



Experiential avoidance and dysfunctional beliefs in the prediction of body image disturbance in a nonclinical sample of women



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ABSTRACT

Body image disturbance (BID) refers to persistent dissatisfaction, distress, and dysfunction related to some aspect(s) of one's physical appearance. Cognitive models of BID highlight the importance of dysfunctional beliefs in maintaining BID. Relational Frame Theory (RFT), in contrast, posits that psychological distress is sustained by the unwillingness to experience aversive internal experiences (i.e., experiential avoidance [EA]). The present study tested the hypothesis that both dysfunctional beliefs and EA uniquely predict BID even after accounting for general distress. A nonclinical female sample ($N = 100$) completed measures of general distress, dysfunctional beliefs about appearance, EA, and BID in addition to providing in vivo anxiety ratings after looking at their most dissatisfactory facial feature in a vanity mirror. Linear regression analyses showed that dysfunctional beliefs, but not EA, accounted for significant unique variance in BID outcomes. Implications for understanding, assessing, and treating clinically significant BID are discussed.

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Body image disturbance (BID) is a construct that refers to persistent dissatisfaction, distress, and dysfunction related to an aspect of physical appearance (e.g., the shape of one's nose; Cash, Phillips, Santos, & Hrabosky, 2004; Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999). BID has been associated with adverse psychosocial consequences including disordered eating, depression, anxiety, and impaired social and sexual functioning (Cash & Pruzinsky, 2002), as well as with compromised physical health and overall quality of life (Fiske, Fallon, Blissmer & Redding, 2014; Mond, Owen, Hay, Rodgers, & Beaumont, 2005; Phillips, 2007). BID differs from the more broadly defined *body dissatisfaction* by the severity of psychosocial impairment associated with negative body evaluation. Current models (e.g., Cash & Pruzinsky, 2002) conceptualize BID as a multidimensional construct that exists on a continuum that includes "everyday" BID on one extreme and psychiatric conditions such as eating disorders or body dysmorphic disorder (BDD) at the other (e.g., Hrabosky et al., 2009).

Several theoretical models have been proposed to better understand the development and maintenance of BID (e.g., Fairburn, 2008; Veale, 2004; Williamson, White, York-Crowe, & Stewart, 2004). Cognitive (and cognitive-behavioral) models are derived from Beck's (1976) cognitive specificity theory, which posits that

psychological distress does not result from distressing stimuli (e.g., perceived flaws) per se, but rather from *maladaptive interpretations* of these stimuli (i.e., dysfunctional beliefs; "No one will like me because of the shape of my nose"). These interpretations derive from core beliefs about the self, world, and future (e.g., "One's appearance is very important to their success"). Applying this framework to body image, Cash and Pruzinsky (2002) conceptualized BID as related to investment (i.e., the importance individuals place on their appearance) and evaluation (i.e., appraisals of one's appearance). Empirical work suggests that these beliefs are shaped by social comparison, appearance-related teasing, and the internalization of sociocultural ideals (Stormer & Thompson, 1996). Within a cognitive framework of BID, environmental triggers (e.g., viewing one's reflection in a mirror) are thought to induce maladaptive cognitions, which are associated with negative emotions and prompt self-regulatory activities (i.e., coping strategies) aimed at reducing distress (Cash, Santos, & Williams, 2005). Such behaviors include avoidance, distraction, appearance fixing (e.g., camouflaging a blemish), and eating disturbance. Although these coping strategies can effectively reduce distress in the moment, they serve to maintain appearance-related beliefs and distress in the long term (Blakey & Abramowitz, 2016).

Although empirical evidence underscores the importance of dysfunctional beliefs in the development and maintenance of BID (see Thompson et al., 1999), these cognitions do not fully account for the variability in appearance-related psychosocial impairment. Consequently, researchers have sought to identify additional psy-

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chological constructs associated with BID that may add explanatory power to existing models. One such construct is experiential avoidance (EA), which refers to the unwillingness to tolerate unpleasant emotions, thoughts, or memories (Hayes, Wilson, Gifford, Follette, & Strosahl, 1996). EA plays a critical role in Relational Frame Theory (RFT; Hayes, Barnes-Holmes, & Roche, 2001), from which Acceptance and Commitment Therapy (ACT; Hayes, Strosahl, & Wilson, 1999) was derived.

Pearson, Follette, and Hayes (2012) adopted an RFT/ACT-based conceptualization of BID. In contrast to the cognitive model, the RFT/ACT framework asserts that body image concerns are driven by the avoidance of more distressing and uncontrollable emotions, rather than dysfunctional beliefs about appearance. That is, whereas the cognitive model maintains that maladaptive cognitions underlie appearance-related distress (as well as urges to perform distress-neutralizing behaviors), the RFT/ACT perspective posits that BID emerges from an individual's attempts to avoid, resist, or suppress unpleasant emotions, thoughts, and other private experiences (e.g., those encountered when considering one's own physical appearance). The primary distinction between these theoretical approaches, therefore, is that in RFT/ACT, the problem is thought to lie in the *avoidance* of emotional discomfort over appearance, whereas in cognitive theory, it is the cognitions *themselves* that are viewed as problematic.

Despite the theoretical foundation for an EA conceptualization of BID—and RFT/ACT research has certainly improved conceptual understanding of several anxiety- and mood-related conditions (e.g., A-Tjak et al., 2015)—little research has empirically examined the specific relation of EA to BID. Nevertheless, available research with individuals with BDD suggests that EA adds explanatory power to theoretical models of BID. Wilson, Wilhelm, and Hartmann (2014), for example, found that compared to healthy controls, individuals with BDD demonstrated greater EA, even after accounting for depressive symptoms. In another study, Callaghan et al. (2012) found that EA was a significant unique predictor of BDD diagnostic status in a logistic regression model as well as dimensional BID severity in a linear regression model. Yet given that neither of these studies examined the predictive power of EA after accounting for established BDD-related distorted cognitions (e.g., beliefs about appearance), the degree to which EA *improves* our understanding of the maintenance of BID over and above traditional cognitive conceptualizations remains unclear.

Understanding the relative explanatory power of dysfunctional beliefs and EA in the prediction of BID would carry important implications for clinical practice. First, some individuals who participate in BID-related prevention programs nevertheless go on to develop clinically significant BID (e.g., Stice & Shaw, 2004). Therefore, enhancing our understanding of which psychological factors predict BID could help to inform and improve available prevention programs. Second, although several treatment programs have been developed to ameliorate clinically significant BID, some individuals who receive these interventions fail to obtain clinically significant improvement or maintain their treatment gains over time (e.g., Brownley, Berkman, Sedway, Lohr, & Bulik, 2007; Shapiro et al., 2007; Williams, Hadjistavropoulos, & Sharpe, 2006). Elucidating the relative importance of dysfunctional beliefs and EA—empirically supported psychological maintenance factors of appearance-related distress—to BID may help clinicians or clinical researchers prioritize psychological risk factors when designing, delivering, and evaluating BID treatments. Finally, given the prevalence of, and distress associated with, body image concerns among individuals who do not meet criteria for a BDD diagnosis—as well as Cash et al. (2004) conceptualization of BID on a continuum of severity—further research is needed to understand the relative contributions of cognitive and RFT/ACT constructs across levels of BID severity.

The aim of the present study was to elucidate the relative explanatory power of key constructs from RFT/ACT (i.e., EA) and the more traditional cognitive model (i.e., dysfunctional beliefs) in predicting BID. On the basis of previous empirical and theoretical work, we hypothesized that dysfunctional beliefs and EA would be associated with each other as well as with (a) self-reported BID and (b) in vivo appearance-related anxiety ratings. We also predicted that dysfunctional beliefs and EA would both emerge as significant unique predictors of self-reported BID and in vivo appearance anxiety ratings after accounting for each other and for general distress. We elected to test these hypotheses in a non-clinical sample in order to maximize the variability in BID (which would be restricted in a clinical sample) and in light of the fact that BID, beliefs about appearance, and EA are all conceptualized as dimensional constructs (Cash et al., 2004; Chawla & Ostafin, 2007; Thompson et al., 2005). Moreover, we restricted our sample to include women only because women are more likely than men to report appearance concerns related to facial features (Phillips, Menard, & Fay, 2006); accordingly, testing our hypothesis in a sample of women would maximize the variability in—and ecological validity of—vanity mirror-related anxiety.

1. Method

1.1. Participants

One hundred female undergraduates enrolled in introductory psychology courses at a large university in the southeastern United States provided informed consent to participate in this study, as part of a larger experiment, in exchange for course credit. Participants were able to enroll in this study if they identified as female, were at least 17 years old, were fluent in English, and could identify at least one facial feature with which they were at least somewhat dissatisfied. Three steps were taken to ensure that participants were eligible to participate. First, the study advertisement stated that participants must (a) identify as female, (b) be at least 17 years old, and (c) be able to identify at least one facial feature with which they are somewhat dissatisfied in order to participate. Second, participants were asked prior to providing informed consent to verbally confirm their gender, age, and whether or not they were at least somewhat dissatisfied with at least one out of 21 facial features on a study checklist (e.g., nose, eyebrows, hairline). Finally, participants had to provide a dissatisfaction rating of at least a “4” on a 0 (*not at all dissatisfied*) to 10 (*completely satisfied*) scale before beginning the mirror task described below to be included. Participants had a mean age of 18.8 years ($SD = 2.34$; range 17–40) and a mean dissatisfaction rating of 6.88 ($SD = 1.39$). The majority (67%; $n = 67$) of the sample identified as white, with 17% ($n = 17$) identifying as Asian, 11% ($n = 11$) identifying as Black, and 5% ($n = 5$) identifying with another race/ethnicity.

1.2. Measures

1.2.1. Body Image Disturbance Questionnaire (BIDQ; Cash et al., 2004). The BIDQ is a widely used 7-item self-report BID screening measure derived from the validated Body Dysmorphic Disorder Questionnaire (BDDQ; for descriptions of the BDDQ, see Dufresne, Phillips, Vittorio, & Wilkel, 2001; Phillips, 1996). Participants rate the strength of their concerns and preoccupations with physical appearance, appearance-related distress, the effects of body image concerns on multiple aspects of functioning, and appearance-related avoidance behavior on a 1 (*not at all*) to 5 (*extremely*) scale. Ratings to all items are averaged to produce a total scale score (possible range 1–5), such that higher scores indicate greater BID severity. The BIDQ has demonstrated strong reliability

and validity in nonclinical samples (Cash et al., 2004). We therefore elected to use the BIDQ as our outcome measure given our use of a nonclinical sample in the present study. The BIDQ displayed acceptable internal consistency in this sample ($\alpha = .84$).

1.2.2. Mirror anxiety. We included an in vivo anxiety rating of BID for this study. After viewing their most dissatisfactory facial feature in a mirror for 10 seconds (see “Section 1.3,” below), participants were asked to verbally rate their subjective appearance-related anxiety level on a 0 (*not at all*) to 10 (*completely*) scale.

1.2.3. Depression Anxiety Stress Scales-21 (DASS-21; Antony, Bieling, Cox, Enns, & Swinson, 1998). The DASS-21 is a short-form version of the 42-item DASS (Lovibond & Lovibond, 1995) that assesses subjective distress over the past week along three subscales: depression, anxiety, and stress. Participants rate how each of the 21 statements (e.g., “I found it hard to wind down”) applies to them on a 0 (*rarely*) to 4 (*very much, or most of the time*) scale; higher scores indicate greater general distress. The DASS-21 has demonstrated good reliability and construct validity in both clinical and nonclinical samples (Henry & Crawford, 2005; Page, Hook, & Morrison, 2007). Other research also indicates that the measure’s internal consistency, convergent validity, and divergent validity is similar across racial groups (Norton, 2007). Because we had no specific hypotheses regarding the relationship between DASS-21 subscales and our outcomes, we entered the DASS-21 total score as a single predictor to maximize statistical power. The DASS-21 showed acceptable internal consistency ($\alpha = .92$) in the current sample.

1.2.4. Beliefs About Appearance Scale (BAAS; Spangler & Stice, 2001). The BAAS is a 20-item measure of maladaptive beliefs about appearances. Participants rate their agreement with each question (e.g., “my value as a person depends upon how I look”) on a scale of 0 (*not at all*) to 4 (*extremely*), such that higher scores indicate more maladaptive beliefs about appearance. The BAAS showed acceptable internal consistency ($\alpha = .95$) in the current sample.

1.2.5. Acceptance and Action Questionnaire-II (AAQ-II; Bond et al., 2011). The AAQ-II is a 7-item revision of the original AAQ (Hayes, Luoma, Bond, Masuda, & Lillis, 2006). The scale assesses EA, which is a primary construct of the ACT model of psychopathology (Hayes et al., 2006). Participants rate their agreement with each of the seven statements (e.g., “I’m afraid of my feelings”) on a 1 (*never true*) to 7 (*always true*) scale, such that higher scores indicate greater EA (i.e., more psychopathology). The AAQ-II showed acceptable internal consistency ($\alpha = .91$) in the current sample.

1.3. Procedure

Participants attended an individual, in-person experimental session with a female research assistant. The private laboratory room used for this study was plainly furnished and free of wall art (including photographs, paintings, and reflective surfaces). After providing informed consent, participants completed a self-report battery including the measures described above in randomized order. Participants then identified a facial feature with which they were most dissatisfied (e.g., nose, eyebrows, hairline). Next, participants were seated at a table and asked to look at their identified dissatisfactory facial feature in an 8.5” diameter non-magnifying vanity mirror at a fixed position on the table for ten seconds. To ensure that participants were compliant with the exposure task instructions, the research assistant facilitating the study remained in the back of room (out of direct line of sight and outside of the mirror’s reflective field of view). Standardized instructions were

Table 1
Means, standard deviations, and distribution of study variables.

Measure	Mean	(SD)	Min	Max	Skew	Kurtosis
BIDQ	2.08	(0.56)	1.00	4.00	0.85	0.83
Mirror anxiety	4.25	(2.66)	0.00	10.00	−0.09	−1.06
DASS-21	27.10	(19.56)	0.00	102.00	1.39	2.48
BAAS	33.50	(16.53)	3.00	76.00	0.34	−0.35
AAQ-II	21.42	(8.82)	7.00	47.00	0.71	0.50

Note: BIDQ = Body Image Disturbance Questionnaire; DASS-21 = Depression Anxiety Stress Scales-21; BAAS = Beliefs About Appearance Scale; AAQ-II = Acceptance and Action Questionnaire-II; SD = standard deviation; Min = observed minimum value; Max = observed maximum value.

created in advance to prompt noncompliant participants to engage in the exposure task as requested; however, experimenters self-reported after every participant appointment that the standardized prompts were unnecessary (i.e., participant compliance was 100%). Immediately after this viewing period, participants were asked to verbally report their anxiety level. This study was approved by the university’s Institutional Review Board.

1.4. Data analytic strategy

To test our first hypothesis, we computed zero-order correlations between study variables. To test our second hypothesis, we tested two standard multiple regression (i.e., simultaneous linear regression) models. Predictor scores were mean-centered to minimize multicollinearity prior to regression analyses. The first model predicted self-reported BID severity (BIDQ scores) as a function of general distress (DASS-21 scores), beliefs about appearance (BAAS scores), and EA (AAQ-II scores). The second model predicted in vivo mirror anxiety as a function of general distress (DASS-21 scores), beliefs about appearance (BAAS scores), and EA (AAQ-II scores).

2. Results

2.1. Data screening and descriptive statistics

Data were first screened to assess concordance with statistical assumptions. Scores on all study measures fell in the range of plausible values and no univariate outliers were detected.¹ Distribution of all study variables was free of significant skew (all values <2) and kurtosis (all values <4), indicating that variables were approximately normally distributed. Descriptive statistics for all study variables are shown in Table 1. In general, mean scores fell within the mild to moderate severity range. Our sample’s observed BIDQ scores ranged from 1 to 4 (the possible range was 1–5), while observed mirror anxiety ratings fell across the entire 0–10 range.

2.2. Zero-order correlations

Two-tailed, zero-order correlations were computed to examine the relationships among study variables. The results of this analysis are presented in Table 2. As can be seen, all study variables were significantly and positively correlated with one another, with correlations ranging in magnitude from moderate to strong.

¹ One participant scored >3.29 standard deviations above the mean on the BIDQ, and two participants scored >3.29 standard deviations above the mean on the DASS-21. Visual inspection of the data showed that these scores were an extension of the sample distributions; accordingly, all three cases were retained and included in the below analyses.

Table 2
Zero-order bivariate correlations between study variables.

Variable	1	2	3	4
1. BIDQ	–			
2. Mirror anxiety	.41**	–		
3. DASS-21	.38**	.26*	–	
4. BAAS	.65**	.40**	.40**	–
5. AAQ-II	.46**	.34**	.65**	.45**

Note: BIDQ = Body Image Disturbance Questionnaire; DASS-21 = Depression Anxiety Stress Scales-21; BAAS = Beliefs About Appearance Scale; AAQ-II = Acceptance and Action Questionnaire-II.

* $p < .01$.

** $p < .001$.

Table 3
Linear regression predicting BIDQ scores.

	<i>B</i>	<i>SE_B</i>	β	<i>t</i>	<i>p</i>	<i>spr</i> ²
DASS-21	0.001	0.003	0.032	0.31	.754	.001
BAAS	0.019	0.003	0.546	6.39	<.001	.233
AAQ-II	0.012	0.007	0.193	1.86	.066	.020

Note: BIDQ = Body Image Disturbance Questionnaire; DASS-21 = Depression Anxiety Stress Scales-21; BAAS = Beliefs About Appearance Scale; AAQ-II = Acceptance and Action Questionnaire-II; *B* = Unstandardized regression coefficient; *SE_B* = Standard error of regression coefficient; β = Standardized regression coefficient; *t* = *t*-test statistic; *p* = significance value; *spr*² = squared semipartial correlation.

Table 4
Linear regression predicting mirror anxiety.

	<i>B</i>	<i>SE_B</i>	β	<i>t</i>	<i>p</i>	<i>spr</i> ²
DASS-21	0.001	0.017	0.006	0.05	.961	<.001
BAAS	0.049	0.017	0.304	2.93	.004	.072
AAQ-II	0.062	0.038	0.204	1.63	.107	.022

Note: DASS-21 = Depression Anxiety Stress Scales-21; BAAS = Beliefs About Appearance Scale; AAQ-II = Acceptance and Action Questionnaire-II; *B* = Unstandardized regression coefficient; *SE_B* = Standard error of regression coefficient; β = Standardized regression coefficient; *t* = *t*-test statistic; *p* = significance value; *spr*² = squared semipartial correlation.

2.3. Regression analyses predicting BIDQ scores

A standard multiple regression model was evaluated to test our hypothesis that both BAAS and AAQ-II scores would emerge as unique predictors of self-reported BID after accounting for each other and general distress. DASS-21, AAQ-II, and BAAS scores jointly explained a significant amount of variance (45.2%) in BIDQ scores, $F(3, 96) = 26.41$, adjusted $R^2 = .44$, $p < 0.01$. As shown in Table 3, DASS-21 scores explained a nonsignificant amount of variance in BIDQ scores, whereas BAAS scores explained a significant 23.3% of unique variance in BIDQ scores ($p < 0.01$). The AAQ-II accounted for a nonsignificant 2.0% of unique variance in BIDQ scores ($p > .05$).

2.4. Regression analyses predicting mirror anxiety

A standard multiple regression model was evaluated to test our hypothesis that both BAAS and AAQ-II scores would emerge as unique predictors of in vivo mirror anxiety ratings after accounting for each other and general distress. DASS-21, AAQ-II, and BAAS scores jointly explained a significant amount of variance (19.3%) in in vivo mirror anxiety ratings scores, $F(3, 96) = 7.64$, adjusted $R^2 = .17$, $p < .01$. Results, displayed in Table 4, were generally consistent with findings regarding the model regressing BIDQ scores onto the same predictors. Specifically, neither DASS-21 nor AAQ-II scores uniquely explained a significant amount of variance in mirror anxiety. In contrast, BAAS scores predicted a significant 7.2% of unique variance in mirror anxiety ($p < .01$).

3. Discussion

The present study aimed to examine the relative contributions of dysfunctional beliefs about appearance and EA in predicting BID in a sample of women reporting moderate BID and in vivo appearance-related anxiety. Consistent with our first hypothesis, beliefs about appearance and EA were significantly associated with each other, as well as with self-reported BID and in vivo ratings of appearance-related anxiety. The magnitude of the correlations detected in our study was consistent with previous research (e.g., Callaghan et al., 2012; Spangler & Stice, 2001) and indicates that both beliefs about the importance of one's appearance and EA are meaningfully related to BID. This is not surprising given that both dysfunctional beliefs and EA are conceptually relevant to negative experiences associated with BID. However, whereas the RFT/ACT perspective conceptualizes BID as resulting from attempts to avoid or resist unpleasant internal experiences (e.g., appearance-related thoughts), the cognitive framework implicates the maladaptive cognitions *themselves* in the development of BID.

Our second hypothesis, that beliefs about appearance and EA would both uniquely account for variance in self-report and in vivo BID, was not supported. Specifically, whereas beliefs about appearance emerged as a significant unique predictor of self-report BID and in vivo mirror anxiety ratings, EA did not explain a significant amount of unique variance after accounting for the other predictors. These findings suggest that although both dysfunctional beliefs and EA are associated with BID at the bivariate level, the variability accounted for by EA is subsumed by that explained by dysfunctional beliefs about appearance. General distress (as measured by the DASS-21) did not emerge as a statistically significant predictor of either index of BID.

To place these results in a broader context, the present study compared the explanatory value of constructs derived from two viable conceptual models of psychopathology (i.e., cognitive theory and RFT/ACT) and found that the cognitive model best explains BID in a nonclinical sample. Within the cognitive framework, maladaptive cognitions such as, "If only I were better looking, I would be happier," are considered factors that give rise to appearance-related distress, especially when activated by looking in the mirror. Yet, given that such dysfunctional cognitions do not fully explain variance of BID in our sample, it is worth continuing to consider additional psychological factors from empirically supported theoretical models that might account for unexplained variance in BID that are not assessed by the BAAS; for example, perfectionism ("If I don't look 'perfect,' I'm worthless") or intolerance of uncertainty ("I need to know what other people think of my appearance").

To the extent that our findings from a nonclinical sample generalize to clinical samples, our results support the application of cognitive strategies to target dysfunctional beliefs when treating individuals with clinically significant BID (e.g., eating disorders, BDD), as is current common practice (e.g., Fairburn, 2008; Wilhelm, Phillips, Fama, & Greenberg, 2011). Although RFT/ACT-based approaches for BID might therapeutically target EA, our findings suggest that targeting dysfunctional beliefs about appearance would be a more fruitful approach in ameliorating BID symptoms. That is not to say that RFT/ACT-based interventions would not be helpful for individuals with BID. For example, although targeting EA may not necessarily lead to reductions in BID symptoms specifically, developing greater psychological flexibility may serve to enhance overall wellbeing (e.g., Kashdan & Breen, 2007; Lillis, Lein, & Hayes, 2011). Alternatively, incorporating RFT/ACT-based strategies may alleviate comorbid anxiety or mood symptoms, which often accompany BID (e.g., Gunstad & Phillips, 2003; Stice & Berman, 2001), or else help individuals to be more willing to experience or accept uncomfortable thoughts, emotions, or sensations that often arise during BID treat-

ment. It is also important to acknowledge that although our study suggests that EA does not account for unique variance in BID severity in a nonclinical sample, EA might be more critical in individuals with *clinically significant* BID (e.g., eating disorders, BDD). Future research examining the additive benefit of targeting EA in addition to dysfunctional beliefs would help inform therapeutic interventions for patients with clinically significant BID.

A strength of the present study is the use of a large sample of participants that provided measures of both general and in vivo (state) appearance-related distress. This multimethod approach of assessing BID is useful to capture information about appearance-related distress beyond retrospective self-report questionnaires, which may be subject to memory bias or subjective responding. A number of limitations, however, should also be acknowledged. First, our data from a nonclinical sample may not generalize to individuals with clinically significant BID, considering that differences between individuals with clinically significant BID and individuals with sub-threshold appearance concerns (or healthy controls) do exist (e.g., Wilson et al., 2014). Second, the sample consisted of undergraduate women at a public university, which limits representativeness in terms of age, gender, and other demographic variables (e.g., life stage, geography). Future research examining the relationship between beliefs about appearance, EA, and BID using diverse clinical samples is needed, especially in light of research showing that BID can vary widely along cultural/demographic lines (e.g., Boroughs, Krawczyk, & Thompson, 2010). Third, because our study incorporated a standardized vanity mirror exposure paradigm, we restricted the BID focus to *facial feature* dissatisfaction only in order to maximize internal validity. Future research might examine the relationship between dysfunctional beliefs, EA, BID associated with *any* self-identified disliked feature(s) in order to enhance external validity. Fourth, the cross-sectional nature of the study design prevents drawing conclusions about causality, as it is unclear whether (a) BID contributes to EA and dysfunctional beliefs, (b) dysfunctional beliefs and EA engender BID, or (c) all constructs mutually influence one another. Future research utilizing longitudinal designs would be better able to speak to causality, as well as test other statistical models not possible here (e.g., mediation or other path analyses). Fifth, we used a measure of trait BID symptoms only; future investigations might include a measure of state BID (e.g., Body Image States Scale; Cash, Fleming, Alindogan, Steadman, & Whitehead, 2002). Similarly, although we supplemented our outcome assessment by obtaining ratings of in-vivo anxiety in our study, future research might assess other BID-related affective states such as disgust, shame, and anger. Future studies should examine these constructs of interest using a longitudinal design (e.g., before and after treatment) in order to examine how these variables change and interact over time. Future studies may also benefit from enhancing the multimethod assessment of BID by including physiological measures of in vivo distress when evaluating one's own appearance (e.g., heart rate variability, skin conductance).

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committees on human experimentation and with the Helsinki Declaration of 1975, as revised in 2008.

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