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# Weight status and depression: Moderating role of fat talk between female friends

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## Abstract

This study examined whether engagement in fat talk would moderate the association between weight status (body mass index) and depression between female friends. Individuals' body mass index was significantly related to their own (actor effect) and friend's (partner effect) depression. For low-fat-talk friends, higher actor's body mass index was associated with higher actor's depression, but not for high-fat-talk friends. For high-fat-talk friends, higher actor's body mass index was associated with higher partner's depression, but not for low-fat-talk friends. Theoretical and practical implications are discussed.

## Keywords

Actor–Partner Interdependence Model, body mass index, depression, fat talk, weight

Being overweight is a risk factor for physical health problems (Kopelman, 2000) and psychological maladjustment (Boutelle et al., 2010). Individuals who are overweight are more likely to experience depression than individuals who are normal weight (Luppino et al., 2010). Although past research has attempted to examine the mechanisms (e.g. social pressure, thin idealization, and weight stigma) that explain the association between weight status and depression (e.g. Puhl and Heuer, 2009; Santoncini et al., 2013), interpersonal factors that may play a role in this process have been largely ignored. Indeed, recent research has shown that interpersonal processes, such as engagement in “fat talk” or excessive discussion with friends about body image or weight-related issues, are related to weight (Rudiger, 2010) and depression (Arroyo and Harwood, 2012). Integrating the research on fat talk,

weight status, and depression, this study examined whether the engagement in dyadic fat talk with a same-sex friend would moderate young adult females' own weight status and their experience of depressive symptoms. Furthermore, because fat talk between friends is considered a relational construct, this study employed a dyadic design in which both friends' roles are considered. With a dyadic design, this study investigated whether engagement in fat talk with a same-sex friend would moderate individuals' own weight status and their friend's experience of depressive symptoms.

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## Fat talk between friends

Fat talk is a dyadic construct that refers to excessive discussion of body image or weight-related issues (Nichter and Vuckovic, 1994), especially among young adult female friends (Arroyo and Harwood, 2012). Females are especially vulnerable to body image issues (Shroff and Thompson, 2006). The drive for thinness is pervasive in Western societies, and females are constantly being pressured by the images portrayed by the media (Mask and Blanchard, 2011). Although thin idealization can be transmitted through the media, it can also be reinforced through dyadic fat talk between friends (Arroyo and Harwood, 2012). Research on young adult friendships has found that self-disclosure and emotional sharing are especially central to female versus male friends (Chow et al., 2011). In addition, friendships are a context where youths share norms and expectations (Paxton et al., 1999). Thus, it is possible that female friends may mutually reinforce each other's thin idealization through fat talk, or excessive discussion of weight-related concerns. Past studies showed that individuals who engage in more fat talk are more likely to experience negative affect (e.g. guilt and depression) and feel dissatisfied with their bodies (Arroyo and Harwood, 2012; Ousley et al., 2008; Salk and Engeln-Maddox, 2012). This is consistent with the research on adolescents' co-rumination in that female adolescents who engage in extensive conversations that focus on negative feelings with their same-sex friend experienced more depression (Rose, 2002). Thus, this study argued that the construct of fat talk may moderate the association between weight status and depression.

Although past research has shown that both weight and engagement in fat talk are important predictors of depression (Arroyo and Harwood, 2012; Luppino et al., 2010), little is known about how these intrapersonal and interpersonal characteristics might interact and lead to various levels of depression. One possibility is that engagement in fat talk may

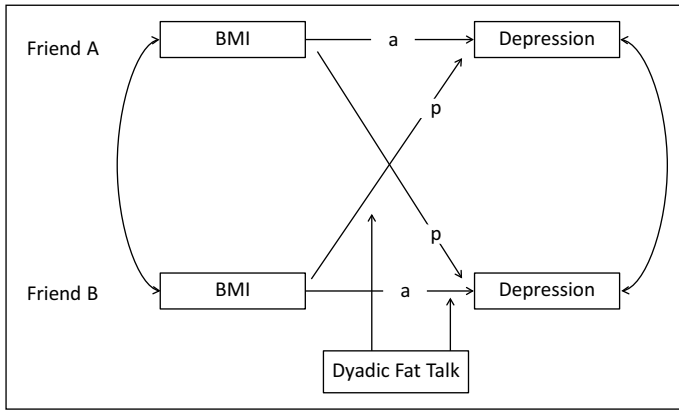
amplify the negative effect of individuals' weight on depression. For instance, research on co-rumination shows that engagement in excessive discussion of stress among females may increase the experience of stress and depressive affect (Rose, 2002). Therefore, it is reasonable to argue that engagement in fat talk with a friend predisposes individuals who are higher in weight to experience higher levels of depression. At the same time, lower levels of fat talk may buffer against the negative effect of higher weight on depression.

## A dyadic perspective

Studies on fat talk have been limited to a single-reporter approach (Arroyo and Harwood, 2012). Recent advancement in friendship research (Chow et al., 2011) suggests that two friends constitute a dyadic system that is behaviorally and psychologically interdependent (Kelley and Thibaut, 1978; Kenny, 1996). That is, the psychological states of individuals (e.g. depression) are not only dependent on their own characteristics (e.g. weight) but also those of their friends. Because fat talk has been conceptualized as a dyadic construct, this study argued that a dyadic approach that treats the friend dyads, rather than the individuals, as the unit of analysis would be an important step toward better understanding the associations among weight, depression, and dyadic fat talk. Specifically, this study proposed that individuals' weight might impact their friend's depression through the process of "contagion effect" by transmitting their negative emotion to a friend (Hatfield et al., 1993). Furthermore, if the dyads engage in higher fat talk, the contagion effect of one's body mass index (BMI) on their friend's depression may be further aggravated.

## The current study

This study examined the following: (1) the effects of weight status (BMI) and fat talk in friendships on depressive symptoms and (2) whether dyadic fat talk moderates the effect of



**Figure 1.** Conceptual model of the APIM depicting the actor (denoted as paths “a”) and partner (denoted as paths “p”) effects of BMI on depression between same-sex friends. Double-headed arrows represent the interdependence between friends (intraclass correlations). Fat talk is conceptualized as a dyadic construct that moderates the actor and partner effects.

APIM: Actor–Partner Interdependence Model; BMI: body mass index.

BMI on depressive symptoms. This study examined these questions within the framework of Actor–Partner Interdependence Model (APIM; Kenny et al., 2006). This model argues that an outcome in a relationship is a function of the target person’s personal characteristic (actor effect) as well as the partner’s characteristic (partner effect). For instance, a person’s depression is a function of her own BMI (actor) and her friend’s BMI (partner). Whereas a typical APIM would involve one predictor and one outcome variable from each partner, this study proposed a moderation model by including fat talk as the dyadic moderator. Figure 1 depicts a generic Actor–Partner Interdependence Moderation Model that guided this study. Based on literature reviews above, this study hypothesized the following: (1) individuals who are higher in BMI would report higher depressive symptoms, controlling for their friend’s BMI (actor effect); (2) individuals who are higher in BMI would have a friend who is higher in depressive symptoms, controlling for their friend’s BMI (partner effect); (3) fat talk between friends would be positively associated with depressive symptoms experienced by both friends; (4) for friend dyads who engage in more fat talk, fat talk would increase the negative effect of individuals’ BMI on their own

depressive symptoms (moderated actor effect); and (5) for friend dyads who engage in more fat talk, fat talk would increase the negative effect of individuals’ BMI on their friend’s depressive symptoms (moderated partner effect).

## Method

### Participants and procedures

Female participants were recruited and asked to bring a close female friend to the laboratory for participation. Participants were reminded not to bring their siblings or family members as their friend. After obtaining participants’ informed consent, both friends completed computer-administered questionnaires using separate computers. The final sample consisted of 130 pairs of friends, with the majority of these participants being Caucasian (86.5%). The current sample primarily consisted of young adults ( $M_{\text{age}} = 19.14$  years, standard deviation ( $SD$ ) = .96 years), and their durations of friendships varied ( $M_{\text{duration}} = 3.47$  years,  $SD = 4.54$  years). When participants were asked to rank the importance of their friend, participants reported their friend as *best friend* (40%), *good friend* (51%), *social friend* (6%), and *acquaintance*

(3%). Participants reported their weight and height, which were used to calculate their BMI ( $\text{kg}/\text{m}^2$ ). Participants' BMI ranged from 16.5 to 45.6 ( $M = 23.61$ ,  $SD = 4.50$ ).

## Measures

**Depressive symptoms.** Both friends completed the 7-item depression subscale of the Brief Symptom Inventory (BSI; Derogatis and Melisaratos, 1983). Participants read a list of problems and complaints and rated how often they were bothered or distressed by that problem within the past 30 days (e.g. "Feelings no interest in things") on a scale ranging from 0 (*Not at all*) to 4 (*Extremely*). The BSI items were averaged to form a composite, with higher scores reflecting greater depressive symptoms. The reliability for both friends' BSI depression subscale was satisfactory, with Cronbach's  $\alpha = .90$ .

**Dyadic fat talk.** Both friends completed a 3-item scale that captures dyadic friends' tendencies to engage in negative appearance-related dialogue with each other (Rudiger, 2010). Participants were asked to imagine her and the friend who came with her saying negative things about their bodies. Items included the following: (1) How often would this occur between you and your friend? (2) How often do you say negative things about your physical appearance in front of your friend? and (3) How often does your friend say negative things about her physical appearance in front of you? Participants rated the items on a scale ranging from 1 (*Never*) to 5 (*Very Frequently*). The alpha coefficients for both friends' fat-talk scale were satisfactory, with Cronbach's  $\alpha s > .83$ . Both friends' reports of dyadic fat talk converged, with  $r = .37$ ,  $p < .01$ . Because dyadic fat talk reflects a dyadic construct, both friends' reports were averaged to form a composite, with higher scores reflecting greater dyadic fat talk in a friendship.

## Overview of analytic plan

According to Kenny et al. (2006), the friend dyads were treated as indistinguishable because

no clear criterion existed to distinguish same-sex friends. Thus, before any analyses were conducted, as recommended by Kenny et al. (2006), this study restructured the dyadic data using the "double-entry" method. With the restructured data, a series of exploratory analyses was first conducted to examine the means,  $SDs$ , and correlations among the study variables. Then, the main hypotheses were tested by estimating the APIM through multilevel modeling implemented by SPSS 20.0's Mixed Models. Before the APIMs were estimated, all predictors were standardized to the grand mean to aid interpretation of the regression weights. Interaction terms were then formed based on the standardized predictors (Aiken and West, 1991). Pseudo- $R^2s$  were also estimated to indicate the amount of variance explained by the predictors. To obtain the pseudo- $R^2s$ , the error terms were compared from the restricted model (with predictors included) to an unrestricted model (with no predictors). The significance tests for the pseudo- $R^2s$  were based on the chi-square difference test comparing the restricted model versus unrestricted model.

## Results

### Exploratory analyses

Table 1 presents the means,  $SDs$ , and correlations among the study variables. In sum, all correlations were generally as expected, although dyadic fat talk was found not significantly related to depressive symptoms. Most importantly, intraclass correlations revealed the degree to which friends were similar in the study variables (e.g. self's BMI and friend's BMI). Specifically, friends were similar in terms of their BMI and depressive symptoms. These intraclass correlations suggested that friend dyads were interdependent in nature and confirmed the need for a dyadic analytical approach to handle the data.

### APIM

An APIM based on the theoretical model (see Figure 1) was estimated. The overall model fit

**Table 1.** Means, standard deviations (SDs), and correlations among study variables.

	1	2	3	4	5
1. Self's BMI	—				
2. Friend's BMI	.22**	—			
3. Self's depressive symptoms	.26**	.26**	—		
4. Friend's depressive symptoms	.26**	.26**	.12	—	
5. Dyadic fat talk	.16**	.16**	.09	.09	—
<i>M</i>	23.61	23.61	1.89	1.89	2.32
<i>SD</i>	4.50	4.50	.83	.83	.66

BMI: body mass index.

Coefficients were computed based on double-entry data; thus, the means/standard deviations and correlations for study variables were equal for both friends.

\*\* $p < .01$ .

was significant,  $\chi^2(5) = 35.95$ , Pseudo- $R^2 = .14$ ,  $p < .01$ ; the predictors together explained approximately 14 percent of the variance in depression. The actor effect showed that individuals who were higher in BMI also reported higher depressive symptoms ( $b = .17$ , standard error ( $SE$ ) = .05,  $p < .001$ ). Interestingly, the partner effect showed that individuals who were higher in BMI also had a friend who experienced higher levels of depressive symptoms ( $b = .17$ ,  $SE = .05$ ,  $p < .001$ ). Consistent with correlational analyses above, dyadic fat talk was not significantly related to depressive symptoms reported by both friends ( $b = .02$ ,  $SE = .05$ ,  $p = .76$ ).

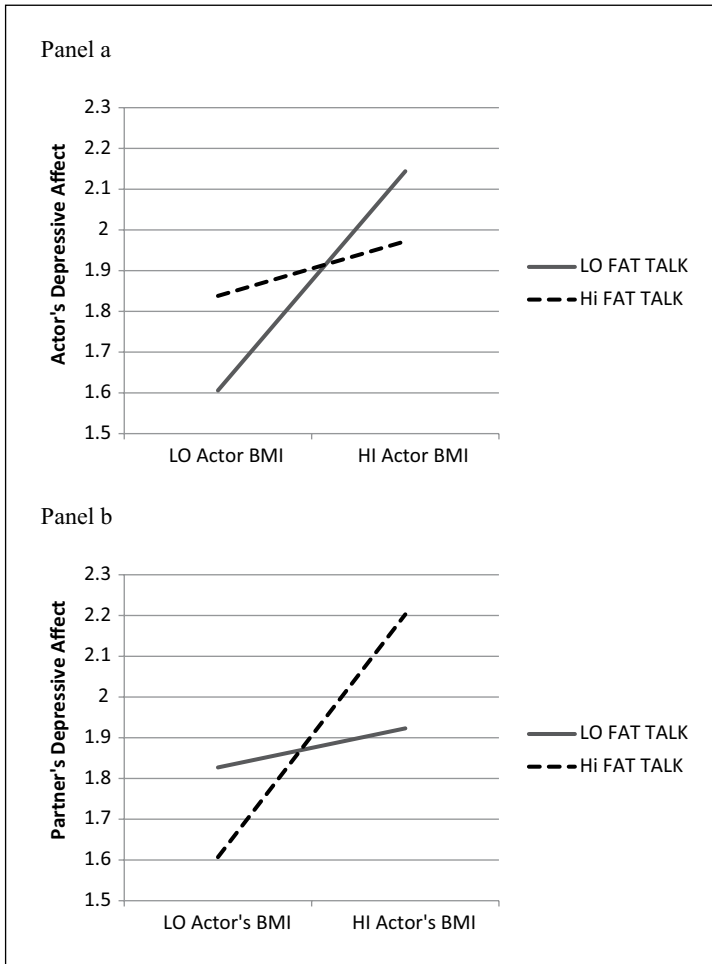
An interaction between actor-BMI and dyadic fat talk was found significant ( $b = -.10$ ,  $SE = .05$ ,  $p = .04$ ). Similarly, an interaction between partner-BMI and dyadic fat talk was also found significant ( $b = .13$ ,  $SE = .05$ ,  $p = .01$ ). These showed that dyadic fat talk moderated the effect of BMI on depressive symptoms at both actor and partner levels. In order to display these interactions, Figure 2 presents a graphical representation derived by calculating the simple slopes corresponding to individuals scoring 1  $SD$  above and below the mean for dyadic fat talk (Aiken and West, 1991). A moderated actor effect (Figure 2(a)) shows that the effect of a person's own BMI on their own depression differed based on levels of fat talk. Specifically, for friend dyads who engaged in

lower levels of fat talk, individuals' BMI has a stronger effect on their own depressive symptoms ( $b = .27$ ,  $SE = .07$ ,  $p < .001$ ). In contrast, for friend dyads who engaged in higher level of fat talk, individuals' BMI has a weaker and non-significant effect on their own depressive symptoms ( $b = .07$ ,  $SE = .07$ ,  $p = .33$ ). These findings were contrary to the hypothesis that fat talk would aggravate the effect of actor's BMI on actor's depression.<sup>1</sup>

Supporting the hypothesis, moderated partner effect (Figure 2(b)) showed that the effect of a person's own BMI on their friend's depressive symptoms differed based on levels of fat talk. Specifically, for friend dyads who engaged in lower levels of fat talk, individuals' BMI had a weaker and nonsignificant effect on their friend's depressive symptoms ( $b = .05$ ,  $SE = .07$ ,  $p = .51$ ). In contrast, for friend dyads who engaged in higher level of fat talk, individuals' BMI had a stronger positive effect on their friend's depressive symptoms ( $b = .30$ ,  $SE = .07$ ,  $p < .001$ ). These findings were consistent with the expectation in that higher levels of fat talk aggravated the negative effect of individuals' BMI on their friend's depressive symptoms.<sup>2</sup>

## Discussion

This study had two major contributions. First, this study employed a dyadic approach to



**Figure 2.** Interaction between individuals' BMI and dyadic fat talk on depressive symptoms at the actor and partner levels: (a) moderated actor effect and (b) moderated partner effect. BMI: body mass index.

examine the associations among weight, fat talk, and depression between friends. The current findings highlighted the importance of accounting for the interdependent nature of friendships and understanding the reciprocal influences between friends. Second, this study indicated the role of dyadic fat talk in moderating the association between weight status and depression between friends. The current findings illuminated the complex relationships between individuals' weight status and their own depression, as well as their friend's

depression, depending on various levels of fat-talk engagement.

Consistent with the expectation, an actor effect showed that individuals who were higher in BMI reported more depressive symptoms. This study also examined whether individuals' weight status would impact their friend's depressive symptoms because of the interdependence between friends. Supporting the hypothesis, a partner effect revealed that individuals' weight status predicted friend's depressive symptoms, even after controlling for their

friend's own weight status. The significant partner effect provided support for the interdependence theory (Kelley and Thibaut, 1978), which suggests that two friends constitute a dyadic system that is behaviorally and psychologically interdependent. Therefore, individuals' depression was not only dependent on their own weight status but also their friend's, supporting the contagion effect hypothesis.

Surprisingly, bivariate correlations and APIM results revealed that fat talk was not associated with depression reported by both friends. One possible reason is that this study employed a composite score of fat talk that averaged both friends' reports to examine the dyadic construct, which differed from past studies (Arroyo and Harwood, 2012). Indeed, this approach better captured the "dyadic" nature of fat talk between friends and reduced reporter biases.

However, dyadic fat talk interacted with weight status to predict depressive symptoms. Specifically, for friend dyads who engaged in lower fat talk, individuals' BMI had a stronger effect on their own depressive symptoms. Results showed that individuals with higher BMI but engaging in lower levels of fat talk were more likely to suffer from depression compared to their counterparts with lower BMI. Furthermore, a moderated actor effect showed that when friend dyads engaged in more fat talk, fat talk reduced, instead of aggravating, the association between individuals' BMI and their own depressive symptoms. When interpreting these findings within the framework of friendships as important social support (Chow et al., 2011), fat talk may have therapeutic purposes only for individuals who are higher in weight. Indeed, a recent qualitative study found that individuals believed that engagement in fat talk makes them feel better about themselves (Salk and Engeln-Maddox, 2011).

Interestingly, a moderated partner effect showed that when friend dyads engaged in more fat talk, fat talk aggravated the negative effect of individuals' BMI on their friend's depressive symptoms. It is likely that through

their discussion about weight, a friend's worries and concerns are transmitted to another friend, thus leading the second friend to share similar negative emotions. Another possible explanation is that when two friends engaged in higher levels of fat talk, thin idealization of one friend will be transmitted to the other friend, pressuring her to feel dissatisfied or distressed with her own weight. Stigma by association suggests that friends of individuals who are overweight may also experience or observe differential treatment from society (e.g. Hebl and Mannix, 2003). Because of heightened experiences of prejudice and discrimination, friends of individuals who are overweight may too endorse greater thin idealization (i.e. thin is good, fat is bad), thus leading to greater levels of depression (Durkin and Paxton, 2002). Regardless of either explanation, this study shed important light on the moderating role of dyadic fat talk between individuals' BMI and their friend's depression. In summary, fat talk seemed to have a paradoxical effect between BMI and depression. Although sharing concerns about weight with a friend would help individuals with a higher BMI be more resilient to depressive symptoms, such interpersonal processes, unfortunately, would likely increase the other friend's depression symptoms.

### *Limitations and future directions*

It is important to note that this study was correlational in nature and did not allow us to draw causal explanations among the variables. It is certainly possible that depression may precede body weight status. Nevertheless, past research has attempted to examine the causal relationship between fat talk and weight concerns in an experimental setting (Salk and Engeln-Maddox, 2012). Females who heard confederates engaging in fat talk experienced more body dissatisfaction and guilt than females who did not hear confederates engage in fat talk. Future research could examine the engagement in fat talk between close friends in an experimental setting to determine the causal relationships.



Another limitation was that this study only focused on the negative aspect of fat talk. Indeed, it is possible that friends may engage in supportive and encouraging forms of discussion about weight, such as mutual validation of each other's positive body image. In an experimental study, researchers found that participants were more dissatisfied with their bodies after hearing confederates making negative self-evaluations compared to positive self-evaluation statements (Tucker et al., 2007). Thus, future research could examine whether different types of self-evaluation statements occurring during fat talk would predict outcomes differently.

This study has relied on self-reported height and weight to calculate BMI. Self-reported weight may bias the calculation of BMI as females tend to under-report on their weight (Gorber et al., 2007). However, self-reported height and weight were commonly employed by past research with adults (e.g. Salk and Engeln-Maddox, 2011). Nevertheless, future research should consider examining the association among BMI, fat talk, and depression using measured height and weight.

The current sample only consisted of female participants because of the prevalence of body image issues in this population. Nevertheless, future research should consider examining similar research questions with male participants; emerging research shows that young adult males experience similar body image issues as females (Murray and Lewis, 2012). Body image issues faced by males, however, could be quite different from females; males are typically being pressured to be masculine instead of thin (Murray and Lewis, 2012), which could lead to different types of discussions about weight concerns between friends. In addition, this study only included young college students. Future research should examine a more diverse group of participants to expand this study's external validity.

### Conclusion and implications

Despite the limitations, this study highlighted the importance of investigating the association between young adult females' weight status and

depression in the context of close friendships. Furthermore, this study argued that combining interpersonal constructs such as dyadic fat talk would be useful in clarifying the complex actor and partner linkages between weight status and depression. The results also have practical implications. For instance, clinicians and practitioners who work with individuals with weight concerns and depression may consider the roles of interpersonal relationships when designing interventions. In conclusion, this study demonstrated that a dyadic approach would be fruitful toward a better understanding of friendship dynamics in the health context.

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### Notes

1. Among all study variables, the depression scale appeared to be skewed. Thus, log transformation was performed and this approach did remedy the skewness. The regression analyses were conducted with the transformed depression scale and the patterns of findings remained similar except for the moderated actor effect, which became marginally significant ( $p = .10$ ). Because beta weights with log transformation are not easily interpreted, the original findings were reported.
2. We thank two anonymous reviewers for suggesting an interesting hypothesis based on social comparison theory (Festinger, 1954) in that body mass index (BMI) difference between friends may have an effect on depression moderated by fat talk. We examined the hypothesis by testing the 3-way interaction among actor-BMI, partner-BMI, and fat talk on depression; the interaction effect, however, was found to be nonsignificant.

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