

# Gender, BMI, and eating regulation in the context of same-sex and heterosexual couples

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**Abstract** Research suggests that romantic partners may benefit each other's health, but factors contributing to partners' involvement in eating regulation have been relatively unexplored. In this study, 104 heterosexual couples, 72 female same-sex and 72 male same-sex couples were examined in order to understand how partners' weight statuses were related to attempts to regulate eating behaviors. Weight status was assessed via body mass index and eating regulation was assessed using the Partner Feeding Questionnaire. Actor-Partner Interdependence Models revealed that gay men were particularly likely to regulate their partners' eating behaviors. Additionally, partners were found to regulate their significant others' eating behaviors when their significant others were heavy. Women were most likely to attempt to regulate their partners' eating behaviors when they were thin and their partners were heavy. These findings are discussed in the context of current obesity trends and the role of romantic partners in healthy weight management.

**Keywords** Romantic relationships · BMI · Weight status · Eating regulation · Social control · Gay · Lesbian · Obesity

## Introduction

In the United States, the weight loss industry is estimated to reap billions of dollars per year in profits (ABCNEWS 2012; NIH, 2015). However, all of these weight loss products appear to lead to little weight loss (Markey, 2014; Trottier et al., 2005). In fact, Americans are affected by overweight and obesity at rates exceeding any in history. Obesity rates doubled between 1980 and 2000 and approximately one in three adults are currently obese (Ogden et al., 2014). Obesity has been described as an "epidemic" (World Health Organization [WHO], 2000), a "disease" (American Medical Association, 2013), and the greatest leading cause of preventable death in the U.S. (Jia & Lubetkin, 2010). Thus, long-term healthy weight-management is both important and elusive for Americans. Clearly, many adults would benefit from support in their efforts to achieve healthy weight-management. One often-overlooked source of support and regulation is romantic partners, who likely contribute to many adults' mealtime experiences and have the potential to encourage (or, for that matter, discourage) healthy eating (Markey et al., 2001, 2008; Schafer et al., 2000). The current study examines romantic partners' attempts to regulate each other's eating behaviors in the context of both heterosexual and same-sex romantic relationships. We believe this research has the potential to contribute to both theoretical and applied work and may have implications for obesity prevention and interventions.

Romantic partners are among one of the many personal, social, and behavioral contributors to weight status across the lifespan (Baltrus et al., 2005; Umberson et al., 2009). A modest correlation among married partners has been found for weight status (Hur, 2003; Markey et al., 2001), which cannot be explained simply by cohabitation or age simi-

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larity (Allison et al., 1996). Assortative mating is one explanation for the similarities found among romantic partners' weight statuses (Allison et al., 1996). Further, changes in relationship status (i.e., marital status) have been found to predict changes in body weight (Sobal, 1984; Sobal et al., 1992). Individuals, particularly men in committed relationships, have been found to weigh more than individuals who are single (Sobal et al., 1992). In fact, for both men and women, getting married is associated with weight gain (Sarlio-Lähteenkorva et al., 2006), and marital dissolution or loss of a partner is associated with weight loss (Sobal et al., 2003). The extent to which romantic partners may be relevant to gay men and lesbian women's weight has been virtually unexplored.

In addition to research suggesting that relationship status (usually operationalized as marital status) predicts weight status, there is evidence that relationship experiences are associated with weight status (Boyes & Latner, 2009). For example, partners often become more similar to one another or adapt to each other across time in a relationship (e.g., in terms of eating behaviors; Bove et al., 2003). This similarity and "adaptation" appears to result in positive feedback from romantic partners (sometimes referred to as consensual validation; Byrne & Griffitt, 1966; Luo & Klohnen, 2005; see Caspi et al., 1992, for an alternative explanation for romantic partner similarity). But what happens when romantic partners are dissimilar or mismatched in weight status? Having a partner of a dissimilar weight, particularly a thinner partner, may make individuals more concerned about their own weight (Markey & Markey, 2011; 2013). Social comparison processes (e.g., Festinger, 1954) are likely to prompt individuals' dissatisfaction with their own weight status when they compare themselves to significant others who are able to achieve socioculturally desirable weight statuses. Further, a mismatch in weight status may prompt partners to attempt to regulate each other's eating behaviors.

The current research builds on our past findings linking weight status, body image, and weight concerns among both heterosexual and lesbian romantic partners. In these studies (Markey & Markey, 2011, 2013) we have found that women are at risk of experiencing weight concerns when they are relatively heavier than their partners. In order to account for these findings we have proposed a model we refer to as the "partner comparison effect" (Markey & Markey, 2013). According to this model, individuals' perceptions of themselves are influenced by their evaluation of themselves relative to their partner. In other words, partner comparison seems to emerge not merely as a result of a partner's attributes, but as a result of the partner's attributes (in this case weight status) *in comparison to* the individual's attributes. When the partner maintains a socioculturally desirable attribute (i.e., "thin-

ness") and the individual does not, this places the individual at risk for concern about this attribute (i.e., concern about weight; Markey & Markey, 2011). However, it has yet to be determined whether partners mismatched on weight status differentially attempt to regulate each other's eating behaviors and no research to date has examined this issue among same-sex couples.

One way in which romantic partners are involved in regulating each other's eating behaviors is by exerting *health-related social control*. Social scientists define health-related social control as partners' attempts to monitor and influence each other's health behaviors (August & Sorkin, 2010; Lewis & Rook, 1999; Umberson, 1992). This social control may include specific, verbal instructions or engaging in other attempts to exert influence on their partners to engage in healthy behaviors such as improving one's diet (Lewis & Rook, 1999; Franks et al., 2006; Umberson, 1992). Although typically well intentioned and often effective, evidence suggests that partners may interpret these attempts as evidence that they are unable to successfully engage in these healthy behaviors on their own (Hughes & Gove, 1981; Lewis & Rook, 1999). Further, there is conflicting evidence about whether these social control attempts are actually effective in changing behaviors among adults (e.g., Lewis & Rook, 1999; Okun et al., 2007; Tucker & Anders, 2001).

Although past research examining social control among romantic couples has provided important insight as to how romantic partners might influence each other's health in various domains (e.g., smoking, chronic disease management, etc.) relatively few studies have focused exclusively on eating regulation among healthy adults (August et al., 2015; Burke & Segrin, 2014; Markey et al., 2008). These studies suggest that gentler control strategies (i.e., positive tactics, or persuasion) are more effective than heavy-handed, critical strategies (i.e., negative tactics, or pressure) in potentially influencing a partner's eating behaviors (see August et al., 2015).

Evidence from the literature examining parental influences on children's eating behaviors also suggests that parents' attempts to regulate their children's eating behaviors often backfires. Children who are monitored and restricted from eating desirable foods often overeat when parental supervision is absent and weigh more than their peers who are less regulated (see Birch et al., 2001; Markey et al., 2008). In sum, although research suggests that parents and other adults often attempt to regulate children's eating habits with varying degrees of success, it is unclear the extent to which romantic partners' attempt to regulate each other's eating behaviors and what factors (e.g., weight status) may motivate these regulatory attempts. By utilizing dyadic data analyses, we were able to examine partners' weight statuses and eating regulatory behaviors, thus

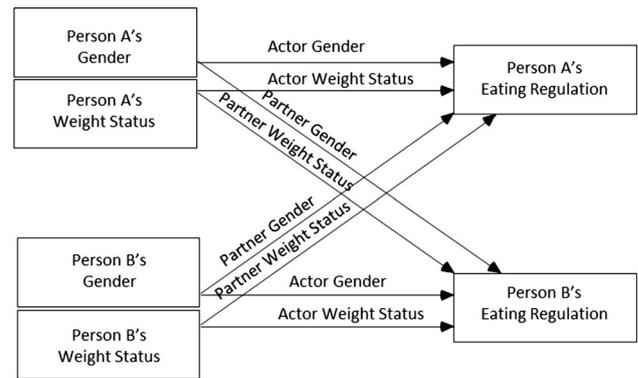
enhancing an understanding of the factors contributing to romantic partners' eating regulation among both heterosexual and same-sex couples.

This research adds to the current literature examining weight, eating behaviors, and eating regulation by not only examining adult romantic partners but by investigating these issues in the context of both heterosexual and same-sex relationships. Examining these three different types of couples is important for two reasons. First, there is some evidence to suggest that weight status may be valued differently among these unique populations. For example, gay men are at comparable risk of developing concerns about their appearance and weight as are heterosexual women and report significantly greater concern about their bodily appearance in mid-life than do heterosexual men (Lodge & Umberson, 2013; Morrison et al., 2004). Lesbian women, on the other hand, are more likely to engage in healthy weight control practices, are more accepting of larger bodies, and are less dissatisfied with their bodies than their heterosexual peers (Huxley et al., 2011; Polemni et al., 2009).

The second reason it is desirable to examine heterosexual and same-sex couples is because it provides a means to examine gender effects within the context of romantic relationships. Past research suggests that women are more likely to engage in health-related social control than are men (e.g., Rook et al., 2011). However, if only heterosexual couples are examined, a finding that only women (i.e., the actor) tend to regulate their husbands' (i.e., partners') eating behaviors could occur because: (1) women tend to regulate their partners eating (i.e., the actor's gender is important); (2) partners of men tend to regulate their eating (i.e., the partner's gender is important); or (3) being a woman in a heterosexual relationship leads women to regulate their husband's eating (i.e., the actor and partner's gender interaction is important). By including gay, lesbian, and heterosexual couples in our analyses it is possible to tease apart the importance of each of these three effects and gain a better understanding of the importance of gender and eating regulation behaviors in the context of romantic relationships.

### Actor-partner interdependence models

The current study will investigate the potential associations among participants' gender and body mass index (BMI) and their romantic partners' gender and BMI when predicting eating regulation. Because the current study utilizes data from both partners of a romantic couple, which consist of both distinguishable (i.e., heterosexual couples) and indistinguishable (i.e., gay and lesbian couples) dyads, traditional statistical techniques are not appropriate.



**Fig. 1** Actor-partner interdependence model

Therefore, Actor-Partner Interdependence Models (APIMs; Kenny et al., 2008) will be employed in order to account for the dependency in these data. APIMs are statistical methods that make it possible to examine how Person A's criterion variable simultaneously and independently relates to his or her own predictor variable and to his or her partner's (Person B's) predictor variable.

In the current context, an APIM can be used to examine how eating regulation is shaped by unique and interpersonal variables that exist among romantic partners. This methodology allows us to isolate several potential variables of influence. First, the association between Person A's own gender and weight status and Person A's report of eating regulation can be estimated. The APIM denotes these as 'actor effects' (see lines "actor gender" and "actor weight status" in Fig. 1). These actor effects test whether or not men and women attempt to control their partner's eating behaviors differently (i.e., the actor effect for gender) and whether or not their own weight status is related to how much they attempt to control their partners' eating behaviors (i.e., the actor effect for weight status) while controlling for the other variables examined in the study. Second, the association between Person B's gender and weight status and Person A's report of eating regulation can be estimated. The APIM denotes these as 'partner effects' (see lines "partner gender" and "partner weight status" in Fig. 1). The partner effect for gender tests whether or not individuals attempt to control the eating behaviors of male or female romantic partners differently. The partner effect for weight status examines whether or not individuals attempt to control the eating behaviors of heavy or thin romantic partners differently.

In addition to examining these main actor and partner effects, the APIM also makes it possible to examine all the interactions that may exist among these variables. For example, the importance of sexual orientation can be examined via the simple interaction between actor gender and partner gender. Of particular interest in the current

study is the extent to which dissimilarity among romantic partners' weight statuses predict eating regulation. This "dissimilarity effect" can be investigated by examining the interaction between actor weight status and partner weight status. Finally, participants' gender and their romantic partners' gender can be examined as possible moderators in all of the analyses. We will examine whether or not participants' gender or the gender of their romantic partners moderates the "dissimilarity effect" for BMI.

## Aims and predictions

### Weight status

It is predicted (Hypothesis 1) that participants' eating regulation attempts will be negatively related to their own weight status. In other words, thin individuals will tend to regulate their romantic partners' eating behaviors more than heavy individuals (i.e., a negative actor effect for weight status). Additionally, it is expected (Hypothesis 2) that eating regulation attempts will be positively related to romantic partners' weight status. Romantic partners will tend to regulate the eating behaviors of heavy romantic partners more than thin romantic partners (i.e., a positive partner effect for weight status).

### Gender

Consistent with our past research (Markey et al., 2008) women are expected (Hypothesis 3) to regulate their romantic partners' eating behaviors more than men (i.e., a significant actor effect for gender). It is also expected (Hypothesis 4) that individuals will tend to regulate the eating behaviors of men more than women (i.e., a significant partner effect for gender).

### Sexual orientation

Analyses examining sexual orientation (i.e., actor gender  $\times$  partner gender) are exploratory because past research has not collectively considered heterosexual, lesbian, and gay partners' eating regulatory behaviors.

### Dissimilarity effect

Consistent with social comparison theory, our past findings, and our discussion of the *partner comparison effect* (Markey & Markey, 2012), it is expected (Hypothesis 5) that thin individuals will be more likely to regulate the eating behaviors of heavy romantic partners than thin romantic partners (i.e. a significant actor weight status  $\times$  partner weight status effect).

## Moderators of the dissimilarity effect

Exploratory analyses will be conducted to examine whether or not the occurrence of the dissimilarity effect is moderated by an individual's gender (i.e., actor weight status  $\times$  partner weight status  $\times$  actor gender), the gender of one's romantic partner (i.e., actor weight status  $\times$  partner weight status  $\times$  partner gender), or sexual orientation (i.e., actor weight status  $\times$  partner weight status  $\times$  actor gender  $\times$  partner gender).

## Methods

### Participants and procedures

Two hundred and eight participants in heterosexual relationships (104 couples;  $M$  age = 24.87,  $SD$  = 7.49) and two hundred and eighty-eight participants in same-sex relationships (72 gay couples and 72 lesbian couples;  $M$  age = 33.74 years,  $SD$  = 11.27) took part in this study as part of a larger research program examining associations between romantic relationships and health. Eligibility criteria required individuals to be 18 years of age or older and in their current relationships for at least 6 months. Participants were required to be free of any serious, chronic health conditions or illnesses that affected their dietary intake. The heterosexual sample was predominantly European-American (73 %), with 9 % of the sample indicating they were African American, 8 % were Latino, 7 % were Asian American, and the remaining participants indicated they were of an "other" ethnicity. Among the heterosexual participants, personal income was reported in ranges consisting of "less than \$20,000" (62 %), "\$20,000–\$49,000" (26 %), "\$50,000–\$75,000" (11 %), and "greater than \$75,000" (1 %). Highest levels of education completed included "9th to 11th grade" (4 %), "12th grade, GED, or high school diploma" (14 %), "some college/no degree" (44 %), "Bachelor's degree" (17 %), "some graduate/professional training (Master's, Ph.D., M.D., etc.)" (21 %). Forty percent of couples in heterosexual relationships reported that they were dating and not cohabitating, 34 % reported that they were cohabitating (living with each other), and 26 % reported that they were married; couples had been romantically involved for 3.88 years on average.

The participants in same-sex relationships included European-Americans (70 %), African Americans (14 %), Latinos (10 %), Asian Americans (3 %) and 3 % reporting an "other" ethnicity. Participants in same-sex relationships reported personal income in ranges consisting of "less than \$20,000" (26.5 %), "\$20,000–\$49,000" (35.5 %), "\$50,000–\$75,000" (17.5 %), "\$76,000–\$99,000"

(9.2 %), and “\$100,000 or greater” (10.6 %). Highest levels of education completed included “did not complete high school” (2 %), “12th grade, GED, or high school diploma” (5 %), “some vocational/technical/or business school or college (no college degree)” (34 %), “Bachelor’s degree” (24 %), “some graduate/professional school training (Master’s, Ph.D., M.D., etc.)” (35 %). Length of same-sex couples’ romantic involvement was recorded in months, which ranged from 6 to 738, with a mean of 68 months ( $SD = 5.5$  years). Number of months of cohabitation with one’s partner ranged from 0 to 730, with a mean of 50 months (4.2 years). Partners also reported whether they considered themselves to be “dating” (17 %) or “committed (e.g., domestically partnered, civil union, married)” (83 %). Because legal marriage was not an option when these data were collected, we also asked participants whether they would like to be legally married; 67 % indicated “yes”, 28 % indicated “perhaps, someday”, and 5 % indicated “no”.

All participants were recruited from the Philadelphia, PA and Camden, NJ areas. Recruitment took place via advertisements in a variety of periodicals and at health and wellness centers in the Philadelphia metro area. All participants were screened via phone or a web-based survey to determine their eligibility. Data collection took place in a laboratory setting. Both members of a couple participated in the study at the same time, but participants were placed into separate rooms to assure privacy while they completed measures that addressed their experiences with their partners (e.g., their attempts to regulate their partners’ eating behaviors) and were compensated for their time.

## Measures

### *Body mass index*

Body mass index (BMI) was conceptualized as an independent variable, based on previous research, which has confirmed BMI as a predictor of weight-related concerns and weight management behaviors (Markey & Markey, 2010). Participants’ BMIs were determined by researcher measurements of their height in centimeters using a stadiometer, and weight in kilograms via a standard medical scale. The metric BMI formula was used to determine weight in kilograms divided by squared height in meters. Weight and height were recorded three times for each participant, per the recommendation of Lohman et al., (1988), and the average of the three measures was used. The mean BMI for the sample was 27.03 ( $SD = 6.54$ ; range 16.88–61.83). Further, romantic partners tended to have fairly similar BMIs (intraclass  $r(246) = .36, p < .01$ ).

### *Eating regulation*

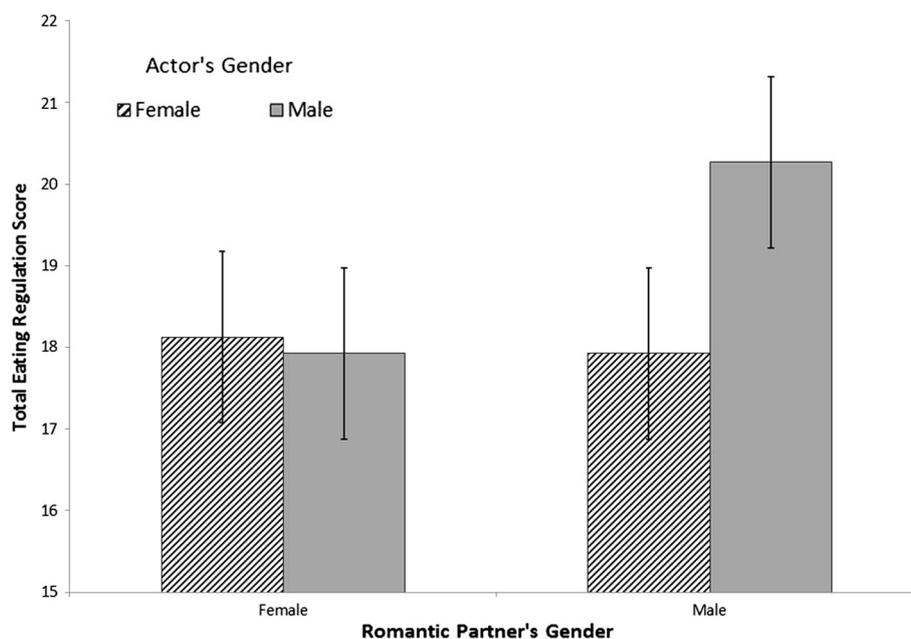
The only assessment of participants’ attempts to regulate their romantic partners’ eating behaviors was the revised version of the Child Feeding Questionnaire (CFQ; Birch et al., 2001). The CFQ was originally designed to assess parents’ monitoring and restriction of their child’s eating habits with questions such as, “I have to be sure my child does not eat too much of her favorite foods.” For the current study, this measure was revised to indicate that participants were rating the extent to which they attempted to monitor and regulate their partners’ eating behaviors. Given the revisions to this measure, we now refer to it as the *Partner Feeding Questionnaire* (see also Markey et al., 2008, for additional information about this measure). The resulting 11-item questionnaire asks participants how much they keep track of their partners’ eating (e.g., “How much do you keep track of the sweets that your partner eats?”) and to what extent they regulate their access to food (e.g., “If I did not guide or regulate my partner’s eating, he/she would eat too many junk foods”). Each item is answered using a 5-point Likert scale and items are summed to create an overall assessment of eating regulation (Cronbach’s  $\alpha = .90$ ).

## Results

Results from the analyses revealed that findings were similar regardless of participants’ age or length of participants’ relationships; thus, to simplify the findings, these variables were excluded from the reported analyses. Because data were nested (participants were nested within romantic dyads) multilevel modeling was used to estimate each APIM using the software program HLM 7.0. The first APIM estimated predicted eating regulation from only the main effects: actor effects for gender (coded 0 = women and 1 = men) and BMI and the partner effects for gender (coded 0 = women and 1 = men) and BMI. This model can be used to simultaneously test the unique contributions of actor gender, actor BMI, partner gender, and partner BMI when predicting eating regulation.

Table 1 displays the resulting APIM coefficients when predicting eating regulation and provides a test of weight status and gender. Consistent with Hypothesis 1, the actor effect of BMI was negatively related to eating regulation. It appears that, after controlling for gender and partner’s BMI, individuals who are relatively thin tend to regulate their partners’ eating behaviors more than do relatively heavy individuals. Additionally, as predicted (Hypothesis 2) the partner effect of BMI was positively related to eating regulation. Individuals who have relatively heavy romantic partners tend to regulate their eating more than individuals

**Fig. 2** Graphical representation of the interaction between actor gender and partner gender when predicting eating regulation



**Table 1** Summary of actor-partner interdependence models predicting eating regulation

	B	SE	t	Effect size (r)
Actor BMI (AB)	-.12	.06	-2.01*	-.14
Partner BMI (PB)	.32	.06	5.26**	.33
Actor gender (AG)	.85	.76	1.11	.07
Partner gender (PG)	1.11	.74	1.49	.09
AB × PB	-.02	.01	-2.41*	-.16
AB × AG	.05	.14	.10	.01
AB × PG	-.26	.14	-1.91	-.12
PB × AG	-.04	.13	-.26	-.02
PB × PG	.02	.14	.11	.01
AG × PG	3.03	1.50	2.02*	.14
AB × PB × AG	.04	.02	2.36*	.16
AB × PB × PG	.02	.02	.94	.06
AB × AG × PG	.30	.30	.99	.06
PB × AG × PG	-.35	.34	-1.03	-.07
AB × PB × AG × PG	.00	.04	.01	.00

*n* individuals = 496

*n* dyads = 248

\* *p* < .05; \*\* *p* < .01

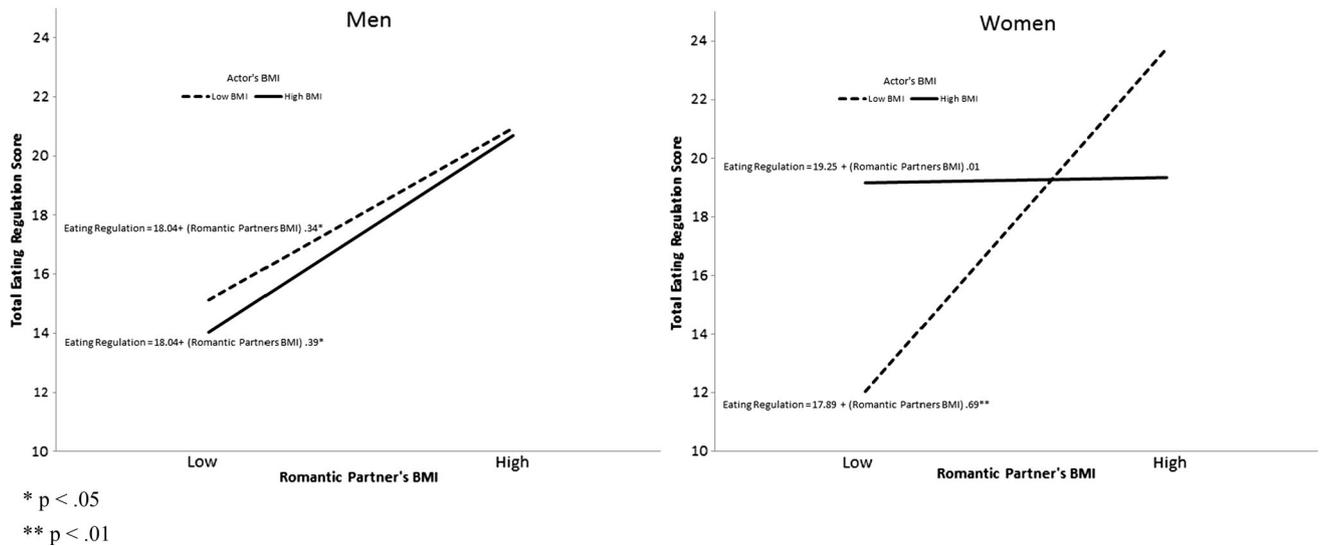
with relatively thin partners. Contrary to our predictions (Hypotheses 3 and 4), neither the actor nor the partner's gender significantly predicted eating regulation.

In order to examine sexual orientation and the dissimilarity effect of BMI, a second APIM analysis was used to investigate all possible two-way interactions among actor and partner effects when predicting eating regulation (see

Table 1). In this new model, six new variables were created, which were products of each possible actor and partner variable pairing. As suggested by Aiken and West (1991) and Kenny et al., (2008), BMI was centered when computing the interaction terms. These interaction terms were then included as independent variables along with the previously examined main effects in a new model.

As seen in Table 1, there was a significant actor gender × partner gender interaction effect, suggesting that sexual orientation might be an important predictor of eating regulation. In order to better understand this interaction, Fig. 2 presents a graphical representation derived by calculating simple regression equations corresponding to women and men (coded 0 and 1, respectively) who are in romantic relationships with either women or men (coded 0 and 1, respectively). As seen in this figure, men in relationships with men tended to regulate their romantic partners eating behaviors more than did heterosexual men, heterosexual women, or women in relationships with women.

Consistent with Hypothesis 5, an examination of the interaction between actor BMI × partner BMI reveals a significant dissimilarity effect when predicting eating regulation. However, a new set of hierarchical APIMs used to examine all possible three and four-way interactions suggest that this dissimilarity effect is moderated by another variable. As seen in Table 1, the significant actor BMI × partner BMI × actor gender interaction indicates that the actor BMI × partner BMI interaction is moderated by participant's own gender. In order to display this interaction, Fig. 3 presents a graphical representation



**Fig. 3** Moderating effect of actor's gender on the dissimilarity effect between actor and partners' BMI (i.e., actor gender  $\times$  actor BMI  $\times$  partner BMI) when predicting total eating regulation scores. \*  $p < .05$ ; \*\*  $p < .01$

derived by calculating simple regression equations for women and men (coded 0 and 1, respectively) corresponding to individuals at the mean, 1.25 standard deviations above the mean, and 1.25 standard deviations below the mean for each predictor variable (Aiken & West, 1991). Significance tests of the simple slopes revealed that relatively thin women [ $t(237) = 8.62, p < .01; r = .48$ ], relatively thin men [ $t(237) = 3.27, p < .01; r = .21$ ], and relatively heavy men [ $t(237) = 3.75; p < .01, r = .24$ ] tended to regulate the eating behaviors of heavy romantic partners more than thin romantic partners (i.e., there was a positive relation between partner BMI and eating regulation). However, for relatively heavy women no such positive relation existed [ $t(237) = .13; p = .89, r = .01$ ]. It appears that the size of women's romantic partner is unrelated to how much a woman attempts to regulate his or her eating if the woman herself is heavy.

## Discussion

Understanding predictors of eating regulation is important, given risks associated with unregulated eating and the related negative consequences of obesity (CDC, 2012). This study aimed to examine romantic partners' attempts to regulate each other's eating behaviors in the context of heterosexual and same-sex romantic relationships. By examining heterosexual, gay, and lesbian couples, this study not only provided important information regarding understudied groups but also unique insight into the potential role of gender in contributing to romantic partners' involvement in each other's eating behaviors. First,

this study examined the link between individuals' own weight and the weight of their romantic partners and eating regulation. Second, the extent to which gender and sexual orientation were predictive of eating regulation was examined. Finally, the degree to which members of romantic dyads were "mismatched" in terms of weight was investigated as a predictor of eating regulation.

We hypothesized (Hypothesis 1) that relatively thin individuals would regulate their romantic partners eating behaviors more than heavy individuals (i.e., a negative actor effect for weight status) and this hypothesis was confirmed. It is likely that individuals who maintain relatively thin figures value thinness (and, possibly, health) and seek to have partners who embody this value as well (Markey et al., 2008). We also hypothesized (Hypothesis 2) that romantic partners would regulate the eating behaviors of relatively heavy romantic partners more than relatively thin romantic partners (i.e., a positive partner effect for weight status) and this hypothesis was confirmed. It might be that because sociocultural ideals value thinness (Markey, 2010), an individual in a relationship with a heavy person strives to help (whether this help is selfishly motivated or well-meaning) their partner to regulate their eating behaviors in such a way as to maintain a relatively thin weight status. Additionally, it is possible that because being overweight is associated with various negative health outcomes (e.g., cardiovascular disease, diabetes, some cancers; CDC, 2012) partners are more inclined to attempt to regulate relatively heavy partners' eating behaviors.

One of the many benefits of considering same-sex and opposite-sex couples in the same study is the ability to examine individuals' gender and their partners' gender as

potential contributors to eating regulation. Contrary to our expectation that women would regulate their romantic partners' eating behaviors more than men (Hypothesis 3; a significant actor effect for gender) and that romantic partners would regulate the eating behaviors of men more than women (Hypothesis 4; a significant partner effect for gender) we found that the actor and partner effects of gender moderated each other. Specifically, men who were in relationships with other men were most likely to regulate their partners' eating behaviors (see Fig. 2). This finding is consistent with emerging research that suggests the integral role of appearance and body size in gay men's self-perceptions and interest in potential partners (Kaminski et al., 2005). It might be that gay male culture's value of thinness, muscularity, and appearances in general (Calzo et al., 2013; Morrison et al., 2004) contributes to men's tendency to regulate their male partners' eating behaviors more than other types of romantic couples. Thus, although there is a certain amount of cultural taboo associated with men providing explicit feedback to females about their bodies, weight, and eating behaviors, the cultural norms among men in relationships with other men may be different thereby allowing for more explicit exchanges about body weight and eating behaviors (Jancowski et al., 2014).

In our past research (e.g., Markey & Markey, 2011, 2013, 2014) we have repeatedly found a *partner comparison effect*, with individuals appearing to compare their own weight status to their partners' weight status, and when there is a disparity in their relative weight statuses, the heavier partner exhibits greater concerns about body and weight issues. Thus, we expected this effect to emerge in this set of analyses with couples "mismatched" on weight status being particularly vulnerable to eating regulation. That is, we expected that relatively thin partners would be most inclined to regulate the eating behaviors of their romantic partners who were relatively heavy (i.e. a significant actor weight status  $\times$  partner weight status effect). Our analyses confirmed this prediction (Hypothesis 5); however subsequent analyses found that this only applied to women's attempts to regulate their male or female partner's eating behaviors. As seen in Fig. 3, thin women who were in relationships with heavy partners were particularly likely to regulate their partner's eating behaviors. It appears that women who maintain a socially desirable attribute (i.e., "thinness") and have a partner who is heavy are especially likely to regulate their partners eating behaviors. However, for men, *both* thin and heavy men with heavy partners tended to regulate their partner's eating behaviors. Although we can only speculate why a dissimilarity effect emerged for women and not men, it appears that men do not consider their own body size when they attempt to regulate the eating behaviors of their partners. In other words, whether a man is thin or over-

weight he tends to regulate the eating behaviors of his overweight partner. However, giving the number of exploratory analyses conducted, this finding needs to be interpreted with some caution before it can be confirmed in a future study, due to the possibility of a Type-1 error.

### Limitations and conclusions

Although this study is novel in several ways, it is important to appreciate the limitations inherent in our methodology. First, our design was cross-sectional and correlational in nature, prohibiting clear causal interpretations. We build on past research (e.g., Birch et al., 2001; Markey & Markey, 2013) suggesting that weight status predicts eating regulation and not the reverse. Furthermore, we tested models where BMI is utilized as a predictor and eating regulation as the outcome. However, it is not possible to conclusively determine from these data that this is the definitive direction of effects. Second, our sample was somewhat diverse in terms of sexual orientation, but not necessarily representative of all same-sex and opposite-sex couples. Replications that include larger and more representative samples of heterosexual and same-sex couples would help substantiate our findings.

In spite of these limitations, we believe that this research makes important contributions to our understanding of romantic partners' potential role in each other's weight management behaviors. In particular, the inclusion of heterosexual and same-sex couples is unique and provides an opportunity to examine the roles of individuals' and partners' gender in health-related social control. Leading scholars who study romantic relationships and health have recently pointed out both the challenges involved in and the importance of considering same-sex couples using dyadic data analyses (e.g., Umberson et al., 2015). Our findings add to the limited research addressing both same-sex and heterosexual couples. Further, our results concerning gender confirm some but not all of our hypotheses; men in same-sex relationships were most likely to engage in eating regulation. In other words, these results make it clear that it is not only the gender of the individual that is relevant to partners' participation in eating regulatory behaviors, but the gender of the partner.

With the steady rise in obesity rates and the deleterious consequences of obesity well-documented, an understanding of how individuals' social networks contribute to their eating behaviors is critical. Romantic partners may be social influences "at the front line" of obesity prevention and intervention. However, determining the extent to which they are already actively engaging in eating regulation and the motives encouraging involvement in eating regulation is necessary before educational or public health efforts can be implemented that take advantage of signifi-

cant others in adopting behaviors conducive to long-term, healthy weight management. Given the changing health care environment and the recognition of the importance of behavioral health, it is our hope that research such as this will contribute to interventions that improve individuals'—and couples'—eating behaviors.

#### Compliance with ethical standards

**Conflict of interest** Charlotte N. Markey, Patrick M. Markey, Kristin J. August, Christopher S. Nave declares that they have no conflict of interest.

**Human and animal rights and Informed consent** All procedures followed were in accordance with ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2000. Informed consent was obtained from all patients for being included in the study.

## References

- ABCNEWS. (2012). 100 Million dieters, \$20 billion: The weight-loss industry by the numbers. (2012, May 8). Retrieved from <http://abcnews.go.com/Health/100-million-dieters-20-billion-weight-loss-industry/story?id=16297197>
- Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Thousand Oaks, CA: Sage Publications.
- Allison, D. B., Faith, M. S., & Nathan, J. S. (1996). Risch's lambda values for human obesity. *International Journal of Obesity and Related Metabolic Disorders: Journal of the International Association for the Study of Obesity*, 20, 990–999.
- American Medical Association (2013). AMA adopts new policies on second day of voting at annual meeting. (2013, July 18). Retrieved from <http://www.ama-assn.org/ama/pub/news/news/2013/2013-06-18-new-ama-policies-annual-meeting.page?>
- August, K. J., Kelly, C. S., & Markey, C. M. (2015). Marriage, romantic relationships & mental health. In H. Friedman (Ed.), *Encyclopedia of mental health* (2nd edn.). San Diego, CA: Elsevier.
- August, K. A., Rook, K. S., Stephens, M. A., & Franks, M. M. (2011). Are spouses of chronically ill partners burdened by exerting health-related social control? *Journal of Health Psychology*, 16, 1109–1119. doi:10.1177/1359105311401670
- August, K. J., & Sorkin, D. H. (2010). Marital status and gender differences in managing a chronic illness: The function of health-related social control. *Social Science and Medicine*, 71, 1831–1838.
- Baltrus, P. T., Lynch, J. W., Everson-Rose, S., Raghunathan, T. E., & Kaplan, G. A. (2005). Race/ethnicity, life-course socioeconomic position, and body weight trajectories over 34 years: The Alameda County Study. *Journal Information*, 95, 1595–1601.
- Birch, L. L., Fisher, J. O., Grimm-Thomas, K., Markey, C. N., Sawyer, R., & Johnson, S. L. (2001). Confirmatory factor analysis of the Child Feeding Questionnaire: A measure of parental attitudes, beliefs, and practices about child feeding and obesity proneness. *Appetite*, 36, 201–210. doi:10.1006/appe.2001.0398
- Bove, C. F., Sobal, J., & Rauschenbach, B. S. (2003). Food choices among newly married couples: Convergence, conflict, individualism, and projects. *Appetite*, 40, 25–41.
- Boyes, A. D., & Latner, J. D. (2009). Weight stigma in existing romantic relationships. *Journal of Sex and Marital Therapy*, 35, 282–293.
- Burke, T. J., & Segrin, C. (2014). Examining diet-and exercise-related communication in romantic relationships: Associations with health behaviors. *Health Communication*, 29, 877–887. doi:10.1080/10410236.2013.811625
- Byrne, D., & Griffitt, W. (1966). A developmental investigation of the law of attraction. *Journal of Personality and Social Psychology*, 4, 699.
- Calzo, J. P., Corliss, H. L., Blood, E. A., Field, A. E., & Austin, S. B. (2013). Development of muscularity and weight concerns in heterosexual and sexual minority males. *Health Psychology*, 32, 42–51.
- Caspi, A., Herbener, E. S., & Ozer, D. J. (1992). Shared experiences and the similarity of personalities: A longitudinal study of married couples. *Journal of Personality and Social Psychology*, 62, 281.
- Centers for Disease Control and Prevention (CDC). (2012). What are the causes and consequences of overweight and obesity? Retrieved from <http://www.cdc.gov/obesity/adult/causes/index.html>
- Festinger, L. (1954). A theory of social comparison processes. *Human Relations*, 7, 117–140.
- Franks, M. M., Stephens, M. A. P., Rook, K. S., Franklin, B. A., Keteyian, S. J., & Artinian, N. T. (2006). Spouses' provision of health-related support and control to patients participating in cardiac rehabilitation. *Journal of Family Psychology*, 20, 311.
- Hughes, M., & Gove, W. R. (1981). Living alone, social integration, and mental health. *American Journal of Sociology*, pp 48–74.
- Hur, Y. M. (2003). Assortative mating for personality traits, educational level, religious affiliation, height, weight, and body mass index in parents of a Korean twin sample. *Twin Research*, 6, 467–470.
- Huxley, C., Clarke, V., & Halliwell, E. (2011). It's a comparison thing, isn't it? Lesbian and bisexual women's accounts of how partner relationships shape their feelings about their body and appearance. *Psychology of Women Quarterly*, 35, 415–427. doi:10.1177/0361684311410209
- Jancowski, G. S., Diedrichs, P. C., & Halliwell, E. (2014). Can appearance conversations explain differences between gay and heterosexual men's body dissatisfaction? *Psychology of Men and Masculinity*, 15, 68–77.
- Jia, H., & Lubetkin, E. I. (2010). Trends in quality-adjusted life-years lost contributed by smoking and obesity. *American Journal of Preventive Medicine*, 38, 138–144. doi:10.1016/j.amepre.2009.09.043
- Kaminski, P. L., Chapman, B. P., Haynes, S. D., & Own, L. (2005). Body image, eating behaviors, and attitudes toward exercise among gay and straight men. *Eating Behaviors*, 6, 179–187.
- Kenny, D. A., Kashy, D. A., & Cook, W. L. (2008). *Dyadic data analysis*. New York: The Guilford Press.
- Lewis, M. A., & Rook, K. S. (1999). Social control in personal relationships: Impact on health behaviors and psychological distress. *Health Psychology*, 18, 63.
- Lodge, A. C., & Umberson, D. (2013). Age and embodied masculinities: Mid-life gay and heterosexual men talk about their bodies. *Journal of Aging Studies*, 27, 225–232. doi:10.1016/j.jaging.2013.03.004
- Lohman, T. G., Roche, A. F., & Martorell, R. (1988). *Anthropometric standardization reference manual*. Champaign, IL: Human Kinetics Books.
- Luo, S., & Klohnen, E. C. (2005). Assortative mating and marital quality in newlyweds: A coupled-centered approach. *Journal of Personality and Social Psychology*, 88, 304–326.

- Markey, C. N. (2010). Invited commentary: Why body image is important to adolescent development. *Journal of Youth and Adolescence*, 39, 1387–1391. doi:10.1007/s10964-010-9510-0
- Markey, C. N. (2014). *Smart people don't diet: How the latest science can help you lose weight permanently*. New York: Da Capo/Lifelong Books.
- Markey, C. N., Gomel, J. N., & Markey, P. M. (2008). Romantic relationships and eating regulation: An investigation of partners' attempts to control each others' eating behaviors. *Journal of Health Psychology*, 13, 422–432.
- Markey, C. N., & Markey, P. M. (2010). A correlational and experimental examination of reality television viewing and interest in cosmetic surgery. *Body Image: An International Journal of Research*, 7, 165–171. doi:10.1016/j.bodyim.2009.10.006
- Markey, C. N., & Markey, P. M. (2011). Romantic partners, weight status, and weight concerns: An examination of the actor-partner interdependence model. *Journal of Health Psychology*. doi:10.1177/1359105310375636
- Markey, C. N., & Markey, P. M. (2012). Emerging adults' responses to a media presentation of idealized female beauty: An examination of cosmetic surgery in reality television. *Psychology of Popular Media Culture*, 1, 209–219.
- Markey, C. N., & Markey, P. M. (2013). Weight disparities between female same-sex romantic partners and weight concerns: Examining partner comparison. *Psychology of Women Quarterly*. doi:10.1177/0361684313484128
- Markey, C. N., & Markey, P. M. (2014). Gender, sexual orientation, and romantic partner influence on body dissatisfaction: An examination of heterosexual and lesbian women and their partners. *Journal of Social and Personal Relationships*, 31, 162–177. doi:10.1177/0265407513489472
- Markey, C. N., Markey, P. M., & Birch, L. L. (2001). Interpersonal predictors of dieting practices among married couples. *Journal of Family Psychology*, 15, 464–475. doi:10.1037//0893-3200.15.3.464
- Morrison, M. A., Morrison, T. G., & Sager, C. (2004). Does body satisfaction differ between gay men and lesbian women and heterosexual men and women? A meta-analytic review. *Body Image*, 1, 127–138. doi:10.1016/j.bodyim.2004.01.002
- National Institutes of Health (NIH). (2015). *Dietary supplements for weight loss*. Retrieved from the world wide web on October 26, 2015 at: <https://ods.od.nih.gov/factsheets/WeightLoss-HealthProfessional>
- Ogden, C. L., Carroll, M. D., Kit, B. K., & Flegal, K. M. (2014). Prevalence of childhood and adult obesity in the United States, 2011–2012. *JAMA*, 311(8), 806–814. doi:10.1001/jama.2014.732
- Okun, M. A., Huff, B. P., August, K. J., & Rook, K. S. (2007). Testing hypotheses distilled from four models of the effects of health-related social control. *Basic and Applied Social Psychology*, 29, 185–193.
- Polemni, A., Austin, S. B., & Kavanagh, A. M. (2009). Sexual orientation and weight, body image, and weight control practices among young Australian women. *Journal of Women's Health*, 18, 355–362. doi:10.1089/jwh.2007.0765
- Rook, K. S., August, K. J., Stephens, M. A. P., & Franks, M. M. (2011). When does spousal social control provoke negative reactions in the context of chronic illness? The pivotal role of patients' expectations. *Journal of Social and Personal Relationships*, 28, 772–789. doi:10.1177/0265407510391335
- Sarlio-Lähteenkorva, S., Lissau, I., & Lahelma, E. (2006). The social patterning of relative body weight and obesity in Denmark and Finland. *The European Journal of Public Health*, 16, 36–40.
- Schafer, R. B., Keith, P. M., & Schafer, E. (2000). Marital stress, psychological distress, and healthful dietary behavior: A longitudinal analysis. *Journal of Applied Social Psychology*, 30, 1639–1656. doi:10.1111/j.1559-1816.2000.tb02459.x
- Sobal, J. (1984). Marriage, obesity and dieting. *Marriage & Family Review*, 7, 115–140.
- Sobal, J., Rauschenbach, B. S., & Frongillo, E. A., Jr. (1992). Marital status, fatness and obesity. *Social Science and Medicine*, 35, 915–923.
- Sobal, J., Rauschenbach, B., & Frongillo, E. A. (2003). Marital status changes and body weight changes: AUS longitudinal analysis. *Social Science and Medicine*, 56, 1543–1555.
- Trottier, K., Polivy, J., & Herman, C. P. (2005). Effects of exposure to unrealistic promises about dieting: Are unrealistic expectations about dieting inspirational? *International Journal of Eating Disorders*, 37, 142–149.
- Tucker, J. S., & Anders, S. L. (2001). Social control of health behaviors in marriage. *Journal of Applied Social Psychology*, 31, 467–485.
- Umberson, D. (1992). Gender, marital status and the social control of health behavior. *Social Science and Medicine*, 34, 907–917.
- Umberson, D., Liu, H., & Powers, D. (2009). Marital status, marital transitions, and body weight. *Journal of Health and Social Behavior*, 50, 327–343.
- Umberson, D., Thomeer, M. B., Kroeger, R. A., Lodge, A. C., & Xu, M. (2015). Challenges and opportunities for research on same-sex relationships. *Journal of Marriage and Family*, 77, 96–111. doi:10.1111/jomf.12155
- World Health Organization. (2000). Obesity: Preventing and managing the global epidemic. Report of a WHO consultation (WHO Technical Report Series 894). Retrieved from [http://www.who.int/nutrition/publications/obesity/WHO\\_TRS\\_894/en/](http://www.who.int/nutrition/publications/obesity/WHO_TRS_894/en/)