

## Research article

# License to sin: Self-licensing as a mechanism underlying hedonic consumption

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### Abstract

*Hedonic overconsumption is often considered to be caused by impulsive factors. The current paper investigates whether self-licensing, relying on reasons to justify subsequent gratification, can also be included as a significant contributor to hedonic consumption. Two studies were conducted to investigate whether self-licensing can account for an increase in hedonic consumption while ruling out impulsive factors such as resource depletion, negative affect, and visceral state as alternative explanations. A pilot study indicated that perceiving oneself as having invested greater effort and thus having a self-licensing cue did not lead to a decline in self-control capacity compared with not having a self-licensing cue. The main study employed the same procedure and established that having a licensing cue did lead to increased snack intake while controlling for impulsive factors. Together, these studies support the notion that self-licensing is a separate mechanism leading to hedonic gratification independent of impulsive factors. Copyright © 2011 John Wiley & Sons, Ltd.*

Modern society increasingly appeals to our ability to regulate our hedonic tendencies. The availability and affordability of hedonically tempting but harm-causing goods, such as tasty but unhealthy food, alcohol, tobacco, and other consumer goods, require people to exert self-control on a daily basis. However, people do not seem to be very effective in resisting the constant confrontation with these temptations, which is reflected in the increasing prevalence of obesity (Flegal Carroll, Ogden & Johnson, 2002) and binge drinking (Wechsler, Lee, Nelson & Kuo, 2002) and the emergence of new maladaptive behavior patterns such as Internet addiction (Padilla-Walker, Nelson, Carroll & Jensen, 2010). It is therefore not surprising that a great deal of research has been devoted to the factors that contribute to hedonic overconsumption, such as attitudes and beliefs (Ajzen, 1991), social norms (Terry & Hogg, 1996), risk perceptions (Rogers, 1975), reward sensitivity (Saelens & Epstein, 1996), and personality traits (Conner & Abraham, 2001).

In the past decade, the research domain has shifted its focus to the role of impulsive factors in undermining our self-control abilities such as visceral states (Loewenstein, 1996), emotions (Tice, Bratslavsky & Baumeister, 2001), cognitive capacity (Hofmann, Gschwendner, Wiers, Friese & Schmitt, 2008), and self-control resources (Muraven & Baumeister, 2000). Although the view that desires and temptations impair our self-control abilities is now firmly established within self-regulation research (Baumeister & Heatherton, 1996; Metcalfe & Mischel, 1999) and society as a whole (cf., the False Hope Model by Polivy & Herman, 2002), common sense suggests that an impulsive breakdown of the self-control system is not the only route to hedonic indulgence. Contrast, for instance, the relaxed and carefree

holiday maker with the busy and stressed manager. Both indulge in a scrumptious chocolate sundae after dinner, despite their intention to lose weight. Whereas the manager's self-control resources have been weakened after a day of making difficult decisions, this would hardly be the case for the holiday maker who has been basking in the sun all day. Despite having the self-control capacity to avert indulgence, the holiday maker may still abandon his or her goals by using a justification (e.g., 'I'm on holiday after all') that allows this person to indulge. This example implies that sometimes people actively relent their self-control efforts, rather than lose self-control, by relying on justifications to permit themselves an otherwise forbidden pleasure. Such self-licensing, or the tendency to rely on reasons and arguments to justify subsequent gratification, has received surprisingly little attention within research on hedonic consumption.

The aim of the present paper is therefore to investigate whether self-licensing can contribute to hedonic (over)consumption, thereby exploring deeper the observation that hedonic (over)consumption in some cases is not the consequence of impulsive factors but the result of more reasoned processes.

## SELF-LICENSING

The concept of self-licensing contends that people are more likely to choose hedonic goods when the decision context allows them to justify the consumption (Khan & Dhar, 2006; Kivetz & Simonson, 2002; Kivetz & Zheng, 2006). Indeed,

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people may rely on justifications for their indulgent behaviors: ex-smokers who allow themselves to have a cigarette during a particularly stressful period or dieters permitting themselves a supersized fast food dinner after a difficult exam. As the key feature of self-licensing lies in permitting oneself an otherwise disallowed pleasure, self-licensing is a relevant candidate for explaining all kinds of hedonic consumption.

Self-licensing is based on the finding from decision-making research that people are more likely to make a choice that can easily be justified (Shafir, Simonson, & Tversky, 1993). As the need to choose often creates conflict, decision makers seek and construct reasons to resolve the conflict and justify their choice (e.g., Kivetz, 1999; Shafir et al., 1993; Simonson, 1989). When confronted with a typical self-regulation dilemma of gratifying immediate desires versus the pursuit of long-term benefits, people will in many cases be inclined to pursue the hedonic option but will be less likely to do so when the situation makes it difficult for them to justify it (Kivetz, 1999; Okada, 2005). Thus, sometimes indulgence is not determined by ones' capacity to control oneself but rather by the availability of reasons that one has to justify the prospective indulgence.

Self-licensing processes in self-regulation have been afforded quite some attention in the domain of moral behavior, where people whose past behavior (e.g., acting non-prejudiced) provides them with some kind of moral credentials that license them to subsequently behave in a way that violates these principles (e.g., voicing prejudiced opinions; Effron & Monin, 2010; Monin & Miller, 2001). However, in empirical explanations for hedonic overconsumption, licensing processes, despite their apparent suitability to explain hedonic behavior, have received considerably less attention. Most evidence that the presence of reasons or justification cues indeed facilitates indulgent choice comes from consumer research (e.g., Khan & Dhar, 2006; Mukhopadhyay & Johar, 2009). For example, having invested greater effort increased the likelihood of choosing relative vices over virtues (e.g., a 'rich, delicious chocolate cake' over a 'low-calorie, seasonal fruit salad'). These findings were found when the actual effort or relative effort (when compared to others) was manipulated (Kivetz & Zheng, 2006). In the same vein, several studies suggest that prior restraint can serve as a justification cue for subsequent indulgence. For instance, participants were more likely to choose an indulgent chocolate cake over a non-indulgent fruit salad when they were instructed to think of a prior instance where they had exercised restraint by not buying an attractive product (Mukhopadhyay & Johar, 2009).

These findings suggest that having a justification can lead to a preference for vice over virtue. Although promising, there remain some unresolved questions that need to be addressed before drawing firm conclusions about self-licensing as an additional mechanism underlying indulgent behavior. Most importantly, to date, the self-licensing mechanism has mainly been studied with respect to *choices* between virtue and vice, mostly even hypothetical choices without any actual consequences. Although these findings have demonstrated that self-licensing leads to more hedonic choices, this does not necessarily mean that self-licensing contributes to an increase in indulgent behavior. There are several reasons to assume that self-licensing might not automatically translate from decision making to hedonic behavior.

First, self-licensing is likely to be considered an integral part of the decision-making process in choices between virtue and vice, as seeking and constructing reasons resolve the decisional conflict. However, in most cases of hedonic overconsumption, the decisional conflict, and thereby possibly the reliance on justifications, is less outspoken. Particularly in prior studies investigating licensing processes in decision making, choices were pitted against each other, highlighting contradicting goals and emphasizing the relative features of the product (hedonic versus functional). It has indeed been argued that dilemmas that bring out a contrast, rational deliberation is likely to play a leading role in solving the dilemma, whereas in general judgment, one is more likely to rely on quick affective judgment (Monin, Pizarro, & Beer, 2007). Thus, with regard to hedonic consumption, forcing people to choose between two contrasting options, might induce deliberation and therefore promote licensing processes. It remains unclear, however, whether indulgent behavior per se, without an explicit alternative choice, evokes reasoning and therefore is susceptible to self-licensing.

Second, the choices people faced in the previous studies often did not represent typical self-regulatory dilemmas that involve gratifying immediate desires at the cost of negative future consequences. For example, choosing a lowbrow over a highbrow magazine (Kivetz et al., 2006) hardly bears any negative long-term consequences nor alludes to any strong temptational or visceral urge that needs to be resisted as is often the case for hedonic consumption (e.g., eating, smoking, and drinking).

Third, replacing a hedonic option with an available and equally valued functional one, such as a rich chocolate cake with a fresh fruit salad, is unlikely to evoke a self-control conflict. Rather, foregoing a hedonic option without replacing it is more suitable to induce a struggle between conflicting desires and more likely to be a reflection of everyday self-control dilemmas people face. When one declines the cake at a birthday party, there may not be a healthy fruit salad at hand. Hence, to determine whether self-licensing is a factor to incorporate in models of hedonic consumption, it would be useful to investigate whether self-licensing also leads to an actual increase in indulgent behavior, without the possibility of alternatives.

Another issue requiring examination is that common justification cues like prior restraint and effort can serve as justification but can also foster indulgence due to depletion of self-control resources (Muraven & Baumeister, 2000). Although some self-licensing studies have manipulated justification cues by merely reminding participants of prior restraint or only varying relative effort, rather than actual effort, resource depletion cannot be ruled out as an alternative explanation for self-licensing. For instance, Ackerman, Goldstein, Shapiro, and Bargh (2009) found evidence for vicarious resource depletion: imagining another person exerting self-control depleted self-control resources despite not actually engaging in an effortful task. It could be possible that having the impression of having exerted effort or restraining oneself produces similar results. To establish whether an observed increase in indulgent behavior indeed can be attributed to self-licensing processes rather than resource depletion, it is necessary to test whether the justification cues used in self-licensing studies require self-control resources.

## PRESENT STUDIES

In the present paper, we aim to investigate whether self-licensing leads to an increase in indulgent behavior and addresses above-mentioned issues by (i) employing typical self-regulatory behavior rather than choice and (ii) ruling out depletion of self-control resources as the underlying mechanism of self-licensing. We predict that providing participants with a justification cue increases indulgence on a subsequent, unrelated, taste test but will not lead to a decrease in self-control capacity.

An initial issue that requires examination regarding self-licensing as an additional route to self-gratification is that justifications such as prior restraint and effort can also cause indulgence due to the depletion of self-control resources (Muraven & Baumeister, 2000). To determine whether indulgence is caused by resource depletion or by self-licensing, it would be necessary to incorporate a direct test of self-control capacity after the manipulation. However, it is impossible to directly test resource depletion without actually depleting resources, thereby disabling attributions of subsequent measures of self-control to self-licensing. Therefore, we conducted a pilot study to test whether the justification cue employed in our study required self-control resources. This would allow us to establish whether an observed increase in indulgent behavior indeed can be attributed to self-licensing processes rather than depletion of self-control resources.

## PILOT STUDY

A pilot study tested whether a justification cue would deplete self-control resources by manipulating perceived effort followed by a direct measure of self-control capacity: a Stroop task (cf., Webb & Sheeran, 2003). The effort manipulation consisted of an undemanding task that, to minimize self-control exertion, did not require inhibition of automatic responses. Depending on the condition, participants were led to believe they had completed the task either once (control condition) or twice (effort condition), thereby manipulating their perceived effort on the task while keeping actual effort constant.

### Method

#### *Participants*

One hundred and six female students with a mean age of 21.20 ( $SD = 3.16$ ) participated in exchange for course credits or monetary reward. Six outliers ( $SD > 3$  from the mean) on one of the dependent variables (Stroop error rates:  $n = 5$ ; Stroop reaction time:  $n = 1$ ) were excluded from analyses. Participants were randomly assigned to the control condition ( $n = 50$ ) or the effort condition ( $n = 50$ ).

#### *Procedure*

The study was presented in two supposedly unrelated parts. In the 'first' study, effort was manipulated by a bogus validation task for a new dyslexia screener. This 'validation study'

involved a long, but undemanding task, with a 1-minute break halfway through the task. During this break, participants in the effort condition received feedback stating that they had to do the task again to establish the reliability of the screener, whereas participants in the control condition received feedback simply stating that they had a break. Thus, the control condition completed the task as if it were a single task of 10 minutes, whereas the effort condition completed this task in  $2 \times 5$  minutes, under the impression that they were doing two tasks for the validation of the dyslexia screener. As a manipulation check, participants were asked to indicate how much they had enjoyed or disliked the task and the degree of effort they had exerted completing the task. Next, the Stroop test was administered as part of a 'second' study on color and stimulus response. Finally, after providing demographic information, participants were debriefed and reimbursed for their participation.

### *Materials*

*Effort Manipulation* Two-hundred forty neutral words (e.g., horse, desk, and wall) were presented consecutively, and participants were asked to indicate the first letter of each word on their keyboard. After 5 minutes, the task paused for 1 minute. During this break, the control condition was presented with a blank screen indicating a pause, after which the task continued for another 5 minutes. During this break, participants in the effort condition were thanked for their participation in the dyslexia study and were informed that to establish the reliability of the task, certain participants would be randomly selected to do the task again, after which they were informed that they indeed had been selected by the computer. The participants then completed the last 5 minutes of the task. Thus, both conditions completed exactly the same task.

*Manipulation Check* Possible differences between the conditions in evaluations of the dyslexia task were assessed by asking participants to rate different evaluative aspects of the task on 5-point Likert scales ranging from 1 (*not at all*) to 5 (*very much*). A positive task evaluation score was created by calculating participants' mean score on 'enjoyment', 'fun', and 'interestingness' of the task (Cronbach's  $\alpha = .87$ ). A negative task evaluation score was created by calculating participants' mean score on 'boringness', 'tediousness', 'monotonousness', and 'dislike' of the task (Cronbach's  $\alpha = .76$ ). Finally, a task effort score was created on the basis of participants' mean scores on the 'extra effort', 'extra strains', and 'extra dedication' they had put into the dyslexia task (Cronbach's  $\alpha = .70$ ).

*Visceral State* For possible effects of the effort manipulation on visceral symptoms of resource depletion to be assessed (i.e., tiredness and hunger), participants had to indicate to what extent they were experiencing a range of visceral states ('tiredness' and 'energetic [reverse coded]; and 'hunger', 'appetite', and 'feeling like a bite') on a 5-point scale ranging from 1 (*not at all*) to 5 (*a lot*) before (T0) and after the effort manipulation (T1). Indices of Tiredness (Cronbach's  $\alpha = .79$  at T0 and T1) and Hunger (Cronbach's  $\alpha = .93$  and  $.95$  at T0 and T1) were created on the basis of the means of the respective scores.

**Stroop Task** The Stroop task (Stroop, 1935) is an established measure for inhibitory control (e.g., Inzlicht & Gutsell, 2007; Richeson & Trawalter, 2005) in which participants must override their dominant response (reading the semantic meaning) to name the color of the word. The Stroop task consisted of 12 practice trials to familiarize the participants with the task, which were then followed by 256 actual trials: 64 congruent trials with the word color matching its semantic meaning and 192 incongruent trials with the word color mismatching its semantic meaning. In addition to mean reaction time for each trial type (congruent and incongruent), we calculated error rates for each trial type. Greater values indicate decreased self-control capacity (e.g., Inzlicht & Gutsell, 2007; MacLeod, 1991; Webb & Sheeran, 2003).

## Results

### Manipulation Check

**Task Ratings** An ANOVA showed that participants in the effort condition believed they had exerted more effort ( $M=2.48$ ,  $SD=.61$ ) than participants in the control condition ( $M=2.10$ ,  $SD=.66$ ),  $F(1, 98)=8.29$ ,  $p=.01$ ,  $\eta^2=.08$ . The manipulation of effort was thus successful. A MANOVA on participants' positive and negative task evaluation scores indicated that the conditions did not differ in participants' valence ratings of the task,  $F < 1$ .

**Visceral State** For the influence of the effort manipulation on Tiredness and Hunger to be explored, a repeated measures analysis was conducted with condition as between-subjects factor and the score for Tiredness at T0 and T1 as within-subjects factor. A significant effect of time was found; participants were more tired after the task ( $M=2.35$ ,  $SD=.93$ ) than at baseline ( $M=2.05$ ,  $SD=.84$ ),  $F(1, 98)=12.05$ ,  $p=.00$ ,  $\eta^2=.15$ . However, no significant interaction or condition effects were found. A similar analysis was conducted with Hunger at T0 and T1, yielding no main nor interaction effects, indicating that the effort manipulation did not have an effect on hunger.

**Stroop Task** To assess Stroop interference, we contrasted performance on the incongruent trials with performance on congruent trials using reaction time as the dependent variable. A 2 (condition: control versus effort)  $\times$  2 (trial type: effort versus control) mixed-model ANOVA, with the second factor within-subjects, revealed the typical Stroop interference effect,  $F(1, 98)=134.75$ ,  $p=.00$ ,  $\eta^2=.58$ , yet no significant condition effect or interaction between condition and trial type was observed,  $ps > .38$ . Next, a similar analysis was performed with error rates as the performance measure. Again, results revealed the typical Stroop interference effect,  $F(1, 98)=107.63$ ,  $p=.00$ ,  $\eta^2=.52$ , yet failed to find a significant interaction between condition and trial type,  $p=.32$ . However, a marginally significant main effect of condition was found in the opposite direction, indicating that participants in the control condition generally made more errors ( $M_{\text{congruent}}=2.72$ ,  $SD_{\text{congruent}}=2.37$  and  $M_{\text{incongruent}}=8.50$ ,  $SD_{\text{incongruent}}=6.68$ ) than participants in the effort condition ( $M_{\text{congruent}}=1.84$ ,  $SD_{\text{congruent}}=2.21$  and  $M_{\text{incongruent}}=6.61$ ,  $SD_{\text{incongruent}}=5.91$ ),  $F(1, 98)=2.99$ ,  $p=.09$ ,  $\eta^2=.03$ . Thus, Stroop performance

indicated that the effort manipulation did not deplete self-control resources in comparison with the control condition. These null findings cannot be attributed to a lack of power, as the sample size of 100 provided us with a power of more than .95 to detect a small to medium effect size.

## Discussion

The findings from the pilot study confirmed that perceiving oneself as having invested effort does not deplete self-control resources. An increase in intake in a subsequent hedonic task would therefore not be attributable to a loss of self-control resources.

## STUDY 1

In Study 1, the self-licensing model was tested by using the effort manipulation that was tested in the pilot study, after which the participants were given the opportunity to indulge in a tasty but unhealthy taste test. We hypothesized that participants who believed they had exerted more effort by doing the task twice would feel licensed to indulge by eating more unhealthy snacks. In addition, for alternative explanations besides self-control capacity to be ruled out, Study 1 controlled for additional variables that could facilitate hedonic consumption such as negative mood (Tice et al., 2001), visceral state (e.g., hunger; Loewenstein, 1996), or perceived ego depletion (Clarkson, Hirt, Jia, & Alexander, 2010).

## Method

### Participants

Thirty-nine female university students participated in this study in return for a monetary reward (€5,-) or course credits. We used female participants, as research has shown that they experience food more as a self-regulatory dilemma than male participants (Grogan, Bell, & Conner, 1997). This makes them more likely to use justifications for indulging in highly caloric food. Two participants with extreme values ( $SD > 3$  from the mean) regarding food intake were excluded from the analyses. The final sample consisted of 37 participants (control condition:  $n=17$ ; effort condition:  $n=20$ ) with an average age of 20.65 years ( $SD=1.58$ ) and a mean BMI of 21.43 ( $SD=2.16$ ).

### Procedure

As in the pilot study, participants were told they were participating in two separate studies: a dyslexia study and a consumer test for a large supermarket chain. For standardized satiety rates to be created, participants were informed beforehand that they could only participate if they had not eaten for at least 2 hours. After baseline measures of affect, the same 'validation' study as tested in the pilot study was used to manipulate perceived effort. For alternative factors that can influence hedonic consumption to be controlled, participants' emotional state and state self-control were assessed afterwards to establish whether the task caused any differences in

emotional state and sense of self-control between the conditions, followed by the same manipulation check as in the pilot study. As part of the 'second study', participants' feelings of hunger were assessed. Food intake was determined by means of a bogus taste test in which participants had to taste and evaluate different brands of snacks. Unbeknownst to the participant, each bowl was weighed in advance. Afterwards, the food was weighed by the experiment leader who was blind to the participants' experimental condition to calculate participants' food intake. Finally, after providing demographic information, participants were debriefed and reimbursed for participation.

### Materials

**Effort Manipulation** The effort manipulation that was tested in the pilot study was used.

**Manipulation Check** The positive and negative task evaluations (positive versus negative task evaluation score:  $\alpha = .80$  vs.  $\alpha = .81$ ) and measure of perceived effort (Cronbach's  $\alpha = .77$ ) were identical to the ones used in the pilot study.

**Emotional State** Participants' rated their current emotional state on 5-point Likert scales. A positive emotion score was created by calculating participants' mean score on 'contentment', 'happiness', 'cheerfulness', 'relaxation', 'pleasantness', and 'joyfulness' (Cronbach's  $\alpha = .73$  and  $.87$  at T0 and T1, respectively). A negative emotion score was created by calculating participants' mean score on 'shame', 'guilt', 'anger', 'sadness', 'worrying', 'disgust', 'tension', 'irritation', and 'frustration' (Cronbach's  $\alpha = .93$  and  $.86$  at T0 and T1).

**Perceived Self-Control Capacity** To control for perceived resource depletion (Clarkson, et al., 2010), we included the State Self-Control Questionnaire (Ciarocco, Twenge, Muraven, & Tice, 2007), consisting of 17 items that could be answered on 5-point scales to measure their current subjective state of self-control (Cronbach's  $\alpha = .88$ , an example being: 'At this moment it would be difficult to exert self-control').

**Hunger** Participants indicated on 5-point scales how much they currently experienced hunger, appetite and were feeling like a bite. These items were combined into a single *hunger* rating (Cronbach's  $\alpha = .90$ ). In addition, participants were asked to indicate how long ago they had had their last meal (in minutes).

**Food Intake** Participants tasted four different kinds of snack food: Crisps, M&M's, Wine gums, and Chocolate Chip cookies. For each different type of snack, two different brands were provided (labeled A and B), which had to be compared on taste and perception. Thus, in total, participants were provided with eight different bowls of snacks. The weight of food consumed was calculated on the basis of the difference in weights of the bowls before and after the taste test. Because the different kinds of snacks differed in size and weight, each snack type was standardized, and Z scores were summed for each participant to create an index of food intake. For the ease of interpretation, means will be reported in grams.

## Results

### Randomization and Manipulation Check

Separate ANOVAs were performed with condition (control versus effort) as the independent variable and age, BMI, time since last meal, and baseline affect as the dependent variables. The condition effects were not significant ( $ps > .24$ ), indicating successful randomization.

An ANOVA showed that participants in the effort condition believed they had exerted more effort ( $M = 2.72$ ,  $SD = .85$ ) than participants in the control condition ( $M = 1.88$ ,  $SD = .63$ ),  $F(1, 35) = 11.08$ ,  $p = .00$ ,  $\eta^2 = .24$ . The manipulation of effort was thus successful. A MANOVA with the positive and negative task evaluations as dependent variables did not reach significance,  $F_s < 1$ , indicating that the conditions did not differ in their valence ratings of the task.

### Emotional State

A MANOVA on the positive and negative emotion scores did not reveal a significant condition effect,  $F < 1$ , indicating that perceived effort did not affect emotional state.

### Perceived Self-Control

An ANOVA revealed that after completing the effort task, perceived levels of self-control were equal in the effort ( $M = 4.83$ ,  $SD = .97$ ) and control conditions ( $M = 4.84$ ,  $SD = .77$ ),  $F < 1$ .

### Hunger

An ANOVA with hunger as the dependent variable revealed a significant condition effect,  $F(1, 35) = 6.53$ ,  $p = .02$ ,  $\eta^2 = .16$ . Participants in the effort condition experienced significantly more hunger ( $M = 3.63$ ,  $SD = .67$ ) than those in the control condition ( $M = 3.02$ ,  $SD = .79$ ). *Hunger* was therefore included as a covariate in subsequent analyses.

### Food Intake

The intake of snacks was subjected to an ANCOVA with condition as the independent variable and hunger as the covariate. A preliminary analysis evaluating the homogeneity of regression slope assumption confirmed that the slopes for hunger did not differ between conditions,  $F(1, 35) = .77$ ,  $p = .39$ . The ANCOVA was significant: participants in the effort condition consumed more snacks ( $M = 102.2$ ,  $SD = 34.83$ ) than participants in the control condition ( $M = 76.94$ ,  $SD = 28.12$ ),  $F(1, 35) = 4.79$ ,  $p = .04$ ,  $\eta^2 = .12$ . The covariate did not reach significance ( $p = .42$ ). When hunger was not included as a covariate, the impact of perceived effort on consumption increased further,  $F(1, 35) = 7.55$ ,  $p = .01$ ,  $\eta^2 = .18$ .

## Discussion

The results of Study 1 confirmed our expectations that a self-licensing cue leads to an increase in hedonic eating. The participants who were led to believe that they had completed two tasks consumed on average 26 g more snacks than

participants who actually performed the same task but thought they had only completed a single task. This equals an additional intake of 130 calories within a time span of 10 minutes. This difference in hedonic eating cannot be explained by differences in positive/negative task evaluations, emotional state, or perceived self-control capacity. Although there was a difference in reported hunger, this difference did not account for the increase in food indulgence.

## GENERAL DISCUSSION

Although previous studies demonstrated that self-licensing processes are involved in hedonic versus functional decision making, the present studies add that self-licensing also increases indulgence in actual self-regulatory behavior. Moreover, these studies indicate that self-licensing processes cannot be attributed to a decrease in inhibitory control, but that self-licensing is a separate mechanism leading to gratification.

These findings demonstrate that self-licensing, in addition to impulsive influences, could contribute to a more comprehensive understanding of the ways in which people act against their better judgment. As overconsumption lies at the heart of many societal problems, self-licensing is an important mechanism to take into account when addressing the consequences of inadequate self-regulation.

Although the current findings demonstrated that self-licensing occurs in the absence of ego depletion, it does not necessarily mean that they always operate as independently as is currently described. Their seeming relatedness raises the question whether self-licensing and ego depletion are fundamentally different or whether they are different manifestations of a common underlying mechanism. Kivetz and Zheng (2006) argued, for example, that ego depletion, as well as other impulsive sources of self-gratification, might operate via a justification-based mechanism. Thus, initial acts of self-control could also serve as a justification to indulge. A suggestion that is strengthened by the recent finding that merely perceiving oneself as depleted can impact subsequent self-regulatory performance independent of one's actual state of self-control depletion (Clarkson et al., 2010). Similarly, Polivy and Herman (2002) state in their False Hope model that dieters seem to implicitly apply the idea of resource depletion, believing that one can only exert effort for so long before giving up. Consequently, when experiencing difficulties in their weight loss efforts, they attribute this to a lack of willpower or effort to justify their lack of progress. The notion that people rely on lay theories of willpower as limited resource is corroborated by new research revealing that reduced self-control after initial effort is moderated by such beliefs rather than actual resource depletion (Job, Dweck & Walton, 2010). Another possibility is that self-licensing and ego depletion interact in their contribution to hedonic behaviors. For instance, being depleted might engender self-licensing processes.

Relatedly, the finding that participants who were under the impression of having completed two tasks reported more hunger again confronts us with the question whether self-licensing or resource depletion is at play. Although the differences in hunger did not explain the effects on consumption, this

observed difference in hunger is intriguing, considering that all participants were not allowed to eat 2 hours beforehand to standardize satiety rates. In line with the resource-depletion perspective, it could be argued that participants in the effort condition were indeed depleted of self-control resources, as there is evidence that resource depletion reflects lower levels of blood glucose (Gailliot et al., 2007). Considering the results of the pilot study where perceived effort did not influence hunger, this seems unlikely, guiding explanations in the direction of licensing mechanisms. It could, for example, be hypothesized that the observed increase in hunger was caused by the indulgent nature of the subsequent task. Perhaps the realization that one has a justification that allows one to indulge in the subsequent taste test enhanced the anticipation for the tasty food in the extra effort condition. Some related evidence for such a mechanism comes from a study by Mukhopadhyay and Johar (2009; Study 2) in which participants preferred a food indulgence over a healthier food option after they had recalled prior restraint, but this effect disappeared when prior restraint was not salient. Thus, having a justification cue such as perceived effort or prior restraint can make the subsequent indulgence more tempting, thereby facilitating indulgent tendencies. Another possibility is that the difference in hunger ratings, in fact, represents a case of 'double self-licensing', where the increase in self-reported hunger is a valid way to license the subsequent indulgence. Nevertheless, these remain speculations that provide interesting opportunities for future research.

Another issue that requires further investigation is the explicitness of self-licensing processes. Although the current results demonstrate that people rely on reasons when indulging, the justification process remains quite implicit in the current study. In the present study, people were provided with a justification cue rather than having to actively construe reasons that would foster indulgence. Moreover, as the justification cue used was quite implicit, it remains to be answered how aware participants were of deploying justifications to allow self-gratification. It could very well be that participants acted on implicit beliefs such as that hedonic consumption is only allowed when one has exerted effort or restraint, or applied some sort of heuristic, implying that effort or fatigue deserves gratification. This suggestion is already put forward by Kivetz and Zheng (2006) who argue that justification cues might exert their effort outside of consciousness. Future studies should explore whether such unconscious reliance on justifications is the result of an initially conscious process in which explicit justifications become heuristics to rely on in similar circumstances. Nevertheless, although many questions about self-licensing warrant further investigation, the current studies demonstrate that sometimes people strategically choose to indulge and that gratification of our desires is not inevitably governed by our impulses.

As the current studies are the first to expand the topic of self-licensing to hedonic behavior, some limitations have to be noted. The self-licensing process was only tested in a female student population. Although there is no theoretical ground to expect that this process does not generalize to other populations, its generalizability could be tested in other relevant samples, for example, males or older adults. Furthermore, for self-licensing as a source of maladaptive self-regulation to

be more firmly established, its impact on other types of problematic self-regulatory behavior should be investigated, such as impulsive buying or procrastination. Additionally, more should be known about other types of justification cues than effort. Consumer research suggests that altruism and restraint may also be likely instigators of self-licensing (Khan et al., 2006; Mukhopadhyay et al., 2009).

In sum, the current paper demonstrated that self-licensing is a relevant mechanism underlying unhealthy behavior that is distinct from previously established routes such as self-control failure. By uncovering alternative pathways to hedonic overconsumption, we hope to contribute to a more comprehensive view of self-regulation.

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