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## Prospectively Predicting Dietary Restraint: The Role of Interpersonal Self-Efficacy, Weight/Shape Self-Efficacy, and Interpersonal Stress

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### Abstract

**Objective**—This study investigated how the precursors of interpersonal self-efficacy and weight/shape self-efficacy would interact in the face of interpersonal stress to prospectively predict dietary restraint. Three models were explored, each with a different type of interpersonal stress: stress from same sex friendships, opposite sex friendships, or romantic relationships.

**Method**—At Time 1 (T1), participants ( $N = 406$ ) reported on their typical levels of interpersonal self-efficacy and weight/shape self-efficacy, and recent (past 28 days) dietary restraint. At Time 2 (T2), 11 weeks after T1, participants reported on their recent (past 28 days) levels of dietary restraint at that time. Between T1 and T2, participants completed inventories weekly on the previous week's interpersonal stressors.

**Results**—Consistent with prediction, low interpersonal self-efficacy and high weight/shape self-efficacy combined with high interpersonal stress (whether from same sex friendships, opposite sex friendships, or romantic relationships) to predict the highest levels of T2 dietary restraint after controlling for T1 levels.

**Conclusion**—These results further link the interpersonal domain with dietary restraint and elucidate characteristics of women particularly apt to increase dietary restraint in response to interpersonal stress.

Dietary restraint is often touted as a path to more than just weight loss. For example, research suggests that women diet to seek social acceptance through their resulting weight loss<sup>1</sup>. When experiencing interpersonal stress, women with high self-efficacy related to attaining a desired body weight/shape but low interpersonal self-efficacy may thus turn to dieting to both regain a sense of self-efficacy and to indirectly work toward interpersonal change. The current study investigates the association between dietary restraint and the combination of interpersonal self-efficacy, weight/shape self-efficacy, and interpersonal stress.

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Interpersonal relationships can be a key component of self, particularly for women<sup>2</sup>. Relationship difficulties can thus threaten women's sense of self. This may help explain the devastating emotional and psychological impact when relationships end or are feared to end<sup>3-4</sup>. Yet, relationships inherently involve lack of control to some degree, given that they are dependent on other's reciprocation. A coping strategy for interpersonal stress that would counter this lack of control would involve engaging in behaviors that promote self-efficacy (confidence in ability to successfully execute behaviors necessary for desired outcomes<sup>5</sup>). When women have low interpersonal self-efficacy (i.e., they feel little confidence in their ability to directly influence their relationships in their desired direction, e.g., through social skills) but high self-efficacy in another domain (e.g., appearance), they may consequently cope by exercising control in the domain in which they have high self-efficacy. Links between the interpersonal domain and the appearance domain make the appearance domain a particularly likely alternative for coping<sup>1</sup>.

Research supports an important connection between interpersonal stress and dietary restraint. For example, positive correlations have been found between dietary restraint and the stressors of friendship alienation, conflict, and competitiveness<sup>6-7</sup> and between dietary restraint and the romantic relationship stressors of psychological aggression, lack of sexual intimacy, and abuse<sup>8-10</sup>. Furthermore, escalations in dietary restraint have been attributed to interpersonal problems/stress by outpatients with anorexia nervosa<sup>11</sup>. In contrast, a relationship between decreased interpersonal stress and decreased dietary restraint is suggested by reports that friendships lead to recovery for outpatients with anorexia nervosa<sup>12</sup>.

Results from a broader examination of the literature further bolster the link between interpersonal stress and dietary restraint. For example, fear of negative evaluation by others (arguably, an example of interpersonal stress) is positively correlated with restrictive eating attitudes<sup>13</sup>. One way that interpersonal stress may foster increased dietary restraint is through associations between women's bodies and the interpersonal<sup>14</sup>. For example, Gerner and Wilson found a link between increased dietary restraint and the belief that being thin will improve friendships<sup>15</sup>. This connection between the body, friendships, and dietary restraint is further echoed in research finding that perceived friend concern with weight is positively correlated with dietary restraint<sup>7</sup> and that fear of being left behind by friends because of their body and weight motivates dieting in adolescent women<sup>16</sup>. Thus, women experiencing interpersonal stress may increase dietary restraint to lose weight/become thinner if they believe that altering their body in this way will resolve interpersonal stress.

Although same sex friendships, opposite sex friendships, and romantic relationships are all of high relevance to a young woman's life, stress from these relationships may not equally influence dietary restraint. Research distinguishing the effects of different types of interpersonal stress on eating has generally been limited to bulimic behavior. For example, Thelen, Kanakis, Farmer, and Pruitt found higher levels of dissatisfaction with male friendships/intimate relationships, but not female friendships, to be related to higher levels of bulimic symptomatology<sup>17</sup>. In addition, higher rates of bulimia have been found on college campuses that emphasize dating<sup>18</sup> and on co-ed floors of residence halls<sup>19</sup>. Whether this type of differential interpersonal influence applies to dietary restraint warrants investigation.

How the theoretically meaningful combination of interpersonal self-efficacy, weight/shape self-efficacy, and interpersonal stress influences dietary restraint is an emerging topic of investigation. Dieting among undergraduate women has been found to be most elevated among those with the combination of high interpersonal perfectionism, low interpersonal self-efficacy, high interpersonal stress, and high weight/shape self-efficacy<sup>20</sup>. The current

study more closely examines the role of interpersonal stress through three models, each with a different type of interpersonal stress: stress from same sex friendships, opposite sex friendships, or romantic relationships. Women with low confidence in their interpersonal abilities (i.e., who have low interpersonal self-efficacy) were predicted to have the highest levels of dietary restraint when experiencing elevated interpersonal stress if they were especially confident in their ability to control their weight or shape (i.e., they had high weight/shape self-efficacy). For these women, dietary restraint may function as a coping mechanism by providing a sense of control or efficacy (over weight/shape) to compensate for their limited sense of control or efficacy related to interpersonal stress.

## Method

### Participants

Participants were 406 female undergraduates at a Midwestern university. Following random selection from Introductory Psychology classes, potential participants were contacted by phone and offered course credit for participation. Of the 426 participants who began the study, 20 did not complete it (due to reasons such as illness or no need for course credit) or were dropped from the analyses due to habitually late data. The descriptive statistics and analyses that will be presented refer to the 406 participants who completed the study (95.3% retention rate). Males were not included because the outcome variable of interest, dietary restraint, is more common among women than men<sup>21</sup> and because the link between the body and the interpersonal is particularly relevant to women<sup>14</sup>.

The participants completing this study ranged in age from 17 to 25 ( $M = 18.58$  years,  $SD = .97$  years). Highest parental education ranged from nine to 21 years of formal education, with the mean being the equivalent of a four-year college degree. According to self-report, 92.4% of the participants were Caucasian, 3.2% Asian, 2.0% Hispanic, 1.2% African American, and 1.1% other races/ethnicities. Based on participants' self-report of current height and weight at the start of the study, body mass index (BMI) ranged from 14.76 to 40.35, with a mean of 22.00 ( $SD = 3.01$ ). Most participants were normal weight (82.2% normal weight (BMI 18.5 to 24.922); 6.2% underweight (BMI < 18.522); 11.6% overweight (BMI  $\geq$  25.22).

### Procedure

At Time 1 (T1), participants reported on their typical levels of interpersonal self-efficacy and weight/shape self-efficacy, and recent (past 28 days) dietary restraint. At Time 2 (T2), 11 weeks after T1, participants reported on their recent (past 28 days) levels of dietary restraint at that time. Weekly, for 11 weeks after T1, participants reported on the previous week's same sex friendship, opposite sex friendship, and romantic relationship stress. The 11-week period was chosen to allow data to be collected within one college semester. The study was approved by the university's institutional review board and obtained written consent from participants. Participants exhibiting likely eating disorders (e.g., bulimia nervosa based on reported frequency of binge eating and purging or anorexia nervosa based on extremely low BMI) were provided with treatment referrals. To permit examination of the full range of disordered eating present in the sample, data from participants with potential eating disorders were not excluded.

### Measures

**Self-efficacy: interpersonal and weight/shape**—Self-efficacy was measured at T1 using modified versions of the general subscale of the Self-Efficacy Scale developed by Sherer, Maddux, Mercandante, Prentice-Dunn, Jacobs, and Rogers<sup>23</sup>. This is a 17-item subscale using a response scale format of “disagree” (1) to “agree” (5). To create two domain-specific self-efficacy measures, each item was modified to reflect self-efficacy in

the domain of interest, resulting in two domain-specific self-efficacy measures each with 17 items. The original phrasing was maintained as much as possible (e.g., the original item “I do not seem capable of dealing with most problems that come up in life” was changed to “I do not seem capable of dealing with most relationship problems that come up in life” for the interpersonal domain and “I do not seem capable of dealing with most problems that come up in trying to achieve or maintain my desired body weight or shape” for the weight/shape domain). The general self-efficacy subscale has demonstrated good reliability (Cronbach’s alpha of .86) and validity<sup>23–24</sup>, and the Self-Efficacy Scale as a whole is the most extensively researched and commonly used scale of general self-efficacy<sup>25</sup>. Another study using this same weight/shape self-efficacy scale reported excellent reliability (alphas of .89 and .9226). Also, although both scales measured a type of self-efficacy, they demonstrated discriminant validity since the correlation between interpersonal self-efficacy and weight/shape self-efficacy was .33. In the current study, the coefficient alpha for self-efficacy modified for an interpersonal focus was .90 and for a weight/shape focus, .93.

**Interpersonal stress**—Weekly interpersonal stress was assessed using an inventory developed for this study. Participants were provided a list of potential stressors to college students (e.g., academics) and asked to rate the degree to which they experienced problems, setbacks, or failures in the past week in each of the areas, using a four-point scale with 1 representing “not at all” and 4 representing “extremely.” For the purposes of this study, each week participants rated degree of stress related to the following three items: same sex friendships (not romantic), opposite sex friendships (not romantic), and romantic relationships. The weekly gathering of these data permitted the computation of mean levels across the 11 weeks following T1, providing a measure of average stress for each of these three types of interpersonal stress. This approach enhanced stability, given the limited nature of the items (one item for each type of interpersonal stress).

**Dietary restraint**—Dietary restraint was measured at T1 and T2 by the Restraint subscale of the Eating Disorder Examination Questionnaire (EDE-Q-Restraint<sup>27</sup>). The EDE-Q-Restraint subscale consists of five items referring to dietary restraint (e.g., attempts to avoid eating certain foods or attempts to follow definite rules about eating), with respondents indicating the frequency of such attempts over the past 28 days. Responses to these five items are then averaged. A widely-used self-report measure adapted from the Eating Disorder Examination interview<sup>28</sup>, the EDE-Q has demonstrated reliability and validity<sup>29–30</sup>. Norms for college women have also been recently established<sup>31</sup>. In the current study, the coefficient alpha for the Restraint subscale was .83 at T1 and .84 at T2.

## Results

### Overview of Data Analytic Strategies

To test the study hypotheses, a series of hierarchical multiple regression analyses was conducted according to the guidelines of Cohen, Cohen, West, and Aiken<sup>32</sup>, with the outcome variable of T2 dietary restraint (EDE-Q-Restraint). In step 1, T1 EDE-Q-Restraint was entered as a covariate, enabling prediction of residual changes in EDE-Q-Restraint scores, which can be considered change from pre-score to post-score after adjusting for pre-score status<sup>33</sup>. In step 2, the main effects of the predictor variables (e.g., interpersonal self-efficacy, weight/shape self-efficacy, and same sex friendship stress) were entered. In step 3, all two-way interactions between the main effects were entered, for a total of three two-way interactions. Finally, in step 4, the three-way interaction of interpersonal self-efficacy × weight/shape self-efficacy × interpersonal stress (e.g., same sex friendship stress)—the critical test of the hypothesis—was entered. Based on Cohen et al.’s strong recommendation to center continuous predictors in higher order interactions<sup>32</sup>, all predictors were centered

prior to regression analyses. To ensure that the results were not unduly influenced by outliers on BMI, all analyses were also conducted (a) excluding participants with BMI < 17.5 (i.e., severely underweight<sup>34</sup>); (b) excluding participants with BMI > 30 (i.e., obese<sup>22</sup>); (c) excluding participants with BMI either < 17.5 or > 30 (i.e., severely underweight or obese). The pattern of results produced was the same as the pattern when the outliers were retained, so the results reported will include all 406 participants.

### Descriptive Analyses

Table 1 provides the means, standard deviations, and intercorrelations for the predictor and outcome variables. The dietary restraint reported by the current sample is slightly higher, on average, than previous findings for similar samples ( $M = 1.29$ ,  $SD = 1.41$ , for women ages 18 to 2235; and  $M = 1.29$ ,  $SD = 1.41$ , for undergraduate women<sup>31</sup>). The interpersonal stressors were positively correlated (with  $r$ s ranging from .34 to .52), suggesting that the stress associated with different types of interpersonal relationships is related but distinct. Similarly, interpersonal self-efficacy and weight/shape self-efficacy appear to be related but distinct ( $r = .33$ ). Bivariate correlations between the self-efficacy variables and dietary restraint were relatively low, as were the bivariate correlations between the stress variables and dietary restraint at T1. In contrast, the stress variables (assessed between T1 and T2) demonstrated significant relationships to dietary restraint at T2 (with  $r$ s ranging from .13 to .20). Of note, dietary restraint was strongly positively correlated ( $r = .76$ ) across time, with this stability making it difficult to predict change in dietary restraint.

### Same Sex Friendship Stress

The three-way interaction of T1 interpersonal self-efficacy  $\times$  T1 weight/shape self-efficacy  $\times$  average same sex friendship stress predicted significant variance in T2 dietary restraint above and beyond the effect of T1 dietary restraint (and the lower order effects),  $t(395) = -3.06$ ,  $p = .002$ ,  $\Delta R^2 = .01$  (see Table 2). As seen in Figure 1, results conformed to prediction, with the greatest elevations in dietary restraint a function of low interpersonal self-efficacy, high weight/shape self-efficacy, and high same sex friendship stress. (All figures were derived by entering values representing “high” and “low” scores for the predictor variables, using 1 SD above and below the mean for “high” and “low,” respectively, in the regression equation. The mean score was entered for the covariate of T1 dietary restraint.)

### Opposite Sex Friendship Stress

The three-way interaction of T1 interpersonal self-efficacy  $\times$  T1 weight/shape self-efficacy  $\times$  average opposite sex friendship stress was marginally significant in predicting T2 dietary restraint above and beyond the effect of T1 dietary restraint (and the lower order effects),  $t(395) = -1.71$ ,  $p = .087$ ,  $\Delta R^2 = .003$ . The pattern of these marginally significant results conformed to prediction, with the greatest elevations in dietary restraint a function of low interpersonal self-efficacy, high weight/shape self-efficacy, and high opposite sex friendship stress.

### Romantic Relationship Stress

The three-way interaction of T1 interpersonal self-efficacy  $\times$  T1 weight/shape self-efficacy  $\times$  average romantic relationship stress was also marginally significant in predicting T2 dietary restraint above and beyond the effect of T1 dietary restraint (and the lower order effects),  $t(394) = -1.92$ ,  $p = .056$ ,  $\Delta R^2 = .004$ . The same pattern of findings emerged as with same sex friendship stress and opposite sex friendship stress: the greatest elevations in dietary restraint were a function of low interpersonal self-efficacy, high weight/shape self-efficacy, and high romantic relationship stress.

## Discussion

This study hypothesized and found that the interaction of interpersonal self-efficacy, weight/shape self-efficacy, and interpersonal stress predicted significant increases in Time 2 dietary restraint after controlling for Time 1 levels. Specifically, the combination of low interpersonal self-efficacy, high weight/shape self-efficacy, and high interpersonal stress prospectively predicted the highest levels of dietary restraint. In other words, the highest levels of dietary restraint occurred when interpersonal stress was heightened and women had a high level of confidence in their ability to change their weight or shape but little confidence in their ability to improve their interpersonal relationships. This association was statistically significant with same sex friendship stress and marginally significant with opposite sex friendship stress ( $p = .087$ ) and romantic relationship stress ( $p = .056$ ).

As noted earlier, engaging in dietary restraint may enable women to substitute a sense of control or efficacy in the appearance domain for a sense of little control (little efficacy) in the interpersonal domain<sup>36</sup>. Women may also turn to dietary restraint as an emotion regulation strategy for interpersonal stress. For example, by narrowing their focus to the mechanical and detail-oriented, the meticulous meal planning or counting calories involved in dietary restraint may foster a sense of escape<sup>37</sup>. As Tierney<sup>38</sup> notes, “even though an over-concern with food, calories, and kilograms can be exhausting, it is the distracting, preoccupying nature of the condition” (p. 185) that can be so valuable.

These findings bolster evidence for dietary restraint being interpersonally influenced. They suggest specific self-efficacy-related conditions under which interpersonal stress is likely to foster increased dietary restraint. Interestingly, the strongest effect emerged for same sex friendships. This is consistent with findings from younger samples that peer influences are more predictive of dieting than other correlates (e.g., parental influences, media influence<sup>6</sup>). The current findings are also in line with work by Schutz and Paxton<sup>7</sup> and Tanaka<sup>16</sup> suggesting that dietary restraint is associated with perceived stress in friendships. Taken together, the results of previous research and the current study, which contributes a domain-specific self-efficacy focus, suggest that when their friendships with other women are not going well, women may be especially prone to increase their dietary restraint if they feel highly confident that they can change their weight or shape (i.e., they have high weight/shape self-efficacy) but feel they have little control over resolving stressful friendship situations (i.e., they have low interpersonal self-efficacy).

This study has several strengths, including the excellent retention rate and the longitudinal design which permitted the prospective prediction of dietary restraint. The focus on interpersonal variables is also a strength, both in terms of considering the interpersonal domain (which has strong links to the body and eating<sup>14</sup>) and in terms of considering stress related to different types of interpersonal relationships. The development and test of a theoretically-derived multivariate hypothesis further contributes to research in a field that is pursuing more complex explanations of eating behavior.

A central limitation of this study is its use of a sample characterized by relatively low dietary restraint. Further research is thus warranted to establish clinical significance. Relatedly, the effect sizes of the significant three-way interactions were small (e.g., 1% of the variance above and beyond lower order effects), although this is consistent with the usual percentage of variance accounted for by similar higher order interactions<sup>39</sup> and consistently predicting even a small amount of variance in dietary restraint is notable given that dietary restraint was highly stable across this time period. Research further establishing the psychometric properties of the domain-specific self-efficacy instruments is also warranted, although internal consistencies of interpersonal self-efficacy and weight/shape

self-efficacy were excellent in this study, and for weight/shape self-efficacy in a separate study<sup>26</sup>, and although these measures were adapted from a well-established general self-efficacy measure<sup>23</sup>. Similarly, the stress measure used was developed for this study and, although strong in face validity, was limited in terms of psychometric evidence. Replication with multi-item measures of stress that would more comprehensively assess types of interpersonal stress is recommended.

There are multiple avenues of future research related to the current findings. Investigations with eating self-efficacy and/or dieting self-efficacy in place of weight/shape self-efficacy may be informative. Existing research using these efficacy constructs links increases in eating self-efficacy to fewer lapses in dietary restraint and reduced binge eating frequency among obese women<sup>40-41</sup> and high dieting self-efficacy to less food consumption in the lab and greater weight change during a behavioral weight control program<sup>42-43</sup>. Examining eating/dieting self-efficacy, as well as exercise self-efficacy, in interaction with interpersonal stress and interpersonal self-efficacy would shed light on whether efficacy related to specific behaviors is as relevant as efficacy related to goals (e.g., weight loss) which is more reflected in weight/shape self-efficacy. Future work would also benefit from assessing dietary restraint in ways other than via self-report, given the recent debate about the validity of equating dietary restraint self-report measures, such as the EDE-Q-Restraint, with actual food restriction<sup>44-46</sup>. In general, using multiple methods is recommended for establishing validity<sup>47-48</sup>, corroborating findings, and revealing inconsistencies (e.g., with self-report vs. reports from informants<sup>49</sup>). Ecological momentary assessment would be a particularly powerful methodology for capturing how interpersonal stress predicts dietary restraint in the context of certain levels of interpersonal self-efficacy and weight/shape self-efficacy.

Research with clinical samples is needed to determine whether the current results extend to the extreme dietary restraint characteristic of anorexia nervosa. As defined, weight/shape self-efficacy would be expected to be particularly elevated among girls and women with anorexia nervosa. Moreover, the strong relational identity of women with anorexia nervosa<sup>50</sup> could likely make their experience of interpersonal stress particularly intense. Would spikes of even greater food restriction among females with anorexia nervosa thus be triggered by encountering interpersonal stress that they feel they have little hope of resolving (low interpersonal self-efficacy)? If so, the components of low interpersonal self-efficacy, high weight/shape self-efficacy, and high interpersonal stress would serve as targets for change to attenuate increased dietary restraint. It would also be interesting to explore the role of these models of dietary restraint within the context of bulimia nervosa, given that individuals with bulimia nervosa engage in a regular pattern of dietary restraint but arguably do not feel as efficacious about their weight/shape and certainly do not feel as efficacious about their eating as those with anorexia nervosa. Furthermore, given the success of interpersonal psychotherapy (IPT) in the treatment of bulimia nervosa<sup>51</sup>, a model focused on interpersonal factors (i.e., interpersonal self-efficacy, interpersonal stress) has support as being clinically significant. For example, interpersonal disputes examined in IPT may result in interpersonal stress and low interpersonal self-efficacy may be linked to interpersonal deficits, also a focus of IPT, with both interpersonal disputes and deficits contributing to symptom formation and maintenance<sup>52</sup>.

In conclusion, women may turn to dieting in the face of interpersonal stress. The current work demonstrated that the women most apt to do this are those who feel they likely cannot resolve the interpersonal stress but feel they do have ample skills to change their weight or body shape. Women with these characteristics showed the greatest increases in dietary restraint over a period of nearly three months. These findings support the growing

recognition<sup>1,15</sup> that for some women, dietary restraint is integrally linked to their interpersonal relationships.

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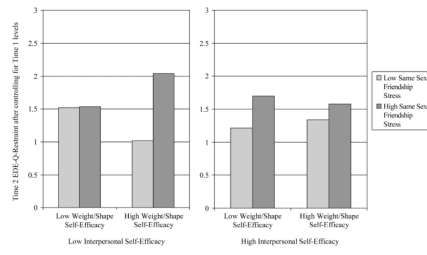
## References

1. Jarry JL, Polivy J, Herman CP, Arrowood AJ, Pliner P. Restrained and unrestrained eaters' attributions of success and failure to body weight and perception of social consensus: The special case of romantic success. *Journal of Social and Clinical Psychology*. 2006; 25(8):885–905.
2. Cross SE, Bacon PL, Morris ML. The relational-interdependent self-construal and relationships. *Journal of Personality and Social Psychology*. 2000; 78(4):791–808. [PubMed: 10794381]
3. Lewandowski GW, Aron A, Bassis S, Kunak J. Losing a self-expanding relationship: Implications for the self-concept. *Personal Relationships*. 2006; 13(3):317–331.
4. Wirth MM, Schultheiss OC. Effects of affiliation arousal (hope of closeness) and affiliation stress (fear of rejection) on progesterone and cortisol. *Hormones and Behavior*. 2006; 50(5):786–795. [PubMed: 17010974]
5. Bandura, A. Self-efficacy: Toward a unifying theory of behavioral change. In: Baumeister, RF., editor. *The self in social psychology*. Philadelphia, PA: Taylor & Francis; 1999. p. 285–298.
6. Huon G, Hayne A, Gunewardene A, Strong K, Lunn N, Piira T, et al. Accounting for differences in dieting status: Steps in the refinement of a model. *International Journal of Eating Disorders*. 1999; 26(4):420–433. [PubMed: 10550783]
7. Schutz HK, Paxton SJ. Friendship quality, body dissatisfaction, dieting and disordered eating in adolescent girls. *British Journal of Clinical Psychology*. 2007; 46(1):67–83. [PubMed: 17472202]
8. Ferrier AG, Martens MP, Cimini MD. The relationship between physical, sexual, and emotional abuse and unhealthy weight loss behaviors. *Journal of College Counseling*. 2005; 8(2):118–126.
9. Halpern CT, King RB, Oslak SG, Udry JR. Body mass index, dieting, romance, and sexual activity in adolescent girls: Relationships over time. *Journal of Research on Adolescence*. 2005; 15(4):535–539.
10. Skomorovsky A, Matheson K, Anisman H. The buffering role of social support perceptions in relation to eating disturbances among women in abusive dating relationships. *Sex Roles*. 2006; 54(9–10):627–638.
11. Nevenon L, Broberg A. The emergence of eating disorders: An exploratory study. *European Eating Disorders Review*. 2000; 8(4):279–292.
12. Tozzi F, Sullivan PF, Fear JL, McKenzie J, Bulik CM. Causes and recovery in anorexia nervosa: The patient's perspective. *International Journal of Eating Disorders*. 2003; 33(2):143–154. [PubMed: 12616580]
13. Gilbert N, Meyer C. Fear of negative evaluation and the development of eating psychopathology: A longitudinal study among nonclinical women. *International Journal of Eating Disorders*. 2005; 27(4):307–312. [PubMed: 15856504]
14. Cash TF, Theriault J, Annis NM. Body image in an interpersonal context: Adult attachment, fear of intimacy, and social anxiety. *Journal of Social and Clinical Psychology*. 2004; 23(1):89–103.
15. Gerner B, Wilson PH. The relationship between friendship factors and adolescent girls' body image concern, body dissatisfaction, and restrained eating. *International Journal of Eating Disorders*. 2005; 37(4):313–320. [PubMed: 15856495]
16. Tanaka K. Influences of friendship and appearance-related body consciousness on dieting in adolescent women. *Japanese Journal of Health Psychology*. 2004; 17(1):29–37.
17. Thelen MH, Kanakis DM, Farmer J, Pruitt J. Bulimia and interpersonal relationships: An extension of a longitudinal study. *Addictive Behaviors*. 1993; 18(2):145–150. [PubMed: 8506785]



18. Rodin, J.; Striegel-Moore, RH.; Silberstein, LR. A prospective study of bulimia among college students on three U.S. campuses. Yale University; New Haven, CT: 1985 July. First unpublished progress report
19. Berg KM. The prevalence of eating disorders in co-ed versus single-sex residence halls. *Journal of College Student Development*. 1988; 29(2):125–131.
20. Cain AS, Bardone-Cone AM, Abramson LY, Vohs KD, Joiner TE. Refining the relationships of perfectionism, self-efficacy, and stress to dieting and binge eating: Examining the appearance, interpersonal, and academic domains. *International Journal of Eating Disorders*. 2008; 41(8):713–721. [PubMed: 18537167]
21. Hay P. The epidemiology of eating disorder behaviors: An Australian community-based survey. *International Journal of Eating Disorders*. 1998; 23(4):371–382. [PubMed: 9561427]
22. Valdez, R.; Williamson, DF. Prevalence and demographics of obesity. In: Fairburn, CG.; Brownell, KD., editors. *Eating disorders and obesity: A comprehensive handbook*. 2. New York: Guilford Press; 2002. p. 417-421.
23. Sherer M, Maddux JE, Mercandante B, Prentice-Dunn S, Jacobs B, Rogers RW. The Self-Efficacy Scale: Construction and validation. *Psychological Reports*. 1982; 51(2):663–671.
24. Sherer M, Adams CH. Construct validation of the Self-Efficacy Scale. *Psychological Reports*. 1983; 53(3):899–902.
25. Stanley KD, Murphy MR. A comparison of general self-efficacy with self-esteem. *Genetic, Social, & General Psychology Monographs*. 1997; 123(1):81–99.
26. Bardone-Cone AM, Cass KM. What does viewing a pro-anorexia website do? An experimental examination of website exposure and moderating effects. *International Journal of Eating Disorders*. 2007; 40(6):537–548. [PubMed: 17525952]
27. Fairburn CG, Beglin SJ. Assessment of eating disorders: Interview or self-report questionnaire? . *International Journal of Eating Disorders*. 1994; 16(4):363–370. [PubMed: 7866415]
28. Fairburn, CG.; Cooper, Z. The Eating Disorder Examination. In: Fairburn, CG.; Wilson, GT., editors. *Binge eating: Nature, assessment, and treatment*. 12. New York, NY, US: Guilford Press; 1993. p. 317-360.
29. Black CMD, Wilson GT. Assessment of eating disorders: Interview versus questionnaire. *International Journal of Eating Disorders*. 1996; 20(1):43–50. [PubMed: 8807351]
30. Luce KH, Crowther JH. The reliability of the Eating Disorder Examination--Self-Report Questionnaire Version (EDE-Q). *International Journal of Eating Disorder*. 1999; 25(3):349–351.
31. Luce KH, Crowther JH, Pole M. Eating Disorder Examination Questionnaire (EDE-Q): Norms for Undergraduate Women. *International Journal of Eating Disorders*. 2008; 41(3):273–276. [PubMed: 18213686]
32. Cohen, J.; Cohen, P.; West, SG.; Aiken, LS. *Applied multiple regression/correlation analysis for the behavioral sciences*. 3. Mahwah, NJ: Erlbaum; 2003.
33. Metalsky GI, Joiner TE. Vulnerability to depressive symptomatology: A prospective test of the diathesis-stress and causal mediation components of the hopelessness theory of depression. *Journal of Personality and Social Psychology*. 1992; 63(4):667–675. [PubMed: 1447690]
34. World Health Organization. *International statistical classification of diseases and related health problems*. 10. Geneva: Author; 1992.
35. Mond JM, Hay PJ, Rodgers B, Owen C. Eating Disorder Examination Questionnaire (EDE-Q): Norms for young adult women. *Behaviour Research and Therapy*. 2006; 44(1):53–62. [PubMed: 16301014]
36. Rezek PJ, Leary MR. Perceived control, drive for thinness, and food consumption: Anorexic tendencies as displaced reactance. *Journal of Personality*. 1991; 59(1):129–143. [PubMed: 2037961]
37. Heatherton TF, Baumeister RF. Binge eating as escape from self-awareness. *Psychological Bulletin*. 1991; 110(1):86–108. [PubMed: 1891520]
38. Tierney S. The dangers and draw of online communications: Pro-anorexia websites and their implications for users, practitioners, and researchers. *Eating Disorders: The Journal of Treatment and Prevention*. 2006; 14(3):181–190.

39. McClelland GH, Judd CM. Statistical difficulties of detecting interaction and moderator effects. *Psychological Bulletin*. 1993; 114(2):376–390. [PubMed: 8416037]
40. Goodrick GK, Pendleton VR, Kimball KT, Poston WSC, Reeves RS, Foreyt JP. Binge eating severity, self-concept, dieting self-efficacy, and social support during treatment of binge eating disorder. *International Journal of Eating Disorders*. 1999; 26(3):295–300. [PubMed: 10441245]
41. Wolff GE, Clark MM. Changes in eating self-efficacy and body image following cognitive-behavioral group therapy for binge eating disorder: A clinical study. *Eating Behaviors*. 2001; 2(2): 97–104. [PubMed: 15001039]
42. Stotland S, Zuroff DC. Relations between multiple measures of dieting self-efficacy and weight change in a behavioral weight control program. *Behavior Therapy*. 1991; 22(1):47–59.
43. Stotland S, Zuroff DC, Roy M. Situational dieting self-efficacy and short-term regulation of eating. *Appetite*. 1991; 17(2):81–90. [PubMed: 1763914]
44. Stice E, Fisher M, Lowe MR. Are dietary restraint scales valid measures of acute dietary restriction? Unobtrusive observational data suggest not. *Psychological Assessment*. 2004; 16(1): 51–59. [PubMed: 15023092]
45. Stice E, Presnell K, Lowe MR, Burton E. Validity of dietary restraint scales: Reply to van Strien et al. *Psychological Assessment*. 2006; 18(1):95–99.
46. van Strien T, Engles RCME, van Staveren W, Herman CP. The validity of dietary restraint scales: Comment on Stice et al. (2004). *Psychological Assessment*. 2006; 18(1):89–94. [PubMed: 16594816]
47. Campbell DT, Fiske D. Convergent and discriminant validation by the multitrait-multimethod matrix. *Psychological Bulletin*. 1959; 56(2):81–105. [PubMed: 13634291]
48. Dumenci, L. Multitrait-multimethod analysis. In: Tinsley, HEA.; Brown, SD., editors. *Handbook of applied multivariate statistics and mathematical modeling*. San Diego: Academic Press; 2000. p. 583-611.
49. Sher KJ, Trull TJ. Methodological issues in psychopathology research. *Annual Review of Psychology*. 1996; 47:371–400.
50. Cozzi F, Ostuzzi R. Relational competence and eating disorders. *Eating and Weight Disorders*. 2007; 12(2):101–107. [PubMed: 17615495]
51. Fairburn CG, Jones R, Peveler RC, Hope RA, O'Connor M. Psychotherapy and bulimia nervosa: The longer-term effects of interpersonal psychotherapy, behavior therapy, and cognitive behavior therapy. *Archives of General Psychiatry*. 1993; 50(6):419–428. [PubMed: 8498876]
52. Birschall H. Interpersonal psychotherapy in the treatment of eating disorders. *European Eating Disorders Review*. 1999; 7(5):315–320.



**Figure 1.** Time 2 EDE-Q-Restraint scores after controlling for Time 1 EDE-Q-Restraint as a function of the interaction of interpersonal self-efficacy, weight/shape self-efficacy, and same sex friendship stress.

**Table 1**  
Means, Standard Deviations, and Intercorrelations of the Predictor and Outcome Variables

	1	2	3	4	5	6	7
1. T1 Interpersonal Self-Efficacy	<i>M</i> = 65.79 <i>SD</i> = 11.22						
2. T1 Weight/Shape Self-Efficacy	.33***	<i>M</i> = 54.18 <i>SD</i> = 14.24					
3. Same Sex Friendship Stress	-.19***	-.12*	<i>M</i> = 1.29 <i>SD</i> = .32				
4. Opposite Sex Friendship Stress	-.13*	-.13*	.52***	<i>M</i> = 1.25 <i>SD</i> = .37			
5. Romantic Relationship Stress	-.10*	-.04	.34***	.37***	<i>M</i> = 1.53 <i>SD</i> = .49		
6. T1 EDE-Q-Restraint	-.08	.02	.09	.04	.11*	<i>M</i> = 1.44 <i>SD</i> = 1.33	
7. T2 EDE-Q-Restraint	-.11*	-.02	.20***	.13*	.19***	.76***	<i>M</i> = 1.49 <i>SD</i> = 1.40

*Note.* T1=Time 1. T2=Time 2. EDE-Q-Restraint = Restraint subscale of the Eating Disorder Examination Questionnaire. All stress variables are averages over 11 weeks between T1 and T2. For each variable, higher scores reflect higher levels of the construct.

\*  $p < .05$ .

\*\*\*  $p < .001$ .

**Table 2**

Interpersonal Self-Efficacy, Weight/Shape Self-Efficacy, Same Sex Friendship Stress, and Interactions Predicting Time 2 Dietary Restraint Controlling for Time 1 Dietary Restraint

Order of entry of predictors	F change for set	t for within set predictors	df for each test	$\Delta R^2$
1. Covariate	543.49***		1, 402	
Time 1 EDE-Q-Restraint		23.31***	402	.58
2. Main effects	5.73**		3, 399	.02
Interpersonal Self-Efficacy (IntSE)		-.54	399	
Weight/Shape Self-Efficacy (W/ShSE)		-.28	399	
Same Sex Friendship Stress		3.87***	399	
3. Two-way interactions	1.08		3, 396	.003
IntSE $\times$ W/ShSE		-.60	396	
IntSE $\times$ Same Sex Friendship Stress		-.64	396	
W/ShSE $\times$ Same Sex Friendship Stress		1.56	396	
4. Three-way interaction	9.38**		1, 395	.01
IntSE $\times$ W/ShSE $\times$ Same Sex Friendship Stress		-3.06**	395	

*Note.* EDE-Q-Restraint = Restraint subscale of the Eating Disorder Examination-Questionnaire. Interpersonal Self-Efficacy (IntSE) and Weight/Shape Self-Efficacy (W/ShSE) refer to Time 1 assessments. Same Sex Friendship Stress refers to average stress related to same sex friendships based on weekly reports between Times 1 and 2.  $\Delta R^2$  = change in  $R^2$  with the addition of each step in the regression.

\*\*  
 $p < .01$ .

\*\*\*  
 $p < .001$ .