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The Effect of Conformity to Feminine Norms on Women's Food Consumption after a Sad Mood Induction

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Abstract

The current study examined the relationship between women's food intake and their conformity to feminine norms after a sad mood induction. Based on past research, we hypothesized that conformity to the feminine norm of modesty would predict reduced food intake. Female participants (N = 200) watched a sad movie clip, partook in a taste test in which they consumed potato chips and chocolate chips, and completed validated surveys designed to assess conformity to feminine norms and daily use of emotion regulation strategies. Regression analyses revealed that increased conformity to the feminine norm of modesty predicted reduced food intake. Expressive suppression moderated this effect, such that women who used expressive suppression more in their daily lives showed a weaker relationship between modesty and food intake. Conformity to feminine norms overall and cognitive reappraisal did not predict food intake. Overall, this study affirms the importance of examining how the cultural norms that dictate how women should act, feel, and think influence food consumption.

Introduction

Many women in the United States as well as various cultures throughout the world feel pressured to lose weight. One reason for this is thin-ideal internalization, or the adoption of societal beliefs that thinness is equivalent to attractiveness (Thompson and Stice, 2001). Though Western culture celebrates this thin ideal, it is very difficult for most women to attain this glorified skinny body type (Brownell, 1991). Women's attempts to lose weight to meet the thin ideal have been linked to a variety of negative outcomes, including body dissatisfaction and disordered eating (Fitzsimmons-Craft et al, 2012; Stice et al., 2002). Indeed, this consistent struggle to achieve the thin ideal is a gendered concept; as women face pressure from society to be thin, men face pressure to be muscular (Kimmel, 2011).

One factor that often thwarts women's attempts to lose weight is the experience of negative emotions. An extensive amount of research has examined the role of negative affect on women's food intake (van Strien et al., 2013; Haedt-Matt & Keel, 2011; Chua, Touyz, & Hill, 2004). The broader literature suggests that women consume increased amounts of unhealthful food to cope with and distract themselves from unpleasant emotions (Canetti, Bachar, & Berry, 2002; Macht, 2008). The hedonic quality of palatable foods may distract people from thoughts or emotions they want to escape. Furthermore, foods that are high in sugar or fat can improve mood and mitigate the effects of negative affect via the neurotransmission of dopamine, which activates the reward and pleasure centers in the brain (Mennella, Pepino, Lehmann-Castor, & Yourshaw, 2010; Mercer & Holder, 1997).

Several experimental studies have tested this link between emotion and food. In these studies, experimenters induce a negative emotional state and then ask participants to partake in a taste test to assess their eating habits directly while in a negative mood. These studies have

provided evidence that supports the positive association between negative emotions and enhanced food consumption (Cardi, Leppanen, & Treasure, 2015; Heatherton, Herman, & Polivy, 1991; Oliver, Wardle, & Gibson, 2000). Taken together, correlational as well as experimental studies suggest that for some women, eating serves as a way to cope with stress (Polivy & Herman, 1999) and avoid harmful self-awareness (Heatherton & Baumeister, 1991).

However, several studies have failed to find evidence that women who experience a negative mood consume more food (Bongers, Jansen, Havermans, Roefs, & Nederkoorn, 2013; Evers, Marjin Stok, de Ridder, 2010; Evers, de Ridder, & Adriaanse, 2009). Indeed, in a review of experimental studies that examined the effect of negative mood on non-disordered eaters' food consumption, participants in only 43% of these studies showed an increase in food intake (Macht, 2008). These mixed results make it difficult to draw conclusions about the relationship between negative mood and food consumption.

One often-overlooked factor that may help explain variance in women's eating behavior – while also considering the cultural expectations of the surrounding society – is conformity to feminine norms. Feminine norms provide implicit guidelines and constraints on how women should think, act, and feel (Mahalik et al., 2005; Connell, 1995). Gender social learning theory posits that these normative and gendered behaviors are maintained through modeling and reinforcement (Addis & Cohane, 2005). For example, women are expected to adhere to feminine norms such as desiring children and wanting to nurture children (Hoffman & Fidell, 1979), valuing thinness and physical appearance (Hurt et al., 2007; Levitt, 2004), and being sweet and nice to those around them (Mahalik et al., 2005; Lakkis, Ricciardelli, & Williams, 1999). Because of these norms, women are encouraged to regulate their behaviors, including their health-related behaviors, to be consistent with the appropriate gender-normed behaviors

established by the hegemonic standards within the society they reside (Lyons, 2009; Saltonstall, 1993).

Thus, a limitation of the literature pertaining to mood and food intake is that the majority of these studies do not examine cultural norms that influence and dictate how female-identifying individuals are supposed to think, act, and feel. By failing to consider the extent to which women adhere to cultural norms of femininity, researchers overlook an important potential source of within group variance, as some women may identify closely with the norms of femininity prescribed by society, whereas others may not. Researchers have often justified this oversight by citing literature that states that the use of eating as a way to cope with emotions is considered a predominately female phenomenon (Grunberg & Straub, 1992; Van Strien, Frijters, & Bergers, Gerard, & Defares, 1986). Indeed, in a recent meta-analysis that included 48 laboratory experiments that examined the effects of mood inductions in eating behavior, 83% of these studies included only-female samples. However, none of these studies considered the cultural expectations surrounding femininity and how those expectations may influence eating behavior (Cardi et al., 2015).

Indeed, a growing literature has examined the relationship between conformity to feminine norms and various health-related consumptive behaviors, specifically disordered eating and alcohol abuse. For example, several studies have found a positive association between adherence to femininity and disordered eating behaviors, above and beyond biological sex as well as across sexual orientations (Griffiths, Murray, & Touyz, 2015; Cella, Iannaccone, & Cotrufo, 2013; Meyer, Blissett, & Oldfield, 2001). There are multiple theories as to why conformity to feminine norms would confer risk for eating disorders. One theory, the “femininity hypothesis,” suggests that because women are taught to cultivate low self-esteem and seek

approval from others, they try to attain a body that will appeal to popular standards of beauty, which leads to body dissatisfaction and disordered eating (Meyer et al., 2001; Lakkis et al, 1999). Another theory, gender role strain theory, posits that women who feel pressured to conform to societally determined gender norms may experience severe distress when they do not meet those standards, and they thus rely on unhealthful behaviors, such as disordered eating and alcohol abuse, to cope (Pleck, 1995). However, all of the studies that have examined the relationship between conformity to feminine norms and health-related behaviors have employed correlational designs, so it is impossible to determine direct causality until more experimental studies are conducted.

One specific feminine norm that may explain the mixed results pertaining to negative mood and food intake is modesty. Current models of femininity conceptualize femininity as a construct that is comprised of various norms. The norm of modesty (i.e., the desire to downplay and avoid public acknowledgement of one's accomplishments) has been shown to be significantly negatively associated with alcohol abuse and tobacco use (Iwamoto, Grivel, Cheng, Clinton, & Kaya, 2016; Kaya, Iwamoto, Grivel, Clinton, & Brady; 2016; Brabete, Sanchez-Lopez, Cuellar-Flores, & Rivas-Diez, 2013). It has been suggested that as individuals' adherence to modesty increases they become less likely to want to consume alcohol or drugs for fear of appearing sloppy or immodest (Simonen, 2013). Avoiding alcohol and other substances may thus serve as a way for these women to maintain their humility. While none of these studies have examined the influence of modesty in an experimental setting, they suggest that women's health behaviors are influenced by overarching gendered societal norms.

Although the role of conformity to the feminine norm of modesty has not yet been investigated with respect to eating behavior, research has shown that women will reduce the

amount of food they consume to avoid stereotypes that are associated with excessive eating, such as weight gain, lack of willpower, and reduced femininity (Vartanian, Herman, & Polivy, 2007). Indeed, individuals have been shown to rate women who eat small amounts of food as more feminine and more sexually attractive (Vartanian et al., 2007). Although several studies have measured women's food intake in the presence of others, few have measured participants' conformity to feminine norms, which may explain why these studies have revealed inconsistent results (for a review, see Herman, Roth, & Polivy, 2003). Investigation of the feminine norm of modesty could shed light on these inconsistent findings.

The present study is the first to examine the effect of conformity to feminine norms on women's eating behavior after a negative mood induction. The goal of this study is to assess whether there is an association between conformity to feminine norms and food intake after a laboratory induction of sad mood. Additionally, we sought to test the gender role strain theory (i.e., that women use unhealthful behaviors to cope with the challenge of meeting societally prescribed norms of femininity) by examining whether women's daily use of cognitive reappraisal and expressive suppression moderate the relationship between conformity to feminine norms and the amount of food they consume. Emotion regulation, or the capacity to understand and influence one's expression and experience of emotions, has been shown to have substantial influences on physical and mental health (Gross, 2007; Gross, 1999). Thus, by examining the presence of two strategies in particular – expressive suppression, a maladaptive strategy, and cognitive reappraisal, an adaptive strategy – in women's everyday life, we were able to test to what extent emotion regulation influences the relationship between conformity to feminine norms and food intake while in a sad mood.

Based on the existing literature, we hypothesized that enhanced conformity to the feminine norm of modesty would be associated with reduced intake because these women would want to curb their food consumption to avoid appearing sloppy or excessive. We further hypothesized that the use of expressive suppression and cognitive reappraisal in daily life would moderate this relationship. We predicted that for women who conformed more to the feminine norm of modesty, an increased use of expressive suppression and a decreased use of cognitive reappraisal would reduce the negative relationship between negative mood and food intake. We predicted this based on the belief that the use of maladaptive emotion regulation would interfere with these women's ability to adhere to their desired value of modesty while experiencing unpleasant emotions. In addition to assessing the role of modesty specifically, we also assessed whether conformity to feminine norms overall was associated with eating behavior, and if so whether this relationship was moderated by emotional regulation strategies.

Method

Participants: 200 participants ranging in age from 18 to 28 years (M = 19.24, SEM = 0.92) were recruited either from interest in participating in paid studies or from introductory psychology courses at a medium-sized liberal arts college in the mid-Atlantic region of the USA. Those who participated for monetary compensation were given $5 for their participation, and students of introductory psychology courses were compensated with partial class credit. All procedures were approved by the university's Protection of Human Subjects Committee. All participants provided written informed consent.

Materials:

Film Clip*:* All participants watched a pretested sadness inducing film clip (Rottenberg, Ray, & Gross, 2007). The clip featured a young boy crying over his father's death from the movie *The Champ*. The clip was approximately 180 seconds in length.

Food*:* Participants were provided with two snacks to assess food intake during the taste test that occurred after they watched the film clip. The snacks included 49.1 grams of Ruffles potato chips (280.4 calories) and 51.6 grams of Hershey's chocolate chips (241.0 calories). These high-calorie snacks were chosen because they function as comfort foods, as studies have shown that after experiencing negative affect, individuals will consume more comfort foods due to their palatability (Evers et al., 2010; Lebel, Lu, & Dube, 2009).

Questionnaires: Demographic information (e.g., age, race, ethnicity, etc.) for all participants, as well as weight, height, and when and what they last ate, were collected. We recruited female participants only, and asked participants to indicate their gender to ensure that they all identified as female. Several other questionnaires were administered and are described below.

Conformity to Feminine Norms Inventory (CFNI-45, Parent and Moradi, 2010; Mahalik et al. 2005): The CFNI-45 is a 45-item scale that assesses to what extent individuals endorse specific feminine norms, as dictated by the expectations and beliefs associated with femininity in U.S. hegemonic culture. Responses are recorded on a 4-point scale from 0 (strongly disagree) to 3 (strongly agree). It contains nine subscales: 1) thinness (e.g., "I would be happier if I was thinner), 2) domestic (e.g. "It is important to keep your living space clean), 3) invest in appearance (e.g. "I spend more than 30 minutes a day doing my hair and make-up"), 4) modesty (e.g. "I hate telling people about my accomplishments), 5) relational (e.g. "I believe that my

friendships should be maintained at all costs"), 6) involvement with children (e.g. "Taking care of children is extremely fulfilling"), 7) sexual fidelity (e.g. "I would feel guilty if I had a one-night stand"), 8) romantic relationship (e.g. "Having a romantic relationship is essential in life"), and 9) sweet and nice (e.g. "Being nice to others is extremely important") (Appendix A). Consistent with previous research, the thinness and appearance subscales were excluded from final analyses because of their potential to confound with eating behavior (Cronbach's alpha for the CFNI-45 has been reported as .80 (Griffiths et al., 2015; Murray, Rieger, Touyz, & de la Garza Garcia, 2013). For the current sample, Cronbach's alpha for the CFNI-45 excluding the thinness and appearance subscales was .80. Cronbach's alpha for the modesty subscale was .82.

Positive and Negative Affect Schedule-Expanded Form (PANAS-X, Watson and Clark, 1994): The PANAS-X assesses the specific, distinctive emotional states that emerge from within the broader general dimensions of positive and negative emotions. Participants are instructed to respond to a series of emotions with respect to how much they feel each specific emotion in that present moment from a scale of 1 (very slightly or not at all) to 5 (extremely). For the purpose of this study, we used the "sadness" and "joviality" subscales of the PANAS-X. The "sadness" subscale included the following words: sad, alone, blue, lonely, and downhearted. The "joviality" subscale included the following words: cheerful, delighted, happy, joyful, excited, lively, enthusiastic, and energetic (Appendix B). Cronbach's alpha for the joviality and sadness subscales of the PANAS-X have been reported as .93 and .87, respectively (Watson & Clark, 1994). For the current study, Cronbach's alpha for the pre-mood induction joviality and sadness subscales were .93 and .87, respectively. For the post-mood induction joviality and sadness subscales, Cronbach's alpha was .95 and .88, respectively.

The Emotion Regulation Questionnaire (ERQ, Gross and John, 2003): The ERQ is a 10-item scale that measures to what extent individuals use two specific emotion regulation strategies, expressive suppression and cognitive reappraisal, in their daily lives. Responses are recorded on a 7-point scale from 1 (strongly disagree) to 7 (strongly agree). The expressive suppression subscale includes four statements, and an example item is "I control my emotions by *not expressing them*" (Appendix C). The cognitive reappraisal subscale includes six statements, and an example item is "I control my emotions by *changing the way I think* about the situation I'm in." For the current sample, Cronbach's alpha for the expressive suppression and cognitive reappraisal subscales were .79 and .81, respectively.

Time since Last Ate: Participants reported at what time they had last consumed a food or beverage before coming into the lab. Participants were instructed not to eat at least one hour before the session, and several participants reported that they had not eaten since the night before.

Procedure: Upon arrival to the lab participants were seated in front of a computer and completed the informed consent, a demographics questionnaire, and ratings of their baseline mood. Participants then watched the sadness-inducing film clip. Afterward, they completed a questionnaire that assessed their mood as well as their hunger and fullness. Upon completion of this questionnaire, the experimenter brought the two snacks to the participant. Participants were instructed that they were now going to participate in an ad lib taste test and that they should eat as little or as much of the snacks as they wanted, while rating the snacks on various qualities

such as sweetness, saltiness, and healthfulness. Participants were given ten minutes to consume the snacks and were asked to stay in the room until the experimenter returned after the allotted time. After ten minutes, the experimenter returned and instructed the participant to complete the final set of questionnaires, which included the CFNI-45 and the ERQ. When the participant finished this last set of questionnaires, the experimenter returned and recorded the participant's height and weight. Participants were then debriefed. The overall experimental procedure for this study took approximately 30 minutes.

Results

Participant Characteristics: Of the 203 participants recruited for the study, two participants were excluded because they were not 18 years of age, and one was excluded for having a food allergy. Of the remaining 200 participants, 119 (53.1%) were Caucasian, 56 (25.0%) were Asian, 24 (10.7%) were African American, and 1 (0.4%) was Latina. Participants ranged in age from 18 to 28 years (M = 19.24, SEM = 0.92). Mean BMI was 21.60 (SEM = .30).

Correlational Analyses: Correlations were computed between demographic (BMI, age), baseline (hours since last ate, joviality and sadness at time 1), predictor (daily use of suppression and reappraisal, conformity to feminine norms overall, and conformity to the feminine norm of modesty), and criterion (caloric consumption) variables. Table 1 shows the results of these correlational analyses. Notably, there was a significant negative correlation between adhering to the feminine norm of modesty and daily use of expressive suppression (r = -.303, n = 200, p < .001). There was also a significant negative correlation between adhering to the feminine norm of modesty and total calories consumed (r = -.252, n = 200, p < .001). However, there was no

correlation between calories consumed and ratings of sadness (r = .017, n = 200, p = .81) nor joviality (r = .022, n = 200, p = .76) after watching the film clip. Because there was a significant positive correlation between adhering to the feminine norm of modesty and hours since last ate (r = .162, n = 200, p < .03), we included hours since last ate as a covariate in our regression analyses that included the feminine norm of modesty. We also computed intercorrelations between the various subscales of the CFNI and calories consumed, as shown in Table 2.

Mood Manipulation Check: Two paired-samples *t* tests were run to determine whether participants felt significantly less jovial and significantly more sad after watching the sad film clip. Results showed that participants' joviality significantly decreased as a result of watching the video, such that their score on the PANAS before watching the film clip (M = 19.90, SEM = .48) dropped significantly after they watched the film clip (M = 13.16, SEM = .42), $t(199)$= 18.18, p < .001). Results also showed that participants' sadness significantly increased as a result of watching the video, such that their score on the PANAS before watching the film clip (M = 7.54, SEM = .28) increased significantly after they watched the film clip (M = 10.45, SEM = .28), $t(199) = -12.07$, p < .001). Thus, we concluded that our mood manipulation was successful.

Table 1

Correlation Matrix of Criterion, Demographic, Experimental, and Predictor Variables

	Calories Consumed	Age	BMI (kg/m^2)	Last Ate (h)	Joviality, Time 1	Sadness, Time 1	ERQ: Suppression	ERQ: Reappraisal	CFNI: Total$^+$	CFNI: Modesty
Calories Consumed	--	-.12	.025	.08	.08	.03	-.04	-.001	-.02	-.25**
Age	-.12	--	-.002	.09	-.06	-.05	.02	-.01	-.08	.10
BMI (kg/m^2)	.025	-.002	--	-.01	-.01	-.01	.03	-.03	.21**	-.06
Last Ate (h)	.08	.09	-.01	--	-.12	-.04	.13	-.05	.13	.16*
Joviality, Time 1	.08	-.06	-.10	-.12	--	-.25**	-.09	.19**	.17*	-.12
Sadness, Time 1	.03	-.05	.01	-.04	-.25**	--	-.04	-.26**	.04	.11
ERQ: Suppression	-.04	.02	.03	.13	-.09	-.04	--	-.05	-.09	.30**
ERQ: Reappraisal	-.001	-.01	-.03	-.05	.19**	-.26**	-.05	--	-.02	-.12
CFNI: Total	-.02	-.08	-.21**	.13	.17*	.04	-.09	-.02	--	.20**
CFNI: Modesty	-.25**	.10	-.06	.16*	-.12	.11	.30**	-.12	.20**	--

**p <.01, *p <.05, $^+$excludes the thinness and appearance subscales

Table 2

Correlation Matrix of the Various Subscales of the Conformity to Feminine Norms Inventory and Calories Consumed

	Total[+]	Thinness	Domestic	Appearance	Modesty	Interpersonal	Children	Sexual Fidelity	Romance	Sweet and Nice	Calories Consumed
Total[+]	--	-.094	.407**	-.010	.197**	.402**	.508**	.648**	.498**	.473**	-.016
Thinness	-.094	--	-.132	.230**	.061	-.002	-.142*	-.104	.129	-.059	-.002
Domestic	.407**	-.132	--	.094	-.055	.000	.085	.127	.050	.127	-.067
Appearance	-.010	.230**	.094	--	-.113	.117	-.093	-.078	.117	-.039	.090
Modesty	.197**	.061	-.055	-.113	--	-.172*	-.124	.068	.059	.006	-.252**
Interpersonal	.402**	-.002	.000	.117	-.172*	--	.150*	.040	.129	.326**	.076
Children	.508**	-.142*	.085	-.093	-.124	.150*	--	.135	.015	.181*	.037
Sexual Fidelity	.648**	-.104	.127	-.078	.068	.040	.135	--	.244*	.127	.033
Romance	.498**	.129	.050	.117	.059	.129	.015	.244**	--	.062	.009
Sweet and Nice	.473**	-.059	.127	-.039	.006	.326**	.181*	.127	.062	--	.084
Calories Consumed	-.016	-.002	-.067	.090	-.252**	.076	.037	.033	.009	.084	--
Mean	63.395	8.275	10.760	7.170	7.130	9.030	10.545	7.660	7.545	10.725	147.863
SD	9.727	3.529	2.882	3.400	2.497	2.569	3.642	4.169	3.017	2.062	100.206

**p <.01, *p <.05, [+]excludes the thinness and appearance subscales

Regression Analyses: To examine the relationships between conformity to feminine norms, expressive suppression, cognitive reappraisal, and caloric intake, separate hierarchical multiple regression analyses were performed. Prior to conducting these analyses, each of the independent variables was mean centered, including overall conformity to feminine norms, adherence to the feminine norm of modesty, expressive suppression, and cognitive reappraisal. In Step 1 conformity to feminine norms (either total conformity or modesty) and emotion regulation (either expressive suppression or cognitive reappraisal) were entered with hours since last ate as a covariate. In Step 2, the interaction term was entered. If the second step accounted for significant incremental variance (R^2) and the model was significant, the interaction was assessed through simple slope analyses.

When conformity to the feminine norm of modesty and expressive suppression were included simultaneously as predictors of total caloric intake with hours since last ate as a covariate, the overall model for Step 1 was significant $R^2 = .079$, F (3, 196) = 5.63, $p < .01$. As shown in Table 2, conformity to the feminine norm of modesty significantly predicted reduced caloric intake ($b = -11.281$, $SE = 2.89$, $p < .001$). Moreover, Step 2 of the analyses accounted for significant incremental variance $R^2 = .095$, F (4, 195) = 5.14, $p < .01$. Conformity to the feminine norm of modesty and expressive suppression interacted to marginally predict caloric intake ($b = 3.692$, $SE = 1.99$, $p = .064$).

As shown in Figure 1, simple slopes for the association between conformity to the feminine norm of modesty and total caloric intake were tested for low (-1 SD below the mean), moderate (mean), and high (+1 SD above the mean) levels of daily expressive suppression. Each of the simple slopes revealed a significant negative association between modesty and total calories consumed, but modesty was more strongly related to total calories consumed for low

levels of expressive suppression (*simple slope* = -15.809, *SE* = 3.60, *t*(195)= -4.39, *p* < .001) and moderate levels of expressive suppression (*simple slope* = -11.281, *SE* = 2.89, *t*(195)= -3.90, *p* < .001) than for high levels of expressive suppression (*simple slope* = -6.75, *SE* = 3.21, *t*(195)= -2.11 *p* < .05).

When conformity to the feminine norm of modesty and cognitive reappraisal were included simultaneously as predictors of total caloric intake with hours since last ate as a covariate in Step 1, the overall model was significant R^2 = .082, *F* (4, 195) = 4.34, *p* < .01, but only conformity to the feminine norm of modesty predicted reduced caloric intake (*b* = -10.89, *SE* = 2.82, *p* < .001).

Because there was a significant negative correlation between adhering to the feminine norms overall and BMI (*r* = -.210, *n* = 200, *p* < .01), we included BMI as a covariate in our regression analyses that included conformity to feminine norms overall. When conformity to feminine norms overall and expressive suppression were included simultaneously as predictors of total caloric intake, the overall model was not significant R^2 = .003, *F* (3, 196) = .207, *p* = .891 (all other *p* values > .50). Similarly, when conformity to feminine norms overall and cognitive reappraisal were included simultaneously as predictors of total caloric intake, the overall model was not significant R^2 = .001, *F* (3, 196) = .097, *p* = .962 (all other *p* values > .60).

Table 2

Multiple Regression Predicting Caloric Intake with Modesty and Expressive Suppression

Variable	***B***	***SE***	***Beta***
Modesty	-11.28	2.89	-.28**
Expressive Suppression	2.86	5.86	.04
Hours Since Last Ate	2.79	1.48	.13
Modesty*Suppression	3.69	1.99	.13^{+}

**p < .01; *p < .05, ^{+}p < .10

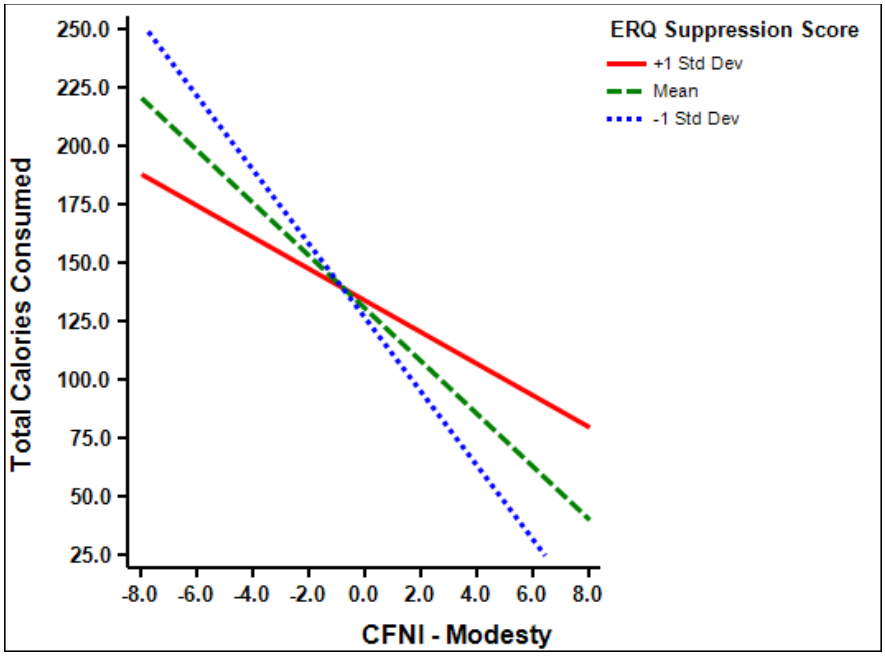

Figure 1. The moderating effect of daily use of expressive suppression on the relationship between conformity to the feminine norm of modesty and total caloric intake

Discussion

The present study is the first to examine the impact of conformity to feminine norms on women's eating behavior after a negative mood induction in a laboratory setting. We found that when women feel sad, conformity to the feminine norm of modesty significantly predicted reduced food intake after a negative mood induction. Daily use of expressive suppression marginally moderated this effect, such that women who regularly used expressive suppression exhibited a weaker relationship between modesty and food intake. Conformity to feminine norms overall did not predict food intake, nor did daily use of cognitive reappraisal.

The finding that modesty led to reduced food intake in women after a negative mood confirms our hypothesis that enhanced conformity to the feminine norm of modesty is associated with decreased consumption. This result is in line with the pre-existing literature showing that modesty is negatively associated with alcohol and tobacco use (Iwamoto et al., 2016; Kaya et al., 2016; Brabete et al., 2013). Individuals who adhere to the feminine norm of modesty may want to consume less alcohol and fewer drugs so that they can maintain a clean and composed appearance (Simonen, 2013). The results of this study suggest that this desire to avoid appearing sloppy or immodest may extend to eating behavior. Women may eat less to avoid stereotypes that are associated with excessive eating (e.g., lacking self-control, being messy) which contradict their desire to maintain a modest demeanor (Vartanian et al., 2007). Indeed, people who eat smaller meals are often perceived as neater and less sloppy than those who eat larger meals (Bock & Kanarek, 1995; Chaiken & Pliner, 1987). This perception aligns with the feminine norm of modesty, which aids in explaining why more modest women would reduce their food intake.

Our study is the first to consider how the cultural norm of modesty affects women's eating behavior after negative mood induction in a laboratory setting, whereas past research on negative mood inductions and eating have ignored this potential source of within group variance (Cardi et al., 2015). Given that ratings of joviality and sadness did not predict consumption in the present study, our finding suggests that increased modesty leads to a reduced amount of food intake when sad. This finding demonstrates that examining the role of modesty may help researchers understand mixed findings pertaining to whether a negative mood induction will cause women to consume more food (Macht, 2008).

Our hypothesis that the increased use of expressive suppression and the decreased use of cognitive reappraisal reduces the relationship between modesty and food intake was partially supported. Expressive suppression marginally moderated the relationship between increased modesty and reduced food intake, whereas cognitive reappraisal did not affect this relationship. This finding may best be explained by the resource depletion theory of emotion regulation. This theory posits that all acts of self-control deplete the same resource (Baumeister, Bratslavsky, Muraven, & Tice, 1998). As these individuals expend energy and self-control while attempting to conceal their emotions, their self-regulatory resources are depleted, which in turn causes them to eat more unhealthful food (Vohs & Heatherton, 2000; Evers et al., 2010). The use of cognitive reappraisal, on the other hand, has been shown to expend fewer resources than expressive suppression, if any resources at all (Sheppes & Meiran, 2008; Richards & Gross, 2000). When individuals practice cognitive reappraisal, they prepare themselves to cope with the affect generated by a stimulus before it occurs, which allows them to expend fewer resources when the stimulus happens. This contrasts with expressive suppression, in which individuals must monitor how their emotions appear while experiencing the emotional event. In our study, participants who used expressive suppression more regularly showed a weaker association between modesty and food intake. This suggests that because these women expend more self-regulatory resources in an attempt to conceal their emotions, they face more difficulty adhering to their value of modesty and as a result eat more food.

It is important to note that increased conformity to the feminine norm of modesty significantly correlated with increased daily use of expressive suppression, but only modesty predicted reduced food intake, whereas expressive suppression was not associated with food

intake. This correlation between modesty and expressive suppression suggests that many women who adhere to the feminine norm of modesty likely show a weaker negative relationship between modesty and food intake. Though this might be the case, the relationship between food intake and modesty was still significant in the women who participated in this study. Therefore, it is important to examine modesty as a variable when assessing negative mood and food intake.

In contrast to modesty, increased conformity to feminine norms overall did not predict food intake. The lack of a relationship between conformity to feminine norms overall and food intake may indicate the necessity of using multidimensional measures to assess femininity. Indeed, the majority of studies that have examined the relationship between femininity and disordered eating have done so using the Bem Sex Role Inventory (BSRI; Bem 1974), which assesses femininity as a unidimensional construct comprised of stereotypical and socially sought-after feminine traits (Cella et al., 2013; Meyer et al., 2001). The BSRI has drawn criticism because it conceptualizes femininity as an array of personality traits as opposed to a set of gender roles, and it also does not take into account the various distinct cultural norms that interact to the define the social construction of femininity in the contemporary United States (Mahalik et al., 2005; Betz, 1995; Spence & Helmreich, 1980). Furthermore, several studies have found associations between the consumption of low-fat, healthful foods and femininity, but all of these studies asked participants to rate foods' femininity on a single Likert scale, allowing participants' judgments of what they perceived as feminine to determine what comprised the construct of femininity (Stein & Nemeroff, 1995; Mooney & Lorenz, 1997; Barker, Tandy, & Stookey, 1999). The results of our study emphasize the importance of examining how specific feminine

norms influence eating behavior, as adhering to the norm of modesty predicted reduced food intake even though overall conformity to feminine norms did not.

This study possesses a number of limitations and future directions. It took place in a controlled laboratory setting, which allowed us to draw more direct associations between variables such as conformity to modesty and total calories consumed. However, it is unclear how conformity to feminine norms predicts eating behavior in a more naturalistic setting. Future studies should use daily diary or ecological momentary assessment methodologies to assess the intersections of femininity, eating behavior, and emotions in everyday life. Additionally, while we were able to indirectly test the gender role strain theory by examining the influence of emotion regulation on the relationship between conformity to feminine norms and food intake while in a sad mood, we could not directly assess this theory because we did not manipulate whether women succeeded or failed in adhering to femininity overall. Future studies could potentially manipulate participants' success in conforming to femininity norms by introducing a situation in which they would have to defy specific norms (e.g., defying modesty by forcing them to brag about their accomplishments). Finally, this study used a predominately white sample of young women attending university, which limits its findings' generalizability. It is important to assess how conforming to feminine norms, especially the norm of modesty, may affect the eating behaviors of diverse individuals across racial/ethnic categories, sexualities, ages, etc.

The main strength of this study is its novelty in assessing the impact of conformity to feminine norms on women's eating behavior in a laboratory setting. Our findings suggest that examining the specific norm of modesty could help explain the mixed results of past research

that assesses the effect of negative mood induction on food intake. Conforming to the norm of modesty may shield women from overeating after experiencing a negative mood, and the use of expressive suppression in daily life may reduce this beneficial effect. Overall, this study affirms the importance of examining how the cultural norms that dictate how women should act, feel, and think influence their health-related behaviors, specifically food consumption.

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Appendix A

Conformity to Feminine Norms Inventory – 45 (CFNI-45)

The following pages contain a series of statements about how people might think, feel or behave. The statements are designed to measure attitudes, beliefs, and behaviors associated with both traditional and non-traditional feminine gender roles.

Thinking about your own actions, feelings and beliefs, please indicate how much **you personally agree or disagree with each statement** by circling SD for "Strongly Disagree", D for "Disagree", A for "Agree", or SA for "Strongly agree" to the right of the statement. There are no right or wrong responses to the statements. You should give the responses that most accurately describe your personal actions, feelings and beliefs. It is best if you respond with your first impression when answering.

1. I would be happier if I was thinner SD D A SA
2. It is important to keep your living space clean SD D A SA
3. I spend more than 30 minutes a day doing my hair and make-up SD D A SA
4. I tell everyone about my accomplishments SD D A SA
5. I clean my home on a regular basis SD D A SA
6. I feel attractive without makeup SD D A SA
7. I believe that my friendships should be maintained at all costs SD D A SA
8. I find children annoying SD D A SA
9. I would feel guilty if I had a one-night stand SD D A SA
10. When I succeed, I tell my friends about it SD D A SA
11. Having a romantic relationship is essential in life SD D A SA
12. I enjoy spending time making my living space look nice SD D A SA
13. Being nice to others is extremely important SD D A SA
14. I regularly wear makeup SD D A SA
15. I don’t go out of my way to keep in touch with friends SD D A SA
16. Most people enjoy children more than I do SD D A SA
17. I would like to lose a few pounds SD D A SA

18. It is not necessary to be in a committed relationship to have sex SD D A SA
19. I hate telling people about my accomplishments SD D A SA
20. I get ready in the morning without looking in the mirror very much SD D A SA
21. I would feel burdened if I had to maintain a lot of friendships SD D A SA
22. I would feel comfortable having casual sex SD D A SA
23. I make it a point to get together with my friends regularly SD D A SA
24. I always downplay my achievements SD D A SA
25. Being in a romantic relationship is important SD D A SA
26. I don't care if my living space looks messy SD D A SA
27. I never wear make-up SD D A SA
28. I always try to make people feel special SD D A SA
29. I am not afraid to tell people about my achievements SD D A SA
30. My life plans do not rely on my having a romantic relationship SD D A SA
31. I am always trying to lose weight SD D A SA
32. I would only have sex with the person I love SD D A SA
33. When I have a romantic relationship, I enjoy focusing my energies on it SD D A SA
34. There is no point to cleaning because things will get dirty again SD D A SA
35. I am not afraid to hurt people's feelings to get what I want SD D A SA
36. Taking care of children is extremely fulfilling SD D A SA
37. I would be perfectly happy with myself even if I gained weight SD D A SA
38. If I were single, my life would be complete without a partner SD D A SA
39. I rarely go out of my way to act nice SD D A SA
40. I actively avoid children SD D A SA
41. I am terrified of gaining weight SD D A SA
42. I would only have sex if I was in a committed relationship like marriage SD D A SA
43. I like being around children SD D A SA
44. I don't feel guilty if I lose contact with a friend SD D A SA
45. I would be ashamed if someone thought I was mean SD D A SA

Appendix B

The Positive and Negative Affect Schedule – Expanded Form (PANAS-X, joviality and sadness subscales)

This scale consists of a number of words and phrases that describe different feelings and emotions. Read each item and then mark the appropriate answer in the space next to that word. Indicate to what extent you have felt this way during the past week. Use the following scale to record your answers:

1	2	3	4	5
very slightly or not at all	a little	moderately	quite a bit	extremely

_____ sad	_____ cheerful	_____ happy	_____ blue
_____ joyful	_____ downhearted	_____ alone	_____ delighted
_____ enthusiastic	_____ excited	_____ lively	_____ lonely
_____ energetic			

Item Composition of the PANAS-X Scales

Sadness	sad, blue, downhearted, alone, lonely
Joviality	cheerful, happy, joyful, delighted, enthusiastic, excited, lively, energetic

To score a scale, sum the responses to the items in that scale.

Appendix C

Emotion Regulation Questionnaire (ERQ)

We would like to ask you some questions about your emotional life, in particular, how you control (that is, regulate and manage) your emotions. The questions below involve two distinct aspects of your emotional life. One is your emotional experience, or what you feel like inside. The other is your emotional expression, or how you show your emotions in the way you talk, gesture, or behave. Although some of the following questions may seem similar to one another, they differ in important ways. For each item, please answer the following scale:

1----------2----------3----------4----------5----------6----------7

strongly disagree **neutral** **strongly agree**

1. When I want to feel more *positive* emotion (such as joy or amusement), *I change what I'm thinking about.*

2. I keep my emotions to myself.

3. When I want to feel less *negative* emotions (such as sadness or anger), *I change what I'm thinking about.*

4. When I am feeling *positive* emotions, I am careful not to express them.

5. When I'm faced with a stressful situation, I make myself *think about it* in a way that helps me stay calm.

6. I control my emotions by *not expressing them*.

7. When I want to feel more *positive* emotion, I *change the way I'm thinking* about the situation.

8. I control my emotions by *changing the way I think* about the situation I'm in.

9. When I am feeling *negative* emotions, I make sure not to express them.

10. When I want to feel less *negative* emotion, I *change the way I'm thinking* about the situation.

Note: Do not change item order, as items 1 and 3 at the beginning of the questionnaire define the terms positive emotion" and "negative emotion".

Scoring (no reversals):
Reappraisal items: 1, 3, 5, 7, 8, 10; Suppression Items: 2, 4, 6, 9.