability of the relationships observed.

3.1. Method

3.1.1. Participants

382 females were recruited from four national online research websites (available upon request from the authors). A total of 54 participants were removed from the sample because they were underage and 56 individuals were removed for failing to complete all questionnaires. A total of 272 adult women completed the study. Participants ranged in age from 18 to 57, (M = 23.29, SD = 7.98). This sample was primarily Caucasian (71.2%), followed by African American (10.4%), Asian (7.1%), Hispanic (5.6%), Pacific Islander (0.9%), and 4.7% who identified as “other.”

3.2. Materials and procedure

With the exception of the SATAQ, participants were given the same series of questionnaires as in Study 1; questionnaires were completed on-line and in a fixed order. In order to examine the relationship between the BI-AAQ and the original AAQ, the AAQ was administered as well (Bond et al., 2011). Data analysis followed the same procedure as in Study 1.

Acceptance and Action Questionnaire-II (AAQ; Bond et al., 2011) The AAQ is believed to assess psychological flexibility more generally, and demonstrates incremental validity above and beyond other measures of distress (Gloster, Klotsche, Chaker, Hummel, & Hoyer, 2011). In this sample it had a Cronbach’s alpha of .91. All methods were approved by the appropriate review board at Towson University.

3.3. Results

The women had an average BMI of 24.25 (SD = 5.66) with a range between 14.77 and 48.23. The majority of the sample was within the normal weight range (58%), followed by overweight (15%) individuals. A moderate percentage of the sample was either underweight (11.3%) or obese (15.7%). Approximately one third of the sample self-identified as dieting to lose weight (31.5%), and one fifth reported dieting to maintain weight (13.9%). Fewer than half the sample identified as not dieting (45.4%). Cronbach’s alpha score for the BI-AAQ was .91. A one-way analysis of variance (ANOVA) again indicated that there was a significant difference in body image EA based on dieting status [F(2, 279) = 31.82, p < 0.001, η² = 0.16, observed power = 0.99], women who self-identified as dieting to lose weight had significantly more EA compared to women who self-identified as dieting to maintain weight and women not dieting. A similar pattern emerged across variables, with women dieting to lose weight having significantly higher BMIs [F(2, 306) = 11.94, p < 0.001, η² = 0.06, observed power = 0.97] than those dieting to maintain weight or not dieting. Likewise, those dieting to lose weight had higher body dissatisfaction [F(2, 278) = 26.63, p < 0.001, η² = 0.14, observed power = 0.99], higher drive for thinness [F(2, 278) = 54.68, p < 0.001, η² = 0.25, observed power = 0.99], and higher scores on the bulimia subscale of the EDI-3 [F(2, 278) = 20.31, p < 0.001, η² = 0.11, observed power = 0.99]. Means and standard deviations were similar to those observed in Study 1. These findings further support the use of dieting status as an analog for disordered eating and that body image EA is higher in those with greater eating and body image pathology. The BI-AAQ was negatively correlated with BMI (r = -0.21, p < 0.05) and positively correlated with the AAQ (r = 0.55, p < 0.01).
The indirect effect of body image EA was again assessed using the Preacher & Hayes Macro as described in Study 1. Fig. 1 provides a visual representation of the model. The 99% confidence interval for bulimic symptoms (0.10–0.21) and drive for thinness (0.22–0.34) did not cross zero, indicating the presence of an indirect effect of body image EA on the relationship between body dissatisfaction and bulimic symptoms/drive for thinness.

Finally, a hierarchical linear regression was conducted in order to determine if the BI-AAQ was able to account for variance in eating disorder symptomatology above and beyond body dissatisfaction and the AAQ. Two regressions were conducted: one with drive for thinness scores as the dependent variable and one with bulimia scores as the dependent variable. In each regression, BMI was entered in the first step, body dissatisfaction in the second, the AAQ in the third, and the BI-AAQ in the fourth. The final models for both regressions were significant.

BMI was not a predictor of drive for thinness in any step of the equation. Body dissatisfaction predicted drive for thinness in the second step ($B = 0.59$, $\beta = 0.80$, $t = 19.16$, $p < 0.01$). Body dissatisfaction continued to be a significant predictor in the third step; however, the AAQ was not ($B = -0.05$, $\beta = -0.07$, $t = -1.54$, $p = 0.12$). The final model was significant $[F(4, 226) = 142.45$, $p < 0.01$, $R^2 = 0.72$, adjusted $R^2 = 0.71$; $R^2_A = 0.09$, $F_A(1, 226) = 72.12$, $p < 0.001]$ with only body dissatisfaction ($B = 0.36$, $\beta = 0.45$, $t = 8.16$, $p < 0.01$) and body image EA ($B = -0.23$, $\beta = 0.48$, $t = -8.19$, $p < 0.01$) significant predictors of drive for thinness. Unlike with the first regression, BMI did significantly predict bulimic symptoms in all steps of the equation, as did body dissatisfaction. Adding the AAQ to the equation in the third step significantly improved the predictive ability of the model ($R^2_A = 0.02$, $F_A(1, 227) = 8.76$, $p = 0.003$, and the AAQ was a significant predictor ($B = -0.10$, $\beta = -0.17$, $t = -2.96$, $p = 0.003$). The final model was significant $F(4, 226) = 43.98$, $p < 0.01$, $R^2 = 0.44$, adjusted $R^2 = 0.43$; $R^2_A = 0.05$, $F_A(1, 226) = 17.93$, $p < 0.001$] with BMI ($B = -0.17$, $\beta = -0.15$, $t = -2.93$, $p < 0.01$), body dissatisfaction ($B = -0.16$, $\beta = -0.27$, $t = 3.42$, $p < 0.01$), and body image EA ($B = -0.13$, $\beta = -0.34$, $t = -4.43$, $p < 0.01$) all significant predictors. General EA (AAQ) was not a significant predictor ($B = -0.26$, $\beta = -0.10$, $t = -1.66$, $p < 0.10$).

3.4. Study 2 discussion

The purpose of this study was to replicate the relationship between body image EA, body dissatisfaction, and disordered eating seen in Study 1 in a larger community sample. We also wished to determine whether or not the BI-AAQ provided incremental validity in the prediction of disordered eating above and beyond a measure of general EA. Overall, the results showed the same strong relationships between the variables of interest, suggesting that the impact of body dissatisfaction on disordered eating is, in part, an indirect effect and that the relationship between body dissatisfaction and disordered eating is carried at least in part through an indirect effect of body image EA. The BI-AAQ provided more predictive power of both types of disordered eating symptoms than the AAQ (a measure of general experiential avoidance), particularly in the case of drive for thinness.

4. Study 3

Given the novelty of the BI-AAQ, comparisons to more standard measures of closely related constructs were warranted. Study 3 attempted to compare the BI-AAQ and the BIAQ, the more standard measure of behavioral avoidance of body dissatisfaction, to ensure that the BI-AAQ had incremental validity above and beyond the previously developed measure.

4.1. Method

4.1.1. Participants

259 females were recruited from the same websites as in Study 2. Thirty-three individuals were removed because they were under 18 years old. An additional 63 participants were removed from the sample because they did not complete the study questionnaires. A total of 163 participants were included in the following analyses. Participants ranged in age from 18 to 53, ($M = 23.13$, $SD = 7.71$). This sample was primarily Caucasian (72.2%), followed by African American (12.8%), Asian (5.0%), Hispanic, (3.3%), Pacific Islander (1.7%), and 5% who identified as “other.”

4.2. Materials and procedure

Participants were given the same series of questionnaires as in Study 2; however, the Body Image Avoidance Questionnaire was added to this study; again, questionnaires were completed on-line and in a fixed order. All methods were approved by the appropriate review board at Towson University.

Body Image Avoidance Questionnaire (Rosen et al., 1991). The BIAQ consists of 19 items (e.g. “I wear baggy clothes,” “I do not go out socially if it involves eating”) that examine domains related to both social activities and clothing; all 19 items are solely reflective of overt behavioral avoidance. Psychometric properties are sufficient, with a test-retest reliability of 0.87; Cronbach’s α of in the current sample was 0.89. Higher scores on this measure indicate greater body avoidance.

4.3. Results

The sample for this study was comparable to the samples of the previous two studies. The average BMI was 23.90 ($SD = 5.59$) with a range between 12.87 and 47.82. Again, the sample was primarily normal weight range (59.3%), followed by overweight (14.4%) individual; with a quarter of the sample either underweight (12.0%) or obese (14.3%). Approximately one third of the sample self-identified as dieting to lose weight (26.1%), and one fifth reported dieting to maintain weight (12.8%). Slightly over half of the sample identified as not dieting (51.1%).

The BIAQ and BI-AAQ were found to be highly correlated ($r = -0.70$, $p < 0.001$), indicating that these measures assess similar constructs. Given the high correlation between BIAQ and BIAAQ scores, two hierarchical regression analyses was conducted where all three variables (body dissatisfaction, BIAAQ scores, and BIAQ scores) were used to predict bulimic symptoms and drive for thinness. BMI was controlled for by entering it into the first step. Body dissatisfaction was entered in the second step, BIAQ scores in the third step, and BIAAQ scores in the final step. For bulimic symptoms, the model was significant at each step, and the addition of each new variable significantly changed the fit of the model. BMI was only a significant predictor of bulimic symptoms in the first step ($B = 0.33$, $\beta = 0.28$, $t = 3.68$, $p < 0.01$), adding body dissatisfaction ($B = 0.33$, $\beta = 0.53$, $t = 7.12$, $p < 0.01$) in the second step significantly improved the model fit $F[2, 162] = 34.18$, $p < 0.01$, $R^2 = 0.32$, adjusted $R^2 = 0.31$; $R^2_A = 0.22$, $F_A(1, 162) = 50.69$, $p < 0.001$. Likewise, adding body avoidance (BIAQ: $B = 0.20$, $\beta = 0.42$, $t = 5.19$, $p < 0.01$) in the third step improved the model $F[3, 161] = 35.40$, $p < 0.01$, $R^2 = 0.40$, adjusted $R^2 = 0.39$; $R^2_A = 0.10$, $F_A(1, 161) = 26.91$, $p < 0.001$. Body dissatisfaction remained a significant predictor ($B = 0.16$, $\beta = 0.26$, $t = 2.98$, $p = 0.003$). However, in the fourth step, body dissatisfaction ceased to be a significant predictor ($B = 0.10$, $\beta = 0.16$, $t = 1.71$, $p = 0.09$). In the final model $F[4, 160] = 29.75$, $p < 0.01$, $R^2 = 0.43$, adjusted $R^2 = 0.41$; $R^2_A = 0.03$, $F_A(1, 160) = 8.12$, $p = 0.005$] only body avoidance as measured by the BIAQ ($B = 0.16$, $\beta = 0.30$, $t = 3.35$, $p = 0.001$).
and BI-AAQ ($B = -0.10, \beta = -0.26, t = -2.85, p = 0.005$) were significant predictors of bulimic symptomatology. This analysis suggests that body dissatisfaction and body avoidance (as captured by the two scales) each explained unique variance in bulimic scores and that avoidance may be more important than body dissatisfaction.

When drive for thinness was the dependent variable, the overall pattern was slightly different. Unlike with bulimic symptomatology, BMI remained a significant predictor in all four steps; however, as with the previous regression, adding variables in each step significantly improved the model fit. In the first step, high BMI predicted high drive for thinness [$t(1, 163) = 8.57, p = 0.004$, $R^2 = 0.05$, adjusted $R^2 = 0.04$], adding body dissatisfaction [$B = 0.55, \beta = 0.75, t = 11.97, p < 0.01$] in the second step significantly improved the model fit [$t(2, 162) = 7.50, p < 0.01$, $R^2 = 0.50$, adjusted $R^2 = 0.49; F_2(1, 162) = 143.26, p < 0.001$]. Interestingly, the addition of body dissatisfaction altered the impact of BMI on drive for thinness such that low BMI predicted greater drive for thinness [$B = -0.17, \beta = -0.12, t = -1.90, p = 0.06$]. Although not technically a significant predictor in step two, the predictive ability of BMI became apparent again in step 3 [$B = -0.17, \beta = -0.12, t = -2.00, p = 0.047$]. Body dissatisfaction [$B = 0.42, \beta = 0.56, t = 7.50, p < 0.01$] remained a significant predictor as was body avoidance [BIQA: $B = 0.17, \beta = 0.29, t = 4.14, p < 0.01$]. The addition of the BI-AAQ improved the fit of the model [$F(3, 161) = 64.12, p < 0.01$, $R^2 = 0.74$, adjusted $R^2 = 0.54; F_2(1, 161) = 17.16, p < 0.001$]. In the final model [$F(4, 160) = 70.74, p < 0.01$, $R^2 = 0.64$, adjusted $R^2 = 0.63; R^2 = 0.09, R_2(1, 160) = 41.82, p < 0.001$] only BMI ($B = -0.16, \beta = -0.11, t = 2.07, p = 0.04$), body dissatisfaction ($B = 0.28, \beta = 0.38, t = 5.24, p < 0.001$), and body avoidance as measured by the BI-AAQ ($B = -0.21, \beta = -0.47, t = -6.47, p < 0.001$) were significant predictors. Body avoidance as measured by the BIQA [$B = 0.04, \beta = 0.07, t = 1.07, p = 0.29$] no longer significantly predicted drive for thinness. These results suggest that BIQA scores do not explain unique variance in drive for thinness, suggesting that experiential avoidance of body image more broadly may play a larger role in predicting drive for thinness/fear of fatness.

4.4. Study 3 discussion

The purpose of this study was to compare two similar measures of body avoidance to assess their unique explanatory power above and beyond body dissatisfaction for disordered eating cognition. Results suggested that the BIQA and BI-AAQ were highly correlated; when predicting bulimic symptoms, both constructs appeared to contribute unique explanatory power, suggesting that they are not redundant. However, when predicting drive for thinness, BIQA scores were not predictive when BI-AAQ scores were entered into the regression, suggesting that BIQA scores may be less strongly related to drive for thinness.

5. Overall discussion

The current series of studies had three separate goals: to provide additional validation data for a relatively new measure of body image EA, to assess whether body image EA might partially account for the relationship between body dissatisfaction and disordered eating, and to determine if the BI-AAQ offers insight into body image avoidance, above and beyond that of the BIQA.

Overall, the results of Study 1 and Study 2 suggest that the BI-AAQ assesses an important variable that is related to theoretically consistent constructs, including body image, sociocultural attitudes towards appearance, and disordered eating. More specifically, high scores on the BI-AAQ are associated with lower internalization of the thin ideal and lessened disordered eating symptomatology (e.g., drive for thinness, body dissatisfaction, and bulimia). Additionally, those who identified as dieters tended to be less satisfied with their bodies and have more body avoidance, providing known groups validity for the BI-AAQ.

The second aim of these studies was to assess the role that experiential avoidance (as measured by the BI-AAQ) plays in accounting for the relationship between body dissatisfaction and disordered eating. Given that many women experience body dissatisfaction, but only a small number develop disordered eating, it is clear that other variables must play a role in this relationship. Indeed, the results of our studies suggest that the relationship between body dissatisfaction and disordered eating can be partially explained through an indirect effect of body image EA. These results suggest that individuals who engage in behaviors or cognitive strategies designed to avoid uncomfortable thoughts, feelings, or physical sensations related to their body image are more likely to engage in disordered eating behaviors. Thus, disordered eating behavior may be one mechanism by which individuals can suppress negative body image related thoughts or feelings.

These results support existing clinical trends towards acceptance-based treatments that target EA, rather than body dissatisfaction directly, and indicate that these newer acceptance based treatments may be useful in reducing disordered eating. Several new acceptance-based behavioral therapies focus heavily on reducing EA in an effort to increase behaviors associated with important values in an individual’s life (Forman & Herbert, 2009). In comparison to more traditional forms of CBT, acceptance-based behavioral therapies encourage acceptance of negative internal experiences, with an emphasis on changing how one interacts with and responds to various distressing cognitions rather than aiming to alter or modify the thoughts or feelings directly (Hayes et al., 2004). Acceptance and Commitment Therapy (ACT) is an acceptance-based behavioral therapy with perhaps the strongest focus on reducing EA. Meta-analyses have indicated that ACT is consistently better than control conditions (i.e., waiting lists, psychological placebo, treatment as usual) and on par with established treatments, further suggesting that reductions in EA is an important part of treatment (Powers, Zum Vörde Sive Vörding, & Emmelkamp, 2009). Recent treatments for disordered eating behavior have begun to use mindfulness and acceptance-based therapeutic approaches (e.g., Baer, Fischer, & Huss, 2005; Forman, Butryn, Hoffman, & Herbert, 2009; Heffner, Sperry, Elfert, & Detweiler, 2002; Juarascio et al., 2013; Merwin, Zucker, & Timko, 2012; Telch, Agras, & Linehan, 2002; Timko, Hormes, Roth, Limberakis, & Chekroun, 2008; Timko et al., 2013) to target avoidance of thoughts, feelings, and sensations of one’s body. These strategies are designed to increase acceptance of distressing body image experiences. Although the body of research is small (see Wanden-Berghe, Sanz-Valero, & Wanden-Berghe, 2011, for a review), results are promising: reductions in body image EA (or conversely, increases in body image acceptance) might lead to more adaptive eating patterns (Pearson et al., 2012). Body image EA also explains the relationship between self-compassion and intuitive eating, an adaptive eating style (Schoenfeld & Webb, 2013). Additional research is needed to continue assessing experiential avoidance and its effect outcome in treatment studies. Given the specific nature of the BI-AAQ, its use may need to be supplemented by a more general measure of EA (i.e., the AAQ) as general EA may be related to other constructs hypothesized to maintain disordered eating (e.g., perfectionism, mood intolerance, interpersonal distress).

Finally, the results of these studies indicate that the BI-AAQ is not redundant to a pre-existing measure of body image avoidance (BIQA), as the construct measured by these two assessments...
appears to contribute differently to disordered eating. Both the BI-AAQ and the BIAQ predicted reported bulimic symptomatology; however only the BI-AAQ predicted drive for thinness. Such results are consistent with the BIAQ and BI-AAQ development and validation studies. The BIAQ demonstrated sensitivity to one primary variable—body dissatisfaction—and distinguishing between individuals with bulimia nervosa and controls (Rosen et al., 1991). The BI-AAQ is strongly correlated with multiple disordered eating variables, including body dissatisfaction, food preoccupation, and dieting (Sandoz et al., 2013). It is also related to drive for thinness, whereas the BIAQ is not. Given its relationship with a wider variety of variables associated with eating disorders, the BI-AAQ may be a more appropriate measure to use in treatment studies and measurement of avoidance in clinical populations. The high rates of diagnostic crossover and the high rates of incidence in the Eating Disorder Not Otherwise Specified category (Machado, Machado, Gonçalves & Hoek, 2007) also indicate that a flexible measure may be more useful for measuring avoidance over time and across populations.

The finding that body image EA is more predictive than both general measures of EA and other measures of body image behavioral avoidance suggest that there is incremental validity in assessing body image EA. These results suggest that although measures of behavioral avoidance of body dissatisfaction and measures of general EA both partially explain the relationship between body image dissatisfaction and disordered eating, they are not as directly related as a broader measure of body image avoidance (that assesses both behavioral, cognitive, and emotional strategies). Overall, the results from this series of studies add additional support to the notion that body image EA is a relevant construct that has not been adequately captured by prior self-report tools.

While further validation studies are necessary, the results suggest that the BI-AAQ is an appropriate process measure to use in understanding the relationship between body image EA and disordered eating behavior and cognition. Due to the fact that acceptance and mindfulness-based therapies specifically target psychological flexibility (of which EA is an essential element), the BI-AAQ may be well suited for clinical or research purposes in which one wishes to track change either specifically in body image EA or in body image psychological flexibility more broadly. Although additional research is needed to continue validating this measure, data thus far are promising. Overall, the results of this series of studies indicate that the BI-AAQ can be a useful measure of experiential acceptance/psychological flexibility of body image thoughts, feelings, and sensations. As acceptance-based treatments are better studied in this population, a greater understanding of how experiential avoidance affects the development and maintenance of disordered eating and the role that it may play in treatment will be crucial.

Despite the strengths of this study, several limitations exist. First and foremost, disordered eating behavior and cognition was measured in a non-clinical sample. While dieting status was used as an analog for severity of disordered eating cognitions, the findings cannot be generalized to a clinical population. Although theory would suggest that body image EA could cause body dissatisfaction to result in disordered eating, this claim is premature as temporal differences were not assessed in the current study. Because the study was cross-sectional, indirect effects of body dissatisfaction on disordered eating (via body image EA) can be assessed, but true mediation and a deeper understanding of the relationship between these variables can only be addressed in a longitudinal study. Ideally, future research using a longitudinal paradigm will clarify whether body image EA is causally linked to increases in disordered eating. A few other limitations to note are, (a) the questionnaires for all studies were completed in a fixed order, and (b) the participant pool was somewhat homogenous regarding racial/ethnic, regional, and socioeconomic status. Future research would benefit from randomizing the order of questionnaires administered and recruiting a more diverse sample. Although we included participants who completed all measures, the variability in the amount of data provided by non-completers precludes an exploration of any differences in demographic make-up between completers and non-completers. Lastly, prior research has noted that a number of variables have been found to influence the relationship between body dissatisfaction and disordered eating. However, the current study did not include many of these measures and therefore is unable to determine how body image EA might be related to these other important constructs. Ideally, future research will examine the relationship between body image EA and established factors to determine whether EA is just one important variable in the equation between body dissatisfaction and disordered eating or if EA itself might explain some of the other variables.

References


