Development and exploration of the gratitude model of body appreciation in women

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ABSTRACT

Although researchers and clinicians recognize the importance of positive body image for women's well-being, development of theoretical frameworks for understanding positive body image has not kept pace with research documenting its many benefits. The present study proposed and tested a comprehensive model linking gratitude, contingent self-worth, social comparison, body appreciation, and intuitive eating. Path analysis indicated that this model fit the data for a sample of college and online community women ($N = 263$). Gratitude was indirectly linked to body appreciation via lower investment in self-worth based on appearance and others' approval, and via lower engagement in eating and body comparison. Gratitude had a strong direct effect on body appreciation, and body appreciation accounted for a large portion (88%) of gratitude's relationship with intuitive eating. These results provide strong preliminary support for the model, revealing that gratitude, which can be improved via intervention, plays a key role in body appreciation.

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1. Introduction

In the last decade, there has been a surge of interest in women's positive body image, as researchers have recognized that healthy body image consists of more than the absence of problematic attitudes and behaviors (Tylka & Wood-Barcalow, 2015b). However, development of theoretical frameworks for understanding positive body image has lagged behind studies documenting its many benefits. An important exception is the *acceptance model of intuitive eating*, a model that is rooted in humanistic and objectification theories, and centers on the development of positive body image (Avalos & Tylka, 2006). A central premise of the model is that unconditional body acceptance by others helps to loosen women's concern about meeting societal appearance ideals, and directs their attention away from their outward appearance and toward the way their bodies feel and function. While substantial empirical support for this model has accumulated (see Tylka, 2017), other relevant positive psychological traits have not been considered within models of positive body image.

Gratitude, or the tendency to notice and be thankful for the positive aspects of life (Wood, Froh, & Geraghty, 2010), is a trait that may offer benefits for positive body image. Recent work has established that gratitude has robust associations with both emotional and physical well-being, and has potential for promoting positive functioning and psychological strengths (Wood et al., 2010). Consistent with the call for research that seeks to understand and nurture psychological flourishing (Seligman, Rashid, & Parks, 2006), it is important to explore how gratitude might contribute to healthy and affirming attitudes toward the body. Using the acceptance model as a guiding framework, the present study tested a path model that included gratitude, positive body image, and potential mediators of the relationship between these constructs.

1.1. The acceptance model of intuitive eating

The acceptance model addresses the development of two key constructs that represent positive, embodied, and adaptive alternatives to dysfunctional body-related attitudes and behaviors: body appreciation and intuitive eating. Body appreciation is defined as accepting, favorably evaluating, and caring for the body, while also rejecting narrowly-defined cultural ideals as the only definition of beauty (Avalos, Tylka, & Wood-Barcalow, 2005). Body appreciation is distinct from low levels of dysfunctional body attitudes

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(Avalos et al., 2005; Tylka & Wood-Barcalow, 2015a) and is positively linked with a substantial repertoire of desirable psychological characteristics (for a review, see Tylka, 2017). Body appreciation has been found to predict future levels of intuitive eating (Andrew, Tiggemann, & Clark, 2016), which is defined as a flexible pattern of eating largely in response to internal hunger and satiety cues rather than in response to emotional or situational cues (Tylka, 2006; Tylka et al., 2015). Intuitive eating also involves freedom to choose foods based on their appeal and their value in meeting bodily needs rather than based on strict rules about "good" or "forbidden" foods. Research has shown that intuitive eating is inversely related to disordered eating symptomatology, and positively related to a variety of markers of psychological and physical well-being (Katzer et al., 2008; Linardon & Mitchell, 2017; Tylka, 2006; Tylka et al., 2015), illustrating that intuitive eating is a behavioral extension of positive body image, that is, taking care of the body by listening to its needs and feeding it well.

The theoretical foundation for the acceptance model derives from humanistic theory and objectification theory. According to humanistic psychologist Carl Rogers, people have an inherent tendency toward growth, fulfillment, and maximizing their own unique 'human beingness' (Rogers, 1961). However, this *actualizing tendency* is constrained by the individual's strong and pervasive need for positive regard from others. When this need is satisfied by significant others, the individual is unencumbered by external conditions of worth, and can flourish. But when people do not receive ready and consistent unconditional positive regard from others, they will seek to think, feel, and behave in ways that will earn the love and respect of others. According to objectification theory (Fredrickson & Roberts, 1997), most women perceive that the way to achieve the regard of others is through appearance. More specifically, the theory posits that Western culture socializes women to *self-objectify*, that is, to view themselves as objects to be looked at and evaluated. As women internalize this view of themselves, they become acutely attuned to their own outward appearance, and detached from an accurate understanding of their own internal states.

Integrating these ideas, the acceptance model posits that when women perceive general unconditional acceptance by others, they are more likely to perceive that their bodies are accepted by others, and they are better equipped to resist self-objectification (Avalos & Tylka, 2006). Rather than focusing on and habitually monitoring their outward appearance, women who perceive that their bodies are accepted by others are more in tune with how their bodies feel and function. This internal awareness facilitates both body appreciation and intuitive eating as women attend to their bodies' needs. Finally, body appreciation is a proximal predictor of intuitive eating in the model because women who appreciate their bodies respect and care for them by eating adaptively.

The acceptance model has garnered substantial empirical support among undergraduate women (Avalos & Tylka, 2006), college athletes (Hahn Oh, Wiseman, Hendrickson, Phillips, & Hayden, 2012), and community adult women (Augustus-Horvath & Tylka, 2011). A test of an expanded version that included exercise motives again confirmed the model in both men and women, although paths were generally weaker for men (Tylka & Homan, 2015). A modified version of the model that incorporated social appearance comparison as an additional predictor of body appreciation and intuitive eating was upheld in a sample of adolescents (Andrew, Tiggemann, & Clark, 2014), and a longitudinal investigation of this modified model supported the proposed relationships over a 1-year time interval (Andrew et al., 2016).

Given the numerous physical and psychological benefits of positive body image (see Tylka, 2017), clinicians may be interested in helping clients increase their body appreciation. Although the acceptance model suggests that the starting point for positive body image is unconditional body acceptance and approval from other people, it is perhaps not realistic to think that interventions can target how other people communicate their acceptance or disapproval of a client's body. Therefore, it is important to explore other constructs that contribute to positive body image that are more amenable to intervention.

1.2. Gratitude

At the dispositional level, gratitude has been defined as a habitual orientation toward noticing and appreciating the positive in the world (Wood et al., 2010). It is linked with a wide range of desirable psychological attributes, including life satisfaction, optimism, hope, positive affect, empathy, and forgiveness (McCullough, Emmons, & Tsang, 2002; Neto, 2007), as well as reduced symptoms of psychological distress (Kashdan, Uswatte, & Julian, 2006; Wood, Maltby, Gillett, Linley, & Joseph, 2008). Gratitude's links with emotional well-being are so strong and consistent that it has been described as the "poster child" of positive psychology (Watkins, 2014, p. 7). Furthermore, experimental work has shown that gratitude causes positive affect rather than merely being associated with it (Emmons & McCullough, 2003; Froh, Sefick, & Emmons, 2008). For example, in a study that is now regarded as classic, participants who kept daily gratitude lists for two weeks showed increases in positive affect relative to participants who kept daily lists of hassles or downward social comparisons (Emmons & McCullough, 2003). Increases in positive affect were mediated by changes in gratitude across the intervention period.

One explanation for why gratitude enhances well-being is the *amplification model of gratitude* (Watkins, 2014). According to Watkins' formulation, gratitude identifies the good things in life and magnifies them, bringing them into clear and sharp focus. As a result, the individual is motivated to think and behave in ways that will enhance these good things, which ultimately is conducive to well-being. Many of the predictions stemming from the amplification model have been supported. For example, if gratitude amplifies the good that one sees in others, then it follows that grateful people would be more likely to exhibit prosocial traits, such as empathy or forgiveness. Indeed, evidence supports this idea (McCullough et al., 2002; Neto, 2007). Similarly, if gratitude amplifies not only the good that the individual sees in others, but also the good in one's self, then it would be expected that grateful people would have higher self-esteem. This relationship also has been confirmed (Kong, Ke, & Zhao, 2015; Lin, 2015).

Despite evidence that gratitude is beneficial for multiple aspects of well-being, there has been little research exploring its role in body image and eating behavior. To our knowledge, only three studies have addressed this issue. First, an online intervention study randomly assigned women with high body dissatisfaction to a gratitude condition (daily diary entries), a standard cognitive-behavioral condition, or a wait-list control (Geraghty, Wood, & Hyland, 2010). Results showed that the gratitude intervention produced similar improvement in body image to the cognitive-behavioral treatment, and both showed improvement over the control condition. A similar intervention study found that women assigned to a gratitude condition experienced increased body esteem and decreased body dissatisfaction, dysfunctional eating, and depressive symptoms relative to either a cognitive restructuring or control condition (Wolfe & Patterson, 2017). Finally, a media exposure study showed that five minutes of grateful reflection protected women from the detrimental effects of viewing images that exemplified the thin-ideal (Homan, Sedlak, & Boyd, 2014). Although these studies suggest that gratitude might offer benefits for positive body image and eating behavior, none of them directly assessed positive body image or intuitive eating,
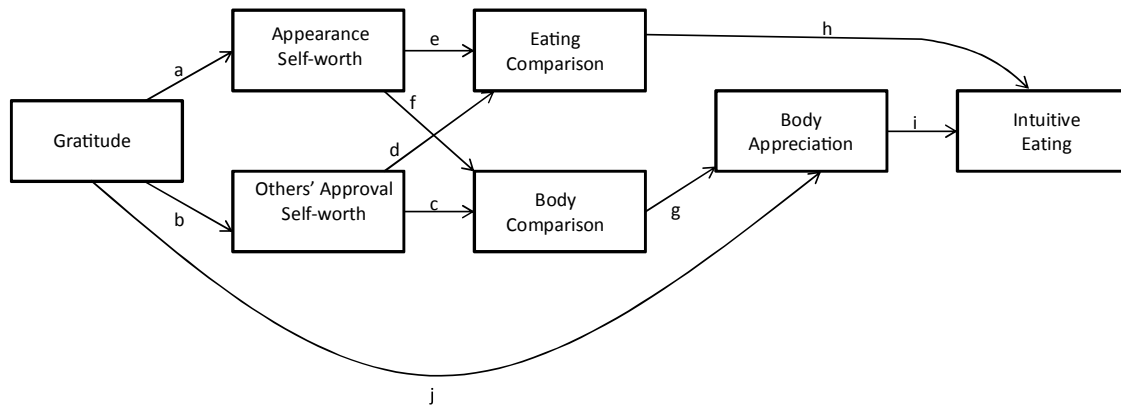
Fig. 1. The hypothesized gratitude model of body appreciation.

nor did they consider potential pathways that might mediate its effects.

1.3. The proposed gratitude model of body appreciation

An integration of a core tenet of the acceptance model (i.e., that reduced concern about outward appearance is conducive to body appreciation) and the amplification model of gratitude suggests possible mechanisms that might connect gratitude, body appreciation, and intuitive eating. First, because gratitude amplifies the positive in women's lives, it is likely that grateful women are aware of their own desirable personal qualities, as well as other sources of self-worth such as meaningful relationships, religious faith, or competence in academics, sports, or career. As a result of this amplified awareness, we reasoned that grateful women would be less inclined to stake their self-worth in their appearance or the approval of others. Previous work has shown that investing self-worth in appearance and others' approval tends to increase appearance concerns (Overstreet & Quinn, 2012), which often manifest through upward social comparisons (Bailey & Ricciardelli, 2010; Patrick, Neighbors, & Knee, 2004). Accordingly, we expected that because women with high dispositional gratitude invest less of their self-worth in appearance or others' approval, they would be less inclined to compare their bodies and eating behaviors with others. Based on evidence that women who make frequent body-related comparisons tend to experience lower body appreciation (Andrew, Tiggemann, & Clark, 2015; Homan & Lemmon, 2015), we predicted an inverse path from body comparison to body appreciation. Furthermore, according to this rationale, these processes operate sequentially. Specifically, we expected that gratitude would show an indirect relationship with body appreciation by loosening the importance of appearance and others' approval to self-worth, which in turn would lower body comparison, and this reduced engagement in body comparison would then raise body appreciation.

A similar process can be used to explain the relationship between gratitude and intuitive eating. Again, as gratitude amplifies the positive that women see in themselves, they are less likely to invest their self-worth in superficial and external sources such as appearance and the approval of others, and this reduced investment is likely to result in less frequent eating comparisons. Although the connection between eating-related comparisons and intuitive eating has not been documented, it is known that comparing one's food choices or portions to what other people are eating generally influences eating behavior (Polivy, 2017). Intuitive eating involves eating in response to internal hunger signals rather than external factors (e.g., what others are eating), so an increased tendency to compare food choices and amounts would likely detract from

intuitive eating. Similar to the sequential pathway connecting gratitude and body appreciation, this rationale proposes that gratitude will indirectly encourage intuitive eating by lessening the importance of appearance and others' approval to self-worth, which in turn will lower the need to engage in eating-related comparisons, which subsequently will preserve eating based on internal hunger and satiety cues. We therefore predicted that gratitude would have an indirect effect on intuitive eating through the serial pathway including domains of self-worth and eating comparisons. Finally, consistent with previous research (Andrew et al., 2014, 2015, 2016; Avalos & Tylka, 2006; Hahn Oh et al., 2012; Tylka & Homan, 2016), and borrowing an essential pathway within the acceptance model of intuitive eating, we expected that body appreciation would be directly associated with higher levels of intuitive eating, as intuitive eating is a behavioral manifestation of caring for, being attuned to, and appreciating the body.

Therefore, the purpose of the present study was to test the newly developed gratitude model of body appreciation that incorporated these ideas. Our conceptual model is illustrated in Fig. 1. It proposes that gratitude will be associated with a reduced tendency to stake one's self-worth in appearance or others' approval (paths a and b, respectively), as gratitude will amplify other positive sources of self-worth. In turn, reduced investment in appearance and the approval of others is expected to be associated with a reduced tendency to make body- (paths c and d) and eating-related (paths e and f) social comparisons. The reduced tendency to make body comparisons should show an inverse relationship with body appreciation (path g), and the reduced tendency to make eating comparisons should show an inverse relationship with intuitive eating (path h). Consistent with the original acceptance model, body appreciation is expected to be a proximal predictor of intuitive eating (path i). Because gratitude and body appreciation share the essential feature of noticing and appreciating the positive, we also anticipated a direct pathway from gratitude to body appreciation (path j). Based on the rationale described previously, gratitude is expected to have an indirect effect on body appreciation through the serial pathway including domains of self-worth and body comparison, and gratitude is also expected to have an indirect effect on intuitive eating through the serial pathway including domains of self-worth and eating comparisons. We proposed one central hypothesis (Hypothesis 1) and two subsidiary hypotheses (Hypotheses 2 and 3):

Hypothesis 1. The model in Fig. 1 will fit the data, and the specified paths (a–j) will be significant.

Hypothesis 2. Gratitude will have a significant indirect effect on body appreciation through the serial mediation pathway from gratitude → *appearance* self-worth → body comparison → body appreciation (H2a) as well as the serial mediation

pathway from gratitude → *others*' approval self-worth → body comparison → body appreciation (H2b).

Hypothesis 3. Gratitude will have a significant indirect effect on intuitive eating through the serial mediation pathway from gratitude → *appearance* self-worth → eating comparison → intuitive eating (H3a) and the serial mediation pathway from gratitude → *others*' approval self-worth → eating comparison → intuitive eating (H3b).

2. Method

2.1. Participants and procedure

All procedures were approved by the first author's university Institutional Review Board, and all data were collected by the first author. A brief description of the study, including estimated duration and compensation, was posted on Amazon's Mechanical Turk (MTurk) website. The present study was advertised to MTurk workers from the U.S. who had achieved at least a 98% approval rate for previous work and completed at least 10,000 hits. Additionally, a subset of participants was recruited from psychology courses at a small, U.S. liberal arts institution who also completed the survey online. The study was described to all participants as an exploration of positive psychological constructs such as life orientation, self-acceptance, and body-related attitudes and behaviors. Interested participants were directed to a survey link; women were routed to the present study, whereas men were routed to another study. The initial development and test of our model was based on a sample of women for two reasons. First, gratitude interventions related to improving body dissatisfaction and disordered eating have only been conducted with women (Geraghty et al., 2010; Wolfe & Patterson, 2017), and this research shaped the development of our model. Second, we used the only existing measure that assesses both body- and eating-related comparisons, but this measure has not been validated for men (Fitzsimmons-Craft, Bardone-Cone, & Harney, 2012).

Before proceeding, participants were required to read and indicate that they understood the informed consent information, and that they agreed to participate. After providing their consent, the measures described below were presented in random order. In exchange for completing the survey, MTurk participants were paid $2.50, and those recruited from the liberal arts college received course credit. Two attention checks were embedded in the survey (e.g., "To make sure you are paying attention, please answer strongly disagree"), and those who failed either check ($n = 15$) were not included in the data set. Also, participants with large amounts of missing data ($n = 2$) were excluded from the data set.

The final sample consisted of 263 women (221 from MTurk and 42 from the undergraduate institution). Participants ranged in age from 19 to 76 years ($M = 35.26$ years, $SD = 12.42$). They identified as White (77.9%), African American (10.6%), Asian American (5.3%), Latin American (4.6%), Native American (1.5%), or multiracial (1.1%). The breakdown of educational attainment was as follows: a high school degree or less (13.3%), some college (45.2%), a Bachelor's degree (30.0%), and more than a Bachelor's degree (11.4%). Most participants identified as heterosexual (87.0%); an additional 9.3% identified as bisexual and 3.4% as lesbian.

2.2. Measures

2.2.1. Gratitude

The Gratitude Questionnaire-6 (GQ-6; McCullough, Emmons, & Tsang, 2002) consists of six items that assess experiences and expressions of gratitude in daily life (e.g., "I have so much in life to be grateful for"). Participants indicated agreement with each item using a 7-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Item scores were reversed where necessary and averaged to arrive at a total score. Scores on the GQ-6 are internally consistent, and its validity has been demonstrated via positive correlations with vitality, happiness, satisfaction with life, hope, and optimism (McCullough et al., 2002). Confirmatory factor analysis showed that GQ-6 scores were distinct from these other positive emotions. Cronbach's alpha for this study was .84.

2.2.2. Contingent self-worth

The Contingencies of Self-Worth Scale (CSW; Crocker, Luhtanen, Cooper, & Bouvrette, 2003) is a 35-item scale that assesses seven different domains in which people can invest their self-worth. Only the 5-item Appearance and the 5-item Approval from Others subscales were used in the present study. Participants indicated agreement with its items (e.g., "When I think I look attractive, I feel good about myself." "My self-esteem depends on the opinions others hold of me.") using a 7-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Item responses were averaged, with higher scores reflecting the importance of appearance or the approval of others to participants' sense of self-worth. Scores on both subscales demonstrated internal consistency reliability, construct validity, and discriminant validity among college students (Crocker et al., 2003). Cronbach's alpha for this study was .84 for the Appearance subscale and .87 for the Approval subscale.

2.2.3. Social comparison

Two subscales from the Body, Eating, and Exercise Comparison Orientation Measure (BEECOM; Fitzsimmons-Craft et al., 2012) were used to assess frequency of social comparisons. The Body Comparison subscale (e.g., "I compare my body shape to that of my peers") and the Eating Comparison subscale ("During meals, I compare what I am eating to what others are eating") each consist of six items that are rated on a 7-point scale ranging from 1 (*never*) to 7 (*always*). Item responses were averaged, with higher scores indicating a greater tendency to make comparisons in the respective domains. Among undergraduate women, scores on this subscale have been shown to be internally consistent and stable scores over a 2-week period, and demonstrate evidence of construct validity (Fitzsimmons-Craft et al., 2012). Cronbach's alpha for the current study was .95 for the Body Comparison subscale and .95 for the Eating Comparison subscale.

2.2.4. Body appreciation

The 13-item Body Appreciation Scale (BAS; Avalos et al., 2005) was used to assess participants' acceptance of and appreciation for their bodies. Its items (e.g., "I take a positive attitude toward my body") are rated on a 5-point scale ranging from 1 (*never*) to 5 (*always*). Item responses are averaged, with higher scores reflecting greater body appreciation. Among college women, scores on the BAS demonstrated internal consistency reliability and 3-week test-retest reliability, a unidimensional factor structure, and positive relationships to appearance evaluation and body esteem (Avalos et al., 2005). It should be noted that an updated version of the BAS is now available (BAS-2; Tylka & Wood-Barcalow, 2015b); however, the data for this study were collected before publication of the BAS-2. In the present study, Cronbach's alpha for the BAS was .95.

2.2.5. Intuitive eating

The 21-item Intuitive Eating Scale (IES; Tylka, 2006) was used to assess participants' tendency to eat intuitively via granting oneself unconditional permission to eat (e.g., "If I am craving a certain food, I allow myself to have it"), eating for physical rather than emotional reasons (e.g., "I use food to help me soothe my negative emotions"; reverse-scored), and relying on internal hunger

Table 1
Descriptive Statistics and Intercorrelations among Study Variables.

Measure	M (SD)	Response range	1	2	3	4	5	6
1. Gratitude	4.12 (0.72)	1–7	–					
2. Appearance self-worth	4.51 (1.31)	1–7	−.22[***]	–				
3. Others' approval self-worth	3.90 (1.45)	1–7	−.17[**]	.67[***]	–			
4. Body comparison	3.79 (1.50)	1–7	−.08	.68[***]	.56[***]	–		
5. Eating comparison	3.31 (1.43)	1–7	.00	.48[***]	.46[***]	.80[***]	–	
6. Body appreciation	3.46 (0.81)	1–5	.42[***]	−.56[***]	−.44[***]	−.52[***]	−.40[***]	–
7. Intuitive eating	3.35 (0.61)	1–5	.14[*]	−.48[***]	−.38[***]	−.54[***]	−.46[***]	.61[***]

Note. N = 263.
[*] $p < .05$.
[**] $p < .01$.
[***] $p < .001$.

and satiety cues (e.g., "I trust my body to tell me how much to eat"). Items are rated on a 5-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Scores were reversed where necessary and averaged to create a total score, with higher scores indicating higher levels of intuitive eating. Scores on the IES have yielded evidence of internal consistency and 3-week test-retest reliability, and convergent and discriminant validity have been upheld via its inverse relationship with disordered eating symptoms and poor interoceptive awareness and its nonsignificant relationship with impression management (Tylka, 2006). An updated edition of this measure is now available (Tylka & Kroon Van Diest, 2013), but due to an oversight, the original version was used in this study.

2.2.6. Demographic form

Participants reported their sex (for verification of being female), age, ethnicity, and sexual orientation.

3. Results

3.1. Preliminary analyses

Data were examined for skew and kurtosis. All variables were within recommended limits for path analysis (that is, absolute values less than 3.0 for skew and less than 10.0 for kurtosis; Kline, 2010). Less than 1% of cases was missing for any single variable; therefore, mean substitution was used to replace missing data. We did not exclude outliers because all measures had item response scales with fixed upper and lower limits. Very high or very low scores (respective to the mean) represented natural variation in responses that we wanted to capture in our data. Variable means, standard deviations, and correlations are presented in Table 1.

3.2. Path analyses

We tested the pathways specified in our gratitude model of body appreciation (see Fig. 2) using MPlus Version 7.0 (Muthén & Muthén, 2012). We permitted the two contingent self-worth subscales (appearance and approval) to correlate and the two social comparison subscales (body and eating) to correlate, as they are components of the same scale and likely share method variance (Kline, 2010). Maximum likelihood was used to estimate the parameters, and the individual scales or subscales were treated as observed variables because our sample size was not large enough to estimate latent variables (i.e., with three indicators per latent variable, 60 parameters would need to be estimated, requiring between 300 and 600 participants according to the 5–10 participants-to-parameter ratio needed to confidently examine a model; Kline, 2010). We determined adequacy of model fit using three indices recommended by Hu and Bentler (1999): the comparative fit index (CFI), the standardized root-mean-square residual (SRMR), and the root-mean-square error of approximation (RMSEA). According to

Hu and Bentler, values close to .95 for CFI and close to .08 and .06 for SRMR and RMSEA, respectively, indicate a relatively good fit. We did not consider the significance of the χ^2 test when determining model fit. Other researchers have documented problems with the χ^2 test as a fit index; for example, it tends to misrepresent model fit in samples of over 200 participants and within models containing large variable relationships (Kline, 2010; Schermelleh-Engel, Moosbrugger, & Müller, 2003; Vandenberg 2006).

The fit indices for the hypothesized model depicted in Fig. 2 provided mixed evidence for the adequacy of the model, CFI = .96, SRMR = .06, RMSEA = .11. Although the CFI and SRMR were close to recommended values, the RMSEA was poor. Modification indices showed that adding a direct path from appearance self-worth to body appreciation would improve fit. The addition of this path is reasonable and theoretically justified. Body appreciation represents the acceptance and appreciation of one's unique appearance characteristics that do not meet the societal ideal, indicating less investment in a certain socially valued appearance or low appearance self-worth (Tylka & Wood-Barcalow, 2015a). Thus, it would be unreasonable to expect body comparison to societal appearance ideals to fully account for this relationship. Adding this path significantly improved model fit based on the likelihood ratio test, $\Delta\chi^2(1) = 19.00$, $p < .001$. The fit indices indicated relatively good fit of the revised model to the data, CFI = .99, SRMR = .04, RMSEA = .07.

The final model with standardized path coefficients is presented in Fig. 2. All paths were significant at $p < .001$ except the path from approval self-worth to body comparisons and the path from gratitude to approval self-worth which were both significant at $p < .01$. In addition, all paths were in the expected directions. Therefore, H1 was supported, and the model with the additional path specified provided a good fit to the data. Gratitude was related to lower investment in appearance and others' approval and positively related to body appreciation. Investing self-worth in appearance and the approval of others was positively related to body and eating-related comparisons. In turn, body comparisons were related to lower body appreciation and eating-related comparisons were associated with lower intuitive eating. Finally, there was a positive path from body appreciation to intuitive eating.

3.3. Mediation

We tested for mediation using a bootstrapped multiple mediation approach (Hayes, 2013). We used 95% bias-corrected confidence intervals based on 5000 bootstrap samples, with significance of indirect effects based on confidence intervals that did not contain zero. We also examined the total effect, total direct effect, and total indirect effects of gratitude on body appreciation and intuitive eating to obtain a clearer understanding of the relationships between the model variables. The total indirect effect is the sum of all possible specific indirect effects (that is, all possible
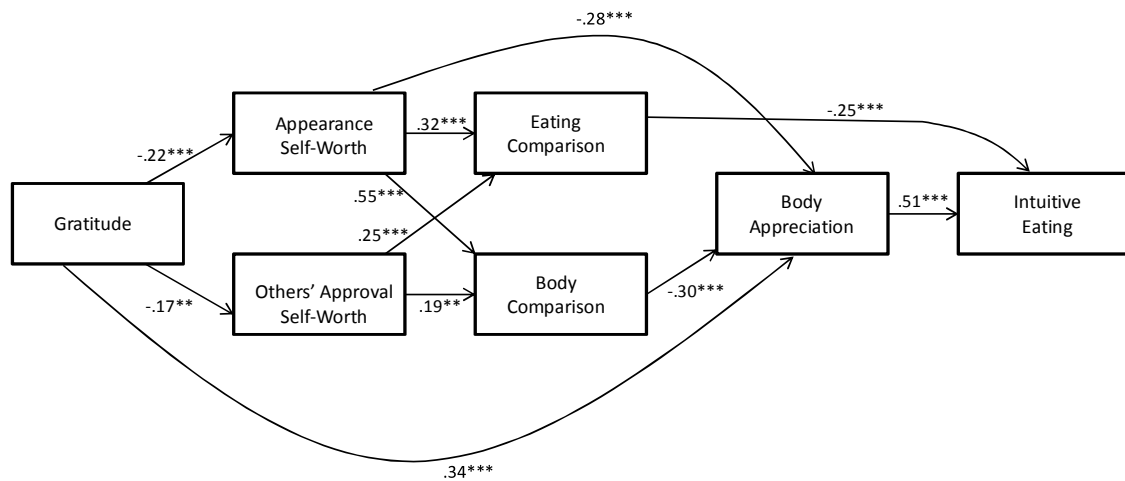
Fig. 2. The final gratitude model of body appreciation which includes an added path from appearance self-worth to body appreciation. Standardized path coefficients are presented. The model assumed a bidirectional relationship between the two conditions of self-worth and a bidirectional relationship between the two types of social comparison. ** $p < .01.$ *** $p < .001.$

pathways from gratitude to body appreciation or from gratitude to intuitive eating).

A summary of the indirect, direct, and total effects of gratitude on body appreciation is presented in Table 2. Gratitude had a substantial total effect on body appreciation and most of this effect was direct. Specifically, .34/.44 or 77.27% of the total effect of gratitude was direct. The total indirect effect was also significant. The serial mediation pathway from gratitude → appearance self-worth → body comparison → body appreciation was significant, upholding H2a. However, H2b was not supported, given that the serial mediation pathway from gratitude → others' approval CSW → body comparison → body appreciation was not significant.

A summary of the effects of gratitude on intuitive eating is presented in Table 3. Our model did not include a direct pathway from gratitude to intuitive eating (refer to Fig. 2); therefore, the total effect of gratitude on intuitive eating was equivalent to the total indirect effect. The total indirect effect was significant. Supporting H3a, the serial mediation pathway from gratitude → appearance self-worth → eating comparison → intuitive eating was significant. However, contrary to expectations (H3b), the serial pathway from gratitude → others' approval self-worth → eating comparison → intuitive eating was not significant. These two pathways stemmed from our original hypotheses and were of primary interest; however, they accounted for only a small proportion of the total indirect effect from gratitude to intuitive eating. Specifically, these two pathways accounted for .03/.25 or 12% of the total effect of gratitude on intuitive eating. The remaining pathways (refer to Fig. 2 and Table 3) all included body appreciation, indicating that most (specifically, .22/.25 or 88%) of gratitude's relationship with intuitive eating was conveyed through body appreciation.

4. Discussion

The present study developed and examined the gratitude model of body appreciation, a theoretical model that suggests that gratitude is connected to body appreciation and intuitive eating because it amplifies the good individuals see in themselves, thereby focusing them on their positive internal characteristics and lowering their need to invest their self-worth in their appearance or the approval of other people. This lower investment in external characteristics of appearance and others' approval then lowers their body- and eating-related social comparison tendencies. A reduced propensity for making body-related comparisons is thought to then enhance body appreciation, and a reduced propensity for mak-

ing eating-related comparisons is expected to facilitate intuitive eating. While the correlational nature of the present study's data prohibits causal conclusions about the direction of the paths, we note that the overall structure of the variable relationships within the model was supported, with one addition: the data supported a direct pathway from lower appearance self-worth to higher body appreciation. While the decision to include the path in the final model was determined in part via the data, this direct pathway also has theoretical relevance. Specifically, in addition to rejecting unrealistic cultural ideals about outward appearance, body appreciation is defined as showing respect and care for the body, regardless of how it looks. Thus, when one's self-worth is not overly invested in appearance, the individual has freedom to accept and respect her body, independent of concerns about how she measures up to others. We therefore propose that this link be included in future examinations of the gratitude model of body appreciation.

Overall, this study is the first to propose a process by which gratitude might influence body image and eating behavior. As expected, women with high dispositional gratitude were less likely to invest their self-worth in their outward appearance or in the approval of other people. This finding is consistent with the idea that by amplifying the good in their own lives, gratitude helps to direct women's sense of self-worth toward other positive aspects of their lives. Thus, our gratitude model shares a fundamental tenet with Avalos and Tylka's (2006) acceptance model in that both highlight the importance of loosening concerns with outward appearance or earning regard through physical attractiveness. However, a key difference is that gratitude places the emphasis on an intrapersonal and modifiable variable (which can then be increased by the self or via therapy) rather than an interpersonal variable that is dependent on others to change their behavior (i.e., others must agree to be more unconditionally accepting of another individual's body and alter their behavior as needed) to facilitate body appreciation.

While our correlational data provide preliminary evidence for the strong connection between gratitude and body appreciation, experimental work is needed to determine whether gratitude indeed increases body appreciation. If supported, an important clinical implication of our gratitude model of body appreciation is that increasing gratitude might be an effective way to promote positive body image within therapy. Indeed, there is evidence that it is possible to increase gratitude through various interventions such as keeping daily gratitude lists or expressing thankfulness in a letter to a benefactor. Two recent meta-analyses explored this issue and concluded that brief gratitude interventions have small but consis-

Table 2
Summary of Mediation Pathways Linking Gratitude with Body Appreciation through Contingent Self-Worth and Body Comparison.

Effect	β (SE)	95% CI
Gratitude → Appearance self-worth → Body Comparison → Body Appreciation	.04 (.01)[*]	(.01, .06)
Gratitude → Others' approval self-worth → Body Comparison → Body Appreciation	.01 (.01)	(−.001, .02)
Gratitude → Appearance self-worth → Body Appreciation	.07 (.02)[*]	(.02, .10)
Total indirect effect of gratitude on body appreciation	.11 (.03)[**]	(.05, .16)
Direct effect of gratitude on body appreciation	.34 (.05)[**]	(.24, .43)
Total effect of gratitude on body appreciation	.44 (.05)[**]	(.35, .54)

[*] $p < .01$.
[**] $p < .001$.

Table 3
Summary of Mediation Pathways Linking Gratitude with Intuitive Eating through Contingent Self-Worth and Social Comparison.

Effect	β (SE)	95% CI
Gratitude → Appearance self-worth → Eating Comparison → Intuitive eating	.02 (.01)[*]	(.004, .03)
Gratitude → Others' approval self-worth → Eating Comparison → Intuitive eating	.01 (.01)	(.00, .02)
Gratitude → Appearance self-worth → Body Comparison → Body Appreciation → Intuitive eating	.02 (.01)[*]	(.004, .03)
Gratitude → Others' approval self-worth → Body Comparison → Body Appreciation → Intuitive eating	.01 (.01)	(.00, .01)
Gratitude → Appearance self-worth → Body Appreciation → Intuitive eating	.03 (.01)[**]	(.01, .05)
Gratitude → Body Appreciation → Intuitive eating	.17 (.03)[**]	(.12, .22)
Total indirect effect of gratitude on intuitive eating	.25 (.03)[***]	(.19, .32)
Direct effect of gratitude on intuitive eating	–	–
Total effect of gratitude on intuitive eating	.25 (.03)[***]	(.35, .54)

[*] $p < .05$.
[**] $p < .01$.
[***] $p < .001$.

tent positive effects on gratitude and emotional well-being (Davis et al., 2016; Dickens, 2017). Davis et al. (2016) noted that most of the interventions they reviewed were quite brief, and suggested that more time-intensive treatments might produce larger, more permanent improvements in dispositional gratitude. Nevertheless, this is an avenue of research that is ripe for discovery and that may provide tools for clients to improve their positive body image.

In addition to the overall fit of the model, two of the serial mediation pathways upheld the proposed mechanism connecting gratitude with body appreciation and intuitive eating. These significant serial pathways suggest that gratitude, appearance self-worth, and social comparison work synergistically in their connections to body appreciation and intuitive eating. Despite this finding, most of the relationship between gratitude and body appreciation was direct, and most of the indirect relationship between gratitude and intuitive eating occurred via body appreciation. Consequently, although we found evidence for these indirect mechanisms, it appears that gratitude itself orients the individual in a way that is conducive to body appreciation. Gratitude scholar Philip Watkins (2014) has argued that grateful people are keenly aware of what is good in their lives, and this awareness leads them to seek out things or people that will enhance their own happiness. In support of this idea, it has been shown that people with positive body image seek out others who also are accepting of their own bodies, and who embrace wide conceptualizations of beauty (rather than narrow, culturally prescribed standards of beauty and thinness; Tylka & Iannantuono, 2015; Wood-Barcalow, Tylka, & Augustus-Horvath, 2010). Watkins has also proposed that gratitude promotes self-acceptance because to experience gratitude implies that the self is worthy of receiving good. By definition, body appreciation includes acceptance of the body, and consistent with Watkins' explanation, body appreciation has been shown to relate to both self-esteem and self-compassion (Albertson, Neff, & Dill-Shackleford, 2014; Avalos et al., 2005; Wasylkiw, MacKinnon, & MacLellan, 2012).

Neither of the serial pathways involving staking one's self-worth in the approval of others was significant, suggesting that lowering one's investment in appearance is the more salient process by which gratitude relates to body appreciation and intuitive eating. Yet, we note that consistent with our hypotheses, elevated grati-

tude was linked with reduced investment of self-worth in others' approval. Further, women who invested more of their self-worth in others' approval also tended to make more body- and eating-related comparisons. We conclude that staking self-worth in the approval of others has conceptual importance for this model, but future research should incorporate other measures that capture ways that gratitude amplifies awareness of one's own positive qualities and helps focus on attributes other than external appearance.

Consistent with previous research (Augustus-Horvath & Tylka, 2011; Avalos & Tylka, 2006), we found that body appreciation was strongly related to intuitive eating. An important finding was that gratitude was linked with intuitive eating primarily via body appreciation, highlighting the central role of body appreciation in our model. The amplification model of gratitude (Watkins, 2014) is again relevant for understanding the connection between body appreciation and intuitive eating. Essentially, body appreciation can be thought of as a form of gratitude that recognizes and amplifies the good in one's body. This awareness of what is good about one's body will lead the individual to value the body more, and to treat it in a way that will enhance it. Presumably, intuitive eating is a means of enhancing the body by responding to its needs (e.g., hunger and satiety cues) with adequate and appealing foods. Longitudinal work has shown that body appreciation prospectively predicts intuitive eating, supporting the idea that there is a causal relationship between these constructs (Andrew et al., 2016); an important direction for future research would be to explore the effects of gratitude interventions on body appreciation (and in turn, intuitive eating).

While this study is the first to incorporate gratitude in a model of positive body image, certain limitations should be acknowledged. As noted previously, we used a cross-sectional, correlational design. While structural equation modeling techniques can test whether hypothesized relationships among variables are consistent with the data, they do not confirm proposed causal relationships. Even when a structural model provides good fit, it is still possible that unmeasured third variables are driving observed relationships, or that causation proceeds in a different direction. Therefore, this study represents the necessary "first step" in research on the gratitude model of body appreciation to establish the vari-

able associations, rendering future studies employing prospective longitudinal or experimental designs both justified and needed. Similarly, it is important to note that the mediation effects in the current study should be interpreted with caution due to its cross-sectional design, as estimates of mediation are more precise within longitudinal designs (Maxwell & Cole, 2007). Second, although we found evidence for the hypothesized pathways, much of gratitude's association with body appreciation and intuitive eating was direct, suggesting that additional mediators may play a role in explaining the model relationships. Third, our sample included predominantly White, educated women. Our model needs to be confirmed in samples of women of diverse ages, ethnicities, developmental levels, and sexual orientations.

Furthermore, research that addresses gratitude, body image, and eating behavior has generally excluded men and this limitation is true of the present study. We therefore encourage researchers to explore the gratitude model of body appreciation in men, while considering a few caveats. First, masculinity norms may make men less willing to express gratitude (Kashdan, Misra, Breen, & Froh, 2009) and try gratitude interventions (Kaczmarek, Kashdan, Drążkowski, Bujacz, & Goodman, 2014), as men are often socially discouraged, and women encouraged, to experience and express their gratitude (Kashdan et al., 2009). Therefore, the connection between gratitude and body appreciation may be weaker for men compared to women, both in cross-sectional research and experimental intervention research. Second, the measure to assess body and eating comparison, the BEECOM, was developed for women; researchers would need to develop a measure of body- and eating-related comparison that yields evidence of validity with men. Third, body appreciation and intuitive eating have been found to be more strongly connected for women than for men (Tylka & Homan, 2015). These caveats may alter the strengths of the paths within, and overall fit of, the gratitude model of body appreciation for men.

Despite these limitations, this study makes an incremental contribution to the gratitude, body image, and eating behavior literatures. It is the first study to propose and test potential mediating pathways between gratitude, body appreciation, and intuitive eating as well as examine these variables within a structural model. While it borrows certain principles from the previously developed acceptance model of intuitive eating (Avalos & Tylka, 2006), it incorporates a key variable (gratitude) that is more amenable to change than general unconditional acceptance and unconditional body acceptance by others. The study adds to the growing evidence that gratitude—sometimes known as the "quintessential" positive psychological trait (Geraghty et al., 2010, p. 31)—contributes to psychological flourishing and potentially offers new avenues for clinicians seeking to improve their clients' well-being. We encourage researchers to investigate the gratitude model of body appreciation with diverse samples using longitudinal and experimental designs to understand its applicability and value in understanding and promoting positive body image.

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