The ironic effects of dietary restraint in situations that undermine self-regulation

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Abstract

Dietary restraint, defined as the cognitive effort to restrict eating, can paradoxically make individuals *more* susceptible to unhealthy eating when their ability to self-regulate is threatened. Past experiments have found that, in situations that elicit low self-control and/or unhealthy cravings, participants with higher dietary restraint eat more than those with lower restraint. However, these relationships have never been examined in a free-living environment. The current daily diary study examined if dietary restraint would exacerbate the association between poor self-control and unhealthy cravings on overconsumption, namely, eating more than usual and binge eating. College women (N=121, *M* age=19) reported their restrained eating behavior and completed seven daily surveys. Multilevel analyses showed a significant interaction between dietary restraint and daily self-control on eating more than usual ($b = -.14$, $p < .001$) and binge eating ($b = -.23$, $p < .001$). Lower daily self-control was associated with eating more than usual and with more binge eating that day, but only among women with higher dietary restraint. Dietary restraint also moderated the effect of cravings on eating more than usual ($b = .09$, $p = .016$); this relationship was stronger for women with higher restraint. Stronger cravings were associated with more binge eating regardless of restraint. Results suggest that situations that undermine self-control are more strongly associated with overeating among those with higher dietary restraint. Findings can inform strategies to reduce overconsumption among restrained eaters.

Keywords

dietary restraint; self-control; food cravings; overeating; ironic process theory

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1. Introduction

Due to ubiquitous, "normative" body dissatisfaction in U.S. today (Tantleff-Dunn et al., 2011), dieting to promote weight loss is common (Chithambo, 2020), especially for women under 30 (Brown et al., 2020). Ironically, studies show that in some circumstances, attempts to restrict eating can lead to overeating (e.g., Hunt et al., 2017). Through daily diary data, we explored whether college women with higher (vs. lower) dietary restraint would report more overeating in situations that undermine ability to self-regulate food intake—experiencing low self-control and unhealthy food cravings.

1.1 Dietary Restraint: Mixed Evidence

Dietary restraint is the *cognitive effort* to restrict food intake, regardless of whether this effort is successful (Schaumburg et al., 2016). In fact, dietary restraint is a poor predictor of food intake in lab studies (Stice et al., 2007; Stice et al., 2010). Researchers often conceptualize dietary restraint as a negative process because it rarely achieves its goal. Paradoxically, some studies show that dietary restraint predicts weight *gain* (Hunt et al., 2017; van Strien et al., 2014), possibly explained by its link to overeating/binge eating (Andrés & Saldaña, 2014; Polivy & Herman, 2020). Still, the literature is mixed (Schaumburg et al., 2016), with some studies showing no association between dietary restraint and binge eating (Spoor et al., 2006) or weight gain (Lowe et al., 2006).

1.1.2 When is dietary restraint harmful?—By focusing the mind on avoiding unhealthy foods, dietary restraint makes the forbidden act of eating these foods especially salient. According to Wegner's ironic process theory, this salience paradoxically makes one *more* likely to engage in the forbidden behavior when they do not have the cognitive capacity to self-regulate (Wegner, 1994; Wegner, 1998). As such, eating unhealthy food becomes the most automatic, dominant response for restrained eaters in such circumstances (Boon et al., 2000). Schaumberg and colleagues (2016) conceptualize dietary restraint as a self-control strategy that will fail when individuals face experiences or cues that undermine their ability to self-regulate. Supporting this theory, several lab-based studies have found that restrained eaters eat the same amount of a high calorie food as unrestrained eaters when they have full cognitive resources, but eat considerably *larger* amounts when their ability to self-regulate is hampered by cognitive load (Boon et al., 2000; Ward & Mann, 2000). Dietary restraint may similarly backfire when one is faced with other experiences that interrupt self-regulation, such as experiencing low self-control and unhealthy food cravings.

1.2 Dietary Restraint and Self-Control

Self-control is the ability to override internal urges that navigate us toward behaviors (e.g., eating palatable foods) that do not align with our goals (e.g., restricting food intake; Duckworth, 2011). Several studies suggest that dietary restraint is only problematic for eating among people with low trait self-control, who experience typical difficulties with self-regulation (Hofmann et al., 2014; van Koningsbruggen et al., 2013). Other research demonstrates that dietary restraint backfires in moments of low *state* self-control (i.e., transient difficulty with self-regulation). Imhoff et al. (2014) found that restrained eaters consumed the same amount of unhealthy food as unrestrained eaters in a control condition,

but consumed *more* than unrestrained eaters when their self-control was low, having been depleted by a previous task. Similarly, Geisler and colleagues (2016) found that after a self-control depletion task, restrained (vs. unrestrained) eaters showed greater difficulties with self-regulation when presented with palatable food, as indicated by their heart rate variability.

Although this lab-based evidence is consistent, Johnson and colleagues (2012) argue that experiments measuring restraint and overeating may be misleading because eating in the lab is unnatural. Daily diary studies can address this concern by measuring real-world eating behavior in response to daily variations in self-control, demonstrating the ecological validity of relationships already established in a lab setting. To date, no such studies exist.

1.3 Dietary Restraint and Unhealthy Cravings

Food cravings, the strong desire for a specific type of food, make self-regulation of eating difficult (Boswell & Kober, 2016), and therefore may also foster paradoxical effects of dietary restraint. Indeed, experimental research has found that restrained eaters eat more than unrestrained eaters after experimenters elicit unhealthy food cravings (Polivy & Herman, 2017; Stirling & Yeomans, 2004). For example, Fedoroff et al. (2003) found that, after smelling palatable food for ten minutes, restrained eaters ate more of that food than unrestrained eaters. Another experiment found that restrained (but not unrestrained) eaters had a significant decrease in performance on a food-related inhibition task (Go/No-go task) after exposure to palatable food, suggesting that thoughts about attractive food disproportionately disrupt the cognitive processes of restrained eaters, depleting their ability to self-regulate (Zhou et al., 2018).

Some studies demonstrate conflicting evidence. One experiment found that olfactory food cues led to *less* cookie consumption among restrained eaters (Coelho et al., 2009). Still other research shows that restrained eaters are more likely to give into food cravings only when the food is repeatedly exposed to them (Coelho et al., 2014) or when they have had lower past dieting success (Papies et al., 2008). No research has examined restrained eaters' eating behavior when state food cravings naturally arise in a free-living environment (vs. being experimentally induced).

1.4 Current Study and Hypotheses

The current study uses daily diary methodology to examine whether dietary restraint influences the association of experiencing low state self-control and unhealthy food cravings with college women's overconsumption, as defined by eating more than usual that day and by overeating episodes. We hypothesized that dietary restraint would moderate the association of experiencing *lower self-control* with eating more than usual that day (**Hypothesis 1**) and with more overeating episodes (**Hypothesis 2**), such that these relationships would be stronger among women with higher dietary restraint. We also hypothesized that dietary restraint would moderate the association of *unhealthy food cravings* with eating more than usual that day (**Hypothesis 3**) and with more overeating episodes (**Hypothesis 4**), such that these relationships would be stronger for women higher in dietary restraint.

2. Method

2.1 Participants

Participants were female college students at a mid-Atlantic, urban university who received class credit for their participation. The data was collected as part of a study on rejection, self-compassion, and eating (see Beekman et al., 2017). Of the 133 women who consented to participate, 121 participants completed at least four days of daily surveys,[1] a threshold for inclusion in past diary research (e.g., Ropponen et al., 2018), and were included in the full sample. Women had a mean age of 19.47 (SD=2.06). Mean Body Mass Index (BMI) was 22.74 (SD=3.74; >25=20.7%, 18–25=69.4%, <18=7.4%). The sample was 71.9% white, 17.4% Asian/Pacific Islander, 5.8% Hispanic, 4.1% Black, and 0.8% "other."

2.2 Procedures

The study was approved by the university's Institutional Review Board. Women provided informed consent and completed a baseline survey assessing demographic variables and their past dietary restraint behavior. Approximately 1–3 weeks later, all women participated in the same daily diary data collection week for seven days. Every day of the data collection week, students were emailed links to the surveys and instructed to fill them out between 5 p.m. and midnight, retrospectively reporting on their experiences that day. The 121 participants collectively provided 800 days of data.

2.3 Baseline Survey Measures

BMI.—Self-reported height and weight were used to calculate BMI. BMI was correlated with one of the outcome variables (overeating episodes) and thus, for consistency, was included as a covariate in all analyses.

Dietary Restraint (10 items averaged, alpha=.922).—Participants answered the restraint subscale of the Dutch Eating Behavior Questionnaire (e.g., "How often do you watch exactly what you eat?"; van Strein et al., 1986). Responses ranged from 1 (*never*) to 5 (*very often*).

2.4 Daily Survey Measures

State self-control (4 items averaged, alpha=.704).—Participants reported their perceptions of their ability to self-regulate that day on a scale from 1 (*strongly disagree*) to 5 (*strongly agree*). An example item is "Overall, I felt like I had a lot of willpower today" (Ford & Collins, 2013).

State unhealthy cravings (5 items, alpha=.698).—Participants were presented with the stem, "Today, I have really been craving…" for salty snacks, fast food, caloric drinks,

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[1]Of the 121 participants who completed at least four daily surveys, 2 participants completed four days (1.7%), 6 completed five days (5.0%), 29 completed six days (24.0%), and 84 completed all seven days (69.4%). Of the 847 possible observations for each within-person variable (121 participants x 7 days), there were 797 observations of daily self-control, eating more than usual, and overeating episodes (94.0%) and 799 observations of daily cravings (94.3%). All 121 participants reported dietary restraint and 118/121 reported the information to calculate BMI (97.5%). Number of daily surveys completed was unrelated to any demographic or study variables (*p*s>.05), other than eating more than usual (*p*=.028).

baked goods, and sweets. Responses ranged from 1 (*not at all*) to 5 (*very much*; Borgogna et al., 2015).

Time of Survey.—The time that the daily survey was taken during the seven-hour period (5pm-midnight) was recorded, such that surveys taken between 5–6pm were coded as 1, between 6pm-7pm as 2, and so on. Due to technical errors, on a few days, surveys were completed between 4pm-5pm (5.75%) and after midnight (1.5%), which were coded as 0 and 8, respectively, making the full range of the scale 0–8.

Outcome variables.

<u>**Eating more than usual.:**</u> Participants reported whether they had eaten less (−1), about the same (0), or more than usual (1) that day (Skoyen et al., 2013).

<u>**Overeating episodes.:**</u> Participants reported how frequently they rapidly ate a large amount of food that day; 1 (*never*) to 5 (*always*; Breines et al., 2014).

2.5   Data Analyses

The dataset is available at Open Science Framework (Beekman et al., 2021). Daily diary data resulted in a nested structure with repeated daily measurements (level-1) for individual participants (level-2). We used multilevel analyses to account for both within and between-person variability (Snijders & Bosker, 2011). All analyses were conducted using maximum likelihood estimation in SAS PROC MIXED with the assumption that the data are missing at random (SAS Institute Inc., 2015).

The within-person predictors (self-control and cravings) were person-mean centered, such that the participant's average value of each predictor across all days completed was subtracted from her daily reported value. The within-person centered predictors are denoted by the delta symbol ( ), signifying daily fluctuation from the person's mean value. Between-person variables (dietary restraint and BMI) were grand mean centered.

2.5.1   Hypothesis Testing.—Four cross-level interaction models tested the four hypotheses, which all posited that the within-person variables (i.e., self-control, cravings) should predict eating outcomes (i.e., eating more than usual, overeating episodes), and that these associations should be moderated by the between-person variable (dietary restraint). All models adjusted for time of survey, BMI, the main effect of dietary restraint, and the random effect of each within-person predictor of interest (i.e., self-control or cravings). Below shows an example, Model 1 testing Hypothesis 1:

Model 1: eating more than usual$_{ij}$ = γ_{00} + γ_{01}(dietary restraint$_j$) + γ_{02}(BMI$_j$) + γ_{10}(self-control$_{ij}$) + γ_{20}(time$_{ij}$) + γ_{11}(dietary restraint$_j$)(self-control$_{ij}$) + U_{0j} + U_{1j}(self-control$_{ij}$) + R_{ij}

Five fixed effects were included: γ_{00} is the expected value of *eating more than usual* (outcome) at the grand means of *dietary restraint* and *BMI* and the person's mean *self-control*. γ_{01} and γ_{02} were the expected change in *eating more than usual* associated with a one-unit increase in *dietary restraint* and *BMI*, respectively. γ_{10} was the expected change

associated with a one-unit increase in *self-control*; γ_{11} represented the expected change in the effect of *self-control* on *eating more than usual* associated with a one-unit increase in *dietary restraint*. Three random effects were estimated: U_{0j} and U_{1j} were the between-person residual variance of the intercept and the slope of day-to-day fluctuation of daily *self-control*, respectively. R_{ij} was the within-person residual variance not accounted by the model.

In all four models, *dietary restraint* and *BMI* were the between-person moderator and the covariate, respectively. Daily *self-control* was the within-person predictor in model 1 and 2, whereas daily *cravings* was the within-person predictor in model 3 and 4. *Eating more than usual* was the outcome in model 1 and 3; *overeating episodes* was the outcome in model 2 and 4.

For significant cross-level interactions, simple slopes were calculated and graphed to depict the slope of the within-person predictor on the outcome of interest at the mean, one standard deviation above the mean, and one standard deviation below the mean of the between-person moderator (i.e., dietary restraint).

3. Results

Table 1 displays the means and standard deviations, intraclass correlations, and within- and between-person correlations. Daily surveys were most frequently completed from 5pm-6pm (38.0%), followed by 6pm-7pm (25.38%), 7pm-8pm (10.38%), and 8pm-9pm (7.88%).

3.1 Model 1: Daily Self-Control x Dietary Restraint on Eating More than Usual

Daily self-control was not associated with eating more than usual that day. However, there was a significant interaction between daily self-control and dietary restraint. The effect of daily self-control on eating more than usual was significant among women with higher dietary restraint (+1 SD; $b = -0.18$, $t = -3.73$, $p < .001$), but not among women with average (0; $b = -0.07$, $t = -1.99$, $p = .051$) or lower (−1 SD; $b = .04$, $t = 0.87$, $p = .387$) restraint. Therefore, *Hypothesis 1* was supported. See Table 2 and Figure 1.

3.2 Model 2: Daily Self-Control x Dietary Restraint on Overeating Episodes

Lower daily self-control and higher dietary restraint were associated with more overeating episodes that day. There was also a significant interaction between daily self-control and dietary restraint on overeating episodes. Lower daily self-control was associated with more overeating episodes among women with higher (+1 SD; $b = -0.44$, $t = -5.70$, $p < .001$) and average (0; $b = -0.24$, $t = -4.42$, $p < .001$) dietary restraint, but not among women with lower dietary restraint (−1 SD; $b = -.05$, $t = -0.66$, $p = .513$). *Hypothesis 2* was supported; see Table 2 and Figure 2.

3.3 Model 3: Daily Cravings x Dietary Restraint on Eating More than Usual

Higher daily cravings were associated with eating more than usual that day. There was a significant interaction between daily cravings and dietary restraint on eating more than usual. Stronger cravings were associated with eating more than usual among women with

average (0, $b=.14$, $t=3.97$, $p<.001$) and higher dietary restraint (+1 SD; $b=.19$, $t=5.25$, $p<.001$), but not among those with lower restraint (−1 SD; $b=.08$, $t=1.97$, $p=.052$). Thus, *Hypothesis 3* was supported. See Table 3 and Figure 3.

3.4 Model 4: Daily Cravings x Dietary Restraint on Overeating Episodes

Both daily cravings and dietary restraint predicted overeating episodes that day. However, there was no significant interaction between daily cravings and restraint on overeating episodes. Therefore, *Hypothesis 4* was not supported. See Table 3.

4. Discussion

Dietary restraint strengthened the associations between situational threats to self-regulation and overconsumption, supporting all but one hypothesis. Experiencing lower daily self-control was associated with more overeating episodes/eating more than usual that day, but only among women with higher dietary restraint. Stronger cravings were also only associated with eating more than usual among more restrained eaters. However, the association between daily unhealthy cravings and overeating episodes was *not* moderated by dietary restraint.

These results provide support for dietary restraint's relevance to ironic process theory, the assertion that preoccupation with the "wrong" behavior increases the likelihood of enacting that behavior in situations that undermine self-regulation (Wegner, 1994). The results are also consistent with lab-based experiments showing similarly paradoxical effects of dietary restraint after manipulations that deplete self-regulation (Geisler et al., 2016; Imhoff et al., 2014) and/or elicit food cravings (Papies et al., 2008; Polivy & Herman, 2017). The current study is the first to demonstrate that, in *real-world* situations that undermine self-control, restrained eaters may be more prone to overeating than unrestrained eaters.

Our findings provide a counterpoint to studies suggesting that acute exposure to palatable food cues elicits greater dieting goals in restrained eaters, leading to *less* food intake (Coelho et al., 2009). In such studies, it is possible that the specific food cues (cookies, chocolate) reminded participants of their dieting goals but did not universally elicit strong cravings. In the current study, participants self-reported their cravings, which may more accurately capture their desire for a food.

Dietary restraint moderated the influence of cravings on eating more than usual, but not overeating episodes. Unlike isolated overeating episodes, eating more than usual captures the day's overall consumption. Literature shows that restrained eaters are more likely to continue eating after consuming "forbidden" food (Mills & Palandra, 2008). Therefore, whereas cravings may universally elicit overeating in the moment, they may influence full day intake more strongly for restrained eaters, who are less capable of self-regulation after initially giving into cravings.

4.1 Limitations

The current study used the DEBQ Restraint Scale, whereas many related studies measured restraint through Herman and Polivy's Restraint Scale (e.g., Imhoff et al., 2014; Geisler

et al., 2016). Compared to the DEBQ-R, The Restraint Scale has more frequently been linked to disordered eating behavior (e.g., binge eating), whereas the DEBQ-R is often unassociated with eating (Polivy et al., 2020). Future studies should examine whether these measures moderate situational influences on eating differently.[2]

As in all daily diary studies, daily measures were assessed retrospectively and cross-sectionally, and we cannot be certain about the direction of the relationships between level-1 variables. It is possible that unhealthy eating actually caused lower self-control and more unhealthy cravings; however, there is no previous evidence or theory to support this direction. Alternatively, there *is* existing experimental research that supports the hypothesized direction, and the moderation of this direction by dietary restraint (e.g., Imhoff et al., 2014; Polivy & Herman, 2017; Fedoroff et al., 2003). Therefore, past experimental data reduces concerns about directionality.

A more plausible alternative explanation is that women reported low self-control/unhealthy cravings on days that they engaged in less healthy eating in order to explain their own behavior. Restrained eaters may be especially attuned to their eating behavior and its predictors (Polivy & Herman, 2020), which could explain why the relationships were stronger in this population. Polivy and Herman (2020) note that restrained eaters may be more likely to perceive a given eating episode as "overeating" because it broke their diet. Future research should address these research questions through ecological momentary assessment, which can assess self-report measures in real time, reducing the threat of self-reflection bias. Future studies that measure *actual* food intake will also mitigate the threat of any bias in self-reported eating.

Previous studies suggest that overeaters are subsequently motivated to restrict their diet, meaning that restrained eaters may have greater baseline appetitive drive and tendencies to overeat (Lowe, 2021). Therefore, an additional interpretation of the current findings is that dietary restraint allows people with overeating tendencies to successfully limit their intake to that of an unrestrained eater when situations are ideal, but they resort to their default overeating in situations that undermine self-regulation. If this is the case, it would mean that dietary restraint is beneficial except in certain situations, rather than problematic in some situations. Future studies examining related research questions should consider controlling for appetitive drive.

Finally, this sample was predominantly white and attended a private university, so the results may not generalize to the typical US population. For example, food insecure adults may practice dietary restraint for financial concerns (Middlemass et al., 2020); in this population, dietary restraint may interact with situational influences differently. Future studies should also test these hypotheses among participants in weight control interventions.

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[2] The current study included the Concern for Dieting subscale of The Restraint Scale; however, due to technical error, the usual 6-item subscale was missing an item. When analyses were run using this 5-item subscale replacing the DEBQ, the patterns remained the same; however, the interaction of dietary concern with self-control on overeating episodes and the interaction of dietary concern with cravings on eating more than usual became only marginally significant (ps=.050 and .074, respectively). See supplementary material.

4.2 Conclusions and Implications

The study found that women with higher dietary restraint report more overeating in situations that undermine self-regulation. The limitations in the study design make it difficult to ascertain if these relationships are due to self-report biases or to confounding baseline differences in restrained vs. unrestrained eaters. Nevertheless, these preliminary findings, in conjunction with past experimental studies demonstrating these relationships, can inform strategies to make dietary restraint more successful. Restrained eaters may benefit from personal and community efforts to improve local food environments, removing excess food cues that elicit unhealthy cravings (Lowe et al., 2018). Interventions that improve ability to cope with cravings (e.g., mindfulness training; Schnepper et al., 2019) and improve self-regulation (e.g., food-specific inhibition training; Turton et al., 2016) may also be beneficial. Overall, this study elucidates the circumstances under which dietary restraint may be unsuccessful, which can inform interventions to reduce overconsumption.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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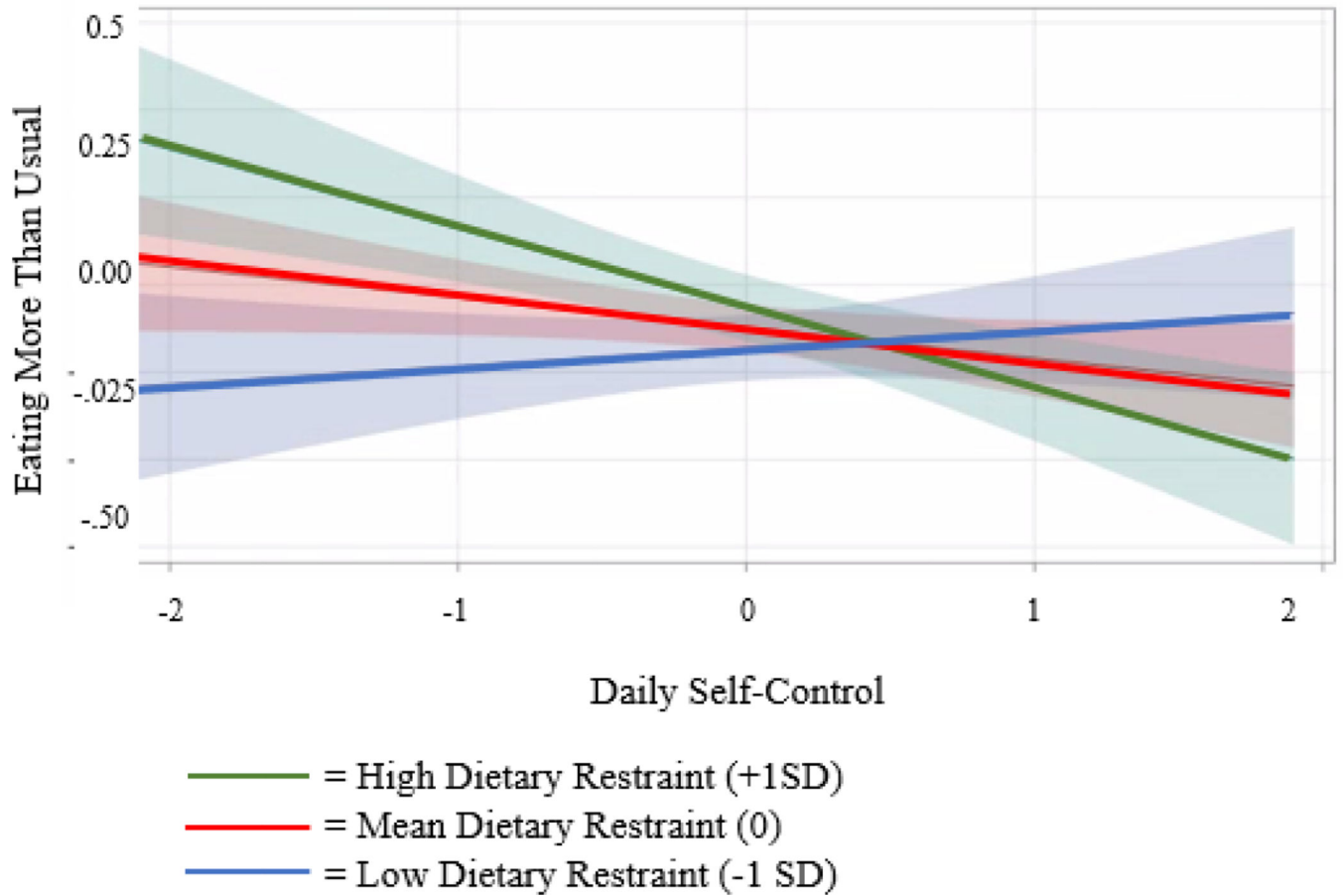
Figure 1.
Daily Self-Control x Dietary Restraint on Eating More Than Usual
Note: The effect of daily self-control on eating more than usual was significant among women with higher dietary restraint (+1 SD; $b = -0.18$, $t = -3.73$, $p < .001$), but not among women with average dietary restraint (0; $b = -0.07$, $t = -1.99$, $p = .051$) or lower dietary restraint (−1 SD; $b = .04$, $t = 0.87$, $p = .387$).

Figure 2.
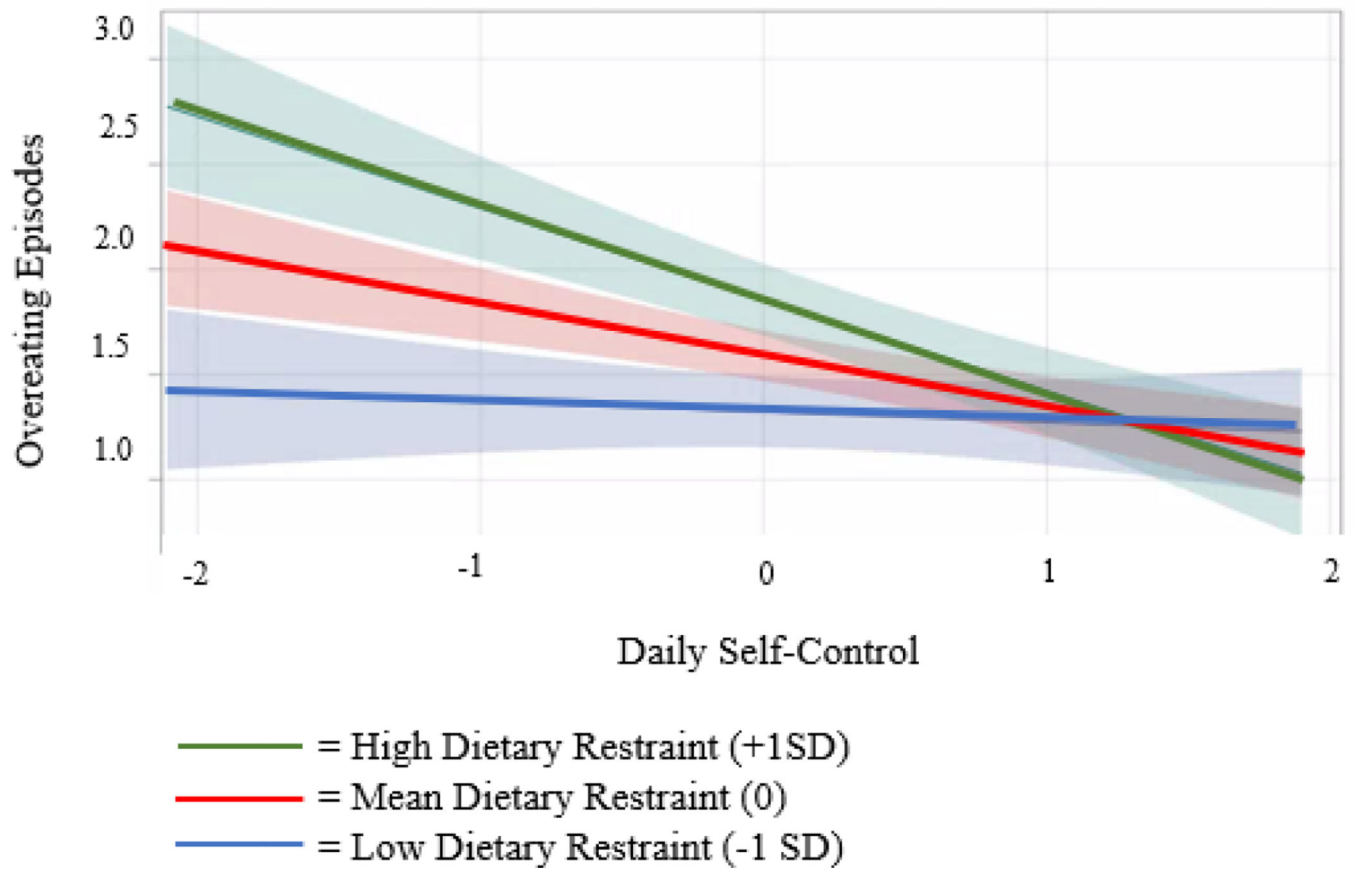Daily Self-Control x Dietary Restraint on Overeating Episodes
Note: Lower daily self-control was associated with more overeating episodes among women with higher dietary restraint (+1 SD; $b = -0.44$, $t = -5.70$, $p < .001$) and average dietary restraint (0; $b = -0.24$, $t = -4.42$, $p < .001$), but not among women with lower dietary restraint (−1 SD; $b = -.05$, $t = -0.66$, $p = .513$).
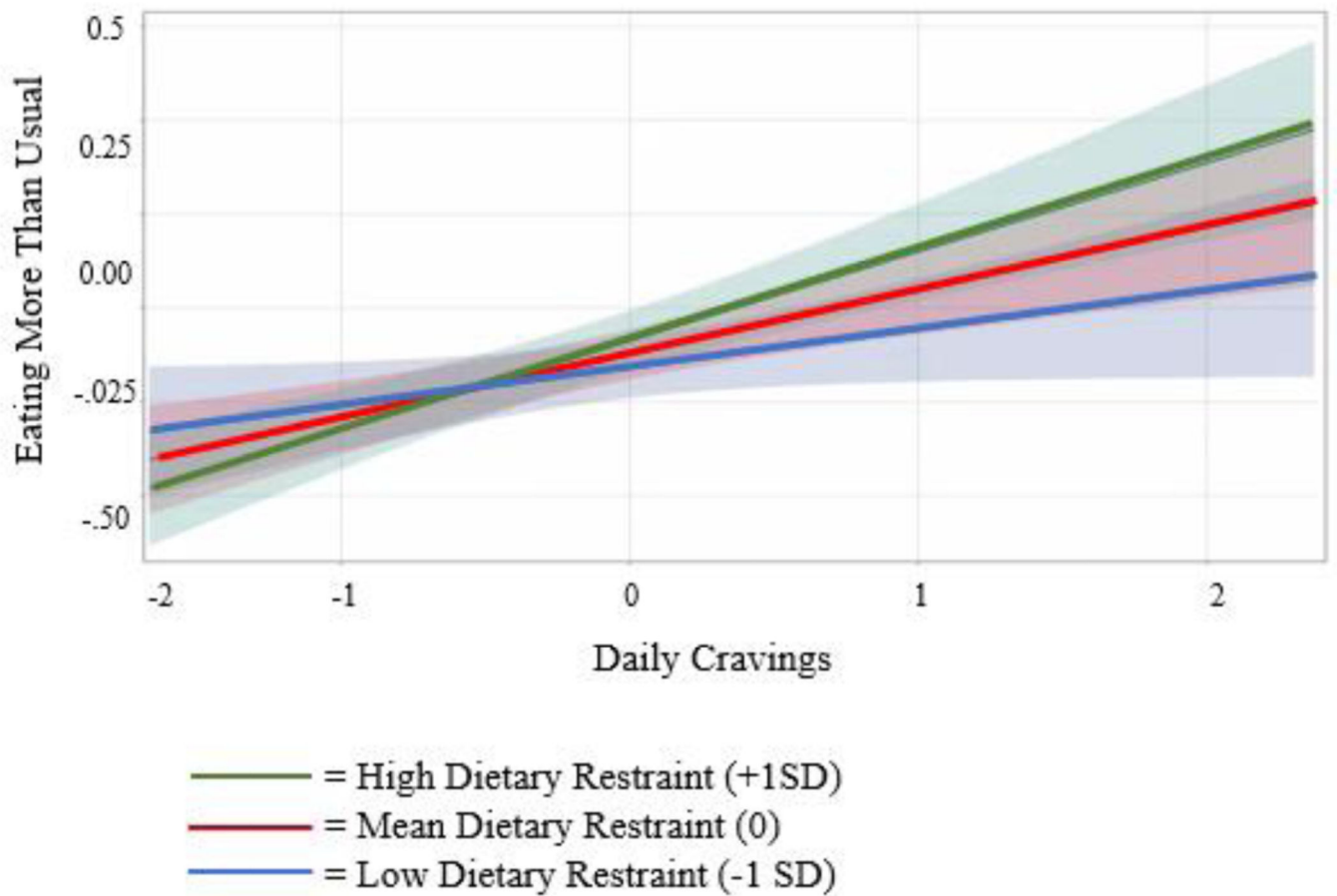
Figure 3.
Daily Cravings x Dietary Restraint on Eating More Than Usual
Note: Stronger cravings were associated with eating more than usual among women with higher dietary restraint (+1 SD; $b=.19$, $t= 5.25$, $p<.001$) and average dietary restraint (0, $b= .14$, $t= 3.97$, $p<.001$), but not among those with lower restraint (−1 SD; $b= .08$, $t= 1.97$, $p=.052$).

Table 1.

Correlation Table: Between and Within-Person Associations

	Time of Survey	Self-Control	Unhealthy Cravings	Eating More Than Usual	Overeating Episodes	Dietary Restraint	BMI	Means	Standard Deviation	Intraclass Correlations
Time of Survey		−.07	.08	.11	.28*	−.19*	.09	2.27	1.77	0.13
Self-Control	−.04		−.24**	−.30**	−.30**	−.19*	−.06	3.36	0.81	0.38
Unhealthy Cravings	.08*	−.18**		.23*	.40**	.05	.13	2.04	0.84	0.47
Eating More Than Usual	.17**	−.16**	.19**		.16	.16	−.12	−0.11	0.59	0.15
Overeating Episodes	.08*	−.27**	.33**	.22**		.40**	.22*	1.59	1.05	0.40
Dietary Restraint							.13	2.91	0.87	
BMI								22.74	3.74	

Correlations for within-person associations are in the lower triangle, and correlations for between-person associations are in the upper triangle.

*
p<.05

**
p<.01

Table 2.

Multilevel regressions: Associations of daily self-control and dietary restraint with eating more than usual and overeating episodes

Covariance Parameter Estimates	Eating More Than Usual (Model 1)				Overeating Episodes (Model 2)			
	β	SE	Z	p	β	SE	Z	p
	Random Effects				**Random Effects**			
Intercept	.05	.01	4.01	<.001	.36	.06	6.17	<.001
Intercept x Self-Control Slope	–.00	.01	.09	.931	–.07	.04	–1.86	.062
Self-Control Slope	.02	.02	.90	.184	.07	.04	1.66	.048
Residual	.27	.02	16.79	<.001	.56	.03	16.85	<.001

Predictor Terms	β	SE	T	P	β	SE	T	p
	Fixed Effects				**Fixed Effects**			
Intercept	–.21	.04	–5.66	<.001	1.50	.07	20.53	<.001
BMI	–.01	.01	–1.70	.092	.03	.02	1.82	.072
Time of Survey	.05	.01	4.40	<.001	.04	.02	2.28	.023
Self-Control	–.07	.04	–1.99	.051	–.24	.05	–4.42	<.001
Dietary Restraint	.05	.03	1.66	.100	.31	.07	4.31	<.001
Self-Control x Dietary Restraint	–.13	.04	–3.34	.001	–.22	.06	–3.68	<.001

Table 3.

Multilevel regressions: Associations of daily craving and dietary restraint with eating more than usual and overeating episodes

Covariance Parameter Estimates	Eating More Than Usual (Model 3)				Overeating Episodes (Model 4)			
	β	SE	Z	p	β	SE	Z	p
	Random Effects				Random Effects			
Intercept	.05	.01	3.98	<.001	.35	.06	6.15	<.001
Intercept x Cravings Slope	.02	.01	1.71	.077	.06	.04	1.67	.096
Cravings Slope	.00	.01	.14	.443	.08	.05	1.81	.035
Residual	.27	.02	17.12	<.001	.57	.03	17.11	<.001

Predictor Terms	β	SE	T	p	β	SE	T	P
	Fixed Effects				Fixed Effects			
Intercept	−.21	.04	−5.63	<.001	1.52	.07	20.66	<.001
BMI	−.01	.01	−1.81	.073	.03	.02	1.70	.091
Time of Survey	.05	.01	4.35	<.001	.03	.02	1.79	.074
Cravings	.14	.03	3.97	<.001	.25	.06	4.11	<.001
Dietary Restraint	.05	.03	1.67	.100	.31	.07	4.34	<.001
Cravings x Dietary Restraint	.10	.03	2.94	.007	.03	.06	.47	.644