

BODY OBJECTIFICATION AND DEPRESSION IN ADOLESCENTS: THE ROLE OF GENDER, SHAME, AND RUMINATION

Shelly Grabe, Janet Shibley Hyde, and Sara M. Lindberg
University of Wisconsin–Madison

Objectification theory posits that the tendency to view oneself as an object to be looked at and evaluated by others negatively affects girls', but not boys', subjective well-being. Although it has been established that women self-objectify more than men, research in this area has been limited to the study of adult college women. The aim in the current longitudinal study was to investigate the role of body shame and rumination in the link between self-objectification and depression among a community sample of girls and boys at ages 11 and 13. Results indicated that adolescent girls reported higher levels of self-objectification, body shame, rumination, and depression than boys. The findings support a model in which body shame and rumination mediate a direct relation between self-objectification and depression among girls; developmentally, the gender difference in self-objectification appears before the gender differences in rumination and depression.

A large body of research indicates that higher rates of depression are found among women than men in Western industrialized cultures. In addition, research shows that within all cultures that endorse a thin female body ideal women experience more depression than do men (Nolen-Hoeksema, 1987). Moreover, rates of depression increase dramatically for girls during adolescence (Twenge & Nolen-Hoeksema, 1998), and by age 15 there are twice as many depressed girls as boys (Hankin et al., 1998). It has been suggested that, during puberty, girls' bodies move away from the thin ideal, and this contributes to a level of body dissatisfaction that may be one source of the high rates of depression found among girls during adolescence (e.g., Nolen-Hoeksema, 1994; Stice, Hayward, Cameron, Killen, & Taylor, 2000). Indeed, social psychologists have long maintained that societal criteria (e.g., body ideals) may become internalized and provide standards by which individuals appraise their own self-worth (Bandura, 1991). In Western cultures, high value is placed upon physical beauty; physically attractive individuals are seen as more socially competent, mentally healthy, and intelligent (for reviews, see Eagly, Ashmore, Makhijani, & Longo, 1991; Feingold, 1992; Jackson, Hunter, & Hodge, 1995). This is particularly

true of women, whose bodies are more often viewed by others as sexual objects, with beauty and thinness highly valued (Swim, Hyers, Kohen, & Ferguson, 2001). Thus, it is not surprising that many women in this culture strive for the perfect body and therefore become vigilant about their appearance.

Objectification theory (Fredrickson & Roberts, 1997; McKinley & Hyde, 1996) provides a framework for understanding how living in a socio-cultural context of sexual objectification can lead to specific negative affective experiences for girls and women. Specifically, objectification theory argues that learned cultural practices of sexual objectification lead girls and women to self-objectify or, in other words, to adopt a view of themselves as objects whose value is based on appearance (Bartky, 1990). Researchers argue that, because girls and women are aware that external evaluation of their appearance is a constant possibility, the self-objectifying perspective becomes characterized by habitual monitoring of the body's appearance (body surveillance; McKinley & Hyde, 1996). Importantly, regardless of relatively stable individual differences in self-objectification and high levels of within-sex variability, it has been demonstrated that women self-objectify more than men do (e.g., Fredrickson, Roberts, Noll, Quinn, & Twenge, 1998; McKinley, 1998; Tiggemann & Kuring, 2004). The aim in the present study was to investigate the psychological consequences of self-objectification in two novel ways: (1) by examining the role of self-objectification in predicting subsequent depression among early adolescents and (2) by examining potential process variables (i.e., mediators) of the relation between self-objectification and depression. The

Shelly Grabe, Janet Shibley Hyde, and Sara M. Lindberg, Department of Psychology, University of Wisconsin–Madison. This research was supported by National Institute grant F32MH71971-02 to Shelly Grabe.

Address correspondence and reprint requests to: Shelly Grabe, Department of Psychology, University of Wisconsin, 1202 W. Johnson St., Madison, WI 53706. E-mail: grabe@wisc.edu

longitudinal data available in this study allowed for a test of the causal directions hypothesized. To the extent that self-objectification is an underlying component of depression, a test of this model could greatly inform clinical and prevention efforts aimed at addressing the disproportionate levels of depression found among girls and women (sex ratio 2:1; Nolen-Hoeksema, 1987).

Consequences of Self-Objectification

Following the formal proposal of objectification theory, many aspects of the theorized links between self-objectification and psychological consequences have been empirically supported. Foremost, it has been demonstrated that self-objectification is related to a form of self-evaluation characterized by vigilant monitoring or self-surveillance (Tiggemann & Lynch, 2001). Given the cultural rigidity surrounding standards of attractiveness for women, it has been suggested that women's worry about their appearance is not out of conceit or free choice; rather, constant self-surveillance is an adaptive strategy to avoid negative judgment (McKinley & Hyde, 1996). Furthermore, it has been suggested that self-surveillance creates the experiential consequences of self-objectification, which include shame and anxiety regarding the body, diminished awareness of internal bodily states, fewer peak motivational states, decreased mental performance, and ultimately an array of health risks that disproportionately affect women, including eating disorders and depression (Fredrickson & Roberts, 1997). Thus, although the terms self-objectification and self-surveillance have been used interchangeably in the literature (e.g., Muehlenkamp & Saris-Baglama, 2002), it is argued that self-objectification leads to, but is not synonymous with, self-surveillance. There is also empirical support for the theorized link between self-objectification and disordered eating among female undergraduate students (Fredrickson et al., 1998; McKinley, 1999; McKinley & Hyde, 1996; Morry & Staska, 2001; Muehlenkamp & Saris-Baglama, 2002; Noll & Fredrickson, 1998; Tiggemann & Slater, 2001) and adolescent girls between the ages of 12 and 16 (Slater & Tiggemann, 2002). The current study will examine self-surveillance in an effort to better understand the experiential consequences of self-objectification among adolescents.

Although Fredrickson and Roberts (1997) asserted that the learned experiences of objectifying oneself are a root cause of gender differences in depression, empirical investigation to test this prediction at the appropriate ages has yet to be done. Limited research has demonstrated that self-surveillance is related to depression and anxiety in college samples (Miner-Rubino, Twenge, & Fredrickson, 2002; Muehlenkamp & Saris-Baglama, 2002). However, given that gender differences in depression emerge by ages 13 to 15 (Hankin et al., 1998), the differential predictors need to be investigated in adolescent samples. Furthermore,

although objectification theory posits that the experiential consequences of self-surveillance intensify during adolescence more for girls than for boys, self-surveillance or the related consequences have not been researched in a sample of adolescent girls and boys. It remains unclear whether sexual objectification encountered during early adolescence differentially affects girls' and boys' likelihood of habitually monitoring their own appearance. This study goes beyond previous research by investigating whether self-surveillance predicts subsequent depression in early adolescence as well as specifically examining potential process variables (i.e., body shame and rumination) linking self-objectification to depressive symptoms among both girls and boys.

Despite increasing research attention to the psychological consequences of low body satisfaction, there has been little focus on the role of self-objectification in women's mental health—in particular, levels of depression. According to theories of self-focus, attention to self interacts with other cognitive processes and contextual factors to heighten negative affect (e.g., Carver & Scheier, 1981; Duval & Wicklund, 1972). In a meta-analysis of empirical research on self-focused attention and negative affect, Mor and Winquist (2002) found, in both the correlational and experimental literatures, that higher levels of self-focused attention were associated with higher levels of depressive symptomatology and negative mood. Given that self-objectification is characterized by habitual monitoring of and attention to the body's appearance, it is reasonable to suggest that surveillance may be a unique form of self-focus that increases women's vulnerability to depression. As yet, however, the links between self-objectification and consequent body monitoring and depression have received only scant attention. Specifically, in two empirical investigations, researchers demonstrated that a composite measure of self-objectification (i.e., a combination of the Self-Objectification Questionnaire and the Surveillance subscale of the Objectified Body Consciousness Scale) positively related to depressive symptoms among college women (Miner-Rubino et al., 2002; Muehlenkamp & Saris-Baglama, 2002). In a third study, measures of self-objectification and self-surveillance were significantly correlated with depressed mood among undergraduate women, but not men—although self-objectification led to self-surveillance and, in turn, body shame among both women and men (Tiggemann & Kuring, 2004). Thus, certain aspects of objectification theory appear to be applicable to men when they internalize an observer's perspective. These limited examinations suggest that objectification and surveillance put women at risk to experience depression. However, it is unclear how early these processes begin and whether the increasing levels of sexual objectification that occur during adolescence (American Association of University Women Educational Foundation [AAUWEF], 2001) contribute to adolescent girls' risk for depression.

Potential Mediators: Body Shame and Rumination

Given that self-surveillance is hypothesized to be an important psychosocial factor contributing to depression, we examined the psychological processes or mechanisms by which objectification of one's body increases the likelihood of experiencing depression. We investigated both affective (i.e., shame) and cognitive (i.e., rumination) mediators linking surveillance to depression.

Objectification theory proposes that self-objectification leads to increased experiences of shame and, in particular, shame about one's body. Shame is considered a moral emotion that is used to socialize individuals to societal standards (Lewis, 1992). Specifically, the constant self-monitoring that results from self-objectification may increase body shame among girls and women because it highlights their failure to attain the unrealistic ideal body despite their best efforts to do so. Indeed, ample research has demonstrated a direct link between self-objectification and body shame among female undergraduate students (Fredrickson et al., 1998; McKinley, 1999; McKinley & Hyde, 1996; Noll & Fredrickson, 1998; Tiggeman & Slater, 2001) as well as adolescent girls (Slater & Tiggemann, 2002).

McKinley and Hyde (1996) have argued that the intensity and frequency of body monitoring that occurs as a result of self-objectification is far from trivial and that significant portions of a woman's cognitive resources are devoted to habitually monitoring her appearance. Indeed, it has been theorized that self-objectification elicits a disruptive state of consciousness that is reflected by passive worry and rumination (Fredrickson & Roberts, 1997). Bandura (2000) suggested that individuals who become weighed down with self-doubt become self-focused and dwell on their personal deficiencies (e.g., "I will gain weight no matter what"). Thus, self-hindering thought patterns, fueled by women's chronic failure to achieve the ideal body, may lead to rumination or repetitive and intrusive thoughts that focus on one's symptoms of distress (e.g., "I weigh too much") and the resulting meanings and consequences (e.g., "I am ugly; I am worthless"). Numerous studies have shown not only that women are more likely to ruminate than men are (e.g., Nolen-Hoeksema, 1987), but that gender differences in rumination may be most pronounced in situations containing body image/attractiveness themes (Mezulis, Abramson, & Hyde, 2002). Rumination has been repeatedly linked to a higher incidence of depression, especially among women (e.g., Nolen-Hoeksema, Morrow, & Fredrickson, 1993). However, to date, the link between self-objectification and rumination has not been tested empirically.

Developmental Issues

There are clearly a number of important reasons to investigate self-objectification and related surveillance during adolescence. First, during adolescence, pubertal development triggers tremendous changes in body size and shape. Pubertal growth and weight gain take girls' bodies further

away from their ultrathin ideal, whereas weight gain aids boys' attainment of the masculine, muscular male body ideal (Labre, 2002). Second, during adolescence, girls' bodies become frequent objects of sexual objectification through experiences such as peer sexual harassment (AAUWEF, 2001; Fredrickson & Roberts, 1997). One premise of objectification theory is that sexual objectification encountered during sexual maturation leads to self-objectification. Third, the gender intensification hypothesis holds that pressures for gender-role conformity—for girls to be feminine (and not masculine) and boys to be masculine (and not feminine)—increase dramatically in early adolescence (Crouter, Manke, & McHale, 1995; Hill & Lynch, 1983; Petersen, Sarigiani, & Kennedy, 1991), and objectification theory suggests that these pressures are a particular influence in shaping girls' and women's attitudes about their bodies.

The Current Study

The main goal of this study was to further our understanding of the developmental effects and processes of self-objectification. We tested a model predicting the relationships among self-surveillance, body shame, rumination, and depressive symptoms. According to this model, body shame and rumination each partially mediate the direct link between self-surveillance and depression. Models were tested separately for girls and boys. Given that girls' bodies are more sexually objectified than boys' are, we expected that self-surveillance would predict depression only among girls. A longitudinal design allowed examination of the causal assumptions of the model.

METHOD

Participants

The study included 299 adolescents ($N = 158$ female) who were part of the ongoing, longitudinal Wisconsin Study of Families and Work (originally called the Wisconsin Maternity Leave and Health Project; Hyde, Klein, Essex, & Clark, 1995). Initial recruitment of pregnant women and their partners occurred over a period of approximately 15 months in 1990 and 1991. The participants in the current study are daughters and sons of these women. The data for the present study were collected when children had just completed the fifth (Time 1 [T1]) and seventh grades (Time 2 [T2]). The mean age of the adolescents was 11.24 years (range 10.49 to 12.27) at T1. The ethnic breakdown was 89.4% ($N = 267$) White, 3.4% ($N = 10$) American Indian/Alaskan Native, 2.8% ($N = 8$) Asian American, 2.2% ($N = 7$) Black, 1.7% ($N = 5$) Hispanic, and 0.6% ($N = 2$) other.

Measures

Self-surveillance. Self-surveillance was measured with the Surveillance subscale of the Objectified Body Consciousness Scale for Youth (OBC-Y), which includes

four items (e.g., “During the day, I think about how I look many times”; Lindberg, Hyde, & McKinley, 2006). Respondents were asked to indicate how much they agreed with the statements from 1 (*strongly disagree*) to 7 (*strongly agree*). The Surveillance scale of the OBC-Y has demonstrated strong test-retest reliability (.81) as well as validity (Lindberg et al., 2006). In the current study, internal consistency was $\alpha = .88$ at T1 and $\alpha = .88$ at T2 in the full sample. Importantly, coefficient alphas were similar among girls and boys, .88 and .87, respectively, at T1, and .87 and .88, respectively, at T2.

Body shame. Body shame was measured by the Shame subscale of the OBC-Y described above. Respondents were asked to indicate how much they agreed with five items such as “When I’m not the size I think I should be, I feel ashamed” on a 7-point scale from 1 (*strongly disagree*) to 7 (*strongly agree*). The scale has demonstrated adequate test-retest reliability (.62) and high validity (Lindberg et al., 2006). The coefficient alphas were .88 at T1 and .86 at T2. Again, coefficient alphas were similar among girls and boys, .76 and .87 at T1 and .89 and .83 at T2, respectively.

Rumination. Rumination was measured with five items (e.g., “When I feel sad or down, I think about how alone I feel”) from the Response Styles Questionnaire (RSQ; Nolen-Hoeksema, Parker, & Larson, 1994; Nolen-Hoeksema & Morrow, 1991) based on Nolen-Hoeksema’s model of depression and rumination. Responses ranged from 1 (*almost never*) to 4 (*almost always*). The coefficient alpha for this scale was .70 at T1 and .75 at T2. Coefficient alphas among girls and boys were .70 and .64, respectively, at T1 and .76 and .75, respectively, at T2.

Depressive symptoms. Symptoms of depression were assessed using the self-report Children’s Depression Inventory (CDI; Kovacs, 1981, 1985), which has been used successfully with children as early as third grade. It consists of 27 items tapping cognitive (e.g., “I thought about bad things happening to me”), affective (e.g., “I was sad”),

and behavioral (e.g., “Most days I did not feel like eating”) symptoms of child depression. In the current study, three items pertaining to school were omitted because data collection occurred in the summer. Each item consists of three statements representing increasing severity (e.g., “I was sad once in a while”; “I was sad many times”; “I was sad all of the time”) and children were instructed to choose the item that best described how they felt in the past 2 weeks. The CDI has repeatedly demonstrated excellent internal consistency, test-retest reliability, and predictive and construct validity (e.g., Blumberg & Izard, 1986; Cole, Martin, Peeke, Seroczynski, & Fier, 1999). Due to time constraints at T1, the short form of the CDI, containing only 10 items, was administered. For the 10 items in the current study, α was .69 at T1 and .76 at T2. Coefficient alphas among girls and boys were .73 and .63, respectively, at T1 and .78 and .74, respectively, at T2.

Procedure

Signed parental consent and adolescent assent were obtained for all participants. Participants completed numerous measures on a laptop computer during an in-home visit, which lasted approximately 1 hour. Measures included the OBC-Y measure and measures of rumination and depression as well as numerous questionnaires unrelated to the present study. Computer administration of sensitive measures has been demonstrated to yield more extensive and accurate reporting by adolescents than traditionally administered questionnaires (e.g., Turner et al., 1998).

RESULTS

Preliminary Analyses

Tables 1 and 2 contain the descriptive data based on the composite variables (scale scores) that are included in the estimated model. As can be seen from the tables, girls and boys differed on levels of self-objectification and body shame at T1 with differences in the expected direction. Significant moderate effect sizes emerged in all

Table 1

Descriptive Statistics for T1 Variables Included in the Model for Girls and Boys

	<i>T1 Self-surveillance</i>	<i>T1 Body shame</i>	<i>T1 Rumination</i>	<i>T1 Depression</i>
T1 Self-surveillance	–	.53***	.25**	.34**
T1 Body shame	.49***	–	.28**	.35***
T1 Rumination	.34***	.23**	–	.49***
T1 Depression	.27**	.32**	.29*	–
T1 Means for Girls	3.80 ± 1.61	2.77 ± 1.50	1.82 ± .53	1.09 ± 1.83
T1 Means for Boys	3.04 ± 1.60	2.45 ± 1.32	1.80 ± .58	.92 ± 1.53
<i>d</i>	.47***	.23**	.04	.10

Note. Values presented above the diagonal are zero-order correlations for girls; the values presented below are zero-order correlations for boys. A positive *d* indicates that girls scored higher on the study variable. Significant mean differences are indicated along with the *d* = effect size. * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 2
Descriptive Statistics for T2 Variables Included in the Model for Girls and Boys

	<i>T2 Self-surveillance</i>	<i>T2 Body shame</i>	<i>T2 Rumination</i>	<i>T2 Depression</i>
T2 Self-surveillance	–	.57***	.33***	.45***
T2 Body shame	.50***	–	.28***	.40***
T2 Rumination	.30***	.20**	–	.44***
T2 Depression	.31**	.26**	.24**	–
T2 Means for Girls	4.05 ± 1.80	2.20 ± 1.62	2.02 ± .60	1.60 ± 2.28
T2 Means for Boys	2.94 ± 1.74	1.51 ± 1.29	1.81 ± .56	.98 ± 1.67
<i>d</i>	.64***	.50***	.36**	.31**

Note. Values presented above the diagonal are zero-order correlations for girls; the values presented below are zero-order correlations for boys. A positive *d* indicates that girls scored higher on the study variable. Significant mean differences are indicated along with the *d* = effect size.

p* < .01. *p* < .001.

study variables by T2. Importantly, the gender difference in surveillance preceded the gender differences in rumination and depression, which did not appear until age 13. However, contrary to expectation, self-surveillance and depression were significantly correlated at each wave for both girls and boys. Girls' and boys' correlations were subjected to Fisher *r* to *z* transformation and the *z*'s were tested for significant differences. Results suggested that the strength of the relation between surveillance and depression was similar among girls and boys at T1 (*p* = .25), but marginally stronger among girls at T2 (*p* = .08). Although the preliminary findings were not entirely consistent with the hypotheses, the differences in means and strength of the predicted relationship led us to test separate models for girls and boys and conduct cross-gender comparisons before determining whether the proposed model should be examined on the full sample.

Structural Equation Modeling

Mediation analyses were tested in a series of structural equation models. All models were estimated using EQS Maximum Likelihood estimation procedures (Bentler, 1995) with variance-covariance matrices serving as input. Missing data were handled with the EQS 6.1 missing data analysis regression imputations. Multiple fit indices were used as guides to evaluate goodness-of-model fit: the normed fit index, the non-normed fit index (NFI and NNFI, respectively; Bentler & Bonett, 1980), the comparative fit index (CFI), and the root mean squared error of approximation (RMSEA). Chi-square goodness-of-fit statistics and the chi-square to degrees of freedom ratio are also reported. A satisfactory fit is indicated by a nonsignificant chi-square or a chi-square lower than double the degrees of freedom (significant chi-squares are acceptable when the sample size is large; see Carmines & McIver, 1981); NFI, NNFI, and CFI values greater than .95; and values of RMSEA less than .06 (Hu & Bentler, 1999).

In the measurement portion of our model, we specified four latent variables (i.e., self-surveillance, body shame, rumination, and depression), each identified by three

indicators. Because use of more than three indicators per latent variable tends to yield poor fitting measurement models (Chorpita, 2002), item parcels were created. Several procedures for collapsing items have been suggested (e.g., Kishton & Widaman, 1994). In the present study, item parcels (a simple composite of raw items) were created for the scales to arrive at three final items.¹ Given that questions regarding the measurement model were not of substantive interest, and no modifications were warranted based on model fit, these aspects of the model are omitted from the figures for the sake of simplicity.

Results of Mediation Analyses

To test a comprehensive model, we constructed a path diagram that details the pathways between initial levels of self-surveillance (T1) and its proposed consequences. Variables in the diagram were conceptualized in the following order: T1 self-surveillance, T2 body shame and T2 rumination, and T2 depression. A schematic representation of the conceptualized mediation model is shown in Figure 1. As Figure 1 shows, self-surveillance at age 11 was hypothesized to directly predict subsequent body shame and rumination at age 13, which in turn were hypothesized to directly predict depressive symptomatology at age 13. Prior values on depression (T1) were controlled when predicting subsequent depression. Importantly, the variables

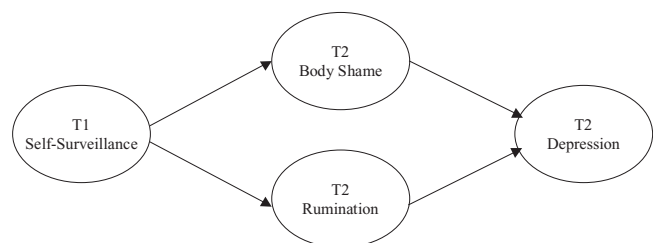


Fig. 1. Conceptual model of the effect of self-surveillance on depression, with body shame and rumination as mediators. Time 1 levels of depression are controlled in the prediction of subsequent depression. Time 1, T1; Time 2, T2.

included in this model demonstrated adequate and similar reliability among girls and boys.

It has been suggested in Monte Carlo research that the Baron and Kenny (1986) approach to mediation has low statistical power for small effect sizes, but greater power for large effects sizes in samples with more than 100 participants (MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002). MacKinnon et al. (2002) suggested that a product of coefficients test has the most power for detecting effects. Thus, given the wide acceptance of the Baron and Kenny method, both the Baron and Kenny criteria for mediating conditions and a product of coefficients test (MacKinnon, 2000; Sobel, 1990) were used in this study. The four conditions that must be met to establish mediation are: (a) the independent variable (in this case, T1 self-surveillance) must be significantly related to the outcome of interest (i.e., T2 depression with T1 controlled); (b) the independent variable must be significantly related to the mediators (i.e., T2 body shame and rumination); (c) the hypothesized mediators must directly predict the outcome (i.e., T2 depression with T1 controlled) when T1 surveillance is controlled; and (d) the effects of surveillance on depression must be substantially reduced or, if fully mediated, no longer significant after entering the hypothesized mediators (Baron & Kenny, 1986).

Because a central aim of the study was to test whether the processes relating surveillance to depression were invariant across gender, we followed the multigroup procedures recommended by Holmbeck (1997). Specifically, we first examined an overall model within each subgroup (e.g., within male and female subgroups) to assess fit. We then specified two simultaneous between-group models, the first in which the predicted pathways were freely estimated (e.g., the pathways could vary across gender groups) and the second in which the predicted pathways were constrained to be equal across groups. We then compared the resultant chi-square for the constrained and unconstrained models. Finally, if the difference between the chi-squares of the two models was significant, we examined the modification indices (LaGrange multiplier tests) to locate specific parameters that significantly differed across subgroups.

The four mediation conditions were tested using estimates from the structural equation models. To test the first

condition, two direct effects models were run (i.e., one for girls and one for boys) to examine the effect of surveillance on depression. Next, a series of structural equation models was run to test the second and third conditions, namely, that surveillance would directly predict the potential mediators and that the potential mediators would directly predict depression. Finally, to test the mediational hypotheses, it was necessary to compare the coefficients for the direct relation between surveillance and depression with and without the hypothesized mediators included in the model. To test if differences in coefficients were statistically significant, a product of coefficients formula was used in which a calculated mediation effect is divided by a calculated standard error of the mediation effect for the indirect effect of surveillance (via the different mediators) on later depression (MacKinnon, 2000; Sobel, 1990). Significant *t* values from this formula indicate that the direct effect of the independent variable on the dependent variable is significantly reduced (as opposed to no longer being significant) when the hypothesized mediators are included in the full model.

To test for the first condition, an initial fully saturated model was specified (one each for girls and boys) in which the direct effects of T1 surveillance on T2 depression were estimated. We incorporated an autoregressive method in these models by controlling for T1 depression. Results of these models (see Table 3 for fit statistics) indicated that surveillance significantly predicted subsequent depression among girls ($\beta = .27, p < .05$) but not boys ($\beta = .20, ns$). Next, we ran a simultaneous between-group model that allowed the predicted pathway (i.e., T1 surveillance to T2 depression) to be free, but constrained the factor loadings on the measurement model (i.e., surveillance items) to be equal across groups to assess whether the construct of surveillance had the same meaning across groups before proceeding. The modification indices of the first between-group model suggested that no improvement in model fit would be gained by releasing the constraints. This finding means that the construct of surveillance operated similarly among girls and boys. We then tested the second between-group simultaneous model, in which the predicted pathway between surveillance and depression was constrained across groups. The fit statistics for the two simultaneous

Table 3
Goodness-of-Fit Statistics for the Hypothesized Models

<i>Model specified</i>	χ^2	<i>df</i>	χ^2/df	<i>NFI</i>	<i>NNFI</i>	<i>CFI</i>	<i>RMSEA</i>
1. Direct effect for girls	48.47	25	1.94	.88	.91	.94	.08
2. Direct effect for boys	61.38	25	2.46	.82	.82	.88	.10
3. Simultaneous "freely estimated" direct model	109.86	44	2.50	.85	.84	.90	.07
4. Simultaneous "constrained" direct model	109.85	45	2.44	.85	.84	.90	.08
5. Mediated model for girls	167.44	84	1.99	.81	.87	.90	.08
6. Mediated model for boys	179.52	84	2.13	.75	.80	.84	.09

between-group models are shown in Table 3 (see rows 3 and 4). The χ^2 test comparing the freely estimated and constrained models indicated no significant difference in the magnitude of the parameter estimates across girls and boys. Thus, despite significant mean level differences in self-surveillance and depression among girls and boys, it appeared that the relation between self-surveillance and depression may be similar among girls and boys despite not quite reaching significance among boys. Furthermore, although the fit statistics for the girls' model approached the threshold for good fit, the boys' data fit the model less well. Nevertheless, because the direct relation reached significance only among the girls, separate models were maintained among boys and girls.²

To provide a direct test of Baron and Kenny's second and third conditions, as previously outlined, models were estimated in which T1 surveillance simultaneously predicted T2 body shame, T2 rumination, and T2 depression while controlling for T1 depression, and body shame and rumination were allowed to directly predict depression (see Figure 2). Results of the model test for girls showed that surveillance significantly predicted both subsequent body shame and rumination. Results also revealed that both shame and rumination predicted depression. To test whether the effects of surveillance were reduced or no longer significant after controlling for body shame and rumination, we compared the magnitude of the effect of surveillance on depression between the first ($\beta = .27, p < .05$) and second ($\beta = .10, p = ns$) models. Results of the mediation tests, using the formula previously described, indicated that body shame and rumination mediated the relation between prior surveillance and subsequent depression ($t = 2.02$ and $t = 2.30$, respectively). Moreover, the mediation model provided a relatively good fit to the data for

girls (see Table 3, row 5). Given that the aim of the research was to test for mediation, rather than to arrive at a model that fits the data well, the less than ideal fit indices were not cause for concern.

Results of the model test for boys were similar with one exception: Surveillance significantly predicted subsequent body shame, but not rumination (see Figure 2 and Table 3, row 6). As was the case with the girls' model, both shame and rumination predicted depression. In the absence of a direct effect between surveillance and depression, Sobel tests were conducted to determine whether surveillance indirectly predicted subsequent depression via body shame and rumination. Results of the tests suggest that surveillance was not indirectly related to depression through either body shame or rumination for boys ($t = 1.62$ and $t = 1.24$, respectively).

DISCUSSION

The model presented in the current study is the first test of Fredrickson and Roberts's (1997) assertion that girls' chronic preoccupation with monitoring their bodies contributes to gender differences in depression. The findings indicated that 13-year-old girls reported higher levels of self-surveillance, body shame, rumination, and depressive symptoms than their male counterparts. The results also indicated that self-surveillance significantly predicted depression among girls, but not boys. However, the differences between correlations for girls and boys were not so large as to suggest that boys are necessarily free from the risk of depression when they internalize an observer's perspective of themselves. It is important to note that the gender difference in surveillance preceded the gender differences in rumination and depression, which do not appear until age 13. Finally, the overall model supported the prediction that body shame and rumination would partially explain the link between self-objectification and depression for girls.

Gender Differences

Although a direct link between self-objectification and depression had previously been established among adult women (e.g., Tiggemann & Kuring, 2004), there were several gaps in the literature pointing to a number of needs: (1) investigating the relation in a community sample of adolescents, as opposed to a convenience sample of college women; (2) examining this link with longitudinal data; and (3) examining possible mediating variables. Given that the proposed consequences and mental health risks associated with self-objectification are likely to vary in step with observable developmental changes in the shape of the female body (Fredrickson & Roberts, 1997), we believed it was critical to determine how early in youth these relations become established. The results clearly indicated that self-objectification and its consequences were already pertinent to girls as young as 11 years old. Thus, a major contribution

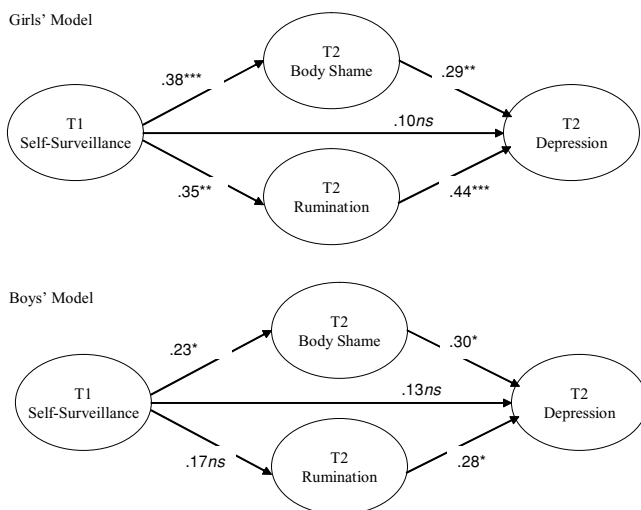


Fig. 2. Mediation models. Values are standardized beta weights. T1 levels of depression are controlled for. Time 1, T1; Time 2, T2. * $p < .05$. ** $p < .01$. *** $p < .001$.

of the present study is the finding that the tenets of objectification theory are as applicable to adolescent girls as they are to adult women. These findings underscore that adolescence is a critical period for the development and consequences of self-objectification.

The process of self-objectification that highlights girls' failure to achieve the ideal body as they enter adolescence, and the resulting belief that they lack control over their bodies and possibly their environment, may lead to the development of disruptive and intrusive thoughts. Bandura and Jourden have suggested that, when individuals do not meet idealized standards (i.e., when their efficacy beliefs are threatened), the resulting psychological effects can impair cognitive functioning (e.g., Bandura, 1991; Bandura & Jourden, 1991). Thus, intrusive thought patterns may undermine cognitive capabilities by diverting attention away from other tasks and, in effect, generalize to other concerns. Importantly, we found that self-surveillance predicted generalized rumination—as opposed to rumination about one's body—among girls but not boys. Indeed, it has been demonstrated that some women ruminate more than men because they are seeking ways to control their environment and distress, yet they do not have the efficacy to exert such control (Nolen-Hoeksema, Larson, & Grayson, 1999; Nolen-Hoeksema & Jackson, 2001). Therefore, girls' perception of control within their environment may significantly influence how much they experience repetitive thoughts that occupy their attention. The extent to which boys may be encouraged to gain efficacy in social domains outside appearance (e.g., academics, athletics) may explain why self-surveillance was not related to rumination among boys. The results of the current study are consistent with this reasoning and suggest that the intense process of self-objectification learned during adolescence may contribute directly to the development of a disruptive cognitive state that puts girls at risk to experience depression.

In addition to the gendered process demonstrated by the model in the current study, the mean differences in study variables are also noteworthy. The reported effect sizes for gender differences in self-surveillance, body shame, and rumination can be compared with published effect sizes for gender differences reported in unrelated domains to better interpret their magnitude. For example, small differences have been demonstrated in the area of verbal ability ($d = -.11$, difference favoring females; Hyde & Linn, 1988) and mathematics performance ($d = .15$, difference favoring males; Hyde, Fennema, & Lamon, 1990), whereas gender differences in spatial ability and aggression are in the moderate range ($d = .44$, Voyer, Voyer, & Bryden, 1995; $d = .50$, Hyde, 1984). By comparison, the magnitude of the gender difference during adolescence (i.e., T2) in self-surveillance reported in the current study was moderate to large ($d = .64$) and larger than the effect sizes found for much-publicized gender differences. Furthermore, the magnitudes of the gender differences on the remaining study variables (d ranging from .31 to .50) were moderate.

This pattern of results indicated that the challenges that girls face in these domains are substantially greater than those experienced by boys. Although our data indicate some consequences for boys who self-objectify, we believe it is important to note that the data also support previous research demonstrating that girls report higher levels of depression. Based on our findings, we argue that this gender difference may be explained, in part, by the significantly higher levels of self-surveillance found among girls. That these stark differences are evident at such an early age provides strong support for examining these vulnerabilities in adolescent or preadolescent samples.

The model put forth in the current study elucidates both the cognitive (i.e., rumination) and affective (i.e., shame) processes in which young girls have learned to become observers and critics of their own body and appearance. However, the magnitude of the relation between rumination and depression (relative to that of shame and depression), coupled with significant gender differences in self-objectification and rumination, suggests that it is the cognitive processes surrounding girls' psychological investment in their appearance that create the greatest vulnerability for depression. The socialization that leads girls to scrutinize or habitually monitor their bodies and in turn develop disruptive thoughts and depressive symptomatology does not appear to be at work for boys. As Fredrickson and Roberts (1997) suggested, "having a female body gives girls plenty to worry about and little to control" (p. 188).

Despite the large literature discussing gender differences in depression (see Hankin & Abramson, 2001, for a review), negligible attention has been given to the investigation of the sources of gender differences in rumination. The three studies to date that we are aware of, conducted by Nolen-Hoeksema and colleagues (Nolen-Hoeksema, 1998; Nolen-Hoeksema et al., 1999; Nolen-Hoeksema & Jackson, 2001), have suggested that adult women tend to ruminate more than men due to greater levels of chronic gender role strain, perceived lack of control over important events in their lives, and lifetime prevalence of physical and sexual abuse. However, the data from the current study suggest that gender differences in rumination are established well before adulthood. Furthermore, Nolen-Hoeksema and colleagues (1999) argued that the relations between rumination and factors such as chronic strain are likely reciprocal, that is, rumination may contribute to maintaining chronic strain. Therefore, to our knowledge, the current study is one of the first to investigate gender differences in rumination during adolescence that offers an explanation for a source (i.e., self-objectifying) of the well-established gender differences in rumination in adults.

Consistent with the tenets of objectification theory, gender roles and expectations may play an important role in explaining the gender differences demonstrated in the current study. One important aspect of gender intensification is its tendency to increase the salience of certain domains typically associated with gender-role expectations; for girls

in adolescence, this includes conforming to cultural body ideals. In this regard, adolescence is a particularly stressful developmental period for girls. The course of natural female development involves weight gain that sets girls' bodies farther apart from the ideal at the same time that the door for societal messages and sexual objectification is opened. Thus, if girls have internalized society's values about their developing bodies (i.e., objectify themselves), it behooves them to monitor their physical appearance vigilantly. Self-objectification, therefore, sets girls up to spend a great deal of time and energy worrying about their appearance. Indeed, results indicate that girls engage in this behavior more than boys as early as age 11.

Gender Similarities

The findings suggest that self-objectification in boys is not without consequence. Consistent with findings from adult samples (e.g., McKinley, 1998; Tiggemann & Slater, 2001) a relation between self-surveillance and body shame was demonstrated among both girls and boys. A growing trend toward objectifying portrayals of men in the media (e.g., Agliata & Tantleff-Dunn, 2004) may be influencing males' quest for a perfect body. Furthermore, it appears that when boys experienced body shame, they were also at risk to experience depression. Although the current data indicated gender differences in levels of self-surveillance and related body shame, with girls reporting significantly higher levels of both, future research should begin to examine the experiential consequences of males' self-objectification.

The findings from the current study have important social and clinical implications. In particular, social intervention, such as programs that teach young girls of the marketing strategies that strategically sexually objectify women's bodies (Stice, Mazotti, Weibel, & Agras, 2000), may be effective in preventing girls from internalizing an observer's perspective of their own bodies. Perhaps more importantly, the data suggest that activism aimed at reducing the societal objectification of women's bodies may be beneficial in enhancing the psychological well-being of women. Moreover, from a clinical standpoint, given that rumination plays a clear role in the relation between self-objectification and depression, treatment intervention aimed at cognitively restructuring girls' and women's beliefs about their bodies would likely prove beneficial.

Potential Limitations

Despite the contribution of the present study, there are limitations that should be acknowledged. First, the moderate magnitude of effects in the model highlights that not all of the variability in depressive symptoms was explained by self-surveillance, body shame, or rumination. There are certainly other key factors during adolescence that help contribute to depression that were not modeled here (e.g., hormonal changes, other stressful life events). Moreover, because girls on average experience puberty earlier than

boys, it is possible that boys in this sample have yet to experience the body change that accompanies the onset of sexual objectification. Therefore, it is plausible that the current study failed to capture boys' psychological experience as a result of self-objectification because they were not as developmentally mature as their female counterparts. Research with older adolescent samples should test this assertion.

Another potential limitation is that the role of women's body mass was not examined in the current study. Indeed, it has been demonstrated that body mass moderates the relationship between pressures to be thin and related psychological consequences (Tiggemann, 2003). However, the consequences of self-objectification are thought to occur as a result of preoccupation with physical appearance, regardless of whether or not individuals are satisfied or dissatisfied with their bodies (Fredrickson & Roberts, 1997). It is argued that the habit of self-conscious body monitoring, even when women are satisfied with their appearance, is far from trivial and that significant portions of a woman's cognitive resources are in fact devoted to the habitual monitoring of her appearance. Finally, our study was limited by the ethnic homogeneity of our respondents. It is unclear from our results whether the gendered process of self-objectification would operate similarly across racial groups. Studying self-objectification in girls and women from diverse ethnic groups is needed to increase our knowledge of the relevance of objectification across diverse groups of youth.

Conclusion

Overall, the results of the current research provide evidence of both gender differences and gender similarities in adolescents' levels of self-surveillance and depression and the processes that link the two. The data support our major hypothesis that girls self-objectify at higher levels than boys and that doing so creates a context of cognitive vulnerability that puts them at risk to experience depression. Given the pervasiveness of the cultural messages that influence young girls to view themselves as bodies to be evaluated, future research should examine these vulnerabilities in young samples to better understand how this process significantly disrupts girls' and women's mental health. The data add to the growing evidence that self-objectification severely limits women's subjective well-being and that this process starts at an alarmingly young age. Furthermore, our model suggests that boys may also be at risk to experience the negative psychological consequences of self-surveillance.

Initial submission: January 23, 2006

Initial acceptance: September 25, 2006

Final acceptance: December 22, 2006

NOTES

1. The Self-Surveillance latent variable was specified by the following three indicators: (1) a composite of the items "I often

compare how I look to how other people look” and “During the day I think about how I look many times,” (2) “I often worry about whether the clothes I’m wearing make me look good,” and (3) “I often worry about how I look to other people.” The Body Shame latent variable was specified by the following three indicators: (1) a composite of the items “I feel ashamed of myself when I haven’t made an effort to look my best” and “I feel like I must be a bad person when I don’t look as good as I could,” (2) a composite of the items “I would be ashamed for people to know what I really weigh” and “When I’m not exercising enough I question whether or not I’m a good person,” and (3) “When I’m not the size I think I should be I feel ashamed.” Rumination was specified as: (1) a composite of “When I feel sad or down I think about how alone I feel” and “When I feel sad or down I won’t be able to get my work done because I feel so badly,” (2) a composite of “When I feel sad or down I think about how tired and achy I am” and “When I feel sad or down I think about how hard it is to concentrate,” and (3) “When I feel sad or down I think about how I don’t want to do anything.” The depression latent variable was formed by taking a composite of items that indexed: (1) sadness, things working out, doing things okay, (2) hating the self, feeling like crying, being bothered by things, and (3) things looked okay, feeling alone, having plenty of friends, and being loved by somebody. The fit statistics for the measurement model at T1 and T2, respectively, were: χ^2 ($df = 48$) = 100.48, $p = 0.00$; CFI = .95; RMSEA = .063; and χ^2 ($df = 48$) = 93.64, $p = 0.00$; CFI = .97; RMSEA = .06.

2. Although a mediated effect cannot be demonstrated if there is no relation between the independent and dependent variables, a model was conducted with the proposed mediators among the boys to test for the presence of indirect effects of self-surveillance on depression.

REFERENCES

- Agliata, D., & Tantleff-Dunn, S. (2004). The impact of media exposure on males’ body image. *Journal of Social & Clinical Psychology, 23*, 7–22.
- American Association of University Women Educational Foundation. (2001). AAUW Sexual Harassment Questionnaire. In *Hostile hallways: Bullying, teasing, and sexual harassment in school* (p. 11). Washington, DC: Author.
- Bandura, A. (1991). Self-regulation through anticipatory and self-reactive mechanisms. In R. A. Dienstbier (Ed.), *Nebraska symposium on motivation: Vol. 38. Perspectives on motivation* (pp. 69–164). Lincoln, NE: University of Nebraska Press.
- Bandura, A. (2000). Self-efficacy: The foundation of agency. In W. Perrig & A. Grob (Eds.), *Control of human behavior, mental processes, and consciousness: Essays in honor of the 60th birthday of August Flammer* (pp. 17–33). Mahwah, NJ: Erlbaum.
- Bandura, A., & Jourden, F. J. (1991). Self-regulatory mechanisms governing the impact of social comparison of complex decision making. *Journal of Personality and Social Psychology, 60*, 941–951.
- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical consideration. *Journal of Personality and Social Psychology, 51*, 1173–1182.
- Bartky, S. L. (1990). *Femininity and domination: Studies in the phenomenology of oppression*. New York: Routledge.
- Bentler, P. M. (1995). *EQS structural equations program manual*. Encino, CA: Multivariate Software.
- Bentler, P. M., & Bonnett, D. G. (1980). Significance tests and goodness of fit in the analysis of covariance structures. *Psychological Bulletin, 88*, 588–606.
- Blumberg, S., & Izard, C. (1986). Discriminating patterns of emotions in 10- and 11-year-old children’s anxiety and depression. *Journal of Personality and Social Psychology, 51*, 852–857.
- Carmines, E., & McIver, J. (1981). Analyzing models with unobserved variables: Analysis of covariance structures. In G. Bohrnstedt & E. Borgatta (Eds.), *Social measurement* (pp. 65–115). Beverly Hills, CA: Sage.
- Carver, C. S., & Scheier, M. F. (1981). *Attention and self-regulation: A control theory approach to human behavior*. New York: Springer-Verlag.
- Choprita, B. F. (2002). The tripartite model and dimension of anxiety and depression: An examination of the structure in a large school sample. *Journal of Abnormal Child Psychology, 30*, 177–190.
- Cole, D., Martin, J., Peeke, L., Seroczynski, A., & Fier, J. (1999). Children’s over- and underestimation of academic competence: A longitudinal study of gender differences, depression, and anxiety. *Child Development, 70*, 459–473.
- Crouter, A., Manke, B., & McHale, S. (1995). The family context of gender intensification in early adolescence. *Child Development, 66*, 317–329.
- Duval, S., & Wicklund, R. A. (1972). *A theory of objective self awareness*. New York: Academic Press.
- Eagly, A. H., Ashmore, R. D., Makhijani, M. G., & Longo, L. C. (1991). What is beautiful is good. . . : A meta-analytic review of research on the physical attractiveness stereotype. *Psychological Bulletin, 110*, 109–128.
- Feingold, A. (1992). Good looking people are not what we think. *Psychological Bulletin, 111*, 304–341.
- Fredrickson, B. L., & Roberts, T. (1997). Objectification theory: Toward understanding women’s lived experiences and mental health risks. *Psychology of Women Quarterly, 21*, 173–206.
- Fredrickson, B. L., Roberts, T., Noll, S. M., Quinn, D. M., & Twenge, J. M. (1998). That swimsuit becomes you: Sex differences in self-objectification, restrained eating, and math performance. *Journal of Personality and Social Psychology, 75*, 269–284.
- Hankin, B., & Abramson, L. (2001). Development of gender differences in depression: An elaborated cognitive vulnerability-transactional stress theory. *Psychological Bulletin, 127*, 773–796.
- Hankin, B., Abramson, L., Moffitt, T., Silva, P., McGee, R., & Angell, K. (1998). Development of depression from preadolescence to young adulthood: Emerging gender differences in a 10-year longitudinal study. *Journal of Abnormal Psychology, 107*, 128–140.
- Hill, J., & Lynch, M. (1983). The intensification of gender-related role expectations during early adolescence. In J. Brooks-Gunn & A. Petersen (Eds.), *Girls at puberty: Biological and psychosocial perspectives* (pp. 201–228). New York: Plenum.

- Holmbeck, G. N. (1997). Toward terminological, conceptual, and statistical clarity in the study of mediators and moderators: Examples from the child-clinical and pediatric psychology literatures. *Journal of Consulting & Clinical Psychology, 65*, 599–610.
- Hu, L. T., & Bentler, P. M. (1999). Cut-off criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6*, 1–55.
- Hyde, J. S. (1984). How large are gender differences in aggression? A developmental meta-analysis. *Developmental Psychology, 20*, 722–736.
- Hyde, J. S., Fennema, E., & Lamon, S. (1990). Gender differences in mathematics performance: A meta-analysis. *Psychological Bulletin, 107*, 139–155.
- Hyde, J., Klein, M., Essex, M., & Clark, R. (1995). Maternity leave and women's mental health. *Psychology of Women Quarterly, 19*, 257–285.
- Hyde, J. S., & Linn, M. C. (1988). Gender differences in verbal ability: A meta-analysis. *Psychological Bulletin, 104*, 53–69.
- Jackson, L. A., Hunter, J. E., & Hodge, C. N. (1995). Physical attractiveness and intellectual competence: A meta-analytic review. *Social Psychology Quarterly, 58*, 108–122.
- Kishton, J. M., & Widaman, K. F. (1994). Unidimensional versus domain representative parceling of questionnaire items: An empirical example. *Educational & Psychological Measurement, 54*, 757–765.
- Kovacs, M. (1981). Rating scales to assess depression in school-aged children. *International Journal of Child and Adolescent Psychiatry, 46*, 305–315.
- Kovacs, M. (1985). The Children's Depression Inventory (CDI). *Psychopharmacology Bulletin, 21*, 995–998.
- Labre, M. P. (2002). Adolescent boys and the muscular male ideal body. *Journal of Adolescent Health, 20*, 233–242.
- Lewis, M. (1992). *Shame: The exposed self*. New York: Free Press.
- Lindberg, S. M., Hyde, J. S., & McKinley, N. M. (2006). A measure of objectified body consciousness for pre-adolescent and adolescent youth. *Psychology of Women Quarterly, 30*, 65–76.
- MacKinnon, D. P. (2000). Contrasts in multiple mediator models. In J. S. Rose, L. Chassin, C. C. Presson, & S. J. Sherman (Eds.), *Multivariate applications in substance use research* (pp. 141–160). Mahwah, NJ: Erlbaum.
- MacKinnon, D. P., Lockwood, C. M., Hoffmann, J. M., West, S. G., & Sheets, V. (2002). A comparison of methods to test the significance of the mediated effect. *Psychological Methods, 7*, 83–104.
- McKinley, N. M. (1998). Gender differences in undergraduates' body esteem: The mediating effect of objectified body consciousness and actual/ideal weight discrepancy. *Sex Roles, 39*, 113–123.
- McKinley, N. M. (1999). Women and objectified body consciousness: Mothers' and daughters' body experience in cultural, developmental, and familial context. *Developmental Psychology, 35*, 760–769.
- McKinley, N. M., & Hyde, J. S. (1996). The objectified body consciousness scale: Development and validation. *Psychology of Women Quarterly, 20*, 181–215.
- Mezulis, A. H., Abramson, L. Y., & Hyde, J. S. (2002). Domain specificity of gender differences in rumination. *Journal of Cognitive Psychotherapy, 16*, 421–434.
- Miner-Rubino, K., Twenge, J. M., & Fredrickson, B. L. (2002). Trait self-objectification in women: Affective and personality correlates. *Journal of Research in Personality, 36*, 147–172.
- Mor, N., & Winquist, J. (2002). Self-focused attention and negative affect: A meta-analysis. *Psychological Bulletin, 128*, 638–662.
- Morry, M. M., & Staska, S. L. (2001). Magazine exposure: Internalization, self-objectification, eating attitudes, and body satisfaction in male and female university students. *Canadian Journal of Behavioural Science, 33*, 269–279.
- Muehlenkamp, J. J., & Saris-Baglama, R. N. (2002). Self-objectification and its psychological outcomes for college women. *Psychology of Women Quarterly, 26*, 371–379.
- Nolen-Hoeksema, S. (1987). Sex differences in unipolar depression: Evidence and theory. *Psychological Bulletin, 101*, 259–282.
- Nolen-Hoeksema, S. (1994). An interactive model for the emergence of gender differences in depression in adolescence. *Journal of Research on Adolescence, 4*, 519–534.
- Nolen-Hoeksema, S. (1998, August). *Contributors to the gender difference in rumination*. Paper presented to the annual meeting of the American Psychological Association, San Francisco, CA.
- Nolen-Hoeksema, S., & Jackson, B. (2001). Mediators of the gender difference in rumination. *Psychology of Women Quarterly, 25*, 37–47.
- Nolen-Hoeksema, S., Larson, J., & Grayson, G. (1999). Explaining the gender difference in depressive symptoms. *Journal of Personality and Social Psychology, 77*, 1061–1072.
- Nolen-Hoeksema, S., & Morrow, J. (1991). A prospective study of depression and distress following a natural disaster: The 1989 Loma Prieta earthquake. *Journal of Personality and Social Psychology, 61*, 105–121.
- Nolen-Hoeksema, S., Morrow, J., & Fredrickson, B. L. (1993). Response styles in the duration of episodes of depressed mood. *Journal of Abnormal Psychology, 102*, 20–28.
- Nolen-Hoeksema, S., Parker, L. E., & Larson, J. (1994). Ruminative coping with depressed mood following loss. *Journal of Personality and Social Psychology, 67*, 92–104.
- Noll, S. M., & Fredrickson, B. L. (1998). A mediational model linking self-objectification, body shame, and disordered eating. *Psychology of Women Quarterly, 22*, 623–636.
- Petersen, A., Sarigiani, P., & Kennedy, R. (1991). Adolescent depression: Why more girls? *Journal of Youth and Adolescence, 20*, 247–271.
- Slater, A., & Tiggemann, M. (2002). A test of Objectification Theory in adolescent girls. *Sex Roles, 46*, 343–349.
- Sobel, M. E. (1990). Effect analysis and causation in linear structural equation models. *Psychometrika, 65*, 867–877.
- Stice, E., Hayward, C., Cameron, R. P., Killen, J. D., & Taylor, C. B. (2000). Body-image and eating disturbances predict onset of depression among female adolescents: A longitudinal study. *Journal of Abnormal Psychology, 109*, 438–444.
- Stice, E., Mazotti, L., Weibel, D., & Agras, W. S. (2000). Dissonance prevention program decreases thin-ideal internalization, body dissatisfaction, dieting, negative affect, and

- bulimic symptoms: A preliminary experiment. *International Journal of Eating Disorders*, 27, 206–217.
- Swim, J. K., Hyers, L. L., Cohen, L. L., & Ferguson, M. J. (2001). Everyday sexism: Evidence for its incidence, nature, and psychological impact from three daily diary studies. *Journal of Social Issues*, 57, 31–53.
- Tiggemann, M. (2003). Media exposure, body dissatisfaction, and disordered eating: Television and magazines are not the same! *European Eating Disorders Review*, 11, 418–430.
- Tiggemann, M., & Kuring, J. K. (2004). The role of body objectification in disordered eating and depressed mood. *British Journal of Clinical Psychology*, 43, 299–311.
- Tiggemann, M., & Lynch, J. E. (2001). Body image across the life span in adult women: The role of self-objectification. *Developmental Psychology*, 37, 243–253.
- Tiggemann, M., & Slater, A. (2001). A test of objectification theory in former dancers and non-dancers. *Psychology of Women Quarterly*, 25, 57–64.
- Turner, C., Ku, L., Rogers, S., Lindberg, L., Pleck, J., & Sonenstein, F. (1998). Adolescent sexual behavior, drug use, and violence: Increased reporting with computer survey technology. *Science*, 280, 867–873.
- Twenge, J. M., & Nolen-Hoeksema, S. (1998). Age, gender, race, socioeconomic status, and birth cohort difference in the children's depression inventory: A meta-analysis. *Journal of Abnormal Psychology*, 11, 578–588.
- Voyer, D., Voyer, S., & Bryden, M. P. (1995). Magnitude of sex differences in spatial abilities: A meta-analysis and consideration of critical variables. *Psychological Bulletin*, 117, 250–270.