1. Introduction

Restrained eating is defined as following self-imposed dieting rules and relying heavily on self-control to regulate eating behavior with the goal of weight control (Herman & Polivy, 1980). That is, restrained eating refers to controlling food intake, rather than eating in accordance to physiological hunger and satiation cues. This type of eating can become problematic by leading to dis-inhibited “eating, whereby a salient environmental or emotional cue will prompt a person to override their restraint and overeat. The Goal Conflict Model of Eating Behavior (Stroebe, van Koningsbruggen, Papies, & Aarts, 2013) posits that eating behavior is actually determined by two conflicting goals: the goal of weight control and the goal of food enjoyment. Accordingly, Stroebe et al. (2013) proposed that for unsuccessful restrained eaters exposure to palatable food sets into motion processes that may lead to unhealthy eating by differentially impacting the two conflicting goals of weight control and food enjoyment: First, the accessibility of the food enjoyment goal increases; second, the accessibility of the (incompatible) weight control goal diminishes; third, the highly accessible food enjoyment goal directs attention; fourth, attention selects palatable food cues for capacity-limited processing while ignoring cues related to the weight control goal, which may then lead to, fifth, unhealthy eating. In line with this model, findings suggest that in restrained eaters, but not in unrestrained eaters, exposure to palatable food stimuli indeed activates the goal of enjoying one’s food (Papies, Stroebe, & Aarts, 2007). For successful restrained eaters exposure to palatable food cues may not only activate the eating enjoyment goal, but also increase the accessibility of the weight control goal (Stroebe et al., 2013). In line with this, restrained eaters who are relatively more successful have been found to display facilitation of the dieting goal in response to food primes (Papies, Stroebe, & Aarts, 2008a). Thus, restrained eating creates a self-control dilemma when confronted with palatable food as determined by the anticipated immediate enjoyment of eating food and the highly valued but long-term goal of weight control.

The Strength Model of Self-Control (Muraven & Baumeister, 2000) emphasizes that acts of self-control are effortful and may lead to a state of ego depletion, making it much harder to engage in further acts of self-control (Hagger, Wood, Stiff, & Chatzisarantis, 2010). According to the Process Model of Ego Depletion (Inzlicht
ego depletion is characterized by a shift in motivational orientation and attentional focus. More precisely, motivational orientation shifts away from suppressing desires towards gratifying them, and attention shifts away from cues signaling control towards cues signaling gratification. The model therefore implies that in a state of ego depletion restrained eaters would be drawn more to enjoy eating (rather than to control weight) and their attention would be directed towards palatable food cues (instead of cues related to weight control). Thus, in a state of ego depletion upholding standards of restraint should require more self-regulatory effort. Another aspect of ego depletion is that it induces a negative affective state (Hagger et al., 2010). This is noteworthy in the context of restrained eating because it has been suggested that individuals with problematic eating behavior may lack the skills required to cope with negative affective states (Svaldi, Griepenstroh, Tuschen-Caffier, & Ehring, 2012). Thus, ego depletion may also lead to effortful self-control involving attempts to repair the negative affective state (Hagger et al., 2010).

Consistent with this idea, previous studies have shown that ego depletion reduces one’s ability to adhere to standards of restraint and increases the impact of impulses (i.e., immediate hedonic goal attainment) on health-related behavior (see Hofmann, Friese, & Wiers, 2008, for an overview). In a study by Hofmann, Rauch, and Gawronski (2007), there was a tendency for dietary restraint to decrease after not enacting self-control, whereas the intake of unrestrained eaters was unaffected by the manipulation of self-control.

Linking the conceptual premises of the Goal Conflict Model of Eating Behavior (Stroebe et al., 2013) and the Process Model of Ego Depletion (Inzlicht & Schmeichel, 2012), the situation that restrained eaters find themselves in when confronted with food can be pictured as a downward spiral: Food cues activate conflicting goals (enjoying food vs. weight control), which trigger effortful self-control. This act of self-control should then shift motivational orientation and attentional focus towards increased motivation to act on impulse and increased attention to reward, which in turn makes it more difficult to enact further self-control. After a few turns in the spiral, the person’s control of their eating behavior may collapse, leading to unrestricted eating (see Fig. 1).

Whereas Hofmann et al. (2008) and Kahan et al. (2003) aimed to illuminate the effect of ego depletion on food intake (i.e., the bottom of the downward spiral), the aim of the present study was to investigate its initiation. We set out to examine whether restrained eating leads to a triggering of effortful self-control by food cues. Being able to quantify enacted effortful self-control was crucial for testing our hypothesis. The Neurovisceral Integration Model (Thayer & Lane, 2009) posits vagally mediated heart rate variability (HRV) as a valid physiological proxy of self-control. HRV refers to the interval between heart beats, which varies from beat to beat. HRV is linked to inhibitory activity in prefrontal neural structures and neural feedback mechanisms between the central nervous system and the autonomic nervous system. This central autonomic network is assumed to adjust physiological arousal to changing situational demands and thus to support goal-directed behavior and adaptation (Thayer, Hansen, Saus-Rose, & Johnsen, 2009). A plethora of evidence has shown that HRV is associated with processes that are involved in self-control (Althaus, Mulder, Mulder, Van Roon, & Minderaa, 1998; Geisler & Kubiak, 2009; Geisler, Kubiak, Siewert, & Weber, 2013; Geisler, Vennewald, Kubiak, & Weber, 2010; Thayer et al., 2009). HRV can serve as an index for the dispositional, trait-like capacity for self-control (Appelhans & Luecken, 2006) and as a process measure of enacted self-control in a given situation (Segerstrom & Solberg Nes, 2007). Higher HRV at rest is considered to reflect a higher capacity for self-control, and an increase in HRV is considered to reflect the amount of enacted self-control (Segerstrom & Solberg Nes, 2007; Smith et al., 2011). So far, in connection with restrained eating, research has focused on HRV as an index of capacity for self-control (Meule, Lutz, Vogele, & Kübler, 2012; Meule, Vogele, & Kübler, 2010). To our knowledge, our study is the first to focus on HRV as an index for enacted self-control in reaction to food cues with regard to restrained eating.

2. The present study

The present study was designed to test two hypotheses. Based on the Goal Conflict Model of Eating Behavior (Stroebe et al., 2013), we hypothesized that (a) the exposure to food cues will lead to effortful self-control in accordance with the level of restrained eating. That is, self-control as indexed by an increase in HRV was

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1. It should be noted that literature on HRV as an index of enacted self-control is not without inconsistencies. For example, Reynard, Gevitz, Berlow, Brown, and Boutelle (2011) were not able to replicate the findings of Segerstrom and Solberg Nes (2007) that HRV was elevated during high self-regulatory effort.
expected to positively covary with the extent of restrained eating. In accordance with the Process Model of Ego Depletion (Inzlicht & Schmeichel, 2012), we further hypothesized that (b) ego depletion status will moderate the association between restrained eating and exercised self-control. That is, the association between restrained eating and increase in HRV was expected to be stronger among people in a state of ego depletion. To this end, we assessed self-reported restrained eating and manipulated ego depletion prior to food exposure. We measured heart rate at baseline and during food exposure in order to compute HRV as a physiological proxy for enacted effortful self-control.

3. Method

3.1. Participants

One hundred eleven undergraduate students (77% female; age: $M = 23.06$ years, $SD = 4.50$) took part in the study in exchange for course credit. Participants were recruited via advertisements on campus. The study was described as a study on the influence of the media on thinking, feeling, and taste.

3.2. Measures

3.2.1. Restrainted eating

Restrainted eating was assessed with the German version of the Restraint Scale (RS; Herman & Policy, 1980; Dinkel, Berth, Exner, Rief, & Balck, 2005). The scale consists of 10 items that measure concerns about dieting and weight change. Scale scores can range from 0 to 35 with higher scores indicating a greater level of restrained eating. Note that in the present study, RS had a metric value.

3.2.2. Diet status

Participants indicated on a forced-choice item whether they were on a diet, on a diet in order to lose weight, on a diet to avoid gaining weight, or on a diet for health reasons.

3.2.3. HRV

Heart rate was monitored with the heart rate monitoring system Polar RS800CX (Polar Electro Oy, Kempele, Finland, 2008). Measurements occurred with a beat-to-beat precision that allowed for the computation of interbeat intervals (IBIs). We preprocessed sequential IBIs for artifacts with the Polar Precision Performance™ Software (filter settings: +/-250 ms). A visual screening for artifacts followed. Irregular IBI courses were deleted from the IBI sequence without any substitution. We computed the root mean square of successive differences (RMSSD) using the HRV Analysis program (Niskanen, Tarvainen, Ranta-aho, & Karjalainen, 2004). Baseline measures were taken from the last 3 min of the 5-min resting period at the beginning of the experiment to ensure that the data reflected resting condition. Food exposure measures were taken from the middle 3 min of the 5-min appearance rating phase. Missing IBIs (8 cases, .07%) could be attributed to technical malfunctions.

3.2.4. Manipulation check and confounding variables

To evaluate the effectiveness of the ego depletion manipulation, we assessed compliance with the instructions and fatigue. Furthermore, we assessed the confounding variables hunger and affect. Restrained eating could be associated with food deprivation at the time of the study, and food deprivation was found to decrease vagal activity in healthy participants (Herbert et al., 2012). A significant association between restrained eating and affect moderated by ego depletion would indicate that the preconditions for mood repair are confounded with proposed exercised self-control due to goal conflict.

Compliance with instructions: To assess compliance with the ego depletion manipulation instructions, participants rated the two items “To what extent did you suppress your emotions?” and “To what extent did you let our emotions out?” on a 7-point scale ranging from 1 (not at all) to 7 (very much so). The items were significantly correlated, $r = .73$, $p < .001$. Each participant's overall compliance score was computed by averaging.

Fatigue: State fatigue was assessed using the three subscales general fatigue (three items), mental fatigue (four items), and physical fatigue (four items) from the Multidimensional Fatigue Inventory (MFI-20; Kranz & Schwarz, 2003; Smets, Garssen, Bonke, & de Haes, 1995). Each item began with “During the film ...,” and the wording of items was modified in order to fit the setting. Participants rated the items on a 5-point scale ranging from 1 (agree) to 5 (disagree). Scale scores were computed by averaging. Higher scores indicated a higher level of fatigue.

Hunger: Participants indicated on a 7-point scale how hungry they were at the moment from 1 (not at all) to 7 (very).

Affect: We used the Multidimensional Mood Questionnaire (Steyer, Schwenkmezger, Notz, & Eid, 1994, 1997) to measures state affect along the dimensions of valence (unpleasant — pleasant), arousal (tense — calm), and alertness (tiredness — wakefulness). Each scale consisted of four items, out of which two items were inverted. Participants rated how they felt at the moment on a 5-point intensity scale ranging from 1 (not at all) to 5 (very much so). Scale scores were computed by averaging. Higher scores indicated more pleasantness, calmness, and wakefulness, respectively.

3.3. Procedure

Participants were randomly assigned to the ego depletion versus no ego depletion conditions and tested individually. Upon arrival, informed consent was obtained. Participants put on a chest strap for heart rate measurement and were seated at a desk. Then the investigator left the room. First, participants rested without performing any task for 5 min to measure their baseline HRV. They then watched a 9-min film clip that contained both extremely positive (lovers making plans for the future, a crowd dancing) and extremely negative elements (the protagonist is shot) (cf. Hofmann et al., 2007). Participants in the ego depletion condition were instructed to suppress their feelings, not to show them, not to empathize with the people in the film, and to stay neutral. Participants in the no ego depletion condition were instructed to let their feelings flow naturally. Subsequently, participants answered self-reports (manipulation check and confounding variables). Then, the investigator arrived with a full bowl of jelly beans, handed the participants written instructions and rating sheets for the alleged taste test, and left the room. The instructions read: “Please look at the jelly beans. Later on you will taste them. But for now please just look at them and rate their appearance. An acoustic signal will inform you when 5 min are over and you will receive further instructions.” After this food exposure, participants received instructions on how to rate the taste of the jelly beans. Finally, restrained eating and dieting status were assessed via computer and participants were weighed and their height was measured. The length of the experimental session varied between 60 and 90 min. As this research was part of a student's thesis, approval was obtained from the supervisor and an independent second researcher according to the procedures established at the institution where the research was conducted. Both confirmed that the study

2 Results not shown, available upon request.
protocol was in agreement with the ethical standards laid down by the German Society for Psychology (2004).

3.4. Data analysis

The normality of the distribution of all continuous variables was evaluated by examining skewness, kurtosis and outliers. All variables except HRV at baseline and during food exposure were found to be normally distributed. HRVs were normally distributed after log-transformation, and thus these figures were used in subsequent analyses. Group differences between the ego depletion (n = 55) and no ego depletion condition (n = 56) and sex differences were investigated separately for each variable using t-tests. Associations between variables were investigated using Pearson correlations. To test for differences in HRV as a function of ego depletion (independent of restraint) and the main effect of time, we run an ANOVA for repeated measures with condition as the between factor and time as the within factor. To check manipulation and confoundation, two-step hierarchical regression analyses were run separately with RS, condition (Step 1), and the RS × Condition interaction (Step 2) as predictors and compliance, fatigue and affect as dependent variables. To test the hypotheses, we conducted a three-step hierarchical regression analysis predicting HRV during food exposure from HRV at baseline and hunger (Step 1), RS and condition (Step 2), and the RS × Condition interaction (Step 3). To compute the interaction term, RS was centered, and the experimental condition was effect coded as 0 for no ego depletion and -1 for the ego depletion. All p-values are reported two-tailed. All analyses were performed with IBM SPSS Statistics for Windows, Version 20.0. Armonk, NY: IBM Corp.

4. Results

As indicated by their body mass index (BMI) and in accordance with standards from the World Health Organization (WHO, 1995), 1.8% of participants were underweight, 75.7% were of normal weight, and 22.5% were overweight. Furthermore, 86% indicated that they were not on a diet, 6% indicated that they were on a diet in order to lose weight, 6% indicated that they were on a diet to avoid gaining weight, and 2% indicated that they were on a diet for health reasons. For descriptive statistics, see Table 1. For intercorrelations between variables, see Table 2. Conditions did not differ with regards to sex, X²(2, N = 111) = 16, p = .69, age, t (109) = −1.15, p = .88, BMI, t (90.45) = −.76, p = .45, diet status, X²(2, N = 111) = 5.80, p = .12, restrained eating, t (109) = .89, p = .49, hunger, t (109) = −.36, p = .72, or HRV at baseline, t (102) = −.74, p = .46. No sex differences were found for HRV at baseline, t (102) = −.29, p = .77, or during food exposure, t (101) = −.30, p = .76. Women scored higher on the RS than men, t (109) = 4.07, p < .001, Mwomen = 13.73, SD = 5.74 vs. Mmen = 8.77, SD = 4.24. HRV significantly increased from baseline to food exposure, t (1, 101) = 11.15, p < .01, n² = .10. Neither the main effect of condition nor the interaction effect were significant, F(1, 101) < 1.04, ps > .31, n² < .01.3

4.1. Manipulation check

4.1.1. Compliance

Participants suppressed their feelings to a greater extent in the ego depletion condition, M = 4.85, SD = 1.07, than in the no ego depletion condition, M = 2.54, SD = 1.16, t(108) = 10.97, p < .001. RS and the interaction term both did not predict compliance, βs < .11, t(108) < 1.19, ps > .24. Thus, the extent to which participants followed the instructions for the ego depletion manipulation was independent of their level of restrained eating.

4.1.2. Fatigue

The experimental condition significantly predicted mental fatigue, β = .38, t(108) = 4.25, p < .001. RS predicted higher levels of general fatigue, β = .24, t(108) = 2.62, p < .05, and physical fatigue, β = .20, t(108) = 2.11, p < .05. RS and experimental condition both did not interact in predicting any fatigue subscale, βs < .17, t(108) < 1.38, ps > .17. Thus, independent of the level of restrained eating, the ego depletion manipulation led to more mental fatigue than the no ego depletion manipulation.

4.2. HRV during food exposure

Results of the three-step hierarchical regression analysis are shown in Table 3. In line with our first hypothesis, RS was positively associated with HRV during food exposure. However, the prediction was not significant. Supporting our second hypothesis, RS and experimental condition interacted in predicting HRV during food exposure. As shown in Fig. 2 and confirmed by simple slope analyses, RS predicted HRV during food exposure after ego depletion, β = −.51, t(99) = 3.51, p < .001, but not after no ego depletion β = .02, t(99) = −.12, p = .91.4

4.3. Affect

Higher levels of RS were significantly associated with a negative affective state for all dimensions of affect, β = −.19 to −.28, t(108) = −2.07 to −3.02, p < .05. The experimental condition did not significantly influence any affect dimension, βs < .12, t(108) < 1.24, ps > .21. RS and the experimental condition did not interact in predicting any affect dimension, βs < .10, t(108) < .84, ps > .40.

Table 1

<table>
<thead>
<tr>
<th></th>
<th>Ego depletion</th>
<th>No ego depletion</th>
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</thead>
<tbody>
<tr>
<td>N</td>
<td>.80</td>
<td>.80</td>
</tr>
<tr>
<td>M</td>
<td>12.18</td>
<td>12.95</td>
</tr>
<tr>
<td>SD</td>
<td>5.34</td>
<td>6.25</td>
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</tbody>
</table>

Note: HRV: Heart rate variability (RMSSD); BMI: body mass index (kg/ms²); n.a.: not applicable.

3 To test for differences in IBIs and high frequency components of HRV (HF-HRV: .15–4 Hz; obtained by autoregressive modeling; absolute power as unit, log-transformed) two additional ANOVAs were conducted. IBIs significantly increased from baseline to food exposure, F(1, 102) = 14.24, p < .001, n² = .12. The main effect of condition and the interaction effect were both not significant for IBIs, F(1, 102) < 1.30, ps > .25, n² < .02. HF-HRV significantly increased from baseline to food exposure, F(1, 96) = 4.69, p < .05, n² = .05. The main effect of condition and the interaction effect were both not significant for HF-HRV, F(1, 96) < 1.38, ps > .24, n² < .02.

4 Two additional three-step hierarchical regression analyses with the same predictors were conducted to predict IBIs and HF-HRV during food exposure. RS significantly predicted HF-HRV, β = −.18, t(97) = −2.16, p < .05. However, the RS × Condition interaction was not significant for HF-HRV, β = .00, t(97) = .03, p = .98. RS was not associated with IBIs, β = .00, p = .99, and the RS × Condition interaction was not significant for IBIs, β = .14, p = .08.
5. Discussion

The aim of the present study was to investigate the triggering of effortful self-control by food cues according to the level of restrained eating. Restrained eating implies that when confronted with food, the pursuit of the short-term goal of food enjoyment has to be inhibited for the sake of reaching the long-term goal of weight control (Stroebe et al., 2013). We hypothesized that this act of self-control is influenced by ego depletion (Inzlicht & Schmeichel, 2012).

In line with classifications from related studies (Fedoroff, Polivy, & Herman, 2003; Meule, Lutz, et al., 2012; Meule, Vögele, et al., 2012), our sample was approximately balanced in terms of the number of unrestrained versus restrained individuals. Restrained eating was positively associated with BMI, a finding that is in line with the view that restrained eaters identified by the RS tend to be unsuccessful dieters (see Stroebe, 2008, for a review). HRV at baseline was positively associated with HRV during food exposure. However, the association was lower than the reported retest reliability for HRV assessed and computed in the same way (r = .70, Geisler & Kubiak, 2009). Thus, we assume that HRV during food exposure also comprises variance related to the food exposure situation (see also Bertsch, Hagemann, Naumann, Schächinger, & Schulz, 2012). HRV at baseline was negatively associated with general fatigue during the FILM, which is line with the view that a person is more strongly associated with the affect dimensions than mental fatigue.

As hypothesized, in a state of ego depletion restrained eating predicted enacted self-control when confronted with food. However, the association between restrained eating and enacted self-control was found only in a state of ego depletion. This finding implies that when motivational orientation is directed at exerting control and attention is focused on cues signaling control, i.e. when a person is not ego depleted (Inzlicht & Schmeichel, 2012), the exercise of self-control and pursuing the goal of weight control do not require or require less effort. When motivational orientation is directed at gratifying desires and attention is focused on cues signaling gratification, i.e. when a person is ego depleted (Inzlicht & Schmeichel, 2012), however, inhibiting the grip of the food enjoyment goal on attention may require a person to enact more effortful self-control.

An alternative explanation for the association between restrained eating and enacted self-control in a state of ego depletion is that enacted self-control reflects effortful mood repair. However, our results were not consistent with this alternative explanation. Granted, restrained eating was associated with a negative affective state, reflecting previously reported associations between restrained eating and measures of symptoms of depression and anxiety (Dinkel et al., 2005). However, this association was not modified by the state of ego depletion indicating that preconditions for mood repair were not confounded with proposed exercised self-control due to goal conflict. Thus, the effect of external food cues on effortful self-control may be independent of

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Table 3
Hierarchical regression analysis predicting heart rate variability (HRV) during food exposure from restrained eating and ego depletion status.

<table>
<thead>
<tr>
<th>HRV</th>
<th>1.</th>
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<th>4.</th>
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<th>6.</th>
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<tbody>
<tr>
<td>Predictors</td>
<td>ΔR²</td>
<td>β</td>
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<tr>
<td>Step 1</td>
<td>.32***</td>
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<tr>
<td>HRV at baseline</td>
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<td>.57***</td>
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<td>Hunger</td>
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<tr>
<td>Step 2</td>
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<tr>
<td>Restraint scale (RS)</td>
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<tr>
<td>Condition (Cond)</td>
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<td>.16</td>
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<td>Step 3</td>
<td>.03*</td>
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<td>RS &lt; Cond</td>
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<tr>
<td>Total adj. R²</td>
<td>.34***</td>
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Note. HRV: RMSSD log-transformed; Condition: no ego depletion 0 vs. ego depletion = 1.
* p < .05, ** p < .01, *** p < .001.
mood repair processes. Interestingly, in the Dual-Pathway Model of Bulimic Pathology (Stice, 2001), restrained eating and negative affect are postulated to be two separate pathways that lead from body dissatisfaction to overeating.

We believe that a cognitive mechanism (i.e., a shift in attention towards cues signaling gratification) links restrained eating with the enactment of effortful self-control when exposed to food cues in the state of ego depletion. Notably, our ego depletion manipulation affected mental (and not general or physical) fatigue. It is possible that ego depletion strengthened the association between restrained eating and effortful self-control in the present study because the ego depletion manipulation specifically affected mental fatigue. According to the postulated processes, a manipulation of aspects of fatigue other than mental fatigue should strengthen the association between restrained eating and effortful self-control only if they are also accompanied by a shift in motivation that entails a shift in attention towards cues signaling gratification. Further research assessing shifts in motivation and attention due to ego depletion can verify the nature of the postulated mechanism that links restrained eating to enacted effortful self-control.

As is also assumed for self-regulation in general, it is likely that the regulation of eating behavior encompasses automatic and conscious processes (Aarts, 2007; Bargh, 1994). In the present study, we assessed effortful self-control via HRV, a measure that does not depend on awareness. However, we do not know what participants thought about during food exposure. It is possible that some participants with dieting goals consciously engaged in cognitive self-control strategies during food exposure. Thus, we do not know to what extent the association between restrained eating and effortful self-control in our study reflects conscious use of cognitive self-control strategies. Recent findings suggest that the basic integration of rewards, value, and required effort are possible without conscious awareness (Bijleveld, Custers, & Aarts, 2012), and that unconscious cognitive regulation can affect physiological reactivity in the same way as conscious cognitive regulation (Williams, Bargh, Nocera, & Gray, 2009). Further research should examine the different effects of consciously and unconsciously enacted self-control on the association between restrained eating and effortful self-control during exposure to food cues.

We believe our present study adds to research on processes related to successful and unsuccessful restrained eating captured in the current Goal Conflict Model of Eating Behavior (Stroebe et al., 2013): Exposure to palatable food can establish a hedonic orientation composed of enhanced accessibility of the eating enjoyment goal and decreased accessibility of the conflicting weight control goal, thereby directing attention towards foods. The present research suggests that performed acts of self-control may shift motivational orientation and attentional focus, leading to a state termed ego depletion that plays into the hands of the eating enjoyment goal by increasing one’s motivation to act on impulse and increasing the attention paid to immediate rewards (Inzlicht & Schmeichel, 2012). In this respect, ego depletion can be seen as a further agent in the conflict between the eating enjoyment vs. weight control goals. Other known agents are external dining cues that can reestablish the weight control goal (Papies, Stroebe, & Aarts, 2008b) and internal associations that form a link between food cues and thoughts of dietary restriction from frequent successful past coping with eating temptations (Papies et al., 2008a; Stroebe et al., 2013).

On the basis of the present study, we believe that two points can be made concerning restrained eating. First, food cues may trigger processes of self-control. This can be beneficial as it helps people to resist tempting food. Yet this may set into motion a shift in motivational orientation and attentional focus that together undermine further self-control (Inzlicht & Schmeichel, 2012). Second, processes of self-control triggered by food cues may be effortful only when motivational orientation has shifted towards gratifying desires and attention has shifted towards cues signaling gratification (Inzlicht & Schmeichel, 2012). Coming back to the downward spiral introduced at the beginning of the article and pictured in Fig. 1: Above the ego depletion threshold, i.e. when motivational orientation and attentional focus are supportive of self-control, it may be possible to resist tempting food through effortless inhibition of the food enjoyment goal. However, below the ego depletion threshold, the inhibition of the food enjoyment goal may be effortful, thereby further shifting motivational orientation and attentional focus towards a configuration that undermines self-control. This may lead to the breakdown of self-control and unrestricted eating.

The aim of the present research was to contribute to the understanding of processes of self-control related to eating behavior. We demonstrated that the triggering of effortful self-control by food cues depends on restrained eating and momentary motivational orientation and attentional focus, i.e. ego depletion (Inzlicht & Schmeichel, 2012). This has practical implications for designing psychological interventions to help people pursue their dieting goals in a sensible manner (cf. Mann, de Ridder, & Fujita, 2013) as well as theoretical implications for understanding pathology and self-regulation in general (Doerr & Baumeister, 2016).

References


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