

# Social Support and Weight Maintenance in Marriage: The Interactive Effects of Support Seeking, Support Provision, and Gender

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Spouses tend to gain weight over the early years of marriage. Given that maintaining a healthy weight is a common goal among newlyweds, and given the importance of partner support to goal achievement, the current study examined whether the quality of spouses' supportive behaviors in early marriage predicted weight gain over the first 4 years of marriage. We observed 169 newlywed couples discussing a personal goal, coded those discussions for the quality of both partners' support behaviors, and assessed weight every 6 months for 4 years. Husbands and wives both tended to gain more weight to the extent that they engaged in behaviors indicative of a lack of motivation while seeking support, such as whining, complaining, and avoiding responsibility. Among husbands, but not wives, this effect was moderated by their partners' tendencies to engage in oppositional behaviors like criticism, confrontation, and rejection while providing support. These effects held controlling for marital satisfaction, depressive symptoms, neuroticism, and both partners' income. These findings demonstrate the importance of spouses' supportive behaviors for goal achievement, illuminate the dyadic nature of weight gain, and demonstrate the benefits of negativity in some contexts.

*Keywords:* social support, self-improvement, weight, marriage, goals

Although marriage is associated with a number of health benefits, it is also associated with an important health risk. Numerous studies have indicated that spouses tend to gain weight during the first few years of marriage (Jeffery & Rick, 2002; Kahn & Williamson, 1990). Being overweight is a well-established risk factor for life-threatening health problems, such as Type 2 diabetes, heart disease, certain cancers, osteoarthritis, and sleep apnea (Must et al., 1999), but even small increases in weight are associated with measurable health risks, such as increased blood pressure and cholesterol (Willet et al., 1995).

Not surprisingly, most adults want to avoid unhealthy weight gain (French & Jeffery, 1994; Jeffery, Adlis, & Forster, 1991; Williamson, Serdula, Anda, Levy, & Byers, 1992). In one study, for example, 67% of women and 54% of men reported that they were currently engaging in active attempts to manage their weight (Williamson et al., 1992). Spouses in new marriages are no exception. Indeed, when newlyweds are asked to identify personal goals for supportive discussions during observational research, weight-related goals are among the most frequently selected (Feeney, 2004; Pasch, Bradbury, & Davila, 1997).

The fact that newlyweds are turning to each other for such support raises the possibility that the quality of the behaviors they

tend to exchange during supportive discussions may predict how effectively they are able to meet their fitness goals. Nevertheless, no studies have directly addressed this possibility. The current research examined the implications of couples' supportive exchanges for weight gain during the early years of marriage using a longitudinal study of 169 newlywed couples who were observed discussing an important goal and then reported their weight biannually across the next four years.

## What Is Effective Social Support and Why Should It Promote Weight Maintenance?

What is the most effective way for spouses to provide support to one another? Drawing on attachment theory (Bowlby, 1969/1982), Feeney (2004) argued that partners' general pattern of supportive behaviors play an important role in establishing a "secure base" from which intimates most effectively work to meet their goals. Whereas intimates are more satisfied to the extent that their partners engage in helpful and considerate behaviors while providing support, such as giving helpful advice, expressing encouragement, and offering reassurance, they are less satisfied to the extent that their partners engage in oppositional behaviors while providing support, such as criticism, confrontation, and rejection (e.g., Overall, Fletcher, & Simpson, 2010; Sullivan, Pasch, Johnson, & Bradbury, 2010). Further, intimates with partners who are more helpful and less oppositional perceive that their personal goals are more important, achievable, and worthwhile (Feeney, 2004; Overall et al., 2010)—beliefs that should aid in goal achievement (see Bandura, 1986). Thus, partners who engage in helpful behaviors and avoid oppositional behaviors when providing support should cre-

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ate an environment that helps one another to achieve important personal goals, such as the goal of maintaining a healthy weight.

Yet we are aware of only one study that has examined associations between the quality of support provision and goal achievement. Overall et al. (2010) observed couples as they discussed an important self-improvement goal and then measured intimates' perceptions of the extent to which they had met their goals over the course of 1 year. Intimates were more likely to perceive that they had met their self-improvement goals when they had partners who engaged in helpful behaviors, such as giving helpful advice, expressing encouragement, and offering reassurance, and avoided oppositional behaviors, such as criticism, confrontation, and rejection while providing support.

Nevertheless, two qualities of this research limit our ability to draw strong conclusions about the effects of spouses' supportive behaviors on changes in weight. First, Overall et al. (2010) did not examine the implications of the quality of social support behaviors for weight gain specifically; rather, they examined whether partners' support-provision behaviors predicted self-reported improvements in the particular issues couples discussed in the lab. Second, Overall et al. did not assess actual self-improvement; rather, they assessed partners' global perceptions of self-improvement. Such global perceptions are susceptible to cognitive and motivational biases (e.g., McNulty & Karney, 2001), and research has indicated that satisfied spouses are biased toward overestimating their improvements when reporting change retrospectively (Karney & Frye, 2002). Given that partners' tendencies to engage in helpful behaviors and to avoid oppositional behaviors while providing support are positively associated with relationship satisfaction, such behaviors may lead partners to perceive more self-improvement, whether or not improvements actually occurred. Indeed, Overall et al. (2010) reported that intimates were more satisfied to the extent that their partners tended to engage in helpful behaviors and to avoid oppositional ones while providing support, and that association was not controlled in the analysis that predicted perceived self-improvement.

### Can Oppositional Support Ever Be Effective?

Another limitation of prior research on the implications of social support for intimates' goal achievement is that it has examined the implications of partner support provision independent of the implications of intimates' own support seeking. Yet, how intimates seek support also plays an important role in goal achievement. For example, consistent with research on the importance of approach motivations to goal achievement (Dweck & Leggett, 1988), Overall et al. (2010) demonstrated that intimates were more likely to perceive that they had achieved their goals to the extent that they engaged in sincere and candid behaviors while seeking support, such as expressing a desire to change and asking for assistance in a considerate manner. In contrast, intimates were less likely to perceive that they had achieved their goals to the extent that they engaged in behaviors such as whining, complaining, and avoiding responsibility—behaviors that indicated they were not motivated to take the actions necessary to achieve those goals. Accordingly, completely understanding the long-term impact of supportive behaviors for goal attainment requires analyses that consider the joint effects of both spouses' behaviors.

For example, how should partners behave when intimates seek help in a way that demonstrates a lack of motivation (e.g., "I don't like going to the gym!")? Should they be oppositional, or should they continue to avoid being oppositional? Research on the main effects of support provision strongly suggests they should avoid being oppositional. Indeed, the tendency for partners to reciprocate one another's caustic behaviors is described as a worst-case scenario (see Gottman, 1994).

Nevertheless, theories of partner regulation (e.g., McNulty, 2011; Overall, Fletcher, Simpson, & Sibley, 2009) provide a different perspective by suggesting that oppositional behaviors may offer an important benefit to intimates who lack motivation to achieve their goals—they may provide them with necessary motivation to take action. Research outside the domain of social support has been consistent with this idea (McNulty, 2011; McNulty & Russell, 2010; Overall et al., 2009). For example, Overall et al. (2009) demonstrated that intimates who were directly criticized by their partners demonstrated increased motivations to change. Accordingly, spouses who engage in behaviors that demonstrate a lack of motivation to take action may find that their partners' opposition provides an impetus that they might otherwise lack.

However, engaging in oppositional behaviors while providing support should not always promote goal attainment. The potential benefits of a partner's oppositional behaviors may depend on whether support seekers require an external motivator before taking action. Whereas support seekers who are not particularly motivated to take action may benefit from the motivation provided by partners' oppositional behaviors, spouses who are already motivated may have nothing to gain from such behaviors. In fact, given that oppositional behaviors from a partner can undermine spouses' security in the relationship (Feeney, 2004), those behaviors may impede goal attainment among spouses who are sincere and candid while seeking support. Accordingly, the partner regulation perspective proposes that support provision may not exert a main effect on goal attainment but instead may interact with behaviors indicative of support seekers' existing levels of motivation to take action. Spouses who are sincere and candid while seeking support should gain less weight to the extent that their partners reinforce those actions by being helpful and considerate; spouses who demonstrate a lack of motivation while seeking support, in contrast, should gain less weight to the extent that their partners motivate them by engaging in oppositional behaviors. Research on interactive effects within marital problem-solving discussions provides indirect support for this perspective. Specifically, McNulty and Russell (2010) demonstrated that spouses whose marital problems were relatively severe (and presumably required more change in both partners) experienced better relationship outcomes when they tended to criticize each other, whereas criticism predicted worse relationship outcomes in couples reporting milder problems (that presumably required less change).

A notable gender difference suggests that some of the effects of support-seeking and support-provision behaviors on weight maintenance may differ across men and women. Much more so than men, women face substantial and ubiquitous social pressure to maintain a low body weight (Stice, 2002). These existing social pressures may moderate any interactive effects of support seeking and support provision. But there are competing predictions regard-

ing the direction of this effect. On the one hand, because women are especially sensitized to issues of weight, they may be particularly attentive to their partners' tendencies to be critical, confrontational, and rejecting while providing them with support during discussions of their weight. If so, husbands' tendencies to engage in such behaviors may motivate wives more than wives' tendencies to engage in such behaviors may motivate husbands. On the other hand, the ubiquitous pressure to be thin that women face may leave little room for any benefits of any additional pressure offered by husbands' oppositional behaviors. If so, husbands' tendencies to engage in such behaviors may motivate wives less than wives' tendencies to engage in such behaviors may motivate husbands, because wives' behaviors may offer a source of motivation unavailable elsewhere.

### Study Overview

The current analyses drew on a longitudinal study of 169 newlywed couples who were observed discussing the personal goals of each partner at baseline and who then reported their height and weight every 6 months for 4 years. We tested two predictions. First, based on Feeney's (2004) secure base model and the importance of approach motivations to goal achievement (Dweck & Leggett, 1988), we expected the pattern of spouses' support-seeking behaviors and their partners' support-provision behaviors to exert main effects on weight gain over the first several years of marriage. Specifically, we expected spouses to gain less weight over the first several years of marriage to the extent that (a) they tended to be sincere and candid while seeking support, (b) they tended to avoid behaviors indicative of a lack of motivation while seeking support, (c) their partners tended to engage in helpful and considerate behaviors while providing support, and (d) their partners tended to avoid oppositional behaviors while providing support (Hypothesis 1). Second, consistent with models of partner regulation (McNulty, 2011; Overall et al., 2009), we predicted that the main effects of spouses' support-seeking behaviors would be moderated by their partners' support-provision behaviors. Specifically, we predicted that (a) supporters' tendencies to be helpful and considerate would be associated with less weight gain among support seekers who were sincere and candid, and (b) supporters' tendencies to be oppositional would be associated with less weight gain among seekers who engaged in behaviors indicative of a lack of motivation (Hypothesis 2). Given evidence that men and women are differentially motivated to maintain a healthy weight in the first place, we also tested whether these interactive effects differed across men and women.

### Method

#### Participants

All participants were assessed within the first six months of both partners' first marriage. Couples were solicited through advertisements in community newspapers and bridal shops and through letters of invitation to couples who had completed marriage license applications. Both solicitations offered up to \$300 to couples willing to participate in a study of newlywed couples. Couples responding to either solicitation were screened during a telephone interview to determine whether: (a) this was the first marriage for

each partner, (b) the couple had been married less than 3 months, (c) neither partner had children, (d) each partner was at least 18 years of age and wives were less than 35 years of age, (e) each partner spoke English and had completed at least 10 years of education, and (f) the couple had no immediate plans to move away from the area.

The 169 eligible couples who arrived for their scheduled interview comprised the current sample. At baseline, husbands were 25.6 years old ( $SD = 4.1$ ) and had received 16.3 years ( $SD = 2.4$ ) of education. Fifty-nine percent were employed full time, and 34% were full-time students. Wives were 23.4 years old ( $SD = 3.6$ ) and had received 16.2 years ( $SD = 2.0$ ) of education. Forty-five percent were employed full time, and 45% were full-time students. Consistent with the large number of students in the sample, the average combined income of couples was less than \$15,000 per year. Slightly over 65% of the sample was Christian, and 94% of husbands and 86% of wives were White.

#### Procedure

Couples meeting eligibility requirements were scheduled to attend a three hour laboratory session. Before the session, they were mailed a packet of questionnaires to complete at home and to bring with them to their appointment. This packet included a separate set of self-report measures for husbands and wives, each of which was held in a separate envelope, as well as a letter instructing spouses to complete all questionnaires independently of one another and to place their completed forms back into the separate envelopes. As part of a subsequent laboratory session, spouses provided informed consent and engaged in two discussions—one about a personal goal one partner wanted to pursue and the other about a personal goal the other partner wanted to pursue. Couples were paid \$70 for participating in this first phase of the study.

At approximately six-month intervals subsequent to the initial assessment, couples were recontacted by phone and again mailed packets of self-report measures for husbands and wives to complete at home, along with a postage-paid return envelope, and a letter reminding couples to complete their forms independently of one another and to place their completed forms back into separate envelopes. This procedure was used at all follow-up procedures except Time 5, which resembled the baseline assessment. After completing each phase, couples were mailed a check for participating (\$40–\$50). Forty-five husbands and 45 wives did not complete the height and weight measures at the final wave of data collection; 16 couples were divorced, 4 couples had withdrawn, and 25 husbands and 25 wives either could not be contacted, completed a reduced packet of questionnaires that did not include height and weight, or did not provide any data. Participants who did versus did not report their weight at the final wave of data collection did not differ on any of the independent variables examined here, except that men who reported their weight at the final wave engaged in more behaviors coded as positive while seeking support,  $t(165) = 2.52, p = .013$ , and women who reported their weight at the final wave engaged in more behaviors coded as positive while providing support,  $t(167) = 3.30, p = .001$ . Because all spouses provided at least three reports of weight and were thus included in the analyses, we created a dummy-code that indicated whether or not participants reported their weight at the final wave of data collection and controlled for it in all primary analyses.

## Measures

**Body size.** We calculated indices of absolute body size by converting participants' self-reported height and weight into a standard index—body mass index (BMI; in kg/m<sup>2</sup>). BMI is a commonly used measure of body fat that is comparable across men and women because it adjusts for height (Centers for Disease Control & Prevention, 2009). Supporting the validity of this measure, a meta-analysis has demonstrated that self-reported height and weight provide an accurate indicator of actual BMI (Bowman & DeLucia, 1992).

**Support behavior.** To measure the quality of the spouses' supportive behaviors, we asked both spouses to identify an important personal goal or something about themselves they wanted to change and then to behave as closely as possible to the way they would ordinarily behave during a 10-min videotaped discussion about each partner's topic. A coin flip randomly determined which spouse's problem was discussed first. Throughout the remainder of this article, we refer to the individual who identified the personal goal discussed in each discussion as the "support seeker" and their partner as the "support provider;" however, researchers were instructed to never use the word "support" in front of the couples to avoid placing a demand on their behaviors.

Trained raters coded each speaking turn using the Social Support Interaction Coding System (SSICS; Pasch, Bradbury, & Sullivan, 1997). The SSICS classifies support provider and seeker behaviors into four categories: positive, negative, neutral, or off-topic. Positive support-seeking behaviors include offering a specific, clear analysis of the problem, expressing feelings related to the problem, or asking for help in a useful way (e.g., "I need to start eating healthy. Would you please help encourage me by reminding me to do so each evening?"). Positive support-provision behaviors include giving helpful advice, expressing encouragement, summarizing the problem, and encouraging continued discussion (e.g., "I understand that you want to lose weight and I would be happy to help remind you in the evenings. What else can I do to help you?"). Negative support-seeking behaviors include whining and complaining, making demands for help, expressing negative affect, and criticizing or accusing the partner (e.g., "I need to go to the gym and work out, but it is so hard to find the time to go. I just don't want to do it."). Negative support-provision behaviors include criticizing and blaming the partner, pointing out the negative consequences that will result if the partner does not change, rejecting or invalidating the partner, taking an authoritative stand, expressing negative affect, insisting that the help-seeker employ his or her approach to the problem or recommendations, and discouraging the expression of feelings in the help seeker (e.g., "Complaining is not going to get you anywhere. You have to just find the time and go to the gym."). Neutral behaviors include those that provide relevant information or ask relevant questions but not in a way that is positive or negative (e.g., "I currently weigh 220 pounds."). Any behavior that was not related to the topic of the conversation was coded as "off-topic."

The SSICS was originally developed to capture the types of supportive behaviors likely to be associated with relationship outcomes, such as trajectories of marital satisfaction. Although many of the behaviors likely to affect relationship outcomes are likely to be the same behaviors that affect goal achievement, the codes of the SSICS may nevertheless be an imperfect measure of

the behaviors specified by our theoretical model. For example, some of the behaviors coded as negative support seeking may not reflect a lack of motivation to achieve one's goal; they may reflect negative emotions due to a lack of marital satisfaction or elevated levels of depression. To minimize the effects of these alternative sources of negativity, we controlled for marital satisfaction, depression, and neuroticism in all primary analyses.

We developed four indices of social support behavior for each spouse: (a) positive support provision, (b) negative support provision, (c) positive support seeking, and (d) negative support seeking. To control for different frequencies of speaking turns in each discussion across spouses, the number of times each code was assigned to each spouse in a particular discussion was divided by the total number of speaking turns for that spouse in that discussion. Intraclass correlation coefficients (*ICCs*) indicated adequate interrater reliability for these codes (for positive-provision behaviors, *ICC* = .82; for negative-provision behaviors, *ICC* = .84; for positive-seeker behaviors, *ICC* = .82; for negative-seeker behaviors, *ICC* = .77). Due to a technical difficulty, the support-seeking behaviors of two husbands could not be coded.

Thirty-two husbands (19%) and 45 wives (38%) discussed weight-related issues in the laboratory. Nevertheless, as noted earlier, maintaining a healthy weight is an important goal for most young adults, and it is likely that many of these couples discussed weight-related goals at some point during the early years of marriage. The behaviors observed in the lab are thus likely to be a representative sample of behaviors couples exchange with each other during any discussions of important goals. Previous research has demonstrated that partners' behave in the lab similarly to how they behave at home (Christensen & Hazzard, 1983; Jacob, Tenenbaum, Seilhamer, Bargiel, & Sharon, 1994), and they also demonstrate similar patterns of behavior across discussions of different topics, whether or not those topics occur the same day (Fletcher & Thomas, 2000; Overall et al., 2009), the next day (Laurenceau & Bolger, 2005), or as many as two years later (Fletcher & Thomas, 2000; Noller, Feeney, Bonnell, & Callan, 1994). Consistent with that research, the couples in our sample reported that their conversations were very similar to those they have at home ( $M = 5.50$ ;  $SD = 1.13$ , where 1 = *not at all* and 7 = *extremely*)—this tendency did not differ across couples who did ( $M = 5.62$ ,  $SD = 1.00$ ) versus did not ( $M = 5.46$ ,  $SD = 1.17$ ) discuss a weight-related goal in the lab,  $t(336) = 1.61$ ,  $p = .109$ . In other words, there are good reasons to believe that these laboratory-assessed support behaviors are a reasonable proxy for the sorts of behaviors that couples engaged in during weight-related discussions over the first years of their marriage. Indeed, none of the effects differed across spouses who did versus did not discuss a weight-related goal.

**Covariates.** We assessed and controlled seven covariates in all primary analyses: (1) marital satisfaction, assessed at every wave of measurement using the Quality Marriage Index (Norton, 1983; alpha was at least .92 for husbands and .93 for wives); (2) depressive symptoms, assessed at every wave of measurement using the Beck Depression Inventory (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961; alpha was at least .81 for both husbands and wives); (3) neuroticism, assessed at baseline using the Neuroticism subscale of the Eysenck Personality Questionnaire (Eysenck & Eysenck, 1978; alpha was .85 for husbands and .82 for wives); (4) age, assessed at baseline; (5) own and partner income,

each of which was assessed at baseline; (6) pregnancy, where the 51 husbands and wives who reported that wives became pregnant during the 4-year course of the study were dummy-coded with a 1 at the wave in which wives became pregnant and every wave after that, and (7) attrition, where the 45 husbands and 45 wives who did not participate in the final wave of data collection were dummy-coded with a 0.

**Results**

**Descriptive Statistics and Preliminary Analyses**

Descriptive statistics for the independent variables and covariates, except couples' income, which was described in the Participants section, are reported in Table 1. Husbands and wives, on average, reported relatively high levels of initial marital satisfaction and relatively low levels of initial depressive symptoms. Paired-samples *t* tests indicated that partners' reports did not differ from one another for marital satisfaction,  $t(168) = -1.36, ns$ , or for depressive symptoms,  $t(168) = -0.85, ns$ . Also, observers rated husbands and wives as exchanging relatively low rates of behaviors coded as negative and relatively high rates of behaviors coded as positive during their supportive discussions. Nevertheless, there was substantial variability in both types of behavior. Although husbands and wives engaged in the same rates of behaviors coded as positive while seeking support,  $t(166) = 0.43, p = .670$ , and providing support,  $t(168) = 0.38, p = .706$ , and the same rates of behaviors coded as negative while providing support,  $t(168) = -0.53, p = .600$ , wives engaged in more behaviors coded as negative while seeking support,  $t(166) = 2.08, p = .039$ . Also, consistent with other research (e.g., McNulty, 2008), wives reported significantly higher neuroticism scores than did husbands,  $t(168) = 6.79, p < .001$ .

Average levels of husbands and wives' BMI at each 6-month assessment are reported in Table 2. To assess change at the level of the individual spouse, we conducted a three-level growth curve analysis (Bryk & Raudenbush, 1987) to describe trajectories of spouses' BMIs using the Hierarchical Linear Modeling, Version 6.08, computer program. Specifically, each spouse's reports of BMI were regressed onto time of assessment and the Time  $\times$  Time interaction (to examine nonlinear changes in weight), where time represents wave of assessment and was coded from 0–7 so that the intercept represented initial BMI, and where the autocorrelation from repeated assessments was controlled in the second level of

the analysis, the shared variance between husbands and wives' data was controlled in a third level of the analysis, and all Level-2 estimates and all Level-3 intercepts were allowed to vary randomly. We used restricted maximum likelihood estimation and placed no restrictions on the autoregressive error structures.

Not surprisingly, including participant sex on the Level-2 intercept indicated that husbands and wives differed in their initial BMIs,  $B = 2.85, SE = 0.41, t(334) = 6.93, p < .001$ , such that husbands reported a larger initial BMI,  $B = 26.02, SE = 0.34, t(168) = 75.51, p < .001$ , than did wives,  $B = 23.17, SE = 0.35, t(168) = 66.72, p < .001$ . Further, consistent with prior research (Jeffery & Rick, 2002; Kahn & Williamson, 1990), husbands and wives' BMIs tended to increase significantly over the course of the study—for husbands,  $B = 0.25, SE = 0.06, t(168) = 4.07, p < .001$ ; for wives,  $B = 0.43, SE = 0.09, t(168) = 4.67, p < .001$ —and a test of the Participant Sex  $\times$  Time interaction indicated that they did so at statistically equivalent rates,  $B = 0.18, SE = 0.11, t(334) = 1.60, p = .111$ . Nevertheless, there was substantial variability around these changes—for husbands,  $SD = 0.64, \chi^2(150) = 304.68, p < .001$ ; for wives,  $SD = 0.64, \chi^2(150) = 304.68, p < .001$ —indicating that some spouses gained weight at a faster rate than did others. The primary analyses tested whether spouses and their partners' observed social support behaviors accounted for between-person variability in spouses' weight gain. Notably, the Time  $\times$  Time interaction indicated that husbands and wives gained weight at a faster rate in the earlier years of marriage—for husbands,  $B = -0.02, SE = 0.01, t(168) = -2.02, p = .045$ ; for wives,  $B = -0.04, SE = 0.01, t(168) = -2.82, p = .006$ —and a test of the Participant Sex  $\times$  Time  $\times$  Time interaction indicated this effect also did not differ across husbands and wives,  $B = 0.02, SE = 0.02, t(334) = 1.25, p = .214$ . We retained this curvilinear effect in all primary analyses.

**Did Spouses and Their Partners' Support Behaviors Predict Changes in BMI?**

To examine the main effects of support seekers and providers' behaviors on changes in BMI, we estimated the following first two levels of another three-level growth curve model:

$$Y_{ip}(\text{BMI}) = \pi_{0p}(\text{Intercept}) + \pi_{1p}(\text{Time}) + \pi_{2p}(\text{Time} \times \text{Time}) \\ + \pi_{3p}(\text{Marital Satisfaction}) \\ + \pi_{4p}(\text{Depressive Symptoms}) \\ + \pi_{5p}(\text{Pregnancy Status}) + e_{ip}$$

$$\pi_0 = B_{00} + B_{01}(\text{Behaviors}) + B_{02}(\text{Covariates}) + r_0$$

$$\pi_1 = B_{10} + B_{11}(\text{Behaviors}) + B_{12}(\text{Covariates}) + r_1$$

$$\pi_2 = B_{20} + r_2$$

$$\pi_3 = B_{30}$$

$$\pi_4 = B_{40}$$

$$\pi_5 = B_{50}$$

where (a) all four indices of behavior were standardized and entered as simultaneous predictors, (b) Level-2 covariates included

Table 1  
Descriptive Statistics

Descriptive statistics	Husbands		Wives	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Negative support seeking	1.07% <sub>a</sub>	4.59%	2.34% <sub>b</sub>	6.83%
Negative support provision	2.14%	5.51%	1.87%	6.07%
Positive support seeking	52.63%	21.49%	53.33%	20.53%
Positive support provision	47.54%	20.36%	48.25%	22.32%
Neuroticism	6.86 <sub>a</sub>	4.84	10.24 <sub>b</sub>	4.73
Initial marital satisfaction	41.75	4.57	42.21	4.41
Initial depressive symptoms	4.30	5.13	4.73	4.89

Note. Different subscripts in the same row denote significantly different means.

Table 2  
Mean Body Mass Index at Each Wave of Data Collection

Spouse	Time 1	Time 2	Time 3	Time 4	Time 5	Time 6	Time 7	Time 8
Husbands								
$M_{BMI}$	25.91	26.32	26.21	26.47	26.09	26.74	26.58	26.91
$SD$	4.41	4.68	4.70	4.78	4.56	4.58	4.63	4.78
$N$	169	154	144	133	126	109	123	124
Wives								
$M_{BMI}$	23.17	23.78	23.86	24.00	23.56	24.46	24.13	24.18
$SD$	4.38	5.08	5.63	5.03	4.34	5.22	5.03	5.13
$N$	167	153	147	134	128	112	128	124

Note. According to the Centers for Disease Control and Prevention (2009), a body mass index (BMI) < 18.5 kg/m<sup>2</sup> is considered underweight, a BMI between 18.5 and 24.9 kg/m<sup>2</sup> is considered normal weight, a BMI between 25.0 and 29.9 kg/m<sup>2</sup> is considered overweight, and a BMI > 30.0 kg/m<sup>2</sup> is considered obese.

age, own income, partner income, neuroticism, and a dummy code for whether or not participants completed the eighth wave of data collection, and (c) all covariates were centered on the sample mean. The shared variance between husbands and wives' data was controlled in a third level of the analysis, where the intercepts associated with each parameter that was allowed to vary randomly across individuals at Level 2 was allowed to vary randomly across couples at Level 3.

Results of this analysis are reported in Table 3. As can be seen, spouses' tendencies to engage in behaviors that demonstrate a lack of motivation to take action while seeking support were positively associated with linear change in BMI over time, on average. Specifically, spouses who tended to engage in support-seeking behaviors indicative of a lack of motivation to take action, such as whining, complaining, and avoiding responsibility, tended to gain more weight over time. A test of the Sex × Seeker Negative interaction indicated that this effect did not differ across men and women,  $t(321) = 0.04, p = .966$ , and a test of the Pregnancy Status × Seeker Negative interaction indicated that this effect did not differ across whether or not couples became pregnant during the study,  $t(2096) = 0.85, p = .397$ . Controlling for this effect, no other behaviors were significantly associated with changes in BMI, and none of these null effects differed across men and women ( $ps > .824$ ). These null effects were also very similar across

people who did and did not discuss a weight-related goal in the lab, suggesting that they were not driven by the inclusion of people who did not discuss a weight-related goal in the lab.

Hypothesis 2 was that the main effect of seekers' behaviors coded as positive would be moderated by providers' behaviors coded as negative would be moderated by providers' behaviors coded as negative. Given that there was reason to expect these interactive effects to differ across men and women, we addressed this hypothesis by repeating the same analysis described above, except this time also regressing the Level-2 intercept and time slope parameters onto a dummy code for sex, the Positive Support Provision × Positive Support Seeking and Negative Support Provision × Negative Support Seeking interactions, and the two-way and three-way interactions necessary to test whether these interactive effects differed across husbands and wives.

The Participant Sex × Positive Support Provision × Positive Support Seeking interaction was not significant,  $B = -0.02, SE = 0.04, t(317) = -0.42, p = .672$ . With this nonsignificant three-way interaction removed, the Positive Support Provision × Positive Support Seeking interaction also was not significant,  $B = -0.02, SE = 0.02, t(320) = -1.16, p = .248$ . This null effect was very similar across people who did and did not discuss a weight-related goal in the lab, suggesting it also was not driven by the inclusion of people who did not discuss a weight-related goal in the lab.

In contrast, the Participant Sex × Negative Support Provision × Negative Support Seeking interaction was significant,  $B = 0.07, SE = 0.02, t(320) = 3.79, p < .001$ . Notably, this interaction (a) was not moderated by pregnancy status,  $t(2072) = -0.30, p = .767$ , or whether participants reported their weight at the final wave of data collection,  $B = -0.04, SE = 0.04, t(313) = -0.93, p = .351$ , (b) was not substantially different when the covariates were not included in the model,  $B = 0.07, SE = 0.02, t(328) = 4.31, p < .001$ , and (c) remained significant when pregnant women were excluded from the analysis. Moreover, although this interaction was not further moderated by whether participants discussed weight-related goals in the laboratory,  $B = -0.38, SE = 0.65, t(312) = -0.58, p = .561$ , the interaction was much stronger among participants who discussed weight-related goals ( $B = 1.25$ ) than among participants who discussed non-weight-related goals ( $B = 0.07$ ). This latter fact provides support for the idea that the behaviors exchanged while discussing weight-related goals, rather

Table 3  
Main Effects of Spouses' Social Support Behaviors on Changes in Body Mass Index

Variable	Effect size	
	$\beta$	$r$
Did vs. did not report weight at final wave	0.09	.07
Age	-0.01	.08
Own income	0.01	.02
Partner income	0.02	.06
Neuroticism	0.01**	.10
Positive support provision	-0.00	.00
Positive support seeking	0.01	.02
Negative support provision	-0.02	.04
Negative support seeking	0.06*	.11

Note.  $B$  values are associations between variables and  $\pi_1$ , from Equation 1, i.e., linear changes in body mass index.  $df = 326$ .

\*  $p < .05$ . \*\*  $p < .10$ .

than the behaviors exchanged while discussing any goal, account for changes in weight. Specifically, the weaker effect that occurred among those who did not discuss a weight-related goal in the lab is likely due to the fact that (a) some spouses in that subsample may not have discussed weight-related goals outside the lab and (b) the spouses who did discuss weight-related goals outside the lab may have demonstrated a different pattern of behavior than they demonstrated in the lab.

To view the nature of the significant three-way interaction, we decomposed it by plotting the predicted means for husbands and wives 1 *SD* above and below the mean on each variable involved in the interaction. That plot is depicted in Figure 1. We also decomposed the interaction statistically by estimating the simple effects for husbands and wives (see Aiken & West, 1991). Among wives, the Negative Support Seeking  $\times$  Negative Support Provision interaction was not significant,  $B = -0.01$ ,  $SE = 0.01$ ,  $t(320) = -1.42$ ,  $p = .156$ , indicating that wives' tendencies to gain more weight to the extent that they engaged in support-seeking behaviors that reflect a lack of motivation were not moderated by husbands' provision behaviors. Among husbands, in contrast, the Negative Support Seeking  $\times$  Negative Support Provision interaction was significant,  $B = -0.09$ ,  $SE = 0.02$ ,  $t(320) = -4.91$ ,  $p < .001$ . Husbands who avoided seeking support in a way that reflected a lack of motivation—e.g., did not whine, complain, and avoid responsibility—tended to gain more weight to the extent that their wives engaged in more opposition,  $B = 0.09$ ,  $SE = 0.04$ ,  $t(320) = 2.22$ ,  $p = .027$ . But husbands who did seek support in a way that reflected a lack of motivation—e.g., did whine, complain, and avoid responsibility—tended to gain less weight to the extent that their wives engaged in more opposition,  $B = -0.08$ ,  $SE = 0.01$ ,  $t(320) = -6.27$ ,  $p < .001$ .

## Discussion

### Rationale and Summary of Results

In the first years of marriage, spouses are at elevated risk for gaining weight (Jeffery & Rick, 2002; Kahn & Williamson, 1990). Given that most people have the goal of maintaining a healthy weight (French & Jeffery, 1994; Jeffery et al., 1991; Williamson et al., 1992), and given the importance of spouses' social support behaviors for helping each other achieve their goals (Feeney, 2004), we examined whether the quality of newlyweds' supportive behaviors predicted their weight gain over the first four years of marriage. Two perspectives guided our predictions. On the one

hand, Feeney's secure base model suggests that spouses should gain less weight to the extent that their partners are considerate and helpful and avoid being oppositional. The partner regulation perspective, however, suggests that such effects should be moderated by support seekers' behaviors, such that spouses who are sincere and candid while seeking support should be reinforced by providers' tendencies to be helpful and considerate while providing support whereas spouses who demonstrate a lack of motivation to take action may be motivated by their partners' tendencies to be oppositional while providing support. Consistent with the partner regulation perspective, the implications of partners' supportive behaviors for weight maintenance depended on the manner in which spouses sought support and gender. Husbands who tended to refrain from whining, complaining, and avoiding responsibility while seeking support gained less weight over time to the extent that their wives avoided oppositional behaviors like criticism, confrontation, and rejection while providing support. Husbands who tended to whine, complain, and avoid responsibility while seeking support, in contrast, gained less weight over time to the extent that their wives engaged in oppositional behaviors while providing support. However, such interactive effects did not emerge among wives. Instead, wives who tended to whine and complain while seeking support gained more weight over time regardless of whether their husbands engaged in more or less opposition while providing support.

This three-way interaction makes sense in terms of how oppositional behavior can benefit relationships—it "motivates partners to bring about desired change" (Overall et al., 2009, p. 621). Given that husbands who tended to refrain from whining, complaining, and avoiding responsibility while seeking support were likely already motivated to achieve their self-improvement goals, the tendency for their wives to demonstrate opposition while providing support offered no benefits to them and thus such husbands demonstrated less weight gain to the extent that their wives avoided opposition. Likewise, consistent with the idea that wives already face ubiquitous pressure to be thin that leaves little room for husbands to additionally motivate them, and in contrast to the idea that wives may be particularly motivated by criticism and rejection during discussions of weight, husbands' tendencies to demonstrate opposition while providing support to their wives provided no benefits to wives, regardless of whether wives demonstrated a lack of motivation while seeking support. In other words, wives who were not motivated by the ubiquitous social pressure to be thin were also not motivated by their husbands' criticism and rejection.

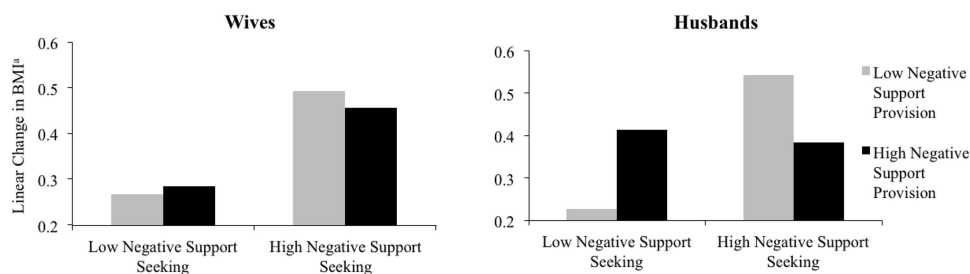


Figure 1. Interactive effects of negative support seeking, negative support provision, and gender on linear changes in body mass index (BMI). <sup>a</sup> Units of BMI change every 6 months for 4 years.

Of course, spouses' motivations to maintain a healthy weight were not directly assessed in the current study, allowing for alternative interpretations of these results. For example, in line with the idea that women are more likely to exert control over food purchases and preparation in particular (Schafer, Schafer, Dunbar, & Keith, 1999), oppositional wives may have been more likely to prepare healthier meals for their unmotivated husbands and such unmotivated husbands may have gained less weight for this reason, rather than because oppositional wives motivated them to change. Future research may benefit by directly examining the extent to which change in husbands' motivation to enact specific weight maintenance behaviors explains the association between wives' support-provision behaviors and husbands' weight gain in early marriage.

Why was weight gain in early marriage unrelated to either support seekers' tendencies to be sincere and candid while seeking support or providers' tendencies to be helpful and considerate while providing support? This null effect may seem surprising in light of a robust body of research that has indicated that these behaviors benefit relationships (e.g., Cutrona, Suhr, & MacFarlane, 1990; Lawrence et al., 2008; Pasch & Bradbury, 1998; Sullivan et al., 2010). We can think of two equally plausible explanations. On the one hand, the types of behaviors that benefit relationships may not be the same behaviors that benefit goal achievement. Instead, whereas benefiting a relationship may involve behaviors that make the partner feel good, the types of behaviors that promote goal achievement may be those that motivate. Alternatively, given that the SSICS was devised to examine the behaviors that should affect relationship outcomes, it may not have been sensitive to the types of supportive behaviors that motivate goal achievement. Future research may benefit by evaluating each of these explanations.

### Study Strengths and Limitations

Our confidence in the findings reported here is enhanced by several strengths of the research. First, the current study used multiple methods of measurement (e.g., self-reports of weight and observations of social support behaviors), decreasing the likelihood that associations between BMI and social support behaviors emerged due to shared method variance. Second, the current four-year longitudinal study assessed BMI at eight time points, and changes in those assessments were analyzed using growth curve analyses, providing more reliable and valid estimates of within-person change than traditional two-wave longitudinal designs (Bryk & Raudenbush, 1987). Third, in contrast to studies that have relied on perceptions of self-improvement (e.g., Overall et al., 2010), the current study assessed actual self-improvement with respect to a specific and salient goal by tracking changes in BMI over the four years of the study. Finally, analyses in the current study controlled for age, marital satisfaction, depressive symptoms, both spouses' income, neuroticism, whether wives' became pregnant, and whether the spouse completed the study, thus decreasing the possibility that the obtained associations were the results of associations with those variables.

Despite these strengths, several qualities of this research limit the interpretations that can be drawn from these results. First, the majority of the couples examined here did not discuss a weight-related goal in the lab. Although weight maintenance is a goal for most people (French & Jeffery, 1994; Jeffery et al., 1991; Jeffery & Rick, 2002;

Williamson et al., 1992), and although couples frequently turn to one another to discuss important goals like weight maintenance (Feeney, 2004; Pasch, Bradbury, & Davila, 1997), it remains possible that some couples never discussed weight-related issues. Further, although on average couples reported that the conversations that they had in the lab were similar to those they tended to have at home, it is possible that even the couples who did discuss weight-related goals at home but not in the lab demonstrated different behaviors, motivations, and/or reactions to one another while doing so. These possibilities suggest several alternative interpretations of the current findings. For example, it is possible that the behaviors spouses tend to exchange during social support discussions of any goal, rather than weight-related goals specifically, have implications for their weight. Although the fact that the key three-way interaction was particularly strong among the individuals who discussed weight-related goals in the lab provides some reason to doubt this interpretation, it is important to note that the magnitude of the effect did not differ significantly across the two subsamples. Future research may thus benefit by directly addressing whether the quality of spouses' social support behaviors generally or the quality of the social support behaviors spouses exchange during discussions about weight-related goals have implications for weight maintenance. Additionally, the fact that fewer than half of these couples discussed weight-related issues in the lab may have added error variance that minimized our ability to detect effects of behaviors coded as positive. Although the association between these behaviors and weight maintenance did not differ across those who did and did not discuss a weight-related goal in the laboratory suggests otherwise, future research may benefit by examining the implications of the behaviors coded as positive for weight maintenance among a larger sample of couples discussing weight-related issues.

Second, we did not directly assess the theoretical mechanism of the key effects—spouses' motivations for maintaining a healthy weight. Although we controlled for several factors that should have reduced the possibility that negative help-seeking codes captured by the SSICS reflected emotions other than a lack of motivation, it remains possible that these behaviors nevertheless reflected other emotions that accounted for the effects that emerged here. Future research may benefit by directly examining the extent to which differences in the motivation to maintain a healthy weight account for the effects of social support behaviors on changes in weight.

Third, although the relative homogeneity of this sample enhances our confidence in the internal validity of these results, this lack of variability limits our ability to generalize these findings to other samples. For example, a large proportion of these spouses were young, White, and students at baseline. Given that the motivation to maintain a healthy weight may differ across people of different races, ages, and socioeconomic backgrounds, the motivation to maintain a healthy weight, and thus the opportunity for the benefits of behaviors coded as positive and negative, may differ across such groups. Future research may benefit from addressing this possibility as well.

### Additional Directions for Future Research

Future research may benefit by addressing two other issues not addressed here. First, research may benefit by examining whether these effects are moderated by the importance of weight maintenance to support seekers and the extent to which partners discuss weight-related goals. Although the overall quality of spouses' support behaviors should predict goal at-



tainment regardless of what goals are discussed in the laboratory, as they did in the current study, the effects of those behaviors were more pronounced among those couples who discussed weight-related issues in the laboratory and may be even *more* pronounced among couples who frequently discuss weight-related issues outside the laboratory. Among such couples, the added frequency of partners' support-provision behaviors may more strongly interact with support-seeking behaviors to predict weight gain among men.

Second, future research may benefit by examining the effects of support behaviors on the extent to which spouses meet other personal goals. For example, the interaction between spouses' support-seeking and support-provision behaviors may play a similar role in predicting spouses' career advancement during the early years of marriage. Specifically, spouses who whine and complain while seeking support and have partners who avoid opposition while providing support may be less likely to reach their career goals. In contrast, spouses who whine and complain when seeking support about their careers may be more likely to reach their goals to the extent that their partners respond with some opposition. Furthermore, because women may be less motivated toward career advancement due to social norm prescriptions (e.g., Eagly, 1987), this effect may be more true for wives than for husbands.

## Conclusion

Given the well-known difficulties of maintaining a healthy weight, authors and professionals recommend that couples recruit each other as allies. However, the results reported here suggest that supporting a partner is no simple matter. When seeking and providing each other with support, spouses affect each other in interactive and counterintuitive ways—oppositional support provision can benefit men who lack motivation to maintain a healthy weight. Thus, a better understanding of these complexities is likely to inform efforts to allow couples to benefit from the health-promoting potential of their relationships.

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