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Fear of negative appearance evaluation: Development and evaluation of a new construct for risk factor work in the field of eating disorders

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Abstract

The psychometric properties and correlates of a measure designed to assess fear of negative appearance evaluation are presented. In Study 1, 165 college females completed the Fear of Negative Appearance Evaluation Scale [FNAES; Thomas, C.M., Keery, H., Williams, R., & Thompson, J. K. (1998, November). The Fear of Negative Appearance Evaluation Scale: Development and preliminary validation. Paper presented at the annual meeting of the Association for the Advancement of Behavior Therapy, Washington, DC] along with measures of body image, eating disturbance, and depression. Results replicated previous analyses indicating the presence of a single factor, good internal consistency, and significant association with measures of body image and eating disturbance. Additionally, the FNAES accounted for unique variance beyond that explained by general fear of negative evaluation, and other measures of body image and eating disturbance, in the prediction of body shape dysphoria, dietary restraint, and trait anxiety. Study 2 further examined the validity of the FNAES, finding it to correlate significantly with measures of social physique anxiety, body image, eating attitude, and mood. The FNAES did not significantly correlate with body mass index (BMI). Regression analyses found the FNAES to predict levels of body image, eating attitude, and mood beyond variance explained by social physique anxiety. The FNAES appears to measure a conceptually unique aspect

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of body image that has not been indexed by previous measures and may serve a useful role in risk factor and preventive work.

Keywords: Appearance evaluation; Assessment; Risk factors; Eating disorders

1. Introduction

Recent work in the areas of body image disturbance and eating disorders has focused on the delineation of risk factors that may lead to the onset and maintenance of these clinical problems (Thompson & Smolak, 2001; Thompson & Stice, 2001). A variety of disparate influences have received research attention, including such interpersonal and sociocultural factors as negative appearance-related feedback (teasing), modeling of dieting and body image concerns by parents and peers, elevated tendencies to compare one's appearance to others, sexual abuse, sexual harassment, and internalization of media images and messages (Shisslak & Crago, 2001; Stice, 2001). One potential variable that may serve to increase the vulnerability of individuals to develop eating and shape-related problems is a fear of negative appearance evaluation by others. A more global FNE has been a fruitful concept for examination for many years (Watson & Friend, 1969) and led to considerable empirical and theoretical work. The more specific fear of negative *appearance* evaluation also has the potency to extend recent work in the measurement of factors associated with, and potentially causal of, body image and eating problems.

Prior work in this area is limited to Thomas, Keery, Williams, and Thompson's (1998) exploratory work, which yielded an eight-item measure of negative appearance evaluation. In a single sample of 272 women, they found the presence of a unitary factor with a high internal consistency (.91) and good convergence with measures of body image and internalization of media images/messages, but little relationship to teasing history. To date, no work has followed up this preliminary analysis of the fear of negative appearance evaluation variable. The current series of studies was designed specifically to build on this initial study, with the intent of determining if the fear of negative appearance evaluation could offer unique predictive ability, beyond traditional measures, in explaining variance associated with body image and eating disturbance.

Accordingly, Study 1 was designed to further evaluate and cross-validate the initial FNAES developed by Thomas et al. (1998) in a sample from a geographically different region of the country (New York vs. Florida, site of the original study). In addition, in order to systematically replicate the earlier study, a different set of measures was used for convergent validity analyses. Finally, specific regressions were used to determine if fear of negative appearance evaluation accounted for unique variance in the prediction of disturbance variables beyond that accounted for by global FNE [as measured by the standard instrument in the field, the Fear of Negative Evaluation Scale (FNE), Watson & Friend, 1969].

Study 2 further examined the validity of the measure. Correlational analyses tested the convergent validity with additional measures of body image, eating attitude and behavior, mood, and self-esteem. An important goal of Study 2 was to determine the association of fear of negative appearance evaluation with the measure it appeared to be conceptually closest to replicating, social

physique anxiety. Additionally, regression analyses were used to examine the predictive ability of the FNAES, beyond social physique anxiety, for measures of body image, eating attitude, mood, and self-esteem.

Generally, it was predicted that negative appearance evaluation would predict unique variance associated with body image, eating, mood, and self-esteem measures, confirming its potential utility as a new measure relevant for risk factor and preventive work.

2. Study 1

2.1. Method

2.1.1. Participants

One hundred sixty-five female undergraduate participants were recruited as part of a larger study examining anxiety and body image. Participants were primarily Caucasian (69.8%); the remainder of the sample was African American (6.3%), Hispanic (8.2%), Asian (7.7%), or did not specify their ethnicity (7.1%). Participants' average age was 19.6 ± 3 years (range, 17–45 years), the average weight was 140.8 ± 31.7 lb, and the average height was 64.4 ± 2.5 in. The participants' mean body mass index (BMI) was 23.8 ± 4.8 kg/m^2 (range, 15.69–45.57 kg/m^2). A power analysis indicated that the sample size was sufficient to detect a medium effect size, with a power of .80 and alpha set at .01 (Cohen, 1992) based on the most complex analysis conducted (a regression with four predictors, discussed below).

2.1.2. Measures

2.1.2.1. Fear of Negative Appearance Evaluation Scale. The Fear of Negative Appearance Evaluation Scale (FNAES; Thomas et al., 1998) is an eight-item self-report measure that assesses apprehension about appearance evaluation. The scale was created by modifying items from the Brief Fear of Negative Evaluation Scale (Leary, 1983) and developing novel items that might index apprehension related to a negative appearance evaluative experience.

2.1.2.2. Body Shape Questionnaire. The Body Shape Questionnaire (BSQ; Cooper, Taylor, Cooper, & Fairburn, 1987) is a 34-item self-report measure designed to assess negative feelings about one's body size and shape.

2.1.2.3. Body image assessment—obesity. The Body Image Assessment—Obesity (BIA-O; Williamson et al., 2000) consists of 18 silhouettes for both males and females that range from very thin to very obese. Body dissatisfaction is conceptualized as the discrepancy between current and ideal body shape scores.

2.1.2.4. Three-Factor Eating Questionnaire: Cognitive Restraint Scale. The Three-Factor Eating Questionnaire: Cognitive Restraint Scale (TFEQ-R; Stunkard & Messick, 1985) is a 21-item scale that is reported to measure short-term successful caloric restriction (Gorman & Allison, 1995; Heatherton, Herman, Polivy, King, & McGree, 1988; Laessle, Tuschl, Kotthaus, &, Pirke, 1989; Lowe, 1993).

2.1.2.5. Restraint scale. The Restraint Scale (RS; Herman & Polivy, 1980) consists of 10 questions measuring the consequences of chronic unsuccessful dieting such as disinhibited eating and weight fluctuations (Gorman & Allison 1995; Heatherton et al., 1988; Laessle et al., 1989; Lowe, 1993).

2.1.2.6. Beck Depression Inventory II. The Beck Depression Inventory II (BDI; Beck, 1996) is a 21-item measure used to assess behavioral signs of depression.

2.1.2.7. State-Trait Anxiety Inventory (STAI) Form Y Anxiety Scale: Trait Anxiety Scale. The Trait Anxiety Scale is a 20-item measure used to assess general trait anxiety (Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983). *T* scores for college females were used in the data analysis.

2.1.2.8. Fear of Negative Evaluation. The Fear of Negative Evaluation (Watson & Friend, 1969) is a 30-item self-report measure developed to assess fear of negative evaluation from others.

2.1.3. Procedure

Participants completed questionnaires as part of a larger study examining body image and anxiety. After obtaining informed consent, participants' height and weight were measured and they completed a packet of questionnaires with the previously mentioned measures.

2.2. Results

Consistent with previous analyses on this measure, a principle factor analysis found one primary factor. However, two reverse-keyed items (Nos. 3 and 7) had low factor loadings and were deleted. Factor loadings and item–total correlations can be seen in Table 1. The internal consistency was high (.94), as well as the item–item correlations. All item–item correlations were significant at $P < .01$.

Correlations between the FNAES and other measures were significant ($P < .01$; see Table 2), indicating good convergence between measures of body image, eating disturbance, anxiety, mood, and the FNAES. The correlation between the original FNE and the FNAES was quite high (.78)

Table 1
Factor loadings and item–total correlations

Item	Factor loading	Item–total correlation
1	.86	.85
2	.85	.85
3	.90	.90
4	.87	.88
5	.92	.92
6	.85	.86

All correlations are significant at $P < .01$.

Table 2
Correlation of FNAES with other measures

Measure	FNAES
Study 1	
BSQ	.70**
BIA-O Diff.	.42**
RS	.64**
TFEQ-Cog. Restraint	.46**
BDI	.43**
STAI-T	.45**
FNE	.78**
Study 2	
MBSRQ-AE	− .38**
MBSRQ-AO	.54**
MBSRQ-BAS	− .57**
MBSRQ-OP	.54**
MBSRQ-SCW	.30**
M-DEP	.51**
M-BNG	.52**
M-PRG	.50**
M-FAT	.69**
M-RST	.62**
M-AVD	.43**
SPAS	.76**
RSE	− .45**
BDI	.46**
BMI	− .03

**$P < .01$; BSQ = Body Shape Questionnaire; BIA-O Diff. = BIA-O Current Body Shape minus BIA-O Ideal Body Shape; RS = Restraint Scale; TFEQ-Cog. Restraint = Three-Factor Eating Questionnaire-Cognitive Restraint Scale; BDI = Beck Depression Inventory II; STAI-T = Trait Anxiety Scale; FNE = Fear of Negative Evaluation; MBSRQ-AE = Multidimensional Body–Self Relation Questionnaire—Appearance Evaluation Scale; MBSRQ-AO = Multidimensional Body–Self Relation Questionnaire—Appearance Orientation Scale; MBSRQ-BAS = Multidimensional Body–Self Relation Questionnaire—Body Areas Satisfaction Scale; MBSRQ-OP = Multidimensional Body–Self Relation Questionnaire—Overweight Preoccupation Scale; MBSRQ-SCW = Multidimensional Body–Self Relation Questionnaire—Self-Classified Weight Scale; M-DEP = Multi-Axial Eating Disorder Scale—Depression; M-BNG = Multi-Axial Eating Disorder Scale—Binge Eating; M-PRG = Multi-Axial Eating Disorder Scale—Purgative Behavior; M-FAT = Multi-Axial Eating Disorder Scale—Fear of Fatness; M-RST = Multi-Axial Eating Disorder Scale—Restraint; M-AVD = Multi-Axial Eating Disorder Scale—Avoidance of Forbidden Foods; RSE = Rosenberg Self-Esteem Inventory; BMI = Body Mass Index.

** $P < .01$.

indicating a shared variance of 62%. Therefore, we conducted regression analyses to determine if the FNAES accounted for unique variance associated with disturbance measures beyond that associated with general FNE. In these regressions, FNE was forced into the regression first, followed by FNAES.

Importantly, FNAES accounted for a significant increase in variance ($t = 7.65$, $P < .001$) for the body shape measure (BSQ), restraint (RS) ($t = 6.98$, $P < .001$), and cognitive restraint (TFEQ-R) ($t = 4.17$,

$P < .001$). However, the FNAES did not account for significant unique variance when predicting depression.

A second set of regressions was conducted to determine if the FNAES would account for unique variance in some of the disturbance measures, even after body image disturbance had been included as a predictor. In these regressions, FNE, BSQ, and BIA-O Current Body Shape were entered first, followed by FNAES. With Trait Anxiety as the dependent variable, the FNAES accounted for a marginal increase in variance ($t = 1.69$, $P = .093$). With restraint (RS) as the criterion variable, FNAES accounted for significant unique variance ($t = 2.97$, $P = .003$). FNAES did not add to the prediction of depression or cognitive restraint (TFEQ-R).

2.3. Discussion of Study 1

The FNAES offers a new and unique measurement tool for researchers and clinicians. Although it overlaps substantially with the general negative evaluation scale (FNE), there is 38% unique variance. In the regressions conducted, the FNAES also accounts, in most instances, for unique variance beyond that explained by the FNE in the prediction of a variety of disturbance measures. Study 2 was designed to more fully evaluate the measure, with a special interest in determining its association with social physique anxiety.

3. Study 2

3.1. Method

3.1.1. Participants

One hundred sixty undergraduate college students (68 male; 92 female) completed the FNAES and measures of eating attitudes, body image, self-esteem, and mood. The mean age was 20.5 ± 5.0, mean height was 66.5 ± 3.8 in., mean weight was 155.0 ± 37.0 lb, and mean BMI was 24.5 ± 4.8 kg/m^2. Fifty-eight percent of the sample were Caucasian, 7% were African American, 9% were Asian, 9% were Hispanic, and 17% indicated other or did not respond. A power analysis indicated that the sample size was sufficient to detect a medium effect size, with a power of .80 and alpha set at .01 (Cohen, 1992) based on the most complex analysis conducted (a regression with two predictors, discussed below).

3.1.2. Measures

3.1.2.1. Multidimensional Body–Self Relations Questionnaire—Appearance Scales. The Multidimensional Body–Self Relations Questionnaire—Appearance Scales (MBSRQ-AS; Cash, 2000) contains subscales that specifically index aspects of body image. These subscales include Appearance Evaluation, Appearance Orientation, Body Areas Satisfaction, Overweight Preoccupation, and Self-Classified Weight. Appearance Evaluation measures one's feelings of physical attractiveness; Appearance Orientation measures the effort one devotes to appearance; Body Areas Satisfaction measures one's satisfaction with a specific aspects of the body; Overweight Preoccupation measures one's concern with weight and dieting; Self-Classified Weight measures one's perception of weight

ranging from very underweight to very overweight (Cash, 2000). Cronbach's alpha for the scales ranges from .70 (Self-Classified Weight; males) to .88 (Appearance Evaluation; males and females). Test–retest correlations range from .81 (Appearance Evaluation; males) to .91 (Appearance Evaluation; females).

3.1.2.2. Multi-Axial Eating Disorder Scale. The Multi-Axial Eating Disorder Scale (MAEDS; Anderson, Williamson, Duchmann, Gleaves, & Barbin, 1999) is a 52-item self-report inventory measuring the following constructs: depression, binge eating, purgative behavior, fear of fatness, restrictive eating, and avoidance of forbidden foods. Coefficient alphas for the subscales range from .80 (purgative behavior) to .92 (binge eating). Test–retest correlations for the subscales range from .89 (binge eating) to .96 (restrictive eating).

3.1.2.3. Social Physique Anxiety Scale. The Social Physique Anxiety Scale (SPAS; Hart, Leary, & Rejeski, 1989) measures anxiety about physique-related negative evaluation. The measure has been shown to have high internal consistency (coefficient alpha=.90) and test–retest reliability (r=.82). In a comparison of women scoring high versus low on the SPAS, high scorers were found to weigh more and have higher percent body fat (Hart et al., 1989).

Table 3
Regression analyses with SPAS entered into block one and FNAES entered into block two

Dependent variable	R^2 change	F change	Significance of F change
MBSRQ-AE	.00	0.11	$P > .05$
MBSRQ-AO	.10	21.68	$P < .001$
MBSRQ-BAS	.00	0.29	$P > .05$
MBSRQ-OP	.02	4.12	$P < .05$
MBSRQ-SCW	.00	0.19	$P > .05$
M-DEP	.04	8.72	$P < .01$
M-BNG	.04	7.75	$P < .01$
M-PRG	.11	23.02	$P < .001$
M-FAT	.13	38.32	$P < .001$
M-RST	.07	18.71	$P < .001$
M-AVD	.03	5.38	$P < .05$
BDI	.03	5.37	$P < .05$
RSE	.00	0.16	$P > .05$

MBSRQ-AE = Multidimensional Body–Self Relation Questionnaire—Appearance Evaluation Scale; MBSRQ-AO = Multidimensional Body–Self Relation Questionnaire—Appearance Orientation Scale; MBSRQ-BAS = Multidimensional Body–Self Relation Questionnaire—Body Areas Satisfaction Scale; MBSRQ-OP = Multidimensional Body–Self Relation Questionnaire—Overweight Preoccupation Scale; MBSRQ-SCW = Multidimensional Body–Self Relation Questionnaire—Self-Classified Weight Scale; M-DEP = Multi-Axial Eating Disorder Scale—Depression; M-BNG = Multi-Axial Eating Disorder Scale—Binge Eating; M-PRG = Multi-Axial Eating Disorder Scale—Purgative Behavior; M-FAT = Multi-Axial Eating Disorder Scale—Fear of Fatness; M-RST = Multi-Axial Eating Disorder Scale—Restraint; M-AVD = Multi-Axial Eating Disorder Scale—Avoidance of Forbidden Foods; BDI = Beck Depression Inventory II; RSE = Rosenberg Self-Esteem Inventory.

3.1.2.4. Beck Depression Inventory II. The BDI (Beck, 1996) is a 21-item measure used to assess behavioral signs of depression.

3.1.2.5. Rosenberg Self-Esteem Inventory. The Rosenberg Self-Esteem Inventory (RSE; Rosenberg, 1965) is a 10-item self-report inventory measuring feelings of self-worth. It is perhaps the most widely used measure of general self-esteem and has frequently been used in research in the areas of body image and eating disorders (Demo, 1985).

3.1.3. Procedure

Students' height and weight were measured, and they were asked to complete questionnaires assessing appearance evaluation concern, eating attitudes, body image, self-esteem, and mood. Students received research credit for participating in the study.

3.2. Results

Correlational analyses are presented in Table 2. Results of the analyses showed that the FNAES correlated significantly with all of the measures except BMI. The shared variance for social physique anxiety and the FNAES was .58; therefore, regression analyses were conducted to examine the predictive power of the FNAES beyond social physique anxiety. Thirteen regression analyses were conducted; the criterion variables included the MBSRQ-AS subscales, MAEDS subscales, BDI, and the RSE. For each regression analysis, the SPAS were entered first and FNAES was entered second. BMI was not included as a predictor because it did not correlate with the FNAES. The FNAES predicted unique variance beyond that explained by SPAS for 9 of the 13 analyses. Table 3 shows the unstandardized regression coefficients for the full model, the R^2 change, and the accompanying statistics for each analysis.

4. General discussion

These two studies suggest that the FNAES may offer a useful measure of a construct that could potentially benefit not only risk factor work, but also preventive and early intervention studies. Although the FNAES correlates significantly with related constructs such as general FNE and social physique anxiety, there exists clear unique variance, and the predictive validity of the measure was supported by regression analyses showing that the FNAES predicts variance beyond the related constructs of general negative appearance evaluation and social physique anxiety.

Certainly, more work is needed with this scale, including replication in other laboratories, convergence work with additional measures, and extension to samples other than college age men and women. In addition, it would be useful to evaluate the scale as a predictor of response to experimentally manipulated variables, such as negative interpersonal interactions or feedback. It would be most interesting to determine if the FNAES is predictive of the onset of disordered eating and/or body image disturbance in prospective research. Also, it would be important to determine via prospective work whether fear of appearance evaluation precedes or follows onset of disturbed body image and whether there are unique interpersonal experiences associated with fear of negative appearance evaluation.

Appendix A. Fear of Appearance Evaluation Scale

1. I am concerned about what other people think of my appearance.				
1	2	3	4	5
not at all	slightly	moderately	very	extremely
2. It bothers me if I know someone is judging my physical shape.				
1	2	3	4	5
not at all	slightly	moderately	very	extremely
3. I worry that people will find fault with the way I look.				
1	2	3	4	5
not at all	slightly	moderately	very	extremely
4. When I meet new people, I wonder what they think about my appearance.				
1	2	3	4	5
not at all	slightly	moderately	very	extremely
5. I am afraid other people will notice my physical flaws.				
1	2	3	4	5
not at all	slightly	moderately	very	extremely
6. I think that other people's opinions of my appearance are too important to me.				
1	2	3	4	5
not at all	slightly	moderately	very	extremely

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