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To cite this article: Analisa Arroyo, Chris Segrin, Jake Harwood & Joseph A. Bonito (2017) Co-Rumination of Fat Talk and Weight Control Practices: An Application of Confirmation Theory, Health Communication, 32:4, 438-450, DOI: [10.1080/10410236.2016.1140263](https://doi.org/10.1080/10410236.2016.1140263)

To link to this article: <http://dx.doi.org/10.1080/10410236.2016.1140263>



Published online: 17 Jun 2016.



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Co-Rumination of Fat Talk and Weight Control Practices: An Application of Confirmation Theory

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ABSTRACT

Grounded in confirmation theory, the current research sought to explore the relationship between co-rumination of fat talk and weight control practices (i.e., bingeing and purging, exercising, and healthy eating behaviors), with a particular interest in whether perceptions of friends' responses during these interactions exacerbate or mitigate this relationship. Female friendship dyads completed online questionnaires at three time points across 2 weeks. Multilevel modeling analyses revealed that (a) co-rumination was positively associated with bingeing and purging and exercising, (b) women who perceived their friends as accepting reported less bingeing and purging, more exercising, and more healthy eating behaviors, (c) acceptance and challenge interacted to predict bingeing and purging, (d) acceptance moderated the relationships between co-rumination and bingeing and purging, and (e) challenge moderated the relationship between co-rumination and healthy eating behaviors.

Interpersonally disparaging oneself is a normative practice among women (Martz, Petroff, Curtin, & Bazzini, 2009; Nichter, 2000). Research has identified *fat talk* as a ritualistic and problematic form of communication about one's own and others' bodies (e.g., Nichter, 2000). Such comments are often negative in nature (Martz et al., 2009), with the specific tone and content of these messages perpetuating negative self-perceptions (e.g., "I'm so fat," "My ass is huge") and leading to negative outcomes for the individual, such as higher levels of depression, perceived pressure to be thin, and body dissatisfaction (Arroyo & Harwood, 2012; Stice, Maxfeld, & Wells, 2003). These conversations take place among women of all ages and body types, including women who suffer from eating disorders, are of normal weight, and are overweight (Martz et al., 2009; Nichter, 2000; Stice et al., 2003). In fact, one study found that nearly all young adult women (93%) reported engaging in fat talk, with about one-third of them stating that their engagement in this type of talk is frequent or very frequent (Salk & Renee Engeln-Maddox, 2011a).

Because communication is a transactional process, the acts of making or hearing weight-related comments cannot be isolated on their own. Fat talk conversations typically include both a woman expressing her own discontent with her body and a related response from another person. Although very little research has explored the reinforcing role of fat talk, such responses can play a crucial role in the link between fat talk and its outcomes. For example, weight concerns and body dissatisfaction are associated with others' criticism or feedback about weight and appearance (Ata, Ludden, & Lally, 2007; Neumark-Sztainer et al., 2010). Thus, given the dyadic nature of this talk, this research explores the co-rumination of fat talk between female friends. Specifically, because of the

health implications of this talk, the main purposes of this research are to (a) explore perceptions of communication partners' responses during co-rumination discussions about weight and (b) identify the extent to which communication exacerbates and mitigates weight control practices (i.e., bingeing and purging, healthy eating behaviors, exercising).

Dyadic Fat Talk: Co-rumination

Researchers have explored the social and interpersonal conditions in which fat talk comments occur. These interactions appear to be a normative and expected behavior among women (Britton, Martz, Bazzini, Curtin, & LeaShomb, 2006; Tompkins, Martz, Rocheleau, & Bazzini, 2009). Women conform to the norms of their peers and make self-disparaging comments to "fit in" (Britton et al., 2006; Nichter, 2000; Tucker, Martz, Curtin, & Bazzini, 2007). Women also feel pressure to make negative comments about themselves more than positive or self-accepting comments (Martz et al., 2009), with failure to conform to the norms of the group indicating that they think they are better than their peers (Nichter, 2000). In these social encounters, fat talk has also been suggested to serve several functions, such as to obtain social validation from others, to establish a group identity, and to manage a woman's impression during conversation (Nichter, 2000).

Self-disparaging conversations have the potential to socially construct and perpetuate weight ideals among women, as individuals construct reality and make sense of their social environments through interactions (Blumer, 1969). The perpetuation of socially constructed ideals makes fat talk conversations particularly problematic because they

involve an interpersonal process of extensively discussing problems within a dyadic relationship (Rose, 2002). This process is known as co-rumination. Co-rumination is similar to self-disclosure in that it involves sharing thoughts and concerns as a potential means of building intimacy and gaining support, but it also combines aspects of rumination in which there is a passive, inward focus on negative affect (Rose, 2002). Co-rumination is conceptualized as repeated and frequent discussions of problems occurring in a contemplative manner (Calmes & Roberts, 2008). Consequently, although co-rumination is associated with friendship quality and closeness, it also predicts increases in depression, anxiety, and impaired problem solving (Calmes & Roberts, 2008; Rose, 2002; Rose, Carlson, & Waller, 2007).

Co-rumination is particularly destructive as it relates to weight-related concerns because it increases one's own tendency to engage in fat talk comments, and encourages other women within a conversation to continue to make such comments. Research shows that hearing another person make weight-related comments not only increases body dissatisfaction (Gapinski et al., 2003; Stice et al., 2003), it also increases one's own likelihood to do so as well (e.g., "I feel so fat too!"; Salk & Engeln-Maddox, 2011b). As a result of reciprocating another's comments, making negative comments about oneself leads to increased levels of body dissatisfaction above and beyond initial levels of body dissatisfaction (Salk & Engeln-Maddox, 2011b). This type of reciprocity among women appears to create a cycle in which women mutually influence and reinforce negative self-perceptions and potentially encourage negative outcomes. Thus, co-rumination of fat talk should be associated with weight-related concerns and behaviors given the salience of body dissatisfaction and the focus women place on wanting to meet an "ideal" standard of weight in these conversations.

Confronting Co-rumination: Confirmation Theory

Because weight concerns are associated with negative comments from others (e.g., Ata et al., 2007; Neumark-Sztainer et al., 2010), there is reason to believe that less negative and more constructive comments should be positively associated with people's sense of self. Although research on responses to weight-related comments is limited, it appears as though there are socially prescribed responses. Research has found that women report that others most frequently respond to negative weight-related comments with positive comments (e.g., "You look great!") or no comments as all (O'Dougherty, Schmitz, Hearst, Covelli, & Kurzer, 2011), and women report making denial responses to friends' fat talk comments (e.g., "Oh, come on, you are not fat at all!"; Salk & Renee Engeln-Maddox, 2011a). These authors conclude that responses are rule bound: They are positive, supportive, and devoid of weight evaluations (O'Dougherty et al., 2011). However, despite these normative responses, those who receive denial and complimentary responses do not believe them and are seldom persuaded by those responses (O'Dougherty et al., 2011; Salk & Renee Engeln-Maddox, 2011a). Because fat talk is driven by negative self-perceptions (Arroyo & Harwood, 2012), these

responses may be ineffective partly because they contradict one's self-view (i.e., deny the other of her perspective; North & Swann, 2009; Swann, 1983).

Communication researchers are beginning to uncover more effective responses to negative weight-related comments, which may be useful to consider as contradictory responses to fat talk. Dailey and colleagues (Dailey, Richards, & Romo, 2010; Dailey, Romo, & McCracken, 2010; Dailey, Romo, & Thompson, 2011) investigated the content of weight-related communication with others in effort to understand the most effective ways partners can help each other feel confirmed about their body and weight. Their research found that during conversations about weight management, romantic partners/spouses, friends, parents, and siblings frequently made reassuring comments ("You're much slimmer than you seem to think. I don't think you see yourself as you really are"), comments of encouragement/mutual participation ("Well keep on trying and even if you don't lose weight, the exercise will help you in the long run"), and comments including advice/information ("You know you should be running at least twice a week and eating healthier"). These less confined rule-bound comments fall in line with some women's wishes for others to respond with more than an effortless denial to their body-related concerns (Salk & Renee Engeln-Maddox, 2011a). Denial (e.g., "No, you're not fat!") can be portrayed as dismissive of their real concerns, so some women prefer comments that reassure them that they are in fact not fat (Salk & Renee Engeln-Maddox, 2011a).

Such preferences can be supported by confirmation theory (Dailey, Richards, & Romo, 2010), which posits that individuals need to be validated by others in order to achieve a more positive sense of self. Confirmation theory says that people's sense of self is shaped by their social interactions, focusing on how confirming messages facilitate personal and psychosocial development (e.g., self-esteem and identity strength; Buber, 1965) and promote healthy behaviors (e.g., weight management; Dailey, Richards, & Romo, 2010). Confirming messages are thought to "validate a person as unique, valuable, and worthy of respect and lead individuals to value themselves more," whereas disconfirming messages "discount, judge, or reject another and lead individuals to value themselves less" (Dailey, Richards, & Romo, 2010, p. 646). More than just unconditional positive regard, however, confirmation also encompasses pushing others to reach a greater potential by influencing their thoughts and behaviors.

The most recent applications of confirmation theory have isolated and tested two components of confirmation: *acceptance* (i.e., showing positive regard, warmth, and attentiveness during interactions) and *challenge* (i.e., pushing the other to achieve a greater potential during interactions; e.g., Dailey et al., 2011; Dailey, Richards, & Romo, 2010; Dailey, Romo, & McCracken, 2010). Confirmation theorists suggest that telling someone that she is accepted for who she is does not necessarily mean that the source does not want her to change; that is, confirmation suggests that she is accepted as she is, as well as seen for the person that she has the potential to become. As such, "In its truest sense then, confirmation entails acceptance as well as challenge; in addition to

accepting the other to promote his or her sense of self, challenge offers a mechanism for growth” (Dailey, Richards, & Romo, 2010, p. 647).

This understanding of acceptance and challenge can be supported by the social support and influence literature. Research shows that the most effective social support and influence tactics that result in health-enhancing behaviors include positive and direct influence attempts (Lewis & Butterfield, 2007), and appeals related to liking, caring, and threat are the most effective tactics in motivating young adults’ diet and exercise behavior (Dennis, 2006). Further, as opposed to just telling someone what to do, messages that challenge and encourage others to think differently about themselves and their behaviors are more beneficial to people’s self-perceptions (e.g., “What do you think about ...” Holmstrom & Burleson, 2011). Thus, friends’ supportive responses (i.e., acceptance) and influence techniques (i.e., challenge; Lewis & Butterfield, 2007; Markey, Markey, & Gray, 2007) may facilitate others thinking differently about themselves and their behaviors. That said, social support and influence are not always related to positive and healthy outcomes, particularly in the context of co-rumination (Boren, 2013). Boren (2013) found that individuals who engage in co-ruminative interactions may reduce the positive benefits of social support because they experience the expressed emotion of others in co-rumination via emotional contagion.

Acceptance and challenge are separately associated with self-perceptions and health behaviors (e.g., Ball & Crawford, 2006; Roehrig, Thompson, & Cafri, 2008). Acceptance is independently associated with higher levels of body self-esteem, exercise self-efficacy, and eating habits, and challenge is independently associated with higher levels of body self-esteem, diet self-efficacy, eating habits, and exercise habits (Dailey, Richards, et al., 2010). Beyond exploring the independent influence of acceptance and challenge, though, confirmation theory predicts that a combination of both acceptance and challenge from partners should be associated with healthier behaviors than messages low in either acceptance or challenge. Dailey, Richards, and Romo (2010) assert that acceptance messages without challenge may result in individuals not believing they need to change and therefore not engaging in different behaviors. In contrast, challenge messages without acceptance may result in individuals engaging in alternative behaviors but may also result in a more negative view of self (e.g., guilt, body dissatisfaction). Working together, challenge and acceptance have been found to predict body self-esteem, healthy eating habits, and exercise, such that higher levels of each of these is associated with messages with higher levels of both acceptance and challenge, and are perceived as most effective (Dailey, Richards, et al., 2010; Dailey et al., 2011).

This Study

This research explores how communication behavior is associated with weight control practices (i.e., bingeing and purging, healthy eating behaviors, exercising). A high proportion of women report engaging in such behaviors (Ball, Brown, & Crawford, 2002; Williams & Germov, 2004), particularly

women who are dissatisfied with their weight (Bedford & Johnson, 2006; Hayes, 2012). Weight control practices are conceptualized as behaviors in which the goal is to purposely reduce weight or prevent weight gain (Williams, Germov, & Young, 2007). These practices include dieting/restraint (i.e., reducing calorie intake), disinhibition (i.e., compulsive food intake because of a loss in control), and excessive exercising (Boschi, Iorio, Margiotta, D’Orsi, & Falconi, 2001; Calogero & Perdotto, 2004), among others. Some researchers differentiate between potentially “health-promoting” practices and potentially “health-damaging” practices (Williams et al., 2007). Health-promoting practices include reducing energy, sugars, and fat intake, cutting meal sizes, and increasing exercise; health-damaging practices include self-induced vomiting, fasting/skipping meals, and using laxatives, diuretics, and appetite suppressants/diet pills (Polimeni, Austin, & Kavanagh, 2009; Williams et al., 2007). In the current study, bingeing and purging are assessed as health-damaging practices, and healthy eating behaviors and exercising are considered health-promoting behaviors. That said, there are no differentiations in the following predictions between health-promoting or health-damaging behaviors because both have the intentional goal of the enactor to reduce weight or prevent weight gain. It is obvious that bingeing and purging is representative of more dysfunctional behaviors (American Psychiatric Association, 2013); however, mental health and psychological variables, for instance, would be better at differentiating health-promoting or health-damaging behaviors than communication behavior.

Toward that end, the first aim of this investigation is to examine the relationship between co-rumination of fat talk and weight control practices. Excessive discussions about weight may serve to reinforce one’s already held beliefs about weight and appearance, increase one’s own propensity to think and speak negatively about oneself, and also reflect and cultivate weight control practices. These conversations with other women may be a mechanism by which women come to understand how their weight compares to the personal and social standards they uphold about appearance and legitimize weight as a dimension that they should evaluate themselves on. Further, women may look to their own behaviors, including communication behavior, as the basis for making self-attributions, as predicted by self-perception theory (Bem, 1972). Co-rumination might encourage women to conclude that they are dissatisfied with their bodies because of the comments they made and therefore to engage in behaviors that may help them meet their ideal body weight. Thus, it is predicted that *co-rumination is positively associated with weight control practices (H1)*, such that women who frequently engage in weight-related conversations report engaging in more behaviors that reduce weight or prevent weight gain.

This research also utilizes confirmation theory (i.e., acceptance and challenge) as a framework in exploring the role that perceptions of friends’ responses during co-rumination play in exacerbating and mitigating weight control practices. It is predicted that *perceptions of confirming responses have additive effects on weight control practices (H2)*, such that accepting and challenging responses are individually associated with weight control practices. Specifically, perceptions of accepting

responses are predicted to be negatively associated with weight control practices (H2a: perceiving that another accepts her for who she is may result in her not believing she needs to change or engage in weight control practices) and perceptions of challenging responses are predicted to be positively associated with weight control practices (H2b: perceiving that another challenges her to reach her full potential may result in her engaging in behaviors that reduce weight or prevent weight gain). While no differentiations are made in predictions here between health-promoting and health-damaging behaviors, it is important to note that acceptance would be beneficial and challenge would be problematic for health-damaging behaviors (i.e., acceptance would be associated with less health-damaging behaviors, such as bingeing and purging, and challenge would be associated with more), whereas challenge is beneficial for health-promoting behaviors, such as exercising and eating healthy, and acceptance has an unknown relationship (i.e., there are no predictions) with health-promoting behaviors.

Moreover, it is proposed that *confirming responses interact with one another (i.e., acceptance × challenge) and with co-rumination (i.e., acceptance × co-rumination, challenge × co-rumination) as moderating agents in predicting weight control practices (H3)*. First, a combination of acceptance and challenge is predicted to be associated with greater behavior change than messages low in either acceptance or challenge (acceptance × challenge: H3a). Second, the relationship between co-rumination and weight control practices is predicted to be weakened when both co-rumination and acceptance are high (acceptance × co-rumination: H3b). Third, the relationship between co-rumination and weight control practices is predicted to be strengthened when both co-rumination and challenge are high (challenge × co-rumination: H3c).

Finally, it has been customary in the literature to assess co-rumination, challenge, acceptance, and so on at a single point in time, with the assumption that they represent stable behavioral tendencies. To explicitly evaluate the stability of these constructs, they were measured at three times over the course of 3 weeks, allowing for analysis of variation both between as well as within individuals.

Method

Participants

Data from this study come from a larger longitudinal study on communication and weight. Female participants were

recruited from undergraduate communication courses at a large Southwestern university and were asked to recruit a same-sex platonic friend to also participate. Each person in the dyad completed an online questionnaire within the same 3-day span (e.g., Sunday–Tuesday) to ensure both friends were answering in reference to the same previous week. Exactly 1 week later (e.g. Sunday), participants were emailed a second questionnaire, had a 3-day span to complete it (e.g., Sunday–Tuesday), and answered in reference to the previous week. This process occurred once more 1 week later, resulting in a total of three time points. In exchange for participation, students received extra credit from their instructors and the friends received \$5 gift cards to Amazon.com.

Data were collected from a total of 380 individuals representing 193 dyads. Of those dyads, only 149 of them completed all three waves of measurement. Because multilevel modeling (MLM) can adequately handle missing data (Hox, 2010; Singer & Willet, 2003), all data were retained for the analyses. The dyads were considered indistinguishable (i.e., they cannot be differentiated) because there was no variable that can distinguish them from one another and there was no meaningful way of ordering the two individuals' data (Kenny, Kashy, & Cook, 2006). Most participants were roommates (67%) and were similar in terms of body mass index (BMI; $M = 22.00$, $SD = 3.10$), age ($M = 20.67$, $SD = 1.69$), and race/ethnicity (79.4% Caucasian, 10.1% Hispanic, 1.0% African American, 5.9% Asian/Pacific Islander, and 3.5% other responses). Participants' friendship length was calculated by averaging both friends' reports of relationship length in months; the average relationship length was 3.73 years long ($M = 44.79$ months, $SD = 55.15$).

Measures

All items were rated on 5-point Likert scales (1 = *strongly disagree* to 5 = *strongly agree*) unless otherwise noted. After the appropriate items were reverse-coded, items were averaged, with high scores denoting higher levels of the respective variable. The means, standard deviations, and Cronbach's alphas can be found in Table 1.

Co-rumination. Co-rumination was measured with the 9-item Co-Rumination Questionnaire (Jose, Wilkins, & Spindelov, 2012; Rose, 2002). The current study adapted the items to refer to talking about problems about weight (e.g., "In general, when my friend and I talk about problems with our weight, we repeatedly talk about our problems with

Table 1. Means, standard deviations, and Cronbach's alphas for study variables.

	Time 1		Time 2		Time 3	
	<i>M (SD)</i>	α	<i>M (SD)</i>	α	<i>M (SD)</i>	α
Body dissatisfaction	2.99 (0.90)	.87	2.97 (0.92)	.85	2.97 (0.91)	.88
Drive for thinness	3.33 (1.07)	.87	3.16 (1.06)	.88	3.10 (1.12)	.89
Co-rumination	1.84 (0.80)	.91	1.86 (0.86)	.93	1.88 (0.86)	.94
Acceptance	3.79 (0.57)	.78	3.74 (0.61)	.83	3.78 (0.64)	.84
Challenge	3.26 (0.77)	.81	3.16 (0.79)	.86	3.14 (0.87)	.91
Bingeing and purging	2.22 (0.89)	.87	2.22 (0.97)	.92	2.13 (1.02)	.92
Exercising	3.71 (1.11)	.72	3.69 (1.04)	.71	3.71 (1.06)	.74
Healthy eating behaviors	3.21 (0.83)	.79	3.26 (0.81)	.79	3.29 (0.85)	.81

our weight over and over again”). The adapted measure used in this study can be found in the appendix.

Acceptance. Participants rated their friends’ responses during co-rumination using the Dailey, Romo, and McCracken (2010) 10-item acceptance scale measuring friends’ attentiveness and warmth during interactions (e.g., “When I mention something about my body/weight, my friend typically shows she understands how I feel about my weight”).

Challenge. Participants also rated their friends’ responses during co-rumination with a shortened version of the Dailey, Richards, and Romo (2010) challenge scale. The adapted scale consists of three items (“After I mention something about my body/weight, my friend typically discusses information or options regarding diet or exercise with me,” “After I mention something about my body/weight, my friend typically asks me to exercise with her,” and “After I mention something about my body/weight, my friend typically tells me about the benefits of eating well or exercising”).¹

Binging and purging. This was measured using the bulimia subscale from Garner’s (2004) Eating Disorders Inventory–3. This is an eight-item subscale (e.g., “I have thought of trying to vomit in order to lose weight”) that measures individuals’ tendency to engage in and think about uncontrollable binge eating, overeating, and vomiting. It was rated on a 6-point Likert scale (1 = *never* to 6 = *always*).

Exercising and healthy eating behaviors. These were measured with a shortened scale from Jackson (2006). The original scale consists of 58 items measuring diet, exercise, medical adherence, substance abuse, and sleep. Seven items from the diet subscale (e.g., “I tend to limit fat, sugar, or salt in my meals”) and seven items from the exercise subscale (e.g., “I tend to get aerobic [e.g., cardio] exercise almost daily”) behaviors were measured.

Body dissatisfaction. Body dissatisfaction, which was used as a covariate in the following analyses, was measured with Garner’s (2004) 10-item body dissatisfaction subscale from the Eating Disorders Inventory–3 (e.g., “I think my stomach is too big”). This subscale is rated on a 6-point Likert scale (1 = *never* to 6 = *always*).

Drive for thinness. Drive for thinness, which was also used as a covariate, was measured using the drive for thinness subscale from Garner’s (2004) Eating Disorders Inventory–3. Its seven items (e.g., “I feel extremely guilty after overeating, I am terrified of gaining weight”) were rated on a 6-point Likert scale (1 = *never* to 6 = *always*).

Results

Statistical Analyses

Hypothesis testing was conducted with MLM to test indistinguishable dyads in SAS. There were three levels within the data: Level 1 was time, Level 2 was person, and Level 3 was dyad. MLM differs from ordinary regression analysis because it allows for the estimation of individual- and dyad-level intercepts, and it is able to estimate fixed effects (i.e., the effect of the predictor variable on the criterion variable for each person does not vary across the dyad and/or time) and random effects (i.e., the effect of the predictor variable on the criterion variable for each person can vary across the dyad and/or time) (Hayes, 2006). In the subsequent analyses, all predictor variables were included as fixed effects, meaning that the slope indicated the average of the slopes across all participants (nested within dyads); time was included as both a fixed and random effect. A fixed effect for time indicated whether, on average, time was associated with the criterion variables, whereas a random effect for time indicated whether the criterion variables varied across individuals (i.e., whether the slopes varied across participants across time). All predictor variables were centered to make the output more easily interpretable (Singer & Willet, 2003).

In order to test the proposed hypotheses, a forward-stepping approach (Nezlek, 2003) was used. This technique involved incrementally adding variables to the model to make model comparisons via a fit statistic (e.g., $-2 \text{ Log Likelihood}$; $-2LL$). In total, six models were tested for each of the criterion variables. First, an unconditional means model was analyzed for each of the outcome variables in order to assess variability among participants’ and dyads’ intercepts. Estimates from this model were used to compute the intraclass correlations for the individual (ICC_I) and for the dyad (ICC_D) in order to determine the similarity of individuals’ answers across time and to determine the similarity of individuals across dyads, respectively (Hox, 2010). Next, time was added to the model as both a fixed effect and a random effect in the second model. Including time allowed for examination and control of individual variation in the growth rates. The control variables were added to the third model; In effort to focus on the communication variables of interest, BMI, body dissatisfaction, and drive for thinness were used as covariates in effort to prevent any confounding effects of individuals’ actual weight and body concerns as they may relate to the criterion variables. The predictor variable (i.e., co-rumination) was added in the fourth model, and the moderator variables (i.e., acceptance and challenge) were then added in the fifth model as main effects. Lastly, the interaction terms (i.e., acceptance \times challenge, co-rumination \times acceptance, co-rumination \times challenge) were added to the sixth model.² Significant interactions were decomposed by plotting the slopes at ± 1 standard deviation (Aiken & West, 1991).

¹The original version of this scale also included items that assessed challenging women’s perceptions of self (e.g., “After I mention something about my body/weight, helps me realize how attractive I really am”). Given the criterion variables of interest in the current study, only items that measured friends’ challenging behaviors were utilized in the current analyses.

²The three-way interaction of co-rumination, acceptance, and challenge was assessed in a separate model but did not yield significant results for any of the three criterion variables.

Descriptive Statistics

The unconditional means model (Model 1) was analyzed for each of the dependent variables in order to calculate the ICC_I and ICC_D using the methods described by Hox (2010). The ICC_I's indicated that a majority of the variance in exercising (52%), healthy eating behaviors (67%), and bingeing and purging (63%) was between individuals. Further, the ICC_D's for exercising, healthy eating behaviors, and bingeing and purging were .28, .16, and .16, respectively, indicating that 28% of the variance explained in exercising, for example, was explained by dyad level variance. These ICCs suggest that variance in the criterion variables was largely a product of (a) between-person differences and (b) within-person heterogeneity (i.e., participants responses varied across the three time points).

The unconditional growth curve model for co-rumination indicated that time was not significantly associated with co-rumination ($B = .01, ns$), suggesting that co-rumination was stable across the three time points. The unconditional growth curve models for the criterion variables (Model 2) indicated that time was negatively associated with bingeing and purging and positively associated with healthy eating behaviors, suggesting that bingeing and purging decreased across the three time points and healthy eating behaviors increased. Including time as a random effect (Models 2–6) yielded significant results for bingeing and purging and exercising, suggesting that trends (i.e., slopes) for these variables varied across individuals. Time as a random effect did not significantly predict co-rumination ($B = .02, ns$), indicating that the slope of co-rumination was similar across individuals.

Model 3 included BMI, body dissatisfaction, and drive for thinness as covariates. Body dissatisfaction was negatively associated with exercising and positively associated with bingeing and purging. Drive for thinness was positively related to bingeing and purging, exercising, healthy eating behaviors. BMI was included as a control variable in this model because it has been associated with fat talk in some previous research (e.g., Martz et al., 2009), but it was not found to be associated with any of the criterion variables.

Hypothesis Testing

Results for the hypotheses tests of bingeing and purging, exercising, and healthy eating behaviors can be found in Tables 2, 3, and 4 respectively.

Bingeing and Purging

Co-rumination was positively associated with bingeing and purging (Model 4), such that individuals who reported engaging in excessive discussions about their weight also reported higher levels of bingeing and purging. Acceptance was negatively associated with bingeing and purging, wherein bingeing and purging decreased as acceptance increased, but challenge was not significantly associated with bingeing and purging (Model 5). Two interaction terms yielded significant effects (Model 6). First, acceptance moderated the relationship between challenge and bingeing and purging. Figure 1 indicates a disordinal interaction wherein, at high levels of challenge, bingeing and purging was highest when acceptance was low and decreased as acceptance increased. To a lesser degree, this pattern was also apparent at low levels of challenge, such that bingeing and purging decreased as acceptance increased. Second, acceptance moderated the relationship between co-rumination and bingeing and purging. Figure 2 reveals that at low levels of acceptance, bingeing and purging was highest at both high and low levels of co-rumination. Further, high levels of co-rumination appeared to be significantly associated with bingeing and purging regardless of acceptance, although this relationship is lower at higher levels of acceptance. Together, these results suggest that perceived positive regard and warmth from a friend may minimize individuals' tendency to binge and purge, especially in the presence of repeated comments about weight (i.e., co-rumination), whereas challenge may increase that behavior in the absence of acceptance.

Exercising

Co-rumination was negatively related to exercising (Model 4), such that individuals who reported engaging in excessive

Table 2. Multilevel models with bingeing and purging as the criterion variable.

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>
Fixed effects												
Intercept	2.19**	.05	2.23**	.05	2.19**	.04	2.20**	.04	2.20**	.04	2.20**	.04
Time			-.05**	.02	-.01	.02	-.01	.02	-.01	.02	-.01	.02
BMI					.00	.00	.00	.01	.00	.01	.01	.00
Body dissatisfaction					.19**	.04	.18**	.04	.18**	.04	.19**	.04
Drive for thinness					.35**	.03	.31**	.03	.32**	.03	.31**	.03
Co-rumination							.24**	.03	.23**	.03	.22**	.03
Acceptance									-.15**	.03	-.16**	.03
Challenge									.01	.02	.01	.02
Acceptance × Challenge											-.08*	.03
Co-rumination × Acceptance											.11**	.03
Co-rumination × Challenge											.04#	.02
Random effects												
Residual	.19**	.01	.16**	.01	.13**	.01	.12**	.01	.12**	.01	.11**	.01
Intercept (dyad)	.14**	.06	.14**	.06	.13**	.04	.11**	.03	.09**	.03	.09**	.03
Intercept (dyad × individual)	.57**	.07	.54**	.06	.29**	.04	.28**	.04	.28**	.04	.27**	.04
Time			.03**	.01	.03**	.01	.02**	.01	.02**	.01	.02**	.01
Model summary												
-2LL	2078.1		2063.8		1742.2		1660.4		1650.5		1644.5	
ICC (dyad)	.16											
ICC (individual)	.63											

* $p < .05$, ** $p < .01$, # $p < .10$.

Table 3. Multilevel models with exercising as the criterion variable.

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
	B	SE	B	SE	B	SE	B	SE	B	SE	B	SE
Fixed effects												
Intercept	3.68**	.06	3.69**	.06	3.67**	.06	3.67	.06	3.66**	.06	3.67**	.06
Time			-.01	.02	.01	.02	.02	.02	.02	.02	.02	.02
BMI					.00	.01	.00	.00	.00	.00	.00	.00
Body dissatisfaction					-.48**	.06	-.21**	.05	-.21**	.05	-.21**	.05
Drive for thinness					.36**	.08	.26**	.04	.25**	.04	.25**	.04
Co-rumination							-.09**	.03	-.10**	.03	-.08*	.03
Acceptance									.15**	.05	.16**	.05
Challenge									.06#	.03	.05#	.03
Acceptance × Challenge											.002	.04
Co-rumination × Acceptance											-.02	.05
Co-rumination × Challenge											-.07	.03
Random effects												
Residual	.24**	.01	.21**	.02	.20**	.02	.28**	.07	.21**	.02	.21**	.02
Intercept (dyad)	.32**	.08	.33**	.08	.33**	.08	.28**	.07	.25**	.07	.24**	.07
Intercept (dyad*individual)	.59**	.07	.58**	.07	.59**	.07	.55**	.07	.57**	.07	.57**	.07
Time			.03*	.01	.01*	.02	.02*	.02	.02*	.01	.02	.06
Model summary												
-2LL	2324.7		2325.0		2302.1		2257.1		2247.1		2254.9	
ICC (dyad)	.28											
ICC (individual)	.52											

* $p < .05$, ** $p < .01$, # $p < .10$.

Table 4. Multilevel models with healthy eating behaviors as the criterion variable.

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 9	
	B	SE	B	SE	B	SE	B	SE	B	SE	B	SE
Fixed effects												
Intercept	3.25**	.04	3.21**	.05	3.18**	.04	3.18**	.04	3.18**	.04	3.20**	.04
Time			.05**	.01	.07**	.01	.07**	.01	.07**	.01	.08**	.01
BMI					.00	.00	.00	.01	.00	.01	-.00	.00
Body dissatisfaction					-.01	.04	-.02	.04	-.01	.04	-.02	.04
Drive for thinness					.24**	.03	.24**	.03	.23**	.03	.23**	.03
Co-rumination							.03	.02	.03	.03	.04	.02
Acceptance									.07*	.03	.08*	.03
Challenge									.02	.02	.01	.02
Acceptance × Challenge											-.05#	.03
Co-rumination × Acceptance											.02	.03
Co-rumination × Challenge											-.07**	.02
Random effects												
Residual	.12**	.01	.11**	.01	.11**	.01	.10**	.01	.10**	.01	.10**	.01
Intercept (dyad)	.11*	.05	.11**	.05	.11**	.04	.10**	.04	.10**	.04	.10*	.04
Intercept (dyad*individual)	.46**	.05	.45**	.05	.38**	.05	.38**	.05	.38**	.05	.38**	.04
Time			.01#	.01	.01	.01	.01	.01	.01	.01	.01	.01
Model summary												
-2LL	1702.4		1698.9		1695.1		1573.7		1577.8		1583.7	
ICC (dyad)	.16											
ICC (individual)	.67											

Note. * $p < .05$, ** $p < .01$, # $p < .10$.

discussions about their weight reported exercising less. Acceptance and, to a marginal degree, challenge were also positively related to exercising (Model 5), such that individuals reported exercising more if they perceived that their friends expressed positive regard and pushed them to seek greater potential. Acceptance and challenge, however, did not interact with co-rumination in predicting exercising (Model 6). These results suggest that, independent from co-ruminative fat talk, perceptions of challenge and acceptance from friends are associated with higher levels of exercise.

Healthy Eating Behaviors

Healthy eating behaviors were not associated with co-rumination among female friends (Model 4). Perceptions of accepting messages from friends marginally predicted healthy eating behaviors (Model 5), such that higher levels of acceptance were associated with higher levels of healthy eating behaviors.

Challenge was found to moderate the relationship between co-rumination and healthy eating behaviors (Model 6). Figure 3 shows that at low levels of challenge, healthy eating behaviors were lowest at low levels of co-rumination and increased as co-rumination increased. At high levels of challenge, healthy eating behaviors were highest at low levels of co-rumination and decreased as co-rumination increased. This disordinal interaction suggests that challenge may be most effective when co-rumination is low, and also suggests that discussions about weight (in the absence of challenge) may also encourage healthy eating behaviors.

Discussion

The goal of this investigation was to explore the relationship between co-rumination of fat talk and weight control practices among female friends, with a particular interest in

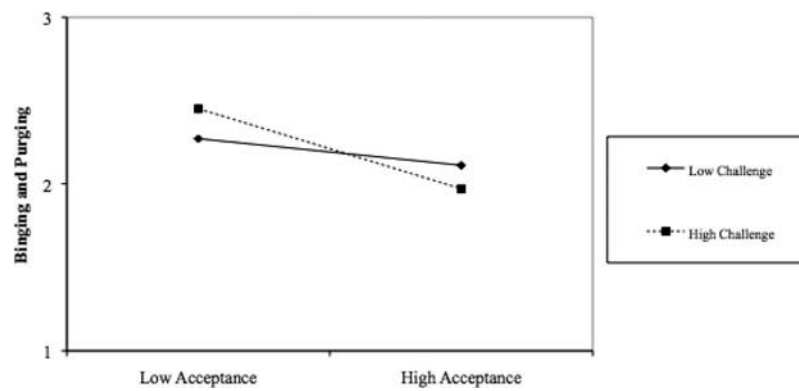


Figure 1. Challenge by acceptance interaction in the prediction of binging and purging.

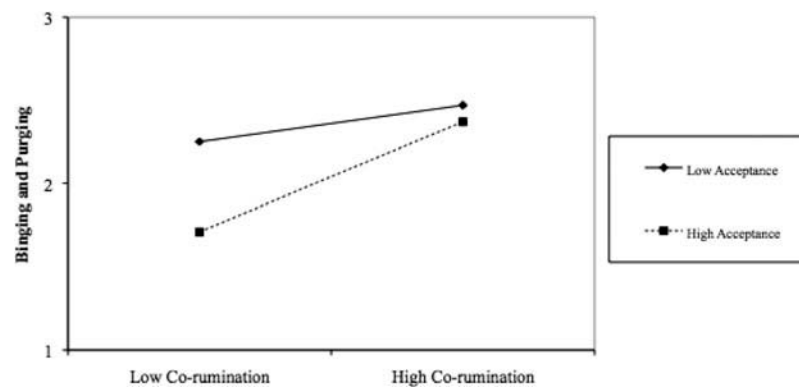


Figure 2. Co-rumination by acceptance interaction in the prediction of binging and purging.

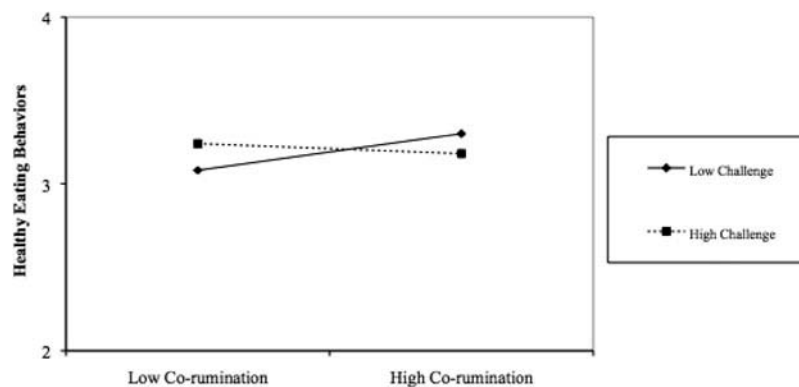


Figure 3. Co-rumination by Challenge Interaction in the Prediction of Healthy Eating Behaviors.

whether perceptions of friends' responses during these interactions strengthen or weaken this relationship. First, results revealed that co-rumination was positively associated with binging and purging and exercising. Second, women who perceived their friends as accepting during co-rumination reported less binging and purging, more exercising, and more healthy eating behaviors. Challenge did not significantly predict binging and purging, exercising, or healthy eating behaviors. Third, results revealed that acceptance moderated the relationship between co-rumination and binging and purging, such that binging and purging was lowest at high levels

of acceptance. On the other hand, challenge moderated the relationship between co-rumination and healthy eating behaviors, indicating that challenge may be most effective at encouraging these behaviors when co-rumination is low. Although these findings were not entirely supportive of the hypotheses put forth, the current results add to the growing body of knowledge on fat talk by identifying confirmation theory as a potential framework for exploring the mechanisms and outcomes of the dyadic nature of fat talk, as the role of friends' responses in the relationship between fat talk and health has been unexplored until this time.

Responses to Fat Talk: Acceptance and Challenge

Acceptance, conceptualized and operationalized in terms of showing positive regard, warmth, and attentiveness during interactions, fits closely within the social support framework. The support literature illustrates the benefits of showing people they are valued and cared for (e.g., Albrecht & Goldsmith, 2003; Uchino, Caccioppo, & Kiecolt-Glaser, 1996), including a well-established link between perceived support from others and mental health (Chu, Saucier, & Hafner, 2010; MacGeorge, Feng, & Burleson, 2011). This study found that acceptance was associated with lower levels of unhealthy behaviors symptomatic of mental health problems—namely, bingeing and purging. This effect is new to the literature. Bingeing and purging are key indicators of bulimia nervosa, which is a clinical eating disorder and significant public health issue (e.g., American Psychiatric Association, 2013; Bodell, Joiner, & Keel, 2013). In this case, where negative self-perceptions drive fat talk (Sharpe, Naumann, Treasure, & Schmidt, 2013) and negative self-perceptions are subsequently associated with disordered eating attitudes (Arroyo & Segrin, 2013), supportive messages that consist of warmth and positive regard may mitigate the impact of fat talk by providing the necessary support needed to promote healthy behaviors/thoughts and reduce its health-damaging effects. That said, because acceptance was operationalized as general warmth and attentiveness, our measure of acceptance may not have been specific enough in the fat talk context to be associated with health-promoting weight control practices (e.g., exercise and healthy eating behaviors); general warmth and attentiveness may be more functional at helping individuals realize their potential and increase their general state of well-being. Thus, although differentiations were not made in predictions between health-promoting and health-damaging behaviors, acceptance was found to be more powerful than challenge at minimizing health-damaging behaviors versus health-promoting behaviors.

Given that the hypotheses were not supported in their entirety, particularly in regard to challenge (which was not associated with the criterion variables for the most part), the current results might highlight a condition in which applying confirmation theory may be difficult to enact. Challenging responses appear to be deliberate in nature, wherein the responses need to be appropriately and effectively utilized. However, research suggests that women consider others' fat talk annoying (Salk & Renee Engeln-Maddox, 2011a), only participate so that they can fit in (Nichter, 2000), and therefore respond during these interactions with positive or no comments at all (O'Dougherty et al., 2011). In light of these past findings, there is reason to believe that others may not engage in co-ruminative fat talk with the thoughtfulness and consideration needed to understand the underlying reasons why their friends make self-disparaging comments. For instance, women of all sizes engage in fat talk (e.g., Martz et al., 2009), meaning that women who are not fat routinely say "I'm so fat" even though they are objectively not (as was the case in the current study: the average BMI was 22.00). This may make responding to fat talk comments in a challenging tone quite difficult. When a skinny or normal-weight

woman states that she is fat, it may be difficult to find a challenging response, or even an accepting response, that is beyond the socially polite denial and complimentary responses.

Socially polite responses would be particularly ineffective when fat talk is rooted in sincere concerns about weight (Sharpe et al., 2013). When a woman speaks negatively about her body because she is genuinely dissatisfied with her body, it would be essential that responses—even if the fat talk comments are objectively inaccurate—challenge women to think differently about themselves or engage in behaviors that will help them achieve the weight that they strive to meet. Self-verification theory (Swann, 1983), which states that people are motivated to seek confirmation of their self-views, suggests that, even when it is negative, individuals prefer feedback from others that validates their self-conceptions because they strive to retain predictable and controllable self-concepts (Swann, Stein-Serousi, & Geisler, 1992). Although counterintuitive, self-verification reduces anxiety and benefits people's physical health and relationships because it provides psychological coherence by validating what people already think of themselves (North & Swann, 2009). Particularly when expressing dissatisfaction with oneself (more so than comments about wanting to lose weight, for example), challenging another person to think or feel differently about her weight or appearance may directly contradict what self-verification theory would suggest. Although we only measured challenge as it relates to weight management behaviors and not challenge as it relates to self-perceptions, this may explain why challenge was unproductive during co-rumination, particularly when acceptance was low (i.e., in a context in which they were also not validated).

Enacting effective confirmation responses appears to involve high levels of communication competence, but given the prevalence and phatic nature of fat talk, it is likely that individuals do not realize what is being said by their friends or why. Fat talk comments are so routinized and occur so habitually that women are comfortable conversing in this matter and it involves minimal conscious reflection about weight and others' concerns regarding their bodies (Arroyo & Harwood, 2014). Thus, it is important to understand women's motives to engage in fat talk (e.g., wanting to be reassured vs. wanting a true discussion of weight vs. wanting to fit in) because such motives would influence the appropriate and effective responses to different women's comments.

Intra-Individual Process Within Interpersonal Interactions

This research also draws attention to the dyadic nature of fat talk conversations. Because co-rumination is inherently a dyadic process, data were collected from young adult women and their friends. However, the MLM analyses revealed that weight control practices were predicted largely by between-person differences rather than dyadic-level variance (as indicated by the ICC_I and ICC_D). This finding has never been documented in past research, as much of the literature has focused on the social nature of this talk (e.g., Britton et al., 2006; Nichter, 2000). Therefore, the current results bring awareness to fat talk and weight-related

communication as an intrapersonal process despite the fact that fat talk takes place in *interpersonal* interactions. These findings complement those of Arroyo and Harwood (2012), who found that the engaging in fat talk (but not hearing another person engage in fat talk) was associated with depression, body dissatisfaction, and pressure to be thin. Arroyo and Harwood's (2014) Model of the Determinants and Consequences of Fat Talk, which is positioned in the context of sociocultural pressure and objectification, suggests that there are three levels in which fat talk and its consequences occur: the intrapersonal, interpersonal, and intergroup levels. The model predicts that identity influences people's attitudes, shapes their motivations for engaging in fat talk, and results in fat talk comments that are associated with a host of outcomes. At the intrapersonal level, attitudes consist of the affective and cognitive constructs that relate to individuals' dissatisfaction with themselves and are predicted to be related to a number of self-attitude constructs (e.g., actual-ideal self-discrepancy, social comparison, self-objectification) and broader mental health concerns (e.g., depressive symptomatology, low self-esteem). Outcomes at the interpersonal and intergroup level, for example, are predicted to result in relationship satisfaction and heightened salience of weight categorizations, respectively.

Therefore, although most research on fat talk has explored the social and interpersonal conditions in which fat talk occurs, these findings draw attention to further understanding it at the intra-individual level—particularly as it relates to health outcomes. Self-perception theory (Bem, 1972) may provide a framework for understanding these weight-related comments as an individual experience. This theory asserts that people's attitudes are shaped by the observation of their own behaviors. If fat talk is a behavioral manifestation of body dissatisfaction, this heightens the importance of weight as a dimension that individuals should be evaluated on and increases comparisons between the self and others. Engaging in fat talk might therefore encourage women to come to the conclusion that they are unhappy with and should change their bodies because of the comments they made. Incorporating self-perception theory indicates that communication behavior has consequences for people's own behaviors regardless of their intentions for engaging in fat talk and regardless of the behaviors and comments made by another person.

Limitations and Future Directions

Limitations to this study suggest directions for future research. First, although data were collected across different time points, causal claims cannot be made. It is likely that making disparaging comments might lead to negative health-related outcomes; however, poor self-evaluations and body esteem could also promote fat talk. This is consistent with Slater's (2007) focus on reinforcing spirals in communication. Self-perceptions, health, and fat talk may be mutually reinforcing phenomena that perpetuate one another. That said, this research found that co-rumination is a rather stable phenomenon across time. The fact that co-rumination was not associated with time suggests that individuals who talk with their

friends about their weight tend to do so rather consistently. Thus, future research would benefit from exploring the effects of fat talk in an immediate context (i.e., how women feel right after they engage in fat talk) and the personal motivations for engaging in such talk (e.g., seeking reassurance, genuine body weight concerns, etc.). Second, participants in the current study were asked to rate the frequency of co-rumination and perceptions of their friend's responses. Consequently, this study did not analyze the actual content of conversations about weight. Observational data and conversational analyses could significantly augment self-reports to understand how co-rumination relates to health. Third, future research would benefit from a more specific measurement of fat talk responses. For instance, the acceptance items measured many nonverbal behaviors (e.g., "my friend typically gives me a lot of attention"), but further adapting these items to measure specific verbal acceptance (e.g., "My friend tells me that she accepts me for how I look") may yield different results relevant to confirmation theory. Fourth, the current study only measured perceptions of friends' responses. It would be useful in future research to measure friends' reports of their own responses. Fifth, the mean for co-rumination was low, so such results may be intensified in populations that may report engaging co-ruminative interactions about weight more frequently (e.g., overweight women; disordered eating patients). Sixth, for the most part, participants were well within a healthy weight range. As previously mentioned, this may make responding to fat talk comments, particularly in a challenging manner, quite difficult if participants complain about their weight but are objectively not overweight. Research exploring such communication within a more diverse sample of women's body sizes, particularly a sample of heavier women, may provide further insight into the perception and effectiveness of confirming messages. Finally, there are significant limits to the generalizability of these results. The participants were female platonic friends and were homogeneous in terms of race/ethnicity, age, and educational attainment because this was a sample of university students and their friends. Examining cultural variation and age differences in fat talk has the potential to uncover different ways of talking about and responding to weight-related comments and the consequences for the participants in those conversations.

Conclusion

This research sought to investigate co-rumination as it relates to weight control practices, with the purpose of exploring how responses to fat talk may intensify or lessen those effects. Results revealed a significant relationship between co-rumination and increased levels of bingeing and purging and exercising, that acceptance minimized the effect on bingeing and purging, and that challenge was associated with healthy eating behaviors when co-rumination was low. Thus far, research has barely begun to uncover responses to fat talk, which might be a result of the lack of variety in those responses and the apparent lack of attention to fat talk comments by others. In effort to further understand weight-related communication as a health concern and to find ways to combat it, it is important

to continue to understand the individual, relational, and societal expectations and standards that propagate this problematic talk.

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Appendix: Adapted Co-rumination Scale

- In general, when my friend and I talk about problems with our weight ...
- we end up spending most of our time together talking about problems with our weight.
- we talk about our problems with our weight rather than talking about something else or doing something else.
- I always try really hard to keep my friend talking about her problems with her weight.
- my friend always tries really hard to keep me talking about my problems with my weight.
- we repeatedly talk about our problems with our weight over and over again.
- we talk about our problems with our weight a lot in order to understand why we are so unhappy with our weight.
- we talk a lot about all the different bad things that might happen because of the problems we have with our weight.
- we spend a lot of time trying to figure out the problems with our weight that we don't understand.
- we talk a lot about how sad or unsatisfied we feel about our weight.