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ORIGINAL ARTICLE

The Relationship between Mother-Daughter Self-Objectification: Identifying Direct, Indirect, and Conditional Direct Effects

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Abstract Grounded in aspects of objectification theory, social learning theory, and attachment theory, we investigated the extent to which mothers' and daughters' self-objectification were related to one another's and also identified three potential intervening factors. Specifically, we hypothesized a (statistical) direct effect of mothers' self-objectification on that of their daughters' (H1), as well as investigated a conditional direct effect (i.e., maternal care) (H2) and two indirect effects (i.e., co-rumination and mothers' weight concerns) (H3) as intervening factors that may help explain the relationship between mothers' and daughters' self-objectification. A sample of 199 U.S. undergraduate women and their mothers completed an online survey; daughters and mothers mean ages were 19.42 and 50.15, respectively, with a majority of them reporting a normal body mass index (daughters: 23.05; mothers: 25.74) and being White/Caucasian (daughters: 79.4 %; mothers: 80.9 %). The results generally supported the hypotheses. First, H1 was confirmed: Mothers' and daughters' self-objectification were positively related to one another's. Second, perceived maternal care was found to moderate this relationship, such that daughters reported higher levels of self-objectification when they perceived their mothers to be less caring; thus, H2 was confirmed. Third, H3 was partially confirmed: Perceived co-rumination about weight with mothers, but not perceived mothers' weight-related concerns, was found to be a significant mediator. These results suggest that mothers can serve as protective or inhibitory factors in daughters' experience of self-objectification depending on mothers' level of care and their direct communication with their daughters' about their bodies.

Keywords Mother-daughter · Objectification · Maternal care · Co-rumination · Weight concerns

Introduction

Compared to men, women in the U.S. are more likely to learn to view their bodies from external perspectives (Bakhshi 2011; McKinley and Hyde 1996). Objectified portrayals of women in a variety of media (e.g., television commercials, prime-time television, magazines; Grauerholz and King 1997; Krassas et al. 2003; Lin 1997) perpetuate a normative discontent among U.S. women about their bodies (Fredrickson and Roberts 1997; Rodin et al. 1984). Although men are increasingly objectified in the media (Grieve and Helmick 2008; Wiseman and Moradi 2010), it is clear that the negative effects of objectification on body image outcomes (e.g., disordered eating attitudes, body shame, etc.) are stronger and more consistent for U.S. women compared to U.S. men (e.g., Grabe et al. 2007). However, despite the fact that U.S. women are inundated with objectified media messages, not all of these women experience objectification and dissatisfaction with their bodies. One reason for this might be that body-related expectations and ideals reinforced and learned by more immediate sociocultural factors (e.g., the family) play a major role in one's self view. Investigating these more immediate factors is important because those closest to an individual are most influential in contributing to one's perception of self; for example, research finds that more positive family relationships protect U.S.

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women from experiencing poor body image (Ackard et al. 2006; Katz-Wise et al. 2012).

Mothers, in particular, tend to have a great impact on daughters' socialization of body image attitudes and ideals via modeling and reinforcement (e.g., Abraczinskas et al. 2012). For instance, in a U.S. sample, it was found that mothers' preoccupation with their weight increased the likelihood that they encouraged their daughters to lose weight and, in turn, this encouragement to lose weight was significantly associated with daughters' restrained eating behavior (Francis and Birch 2005). Because daughters look to mothers as the initial standard of how to behave and communicate, it is likely that mothers' body image attitudes and communication are associated with their daughters'. To further understand this relationship, the current study investigates a sample of U.S. undergraduate women and their mothers in effort to identify whether mothers' self-objectification is associated with that of their daughters'. Additionally, this study seeks to identify different intervening factors (i.e., co-rumination, mothers' weight concerns, maternal care) that may help explain the relationship between mothers' and daughters' self-objectification, as we are unaware of any other studies who explore these or any other mechanisms in this way. Because of cultural differences regarding body image and family relations (e.g., Bakhshi 2011), the findings used to build the rationale for this study are based on U.S. samples unless otherwise noted.

Mother-Daughter Self-Objectification

Women's body experience is a social construction of unattainable ideals and standards of beauty and, therefore, women feel as though their value is derived from their body (Fredrickson and Roberts 1997). The current research is grounded in objectification theory's central premise that women treat their bodies as objects that should be evaluated (Fredrickson and Roberts 1997). Objectification theory posits that women's bodies are objectified because of the social and cultural expectations and pressures endorsed and related to beauty and attraction (for a review of objectification theory, see Moradi and Huang 2008). Objectification is said to occur when "women are treated *as bodies* - and in particular, as bodies that exist for the use and pleasure of others" (Fredrickson and Roberts 1997, p. 175). Because women are socialized with this objectification through the media and in social interactions, women learn to self-objectify, which means that they treat their bodies as objects that should be evaluated and they accept observers' perspectives of their bodies. One way in which self-objectification is behaviorally manifested is through body surveillance (e.g., Katz-Wise et al. 2012; McKinley 1999), which refers to women's constant evaluation of their bodies from an external standpoint (e.g., thinking about how others think she looks, comparing her body to others and the cultural standards, etc.). When women experience self-objectification and engage in body surveillance, they become self-conscious about and preoccupied with their own and others' views of self.

Objectification theory helps explain how social factors may affect women's body image attitudes (Thompson et al. 1999), but it is possible that more immediate factors also contribute to women's sense of self. Because the current research is interested in the shared relationship between mothers' and daughters' self-objectification, social learning theory is also utilized as a theoretical foundation. Social learning theory puts forth that people acquire different behaviors through the observation and modeling of others' behaviors, including gendered behavior such as objectification (e.g., Bussey and Bandura 1999). Modeling processes play an important role in the acquisition of behavior, especially among children. Children are motivated to turn off (i.e., inhibitors) or turn on (i.e., disinhibitors) behaviors by observing other people's behaviors, such as their parents', and the consequences of those behaviors. When parents' behaviors are observed to have positive outcomes or if there are no negative consequences, children become motivated to enact those same behaviors regardless of if it is a maladaptive behavior (e.g., body surveillance). Together, objectification theory and social learning theory provide a solid foundation for how cultural expectations and family members' communication are associated with individuals' self-perceptions.

Direct Effect on Mother-Daughter Self-Objectification

Research investigating the relationship between mothers' and daughters' self-objectification reveals an inconsistent relationship between mothers' and their children's self-objectification. First, McKinley (1999) was interested in age differences in self-objectification in the familial context. In a sample of U.S. mothers (M_{age} = 46.32) and daughters (M_{age} = 18.41), their body surveillance was found to be positively related to one another's, suggesting that daughters may be modeling their mothers' self-objectification; however, daughters reported higher levels of body surveillance than their mothers. Second, Crawford et al. (2009) compared perceptions of objectification between U.S. mothers (M_{age} = 54.75) and daughters (M_{age} = 26.63) with Nepali (a non-Western, developing country) mothers (M_{age} = 48.78) and daughters (M_{age} = 23.78). It was revealed that U.S. women experienced higher levels of body surveillance than Nepali women and daughters in both cultures experienced higher levels of body surveillance than their mothers. They also found that mothers' and daughters' objectification scores were not significantly related to one another's, suggesting that different age cohorts may experience different pressures regarding objectification. Lastly, in a sample of U.S. adolescent females and males (M_{age} = 15.5) and their mothers (M_{age} = 41.67), Katz-Wise et al. (2012) found that mothers' body surveillance was

negatively associated with that of their children's; the authors conclude that this may be a way in which children individuate (vs. identify) with their mothers. Although there are differing findings between these studies, it is hypothesized that mothers' and daughters' self-objectification are positively associated with one another's in the current sample (H1) given that, theoretically, daughters do tend to learn cultural and gendered behaviors from their mothers (e.g., Bussey and Bandura 1999).

Despite these inconsistent findings, research finds that mothers indirectly and directly communicate with their children about body image and weight concerns (e.g., Abraczinskas et al. 2012; Cooley et al. 2008; Neumark-Sztainer et al. 2010). So although explanations for these incongruent findings might be a product of the different samples that were utilized (e.g., sample size, gender, culture, etc.), it is also possible that intervening factors may help explain whether mothers' and daughters' self-objectification are indeed related. In an effort to help clarify the inconsistencies in past research and to identify nuances in the mother-daughter relationship, the current research also identifies possible conditional direct effects (i.e., moderating effects) and indirect effects (i.e., mediating effects) that may explain the relationship between mothers' and daughters' self-objectification.

Conditional Direct Effect on Mother-Daughter Self-Objectification

The current research takes into account the mother-daughter relationship as a possible buffering agent against daughters' self-objectification. Attachment theory (Bowlby 1969) proposes that individuals' well-being is determined by the relationship with their primary caregiver (usually the mother), such that individuals feel most secure when they have a caregiver who was/is available and responsive. Although attachment is mostly studied in infants and young children, attachment styles affect individuals well into early adulthood (e.g., Miga et al. 2010). One way to retrospectively explore young adults' attachment and relationships with their caregiver is to measure perceptions of their caregiver's tendency to express care and involvement versus indifference and rejection – i.e., maternal care (e.g., Safford et al. 2007). Having a mother who expresses care and warmth helps children develop secure attachments, which directly influences their well-being and helps them experience healthy cognitive states (Mikulincer et al. 2003). Past research supports this claim in regard to body image outcomes as well. A more positive mother–child relationship is associated with lower body shame and higher body esteem in adolescents and individuals with a history of low parental care report higher levels of body dissatisfaction and a more negative body image (Ackard et al. 2006; Katz-Wise et al. 2012), suggesting that the quality of the relationship with one's mother may serve as a protective factor against poor body image. As such, we hypothesize a conditional direct effect of mothers' self-objectification on their daughters' self-objectification depending on daughters' reports of perceived maternal care. Specifically, it is predicted that the quality of the mother-daughter relationship moderates the relationship between mothers' and daughters' self-objectification, such that higher levels of perceived maternal care mitigate the effect of mothers' self-objectification on their daughters' self-objectification and lower levels of perceived maternal care accentuate the relationship between mothers' and daughters' self-objectification (H2).

Indirect Effects on Mother-Daughter Self-Objectification

We also hypothesize that there may be an indirect effect of mothers' self-objectification on daughters' self-objectification through specific intervening variables (i.e., perceived co-rumination of weight-related concerns and perceived maternal weight-related concerns). First, *co-rumination* is conceptualized as repeated and frequent discussions of problems occurring in a contemplative manner (Calmes and Roberts 2008; Rose 2002; Rose et al. 2007). One way in which women self-objectify is by engaging in self-evaluative communication about their appearance, as cross-sectional and experimental research finds that higher levels of self-objectification predict higher levels of negative self-talk (Arroyo et al. 2014; Aubrey et al. 2009). Such conversations make appearance and weight salient and socially construct weight and appearance as aspects on which women are evaluated. Second, women who experience higher levels of self-objectification often report higher levels of *weight-related concerns*, including body shame, appearance anxiety, and disordered eating attitudes (Fredrickson and Roberts 1997; Moradi and Huang 2008). As demonstrated in a sample of Australian mother-daughter dyads, this can be problematic for daughters, as mothers, especially, communicate societal values regarding weight and appearance to their daughters through their own attitudes and behaviors (Benedikt et al. 1998). Because children model both healthy and unhealthy behaviors, how children perceive their mothers' weight-related behaviors and concerns can predict children's own weight-related behaviors and concerns (Keery et al. 2006). Therefore, we predict that perceived co-rumination (H3a) and perceived maternal weight concerns (H3b) mediate the relationship between mothers' and daughters' self-objectification: Mothers who self-objectify frequently engage in more self-disparaging conversations about their weight and display more weight-related concerns than mothers who do not self-evaluate as much; in turn, when mothers engage in more weight-related conversations with their daughters and display more weight-related concerns, their daughters report higher levels of self-objectification.

Hypothesized Model

The hypothesized model can be found in Fig. 1. As previously discussed, we propose direct, conditional direct (i.e., moderation), and indirect (i.e., mediation) effects simultaneously (Hayes 2013). Although aspects of this model have been tested individually (e.g., the mother-daughter relationship as a moderator: Katz-Wise et al. 2012), testing these relationships simultaneously in a model provides insight into multiple effects of mothers' self-objectification on daughters' self-objectification and highlights that such a relationship may be more of a *process* than a simple relationship. A review of objectification theory suggests that there needs to be "a conceptual shift" in understanding objectification (Moradi 2010, p. 146), and it is proposed that "a useful conceptual shift may be to consider self-objectification as a process rather than as a specific variable to be measured" (Moradi 2011, p. 157). Hayes (2013) analytical techniques allow for the exploration of such processes even with cross-sectional data. Therefore, utilizing aspects of objectification theory, social learning theory, and attachment theory to disentangle inconsistent findings and to further understand nuances in the relationship between mothers' and daughters' self-objectification, the current study hypothesizes a (statistical) direct effect of mothers' self-objectification on that of their daughters' (H1), as well as a conditional direct effect (i.e., maternal care; H2), and two indirect effects (i.e., co-rumination and mothers' weight concerns; H3) in effort to help further understand the relationship between mothers' and daughters' self-objectification.

Method

Participants and Procedure

Undergraduate female students were recruited from approximately 62 communication classes at a large Southeastern university in the U.S. via information posted on the department website and instructor promotion. Recruitment information stated that the participants should be female, 18 years of age or older, and have a mother figure (e.g., biological mother, step-mother) willing to also participate in the study; they were informed that both they and their mothers would complete separate online questionnaires that would take approximately 30 minutes in effort to help researchers better understand individuals' perceptions of family communication and health. We did not track response rate information, but we estimate that approximately 1100 women heard about this research opportunity in their courses given the average class sizes and the reported female to male ratio on campus. Of the women who were recruited to participate, not all of them were willing to participate or had mothers who were available to participate, resulting in a sample of 199 female students. Female students interested in the study contacted a secure e-mail address, acknowledged that they wished to participate, and provided their own and mothers' names and e-mail addresses. The researchers then separately e-mailed links to mothers and daughters for the respective online surveys. For their participation, daughters earned either extra credit in an upper division class or fulfilled a course requirement for an introductory communication course. Demographic information regarding the mothers and daughters in our sample can be found in Table 1.

Measures

Mothers completed the self-objectification measure and daughters completed measures of self-objectification, perceived maternal care, perceived co-rumination of weight concerns, and perceived mothers' weight-related concerns. Daughters' perceptions of their mothers' behaviors (versus mothers' self-reports of their own behaviors) were measured because daughters' perceptions have been found to be better predictors of daughters' outcomes (Cooley et al. 2008) and

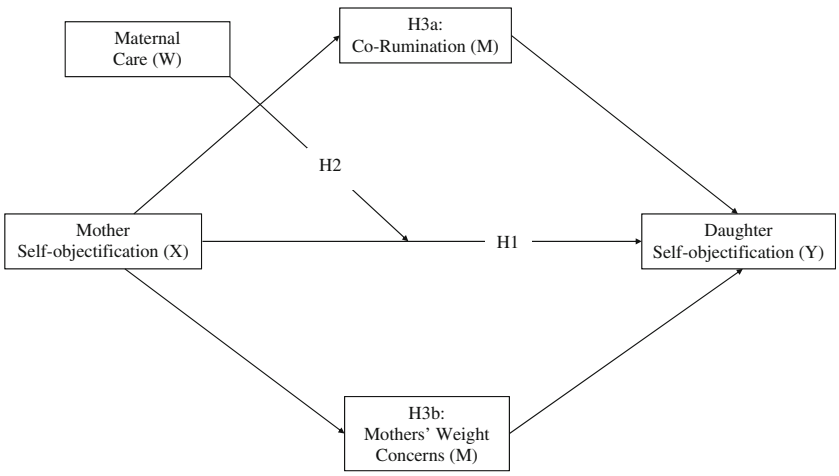

Fig. 1 The hypothesized model

Table 1 Demographic information of mothers and daughters in current sample

	Daughter $n = 199$	Mother $n = 199$
Age		
Range	18–25	36–60
Mean	19.42_1	50.15_1
Standard deviation	1.18	4.51
BMI		
Mean	23.05_2	25.74_2
Standard deviation	3.99	6.12
Underweight	7.0 % ($n = 14$)	3.0 % ($n = 7$)
Normal weight	73.0 % ($n = 144$)	52.0 % ($n = 101$)
Overweight	13.0 % ($n = 25$)	30.0 % ($n = 57$)
Obese	8.0 % ($n = 15$)	16.0 % ($n = 31$)
Race/Ethnicity		
White/Caucasian	79.4 % ($n = 158$)	80.9 % ($n = 161$)
Black/African American	8.5 % ($n = 17$)	8.0 % ($n = 16$)
Asian	6.5 % ($n = 13$)	7.5 % ($n = 15$)
Hispanic/Latina	3.5 % ($n = 7$)	2.5 % ($n = 5$)
Other (not specified)	2.0 % ($n = 4$)	1.0 % ($n = 2$)

Body Mass Index (*BMI*) categories are based on the guidelines set by the Center for Disease Control and Prevention (2015): underweight (< 18.5), normal weight (18.5–24.9), overweight (25.0–29.9), obese (30.0+). Means sharing the same subscripts were tested for mean differences between mothers and daughters: $_1$ $t(222.64) = -92.60$, $p < .05$; $_2$ $t(344.18) = -5.26$, $p < .05$

also better align with social learning theory's concept of observational modeling (Bandura 1977).

Self-Objectification

The Body Surveillance subscale from McKinley and Hyde's (1996) Objectified Body Consciousness Scale, often used as a measure of self-objectification (Grabe et al. 2007; Lindberg et al. 2007), was used to measure participants' evaluation of their own bodies (e.g., "During the day, I think about how I look many times" and "I often worry about whether the clothes I am wearing make me look good"). Mothers and daughters responded to eight items on a 5-point Likert scale (*1 = strongly disagree*; *5 = strongly agree*); item responses were averaged to reflect an overall score, where higher scores denoted higher levels of self-objectification. Psychometric tests of the Objectified Body Consciousness Scale reveal that the body surveillance subscale obtains satisfactory construct, discriminant, and convergent validity, as well as adequate internal consistency and test-retest reliability (McKinley and Hyde 1996). In the current sample, reports of self-objectification yielded satisfactory levels of reliability for both mothers ($\alpha = .81$) and daughters ($\alpha = .81$).

Maternal Care

The Care subscale from Parker et al.'s (1979) Parental Bonding Instrument was used to assess the extent to which daughters perceived their mothers as caring and affectionate within the first 18 years of life. Daughters responded on a 5-point Likert scale (*1 = disagree strongly*; *5 = agree strongly*) to 12 items (e.g., "Please rate the following statements as you remember your mother in your first 18 years: '…made me feel I wasn't wanted' '…seemed emotionally cold to me'"); after the appropriate items were reverse-coded, item responses were averaged together to reflect an overall score, where higher scores demonstrated higher levels of perceived maternal care. Past studies have found satisfactory levels of reliability for this measure (Wilhelm and Parker 1990) and have demonstrated its stability over time in nonclinical samples (Wilhelm et al. 2005). In the current sample, daughters' reports of mothers' weight-related concerns yielded satisfactory levels of reliability ($\alpha = .93$).

Co-Rumination of Weight-Concerns

An adaptation of Rose's (2002) Co-rumination Questionnaire was utilized to measure daughters' perceptions of co-rumination between mothers and daughters, specifically focusing on the degree to which they discuss weight-related concerns (see Arroyo et al. 2015). Daughters responded to six items (e.g., "In general, when my mom and I talk about problems with our weight, '…we repeatedly talk about our problems with our weight over and over again' and '…we talk about our problems with our weight a lot in order to understand why we are so unhappy about our weight'") on 5-point Likert scales (*1 = never*; *5 = always*). Response scores were averaged to demonstrate an overall score, such that higher scores denoted higher levels of co-rumination with their mothers. This measure is commonly used to assess the extent to which individuals discuss weight-related concerns and has been found to obtain adequate internal consistency as well as convergent and discriminant validity (Davidson et al. 2014). In the current sample, daughters' reports of co-rumination yielded satisfactory levels of reliability ($\alpha = .85$).

Mothers' Weight-Related Concerns

The Mother Influence Scale (Levine et al. 1994) was used to measure daughters' perceptions of their mothers weight-related concerns. Using 5-point Likert scales, daughters responded to three items (i.e., "How often is you mother on a diet to lose weight? (1 = *rarely*; 5 = *often*)" "How important is it to your mother that she be as thin as possible? (1 = *not at all important*; 5 = *extremely important*)" and "How important is your mother's physical appearance (shape, weight, clothing) to her (1 = *not at all important*; 5 = *extremely important*)").

Responses were averaged to reflect an overall score of daughters' perceptions of mothers' weight-related concerns, such that higher scores demonstrated higher levels of mothers' concern for appearance and weight. Although the current sample's reports of maternal care obtained marginal levels of reliability ($\alpha = .67$), the Mother Influence Scale has been used in past research and has demonstrated acceptable reliability in nonclinical samples in the U.S. and France (Keery et al. 2004; Rodgers et al. 2009).

Results

Descriptive Statistics

Means and standard deviations for each of the study variables can be found in Table 2. Overall, daughters reported low to mid-range levels of perceived co-rumination and perceived mothers' weight concerns and reported high levels of perceived maternal care. Daughters reported significantly higher levels of self-objectification than their mothers, $t(396) = 5.74$, $p < .05$; Cohen's $d = .58$, but mothers reported significantly higher BMIs than their daughters, $t(344.18) = -5.26$, $p < .05$; Cohen's $d = -.57$, and they were significantly older than their daughters as well, $t(222.64) = -92.60$, $p < .05$; Cohen's $d = -12.41$; Levine's test indicated unequal variances for age ($F = 165.01$, $p < .05$) and BMI ($F = 12.40$, $p < .05$), so degrees of freedom were adjusted from 393 to 222.64 and to 344.18, respectively.

In addition, zero-order correlations for each of the study variables can also be found in Table 2. As shown, mothers' and daughters' body surveillance were positively correlated, but it was a modest correlation. Mothers' and daughters' BMI were positively correlated with one another's; their own BMI scores were not significantly related to their own reports of self-objectification, indicating that self-objectification was not associated with their BMI level. Mothers' self-objectification was negatively associated with daughters' reports of perceived maternal care and positively associated with daughters' reports of mothers' weight-related concerns and co-rumination; additionally, daughters who perceived that their mothers had higher levels of weight-related concerns also reported higher levels of perceived co-rumination with their mothers about these concerns. Lastly, daughters' self-objectification was associated with higher levels of perceived co-rumination, wherein daughters who reported higher levels of self-objectification also reported higher levels of communication about weight with their mothers.

Hypothesis Testing

Hypothesis testing was conducted using Hayes (2013) PROCESS Macro for SPSS. The PROCESS Macro allows for statistical direct, indirect, and conditional direct effects to be assessed simultaneously. The model utilized in the current study (Model 5 in Hayes 2013: see Fig. 1) estimated regression coefficients between (1) the predictor variable (X) and the mediator variable (M; *a* path) and between (2) the mediator and the dependent variable (Y; *b* path), (3) the direct effect of the predictor variable on the outcome variable controlling for the mediator (*c*' path), (4) the indirect effect of the predictor variable on the outcome variable through the mediating variable (*ab* path), and (5) the conditional direct effect of the moderator (W) on the c' path (i.e., the moderating effect on

Table 2 Zero-order correlations for study variables

	1	2	3	4	5	6	7	8	9
1. Daughter BMI	–								
2. Mother BMI	.39 **	–							
3. Daughter age	.32**	.19**	–						
4. Mother age	−.16*	−.21**	−.36**	–					
5. Daughter body surveillance	.05	.03	−.08	.03	–				
6. Mother body surveillance	.04	.03	−.10	.03	.16*	–			
7. Maternal care	.03	.07	.07	−.16*	.13	−.19**	–		
8. Mothers' weight concerns	.18*	−.05	.12	−.16*	.02	.18**	−.03	–	
9. Co-rumination	.22**	−.02	−.04	−.07	.25**	.17*	.06	.39**	–
Mean	23.05_1	25.74_1	19.42_2	50.15_2	3.55_3	3.15_3	4.39	2.63	1.54
Standard deviation	3.99	6.12	1.18	4.51	0.67	0.72	0.74	0.83	0.58
Range (Minimum–Maximum)	14.99–41.15	16.83–65.54	18–25	36–60	1.75–5.00	1.00–4.88	1.00–4.42	1.00–5.00	1.00–4.17

**$p < .01$, *$p < .05$. *BMI* Body Mass Index. BMI categories are based on the guidelines set by the Center for Disease Control and Prevention (2015): underweight (< 18.5), normal weight (18.5–24.9), overweight (25.0–29.9), obese (30.0+)

The computed variables (5–9) were measured on 5-point Likert scales (*1 = strongly disagree*; *5 = strongly agree*); item responses were averaged with higher scores denoted higher levels on each of the respective variables. Means sharing the same subscripts were tested for mean differences between mothers and daughters: $_1$ $t(344.18) = -5.26$*; $_2$ $t(222.64) = -92.60$*; $_3$ $t(396) = 5.74$*

the relationship between the predictor and outcome variable). When testing the indirect effect of X on Y through M, the conditional direct effect of W was accounted for; furthermore, the conditional direct effect of W on the relationship between X and Y was tested while controlling for M. In the current analyses, X is mothers' body surveillance, Y is daughters' body surveillance, M is perceived co-rumination and perceived mothers' weight concerns, and W is perceived maternal care. To test the indirect effects, 5000 bootstrapped resamples were used and generated 95 % bias corrected and adjusted confidence intervals (CI); CIs not including zero demonstrated a statistically significant indirect effect. The two indirect effects were tested simultaneously in the same model along with the conditional direct effect. To test the conditional direct effects, the predictor and moderator variables were mean-centered and significant conditional direct effects were decomposed by plotting the slopes at +/−1 standard deviation (Aiken and West 1991). Mothers' and daughters' BMI and age were covariates in the model.

Results containing unstandardized regression coefficients can be found in Fig. 2. We first hypothesized a direct effect of mothers' self-objectification on their daughters' self-objectification (H1). Figure 2 shows that mothers' and daughters' self-objectification were indeed significantly and positively related, indicating that as mothers' self-objectification increased, so did their daughters; thus, H1 was supported. Next, we hypothesized a conditional direct effect of perceived maternal care on the relationship between mothers' and daughters' self-objectification (H2). It was revealed that perceived maternal care significantly moderated the relationship between mothers' and daughters' body surveillance ($B = -11, p < .05$). Figure 3 illustrates this interaction, showing

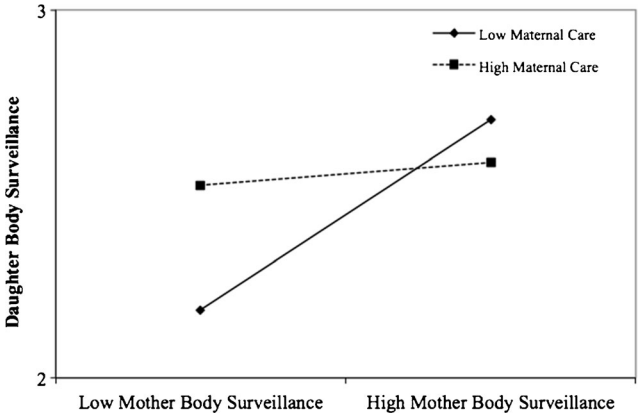

Fig. 3 The conditional direct effect of maternal modeling on mothers' and daughters' self-objectification

that there was no difference between daughters' self-objectification at high levels of perceived maternal care but, at low levels of perceived maternal care, daughters reported the highest levels of body surveillance when their mothers also reported high levels of body surveillance. Therefore, H2 was supported. Lastly, we predicted that mothers' self-objectification would be related to that of their daughters' through perceived co-rumination (H3a) and perceived mothers' weight concerns (H3b). Results showed that the indirect effect of mothers' body surveillance on daughters' body surveillance through co-rumination was significant ($B = .01$, CI = .002, .04). That is, when mothers reported higher levels of body surveillance, their daughters also reported higher levels of co-rumination; in turn, as co-rumination increased, so did daughters' levels of body surveillance. Mothers' perceived weight concerns was not found to be a significant mediator ($B = .01$, CI = −.0003, .03), thus H3 was partially supported.

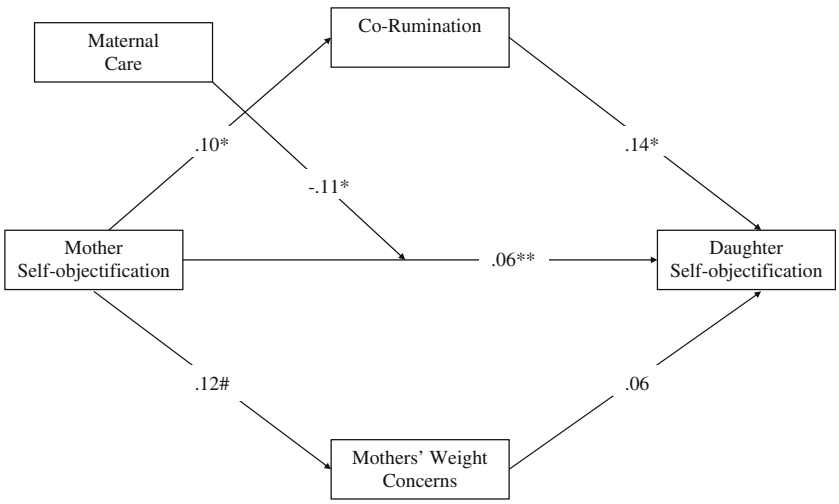

Fig. 2 The indirect effect of maternal modeling and the conditional direct effect of maternal care on the relationship between mothers' and daughters' self-objectification. *Note.* $^{**}p < .01$, $^{*}p < .05$, $\#p < .10$. Coefficients are unstandardized regression coefficients from Hayes (2013) Process Macro in SPSS wherein conditional direct and indirect effects were run simultaneously in this particular model. The indirect effect for co-rumination was significant, but the indirect effect for mothers' weight concerns was not significant. Mothers' and daughters' age and BMI were used as covariates in this model

Discussion

Given that mothers are the primary agents through which daughters learn and model weight-related behaviors and concerns (e.g., Starr and Ferguson 2012), the current research investigated the relationship between mothers' and daughters' self-objectification. Results revealed that there was a direct effect of mothers' self-objectification on daughters' self-objectification. Moreover, perceived maternal care was identified as a moderating agent between mothers' and daughters' self-objectification and co-rumination was identified as a mediating mechanism through which mothers' self-objectification was associated with that of their daughters'. Because we simultaneously tested direct, indirect, and conditional direct effects, the current study's conceptual and analytical approaches aligned with other researchers' recommendations to explore the *process* by which women may learn to evaluate their bodies via more immediate sociocultural factors (e.g., Hayes 2013; Moradi 2011).

Past research has found inconsistent results pertaining to mothers' and daughters' self-objectification (i.e., Crawford et al. 2009; Katz-Wise et al. 2012; McKinley 1999), but we found a positive direct effect of mothers' self-objectification on their daughters' self-objectification. This is consistent with social learning theory's premise that daughters may learn to self-evaluate by observing behaviors related to their mothers' self-evaluation. Because the experience of objectification is very much a gendered experience, its effects are stronger and more consistent for women (e.g., Calogero 2009). As such, a theory that may more specifically incorporate mothers' and daughters' shared experience of self-objectification, then, is social cognitive theory of gender development, which precisely explains how daughters learn gender-related attitudes (e.g., Bussey and Bandura 1999). An extension of social learning theory (Bandura 1977), social cognitive theory of gender development postulates that gender development is abetted by modeling observed gendered behavior, learning from the consequences of gendered behavior, and by direct instruction on gendered behavior. Not only do women learn to enact/imitate behaviors, they may also learn the underlying rules governing the behavior that may then create more novel actions (e.g., choosing to wear feminine clothes after noticing that looking pretty, in general, is personally and socially rewarding: Starr and Ferguson 2012). Because mothers are key agents in their daughters learning gendered behavior, including objectification (Starr and Ferguson 2012), daughters likely learn to self-evaluate and objectify by modeling their mothers' body surveying behavior and may also learn that self-evaluation – especially communicatively – is personally and socially appropriate.

That said, although we found that mothers' and daughters' self-objectification were significantly related to one another's, this relationship was rather modest (r = .16, B = .06). This modest relationship is possibly due to the significant age difference between mothers and daughters, and therefore the difference in the gender socialization and expectations experienced by mothers and daughters – which is similar to past findings (Crawford et al. 2009; McKinley 1999). For instance, older women in Australia report being more satisfied with their bodies than younger women (e.g., Tiggemann and McCourt 2013), and self-objectification, habitual body monitoring, and body surveillance was also found to decrease with age in samples of U.S. women (McKinley 1999). These findings are in accordance with objectification theory given that, as women age and their bodies become less sexually objectified (Kaschak 1992), they become more likely to let go of an observer's perspective as their primary view of their bodies (Fredrickson and Roberts 1997). Although mothers' and daughters' self-objectification was related, it is possible that because younger women are representative of and conform to the current cultural standards (i.e., young, thin) more so than older women, they may be more encouraged to engage in self-objectification (Spitzack 1990). Therefore, objectification theory may offer credence to the current findings: Although both mothers and daughters in our sample are women living in a U.S. culture that emphasizes women's bodies as objects evaluated by outside observers (Fredrickson and Roberts 1997), cohort effects and age differences may explain the modest strength between mothers' and daughters' reports of self-objectification.

This study also demonstrated that daughters' reports of perceived maternal care moderated the relationship between mothers' and daughters' self-objectification. Research finds that higher levels of maternal care are related to decreases in negative health outcomes (e.g., unhealthy weight control behaviors; Ackard et al. 2006), so a lack of consistent caring or supportive messages from mothers may reinforce daughters' negative body image attitudes that in turn perpetuate the negative influence of mothers' self-objectification. We predicted that maternal care serves as a protective factor and found that low levels of perceived maternal care were related to higher levels of self-objectification. This is likely because perceiving another as warm, attentive, and supportive promotes healthy behaviors and buffers against the impact of stress, negative self-perceptions, etc. when they arise (e.g., Cohen and Wills 1985; MacGeorge et al. 2011). Additionally, what is interesting from these findings is that it also appears as though mothers may simultaneously offer general warmth and support to their daughters (i.e., a positive behavior) and communicate negative and harmful body/weight messages (i.e., a negative behavior). This is indicated in our results at low levels of mother self-objectification: Daughters reported higher levels of self-objectification when they perceived higher levels of maternal care than at lower levels of maternal care. This may be related to the topics of communication discussed when support is solicited and care is enacted. For

instance, the simultaneous positive/negative behavior previously mentioned is the inherent issue with weight-related communication among women: Co-rumination is similar to self-disclosure in that it involves sharing thoughts and concerns as a potential means of building intimacy and gaining support, but it also combines aspects of rumination in which there is a passive, inward focus on negative affect (Rose 2002). Although mothers may intend to show support and understanding by engaging in interactions regarding weight-related concerns, such conversations likely make weight and appearance salient to daughters and daughters may therefore learn to survey their bodies more. This would be especially problematic if these conversations, and the overall mother-daughter relationship for that matter, are not accompanied by support and instead accompanied by criticism or control, for example; this is indicated in our results at low levels of perceived maternal warmth, wherein daughters who did not perceive warmth from their mothers reported higher levels of self-objectification when their mothers also reported high levels of self-objectification.

Our results are also similar to past findings suggesting that mothers communicate weight issues, concerns, and expectations to their daughters (e.g., Cooley et al. 2008; Neumark-Sztainer et al. 2010). Specifically, we found that overt discussions about weight (i.e., perceived co-rumination), as opposed to indirect observations (i.e., perceived mothers' weight concerns), were a mechanism through which mothers' and daughters' self-objectification were related. Research suggests that such discussions are a behavioral manifestation of self-objectification (Arroyo et al. 2014), so it might be through these conversations that daughters engage in the social learning process. That is, because self-objectification and body surveillance is more of a cognitive process (Fredrickson and Roberts 1997), engaging in conservations about weight might be a way in which daughters learn about and observe their mothers' weight concerns. By partaking in these conversations, daughters may learn that it is appropriate or reasonable to evaluate their own bodies and in turn self-objectify because there are no negative consequences during these conversations. In fact, when women engage in conversations about weight and their bodies, there appears to be implicit rewards for participating in these interactions (e.g., by being complimented, by increasing group solidarity, etc.; Nichter 2000; O'Dougherty et al. 2011). As such, we contend that co-ruminating with mothers about weight can be seen as a way in which mothers perpetuate and daughters come to understand personal and societal pressures and desires about weight and appearance and, perhaps more importantly, how their weight compares to the standards they uphold. Given that the objectification of women's bodies is socially constructed (Fredrickson and Roberts 1997), it may be that these overt conversations help daughters come to develop a shared understanding about social reality and themselves (Blumer 1969; LaRossa and Reitzes 1993) and the socially constructed objectification of women's bodies is maintained through social interactions (Berger and Luckmann 1966).

Limitations and Future Directions

It is important to acknowledge the limitations of this study when interpreting the results and identifying suggestions for future research. First, although we used statistical language that may imply cause and effect (e.g., direct effect), this was a cross-sectional survey and it is not possible to determine causal effects of mothers' influence on their daughters. Although research indicating that parents affect children's communication and health outcomes (Abraczinskas et al. 2012; Cooley et al. 2008) is consistent with our results, longitudinal and experimental research would need to be conducted in order to make causal claims. Second, there can be a discrepancy between reported perceptions captured in survey and observed behavior (Estlein and Theiss 2013) as well as between mothers' reports of their own behaviors and daughters' perceptions of mothers' behaviors (e.g., co-rumination; Cooley et al. 2008). However, Cooley et al. (2008) argue that daughters' perceptions of mothers' behavior are a stronger predictor of daughters' health outcomes than mothers' reports of their own behaviors. Therefore, although it is important to note that a survey can only capture reported perceptions, these results reflect important perceptual and communication processes related to body image outcomes. Future researchers may consider measuring both women's perceptions of each other's behaviors and exploring the similarities and differences between their reports. Third, self-objectification and body surveillance are generally self-conscious and cognitive processes (Fredrickson and Roberts 1997) rather than behavioral ones; for example, we asked participants how frequently they think about how their body looks many times and how often they worry about whether the clothes they are wearing make them look good, among others. Because of this, it is practically impossible to model another person's thought process unless that person decides to act on those thoughts. Therefore, though mothers might report high levels of self-objectification, it is not possible to determine whether daughters are observing and acknowledging the process. Future studies should consider asking daughters the extent to which they believe mothers engage in self-objectification.

Fourth, we had a sample of young adult college women who likely do not live at home with their mothers any longer. Although mothers continue to parent and influence their children well into young adulthood (e.g., Segrin et al. 2012), a sample of younger daughters might yield more reliable and stronger effects because they would be living at home with their mothers and would regularly observe their mothers' behaviors. For instance, the reliability for perceived mothers'

weight concerns was lower than preferred, which might be a product of daughters not living at home and observing their mothers' behaviors regularly. Additionally, daughters' reports of perceived maternal care were retrospective, so there was likely recall bias in responding to these items. Fifth, the participants were homogenous in terms of culture, race/ethnicity, age, and educational attainment because this was a sample of university students and their mothers in the U.S., thus this limits the generalizability of these results. Lastly, although there were significant relationships between mothers' self-objectification and daughters' self-objectification, the coefficients in the current model were low. Clarke and Griffin (2007) state that "rather than mothers being to blame for (or the sole cause of) their daughters' negative body image, both mothers and daughters are constrained in a social context that emphasizes female appearance" (p. 703). Therefore, we acknowledge that multiple factors contribute to women's body image, including peers (Lindberg et al. 2007) and media (van den Berg et al. 2007); future research should determine the extent to which media, peer groups, and family affect individuals' attitudes and health outcomes.

Compliance with Ethical Standards Because our study involved human subjects, we followed the guidelines for seeking approval from the Institutional Review Board. Upon approval of IRB, all participants read and agreed to the informed consent presented to them before completing this study.

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