

Temptation-Based Reasoning: When Tempted, Everything Becomes a (Better) Reason to Indulge

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ABSTRACT

Building on theories of motivated reasoning and reason-based choice, we propose that people interpret reasons for indulgence in a different light depending on how tempting behavior is. Experiments 1a and 1b find that the more tempting the behavior is, the more people think a given reason (“it is a Tuesday”) is an acceptable reason to indulge. Furthermore, we find that both recalled prior good behavior (Experiment 2a) and recalled prior frustrations (Experiment 2b) are interpreted as good reasons to indulge when confronted with tempting behavior. Finally, Experiment 3 replicates that people see a prior good deed (taking part in the studies) as a better reason for indulgence when the indulgence is more tempting, which makes them more likely to actually choose an unhealthy food option. This process of temptation-based reasoning sheds new light on existing theories on how people deal with temptations, notably those on self-licensing, comfort buying, and comfort eating.

Keywords: Motivated reasoning; reason-based choice; temptation; indulgence; self-licensing

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Supplementary material available at: http://dx.doi.org/10.1561/107.00000047_supp
ISSN 2326-568X; DOI 10.1561/107.00000047

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A temptation can be defined as a strong urge to do or have something that also has negative consequences in the long run (Fishbach and Shah 2006). Examples of temptations are unhealthy food when one is dieting, being flirted with when one is in a committed monogamous relationship, checking social media during working hours, and spending money on luxurious items while trying to save money for retirement. Temptations represent a self-control problem, a conflict between wanting something while preferring to resist it at the same time (Hoch and Loewenstein 1991). Much is learned over the last decades about how self-control may operate (Baumeister *et al.* 1994, 2007; Fishbach 2009; Muraven and Baumeister 2000), and how people construct reasons to justify their choice (Kunda 1990; Shafir *et al.* 1993). We add to the literature by proposing that people will find the *same reason* a better reason when they are tempted to indulge.

This reasoning builds on two main lines of research. First, people choose options that are easier to justify based on available information. In other words, they prefer options for which it is easier to come up with a reason to pick one option over the other (Bastardi and Shafir 2000; Shafir *et al.* 1993). Second, Kunda's (1990) theory on motivated reasoning posits that people construct justifications so they can arrive at desirable conclusions; they selectively ignore or interpret information to reach the desired conclusion to favor one option over the other. We will go deeper into the theory behind this in the next section, but for now wish to point out that this prior work is mainly focused on how people weigh and interpret existing arguments to eventually create reasons to favor one of the options (in reason-based choice) or the preferred option (in motivated reasoning). We predict that people will not only construct reasons differently, but also that the exact same reason for indulgence is interpreted in a different light, depending on how tempting the indulgence is.

Reason-based choice. Reason-based choice theory (Bastardi and Shafir 2000; Shafir *et al.* 1993) indicates that many real-life decisions are not necessarily based on a rational calculation of costs and benefits of taking an action, but on finding reasons or justifications for one of the options. When one has sufficient reasons to choose one option over the other, a choice is made. The importance of seeing choice as a process resulting from a search for reasons is that it can accommodate many effects that strict rational theory cannot explain. For example, options that are presented first tend to be preferred as people start searching for reasons to favor that option (Kardes and Kalyanaram 1992), or when someone chooses to delay a choice this delay is later interpreted as a sign that one did not really like the option, which becomes a reason against choosing it (Van de Ven *et al.* 2010). The basic premise in Shafir *et al.*'s reason-based choice framework is thus that when people choose between two options, they look for reasons to justify choosing one of the options. But, what if people already have an initial preference for one of the options? What would be the role of reasons?

Motivated reasoning. Kunda (1990) argues that even when people have an initial preference, they still look for reasons to justify that choice. However, they do so in a rather biased way. People engage in motivated reasoning to selectively recall reasons in favor of the desired conclusion. Following up on this, research also finds that evidence presented in favor or against one's preferred option is evaluated in a different light: when information is consistent with one's ideas it is only processed superficially (and accepted), when it is inconsistent people engage in more thorough processing to check its validity (Jain and Maheswaran 2000).

Motivated reasoning occurs when people prefer to reach a certain conclusion. One domain in which this happens is that of temptations. Often, tempting indulgences have short-term benefits (eating the burger for lunch, checking social media during work) and long-term disadvantages (weight gain, having to work longer to get the job finished). Stronger temptations reflect a stronger preference for the short-term option, and motivated reasoning to find reasons that allow indulgence becomes more likely. An example of this is that when consumers spend more effort in a loyalty campaign, they more easily choose (a tempting) hedonic luxury reward over a utilitarian one (Kivetz and Simonson 2002). The reason is that people feel they need to earn a luxury, and that when more effort is put into the loyalty program this justification is easier to make. This confirms that people feel they need a justification to give in to a tempting option.

Research by Cheema and Soman (2006) also indicates that spending on hedonic, tempting experiences is easier when the spending can also be classified as a utilitarian one because that provides a justification for the indulgence. For example, a dinner at a restaurant is a hedonic experience, but it could also be framed as utilitarian (one needs to eat after all). For expenses that can be fitted into multiple different mental accounts (e.g., food, pleasure, social event), it is easier to find a reason why spending on it is acceptable, and indulgence becomes more likely. Again this shows when the situation allows ambiguous interpretation, it becomes easier to find a justification via motivated reasoning, which in turn makes people more likely to indulge. Following up on this, Poynor and Haws (2009) also find that people categorize items as a luxury or a necessity, depending on their consumption goal and dispositional tendency; if their goals are consistent they place more products in the category to more easily fulfill their goal. This again shows the effects of motivated reasoning as people categorize items in a way that makes it easiest for them to reach their desired goals. In other words, when people are tempted, they will look for ways to justify giving in to the temptation.

The idea that the “temptingness” of an option directly affects motivated reasoning finds some support in research by De Witt Huberts *et al.* (2014). In their research, female students rated the temptingness of a chocolate bar and indicated which of 30 reasons from a list they would find a good reason to eat the chocolate bar (Study 1) or wrote down the reasons they could

think of to eat it (Study 2). The more tempting the chocolate bar was to a participant, the more justifications the students picked from a given list or wrote down themselves. These results show a correlation between the self-rated temptingness of behavior and the number of justifications people thought were reasonable reasons for indulgence. However, because there is no manipulation, self-selection might play a role and therefore the direction of the effect is not fully clear. To test our idea that people interpret reasons for indulgence in a different light when confronted with a temptation, it is therefore crucial to experimentally manipulate the temptingness of the temptation and subsequently measure how this influences participants' reasoning processes. Furthermore, and most importantly, their research could also not answer the question whether people will find the exact same reason a better reason to indulge, when they are tempted.

Temptation-Based Reasoning

The work discussed so far shows that people are biased to find reasons for what they want to do. We extend these different lines of research to the field of temptations, and think that stronger temptations will lead to a stronger motivated reasoning. We believe that when people are tempted to display certain behaviors, they search for justifications and any reason may serve as one. Importantly, we do not only believe that people who want to give in to temptation are more likely to *find* reasons (as theories on motivated reasoning and reason-based choice would predict), but, and this is where our contribution lies, we also expect that people regard a *similar* reason as more compelling when the temptation is stronger. Thus, we hypothesize that people would find a certain reason for giving in to temptation to be more acceptable when the temptation is stronger than when it is less strong.

The present research aims to shed light on when people permit themselves to give in to temptations. We believe that the presence of a temptation can initiate a motivated reasoning process, where reasons become "better" when the temptation is stronger. This adds to existing work because (1) it shows that people do not only search for reasons to reach a desired conclusion, but also think that the same reason is more acceptable if that allows them to reach a desired conclusion; and (2) we manipulate the temptingness of possible indulgences, which allows us to establish the causal link as we propose it here.

We first test in two experiments (1a and 1b) whether a given reason is interpreted as a better reason to indulge when one is more tempted to indulge. In two follow-up experiments we test whether in a more tempting situation people find the same self-generated reason (a prior good deed in Experiment 2a, a prior frustration in Experiment 2b) a better reason to indulge when the

option is more tempting. Finally, in Experiment 3 we replicate the earlier findings, but now with a real choice between an apple and a tempting donut as the dependent variable.

Experiment 1a. Interpreting Provided Reasons to Check Social Media during Working Hours

In Experiment 1a, we investigated whether people find different reasons for checking social media on their personal smartphones during work more acceptable when there is a high temptation to check their smartphones. We manipulated temptation by showing pictures of a tempting smartphone screen with alerts and messages versus a less tempting smartphone screen without any alerts. A screen that displays that there are multiple messages waiting for you is more tempting, because it is a signal that there is new and unknown information close by, which triggers curiosity (Loewenstein 1994). As Loewenstein argues, curiosity leads to a strong urge to satisfy it, and the closer information is, the stronger the curiosity and the temptation to look for it will be. We expected that participants who saw the picture of a tempting smartphone screen would find various reasons to check their personal phones during work more acceptable than participants who saw the picture of a less tempting smartphone screen.

Method

We first conducted a pretest including 109 participants (65 males and 44 females, $M_{\text{age}} = 32.11$, $SD = 10.54$) to examine whether checking both phones during work time was regarded as equally undesirable.¹ In this pretest, participants imagined working for a company that restricts the use of personal phones and saw the picture of the tempting smartphone ($n = 54$) versus the less tempting smartphone ($n = 55$). Subsequently, they were asked whether they thought that checking the phone during working hours would break their company policy (1 = *not at all*, 7 = *very much*). The results showed that checking the non-tempting smartphone was regarded as equally undesirable behavior ($M = 6.25$, $SD = 1.27$) as checking the more tempting smartphone was ($M = 6.22$, $SD = 1.61$, $t(107) = 0.12$, $p = 0.907$). This indicates that for both phones people realize that checking it during work hours is a negative action.

Four hundred and ninety-two U.S.-based participants completed our experiment on MTurk. We excluded participants who indicated that they did

¹Data files of our studies can be found at http://dx.doi.org/10.1561/107.00000047_suppl.

not own a smartphone ($n = 34$),² leaving 458 participants (272 males and 186 females, $M_{age} = 31.05$, $SD = 9.14$) in our sample. Participants were randomly assigned to the Tempting Phone condition ($n = 221$) or to the Less Tempting Phone condition ($n = 237$). Participants were exposed to one of the phone screen images (Figure 1) and read the following instructions:

Your work company has a policy that restricts the use of personal phones; in principle you are not allowed to check or use your personal phone during working hours. This is a screenshot of your personal smartphone that you use for private purposes only. You do not receive any work-related messages on this phone.



Figure 1: Stimuli used in Experiment 1a.

Note: Tempting Phone condition (left) and the Less Tempting Phone condition (right).

²When we included participants who did not own a smartphone in the analyses, we found similar results.

Next, participants were asked to indicate how tempted they would be to check their personal phone if their screen looked like the presented image (1 = *not at all*, 7 = *very much*). Subsequently, participants were asked to read four potential reasons for checking this personal phone during work, and they indicated for each whether they found this reason an “acceptable” reason (1 = *not at all*, 7 = *very much*). The four reasons were: “You feel very frustrated about something that happened today”, “The past few days, you have worked very hard; you are ahead of your working schedule”, “You performed a good deed today, such as helping someone in need”, and “It is a Tuesday afternoon”.

Results

Participants in the Tempting Phone condition rated the phone screenshot as more tempting ($M = 5.35$, $SD = 1.79$) than participants in the Less Tempting Phone condition ($M = 4.08$, $SD = 2.05$), $t(456) = 7.03$, $p < 0.001$, $d = 0.66$. Means, standard deviations, and the statistical comparisons of the acceptability of reasons depending on the temptingness of the situation are displayed in Table 1. A MANOVA including all reasons demonstrated that participants in the Tempting Phone condition regarded the reasons as marginally more acceptable than participants in the Less Tempting Phone condition, Wilks $\lambda(4, 453) = 0.918$, $p = 0.073$, $\eta^2 = 0.019$. When analyzing the univariate results for each reason, we found that participants in the Tempting Phone condition regarded the frustration reason and the Tuesday afternoon reason as more acceptable reasons for checking their personal phones during work compared to participants in the Less Tempting Phone condition. There were no differences between conditions for the other two reasons. If we aggregate the acceptability of all four reasons into a general “reason acceptability”-score ($\alpha = 0.85$), we see a significant effect of condition as well. For each reason separately (as well as when we combine the acceptability of the four reasons in one measure), the rated temptingness of checking the phone strongly predicted reason acceptability (all β 's ≥ 0.27 , t 's (456) ≥ 6.03 , p 's < 0.001), suggesting that the more tempted people are, the more they think a given reason is a better one to give in to the temptation.

Discussion

The findings of Experiment 1a show that the more tempted people are to check their personal phone during work time, the more acceptable they find different reasons to check their phone. These findings are supportive of our hypothesis that people regard similar reasons as more compelling when the temptation is stronger. A possible reason why we did not find that all reasons were seen as more acceptable when the situation was more

Table 1: Effects of a Tempting Phone versus a Less Tempting Phone on whether a specific reason to check the phone during work is seen as a good reason to do so in Experiment 1a.

	Temptingness of phone		$F(1,456)$	p	η^2
	Less $n = 237$	More $n = 221$			
Reason for Acceptability	$M (SD)$	$M (SD)$			
You feel very frustrated about something that happened today	3.41 (1.65)	3.76 (1.78)	4.93	0.027	0.011
The past few days, you have worked very hard; you are ahead of your working schedule	4.65 (1.84)	4.78 (1.74)	0.67	0.413	0.001
You performed a good deed earlier today, such as helping someone in need	3.27 (1.68)	3.51 (1.74)	2.19	0.140	0.005
It is a Tuesday afternoon	2.59 (1.66)	2.99 (1.85)	6.07	0.014	0.013
Combined ($\alpha = 0.85$)	3.48 (1.42)	3.76 (1.47)	4.41	0.036	0.010

Note: Acceptability of the reasons was rated from 1 (not at all) to 7 (very much).

tempting was that the temptingness manipulation only had a moderate effect size on how tempting it was to check the phone ($d = 0.66$). If we expect that the difference in perceived temptingness created by our manipulation would predict how acceptable reasons are, the effect size of the temptingness manipulation on acceptability of reasons would, even with a perfect correlation of perceived temptingness with the acceptability of reasons, be constrained to that maximum effect size of $d = 0.66$. Given that the pattern of results we found in Experiment 1a is as we predicted, but the effect is not that strong (nor strongly significant), we wanted to replicate the initial findings. In Experiment 1b we attempted to create a stronger manipulation of perceived temptingness.

Experiment 1b. Interpreting Provided Reasons to Consume a Tasty Hamburger

This experiment had two objectives. First, we aimed to investigate whether the findings from Experiment 1a applied more broadly and replicate it within another domain of temptations (unhealthy snacking instead of questionable work behavior). The second objective was to try to use a stronger manipulation of temptingness so we could better investigate the effects of perceived temptingness. We investigated whether the confrontation with a hedonic food temptation leads people to find various reasons for indulgence more acceptable. We manipulated temptation through showing pictures of a tempting burger versus a less tempting burger (see Figure 2). We expected that participants who saw the picture of the tempting burger found various reasons to consume this burger more acceptable than participants found who saw the picture of the less tempting burger. In addition, we expected that the more tempted participants were by the pictures of the burger, the more acceptable they found different reasons to consume the burger.

Method

We first conducted a pretest including 95 participants (56 males and 38 females [1 unknown], $M_{\text{age}} = 32.06$, $SD = 10.50$) to examine whether eating both burgers was regarded equally undesirable. In this pretest, participants saw the picture of the tempting burger ($n = 49$) versus the less tempting burger ($n = 46$). Subsequently, they were asked how unhealthy they thought

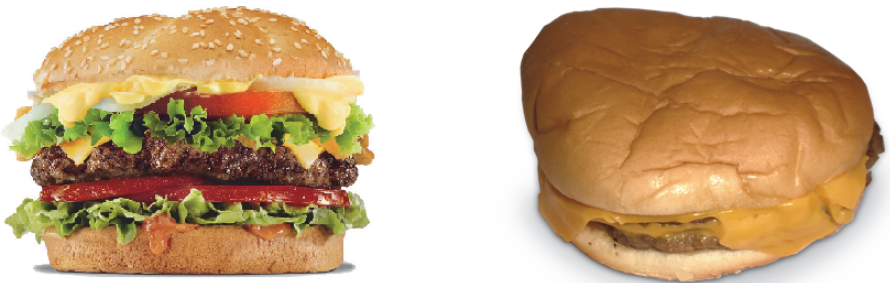


Figure 2: Stimuli used in Experiments 1b, 2a, and 2b.

Note: Tempting Burger condition (left) and the Less Tempting Burger condition (right) images obtained from <http://i.imgur.com/4hIyvq8.jpg?1> and <http://i.imgur.com/eW8Z5rJ.jpg>.

this hamburger was compared to other foods (1 = *not unhealthy at all*, 7 = *very unhealthy*). The results showed that eating the tempting burger ($M = 5.33$, $SD = 1.16$) and the less tempting burger ($M = 5.70$, $SD = 1.19$) was regarded equally unhealthy, $t(93) = 1.53$, $p = 0.130$, indicating that in both conditions, people realize that eating the burger is a negative action.

Five hundred and one U.S.-based participants completed our experiment on MTurk. We excluded participants who indicated that they were vegetarians ($n = 19$),³ leaving 482 participants (310 males and 172 females, $M_{\text{age}} = 31.70$, $SD = 10.91$) in our sample. Participants were randomly assigned to the Tempting Burger condition ($n = 243$) or to the Less Tempting Burger condition ($n = 239$) and were exposed to one of the different burgers presented in Figure 2. Participants were asked to take a close look at the burger and to indicate how tempting this burger was to them (1 = *not at all*, 7 = *very much*). Participants then read that this burger was intended as an indulgence and that the producers of the burger wanted to know for what reasons individuals would allow themselves to this particular burger (adopted from De Witt Huberts *et al.* 2014). Next, participants were asked to read four potential reasons for eating the burger, and they indicated for each reason whether they thought it was a good reason for them to eat it (1 = *not at all*, 7 = *very much*). The four reasons were: “Imagine that you had an intense workout at the gym today”, “Imagine that it is a Friday afternoon”, “Imagine that you have worked two hours on top of your normal working hours”, and “Imagine that you feel very frustrated about a conflict with your coworker that happened earlier today”.

Results

Participants in the Tempting Burger condition rated the burger as more tempting ($M = 5.34$, $SD = 1.61$) than participants in the Less Tempting Burger condition ($M = 3.14$, $SD = 1.84$), $t(480) = 13.98$, $p < 0.001$, $d = 1.27$. The manipulation was intended to be stronger than the one in Experiment 1a, which was successful (the manipulation of Experiment 1a had an effect size of $d = 0.66$ on the temptingness measure).

Means, standard deviations, and statistical comparison of the acceptability of reasons per condition are displayed in Table 2. A MANOVA including all reasons demonstrated that participants in the Tempting Burger condition thought the reasons were more acceptable reasons than participants in the Less Tempting Burger condition did, Wilks $\lambda(4, 477) = 0.89$, $p < 0.001$, $\eta^2 = 0.110$. When analyzing the univariate results for each reason, we found that participants in the Tempting Burger condition regarded each reason as a better reason for consuming the burger compared to participants in the Less

³When we included participants who indicated that they were vegetarians, we found similar results.

Table 2: Effects of a Tempting Burger versus a Less Tempting Burger on whether a specific reason to eat the burger is seen as a good reason to do so.

Reason	Temptingness of burger		$F(1,480)$	p	η^2
	Less $n = 239$ $M(SD)$	More $n = 243$ $M(SD)$			
You had an intense workout at the gym today	3.10 (1.89)	3.98 (1.97)	24.80	<0.001	0.049
It is a Friday afternoon	3.23 (1.86)	4.42 (1.88)	49.24	<0.001	0.093
You worked two hours on top of your normal working hours	3.63 (1.94)	4.77 (1.78)	45.26	<0.001	0.086
You feel very frustrated about a conflict with your coworker that happened earlier today	2.67 (1.73)	3.61 (1.94)	31.47	<0.001	0.062
Combined ($\alpha = 0.84$)	3.16 (1.57)	4.20 (1.43)	57.19	<0.001	0.106

Note: Acceptability of the reasons was rated from 1 (not at all) to 7 (very much).

Tempting Burger condition. If we aggregate the acceptability of all four reasons into a general “reason acceptability”-score ($\alpha = 0.84$), we see a significant effect of condition as well. For each reason (and also if we combine them into one measure), the rated temptingness of the burgers strongly predicted reason acceptability (all β 's ≥ 0.42 , t 's (480) ≥ 10.41 , p 's < 0.001).

Discussion

Experiment 1b replicated the findings of Experiment 1a in the domain of unhealthy snacking. Participants in the Tempting Burger condition thought each of four reasons a better reason to indulge, compared to participants in the Less Tempting Burger condition. In addition, the results reveal that the more tempting the people find a burger, the more acceptable they find different reasons to eat this burger.

Together, Experiments 1a and 1b show a clear relation between how tempting something is and whether a diverse set of reasons to engage in the behavior are seen as good reasons to do so: When an indulgence is more tempting, people find the same reason to give in to that temptation more acceptable than when the indulgence is less tempting. Note that in both cases participants would realize that their behavior is undesirable: the pretest shows that people think both burgers are equally unhealthy. Interestingly, participants judged ostensibly unrelated reasons as better reasons for a tempting choice. For example, “it is a Friday afternoon” was regarded as a more acceptable reason to consume a burger when this burger looked very attractive. This illustrates that even reasons that convey no relevant information are more acceptable in front of a temptation. In other words, anything that feels like a justification is used to infer that indulgence is acceptable.

Experiment 2a. Interpreting One’s Own Prior Good Deed as a Reason to Indulge

So far, we only investigated the acceptability of reasons we provided to participants. In addition, participants read about the different reasons directly after being exposed to the temptation. In Experiments 2a and 2b, we investigate whether self-generated reasons prior to exposure to a temptation are interpreted differently depending on the temptingness of the temptation. Specifically, in Experiment 2a we expected that a recalled prior good deed would be seen as a better and more acceptable reason to indulge when the temptation is stronger. Note again that this should not matter: although one is maybe more inclined to eat a more tempting burger than a non-tempting burger, this does not make a prior good deed (such as donating to charity) a better reason to eat the burger.

Method

Five hundred and one U.S.-based participants completed our experiment on MTurk. We excluded participants who indicated that they were vegetarian ($n = 25$),⁴ leaving 476 participants (311 males and 165 females, $M_{\text{age}} = 30.96$, $SD = 10.29$) in our sample. Participants were randomly assigned to the Tempting Burger condition ($n = 234$) or to the Less Tempting Burger condition ($n = 242$). Participants read the following instructions:

Think about a recent situation in which you performed a good deed. By a good deed, we mean a situation where you displayed good, moral, or virtuous behavior. Please describe this good deed.

⁴When we included participants who indicated that they were vegetarian, we found similar results.

Next, participants saw a picture of either the tempting or the less tempting burger from Experiment 1b. Participants were asked to take a close look at the burger and to indicate how tempting they thought this burger was (1 = *not at all*, 7 = *very much*). Participants then read that this burger was intended as an indulgence and that the producers of the burger wanted to know for what reasons individuals would allow themselves to eat this burger. Next, the good deed that the participants previously recalled was displayed on the screen. Participants were asked whether they thought their own prior good deed was a good reason to eat the burger (1 = *not at all*, 7 = *very much*).

Results and Discussion

Participants in the Tempting Burger condition rated the burger as more tempting ($M = 5.45$, $SD = 1.62$) than participants in the Less Tempting Burger condition ($M = 2.97$, $SD = 1.73$), $t(474) = 16.15$, $p < 0.001$, $d = 1.53$. Participants in the Tempting Burger condition ($M = 3.22$, $SD = 2.05$) regarded their own prior good deed as a better reason for eating the burger compared to participants in the Less Tempting Burger condition ($M = 2.28$, $SD = 1.69$), $t(474) = 5.47$, $p < 0.001$, $d = 0.50$. Like we found before, the more tempting the burger was perceived to be, the more someone thought their prior good deed was an acceptable reason to indulge ($\beta = 0.46$, $t(474) = 11.35$, $p < 0.001$).

These results suggest that even reasons that are generated prior to exposure to the temptation can serve as acceptable justifications to eat the burger, depending on how tempting people find this burger. A recalled prior good deed is thus seen as a better reason to indulge when a temptation is really tempting, than when it is less tempting.

Experiment 2b. Interpreting Own Previous Frustration as a Reason to Indulge

If “any” reason serves as a license to give in to temptation, we can expect similar effects for recalls of prior *negative* behavior. For example, having a bad day can also serve as a good excuse to indulge when something is really tempting (i.e., comfort buying or comfort eating). Therefore, in Experiment 2b, we investigate whether recalls of recent frustrations are interpreted as being a more acceptable reason to eat the tempting burger.

Method

Four hundred and eighty-seven U.S.-based participants completed our experiment on MTurk. We excluded participants who indicated that they were

vegetarian ($n = 24$),⁵ leaving 463 participants (279 males and 184 females, $M_{\text{age}} = 31.54$, $SD = 9.91$) in our sample. Participants were randomly assigned to the Tempting Burger condition ($n = 233$) or to the Less Tempting Burger condition ($n = 230$). Participants read the following instructions:

Think about a recent situation in which you felt very frustrated.
Please describe this situation.

Next, participants saw a picture of either the tempting or the less tempting burger from Experiment 1b. Participants were asked to take a close look at the burger and to indicate how tempting they found this burger (1 = *not at all*, 7 = *very much*). Participants then read that this burger was intended as an indulgence and that the producers of the burger wanted to know for what reasons individuals would allow themselves this particular burger. Next, the frustration that the participants previously recalled was displayed on the screen. Participants were asked whether they found their own frustration a good reason to eat the burger (1 = *not at all*, 7 = *very much*).

Results and Discussion

Participants in the Tempting Burger condition rated the burger as more tempting ($M = 5.26$, $SD = 1.72$) than participants in the Less Tempting Burger condition ($M = 3.10$, $SD = 1.83$), $t(461) = 13.11$, $p < 0.001$, $d = 1.22$. Participants in the Tempting Burger condition ($M = 3.11$, $SD = 2.31$) regarded their own frustration as a better reason for eating the burger compared to participants in the Less Tempting Burger condition ($M = 2.31$, $SD = 1.83$), $t(461) = 4.36$, $p < 0.001$, $d = 0.41$. The more the burger was perceived as tempting, the more someone thought their prior frustration was an acceptable reason to indulge ($\beta = 0.44$, $t(461) = 10.61$, $p < 0.001$). These results show that unrelated frustrations can also serve as justifications to eat the burger, depending on how tempting people find this burger.

Experiment 3. Temptation-Based Reasoning Affects Real Choice

In Experiment 3 we aimed to replicate the earlier findings, with two key changes. First, we not only asked whether people found the same reason to be a more acceptable reason for indulgence in a tempting situation, but also tested whether it affected actual behavior (a choice of an unhealthy donut over an apple). Both the effects of temptations (e.g., Dhar and Wertenbroch 2012) and that of motivated reasoning (e.g., Bhattacharjee *et al.* 2012) can

⁵When we included participants who indicated that they were vegetarians, we found similar results.

be studied effectively with hypothetical situations, but they clearly have their limitations. For example, hypothetical temptations are likely to be less strong than temptations encountered in the real world (e.g., Ariely and Loewenstein 2006). The hypothetical nature of our stimuli so far likely leads to an underestimation of the temptingness of our stimuli, but we see no reason why it would affect the effectiveness of our manipulation. Furthermore, it is a risk that with hypothetical situations social desirable responding might be stronger, but this is again something that would likely work against our predictions. After all, with social desirable reasoning, we should realize that “it is a Friday” is not a good reason to eat a burger, even if it is tempting.

A second addition of Experiment 3 is that we counterbalanced the order in which we asked people to indicate the temptingness of the indulgence, how good the reason is to indulge, and the actual choice itself, to control for possible influences from asking one of the questions first.

Method

We conducted a pretest to test the stimuli used in this experiment, a choice between a donut and an apple. We manipulated the temptingness of the donuts (a choice between four donuts from a renowned donut shop presented on a plate versus four donuts bought at a supermarket, see Figure 3). We tested how tempting people thought these donuts were and how unhealthy they thought they were (both on a scale from 0 not at all to 6 very much so). Out of 130 participants, 62 saw a picture of the tempting donuts, 68 of



Figure 3: Stimuli used in Experiment 3.

Note: Tempting donuts (left) and less tempting donuts (right).

the non-tempting ones. Results show that both types of donuts were seen as equally unhealthy, $M_{\text{tempting}} = 5.65$, $SD = 1.31$; $M_{\text{non-tempting}} = 5.53$, $SD = 1.13$, $t(128) = 0.54$, $p = 0.589$, $d = 0.10$. There was a clear difference in temptingness, $M_{\text{tempting}} = 4.95$, $SD = 1.89$; $M_{\text{non-tempting}} = 3.71$, $SD = 1.71$; $t(128) = 3.94$, $p < 0.001$, $d = 0.69$.⁶ Note that even the less tempting donuts were still seen as quite tempting, with a mean level of 3.71 on a scale from 0 (not at all) to 6 (very much).

Participants⁷ ($N = 292$, 123 male, 169 female, $M_{\text{age}} = 20.95$, $SD = 2.56$) were students who took part in a series of studies of which ours was part (~45 minutes in exchange for 7 euro). In between was one study ostensibly on meal boxes that contain ingredients and recipes. We asked some questions on their preference for such boxes, but of main interest were questions on whether people were hungry at that moment, whether they were dieting (both on scales from 0 not at all to 6 very much so) and their Body Mass Index (as calculated from their length and weight). We did not expect these to have an effect (given the findings in the pretest) but included them to explore whether the effects depend on these factors.

The main part of the study occurred at the end of the session. When a participant was done with the series of experiments, an experimenter led them to a table that contained a plate with four donuts and a plate with apples. They were asked to choose between a donut or an apple, and answer two final questions: how tempting eating a donut was and whether they thought that participating in the set of studies was a good reason to reward oneself with a donut (0 not at all — 6 very much so). The order of these two questions and whether they first answered these questions or made the choice was counterbalanced. Participants saw either the donuts that the pretest confirmed to be more tempting ($N = 148$) or the ones that were a bit less tempting ($N = 144$).

Results

Not surprisingly, participants were more likely to choose the donut over the apple when it was more tempting (67.6%; 100 out of 148), then when it was less tempting (34.7%; 50 out of 144), $\chi^2(1, N = 292) = 31.52$, $p < 0.001$, $\varphi = 0.33$. Furthermore, we found that (as the pretest had also found) the donuts in the tempting condition were seen as more tempting ($M = 4.21$, $SD = 1.48$) than those in the less tempting condition ($M = 3.01$, $SD = 1.88$), $t(290) = 6.09$, $p < 0.001$, $d = 0.71$. Furthermore, we also found that people in

⁶Temptingness and perceived healthiness were unrelated to whether someone was dieting, their gender, or age.

⁷The total lab session had 14 more participants, who due to various reasons could not be matched to their scores on demographical information, the measures regarding hunger, etc. These were left out of the analyses.

the more tempting condition thought that having participated in the study was a much better reason for indulgence ($M = 3.03, SD = 1.76$) than those in the less tempting condition ($M = 1.67, SD = 1.42$), $t(290) = 7.25, p < 0.001, d = 0.85$.

Our theory started with the idea that more tempting donuts would indeed be seen as more tempting, and that with greater temptingness a participant would think that having participated in the study was a good reason to indulge, which in turn would increase the chance of choosing the donut. This sequential mediation model (see Figure 4) was tested via the PROCESS macro using bootstrapping with 10,000 samples (Hayes 2013). Results indicate that the differences in choices for the donut or apple caused by our manipulation of how tempting the donuts were, is no longer significant when the perceived temptingness and whether one sees participating in the study as a good reason to indulge are added as mediators. Most importantly, the sequential mediation (the manipulation affected how tempting the donut was, which affected whether people saw participating in the study as a good reason to indulge, which affected whether people chose the donut over the apple) was significant ($b = 0.14, 95\%CI = 0.06$ to 0.27). Furthermore, the indirect effect of the manipulation on choice only via how tempting the donut was, was also significant ($b = 1.03, 95\%CI = 0.64$ to 1.54), as was the indirect effect only via seeing participating in the study as a good reason to indulge ($b = 0.44, 95\%CI = 0.21$ to 0.76).

Note that the order in which the questions on temptingness and the perception that participating in the study was a good reason to indulge were answered did not affect the answers (nor did the question order interact with the manipulation of temptingness or whether the choice was made before or after answering these questions), $F's(3, 282) \leq 1.72, p's \geq 0.163, \eta^2 \leq 0.018$. The choice itself was also not affected by when it was made, the question order,

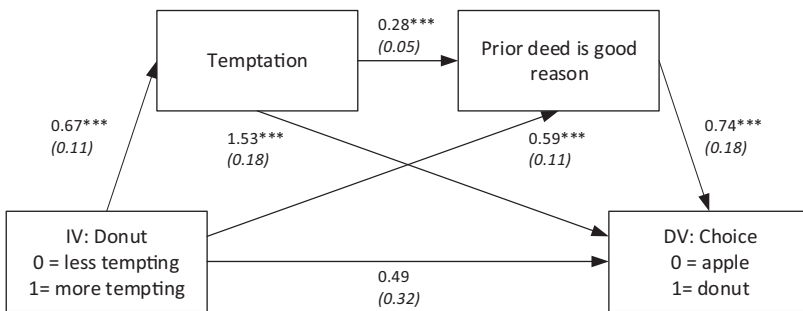


Figure 4: Sequential mediation analysis in Experiment 3.

Note: Coefficients (*SE* in italics) with *** are significant at $p < 0.001$.

or by any interactions with the manipulation and order effects, Wald-criteria ≤ 2.53 , p 's ≥ 0.112 .

Discussion

We replicated the previous findings, that when an option is more tempting, people think a given reason is a better reason to indulge in the temptation. In this case, having participated in a 45-minute lab session (in return for 7 euro) from an objective viewpoint does not seem a better reason to eat a tempting donut than a less tempting one, the prior participation is an equally good (or bad) reason for both. However, the more tempting people thought the donut was, the better they thought that prior participation was a good reason for indulgence, and the more likely they became to actually choose the donut over the apple.

We now also counterbalanced the order in which we asked the questions. Note that theory is clear that the temptingness of a situation affects the interpretation of whether something is a good reason for indulgence, which in turn affects the actual choice. However, when someone has better reasons to do something they might also be more tempted, but this did not seem to matter. Most important is also that we had manipulated the temptingness, providing further support for the idea we test here. Finally, some participants made a choice first, before answering the questions on temptation (which did not affect the results). This rules out that the effects we found are due to a focus we placed on temptations by asking questions about it, as even when we asked those questions after the choice was made, we still see a preference for the donut in the tempting condition as well as an increase in the perceived temptingness and seeing participation in the lab session as a good reason for indulgence in that condition.

General Discussion

We propose a temptation-based reasoning model where the presence of a temptation makes any reason seen as a better reason to give in to the temptation. Our experiments find that people think a large variety of reasons for indulgence are more acceptable when they are exposed to a tempting situation compared to a less tempting situation (Experiments 1a and 1b). In addition, our findings show that both recalled prior good deeds (Experiment 2a) and prior frustrations (Experiment 2b) are interpreted as better reasons to indulge when confronted with a temptation. Finally, we replicate Experiment 2a with a real choice in Experiment 3: we find that for a more tempting donut a research participant thought that helping out with the study was a better reason for indulgence than when the donut was less tempting, which

increased the likelihood that they would choose the unhealthy donut over eating a healthy apple.

Temptation-Based Reasoning

The present findings build on theories of motivated reasoning and reason-based choice. When people choose an option, they want to be able to support the choice with reasons in favor of it (Shafir *et al.* 1993). Furthermore, if they already prefer one option over the other, they will engage in motivated reasoning and are biased towards finding reasons that support their preferred option (Kunda 1990). Indeed, De Witt Huberts *et al.* (2014) find that the stronger a temptation was, the more the reasons people could come up with to support giving in to that temptation. Our current work finds that people will even interpret the *exact same reason* as a good or a bad reason for indulgence, depending on how tempted they are by their preferred option. For example, our work shows that “it is a Tuesday afternoon” becomes a better reason for checking a personal phone at work when checking this phone is more tempting, even though from an objective viewpoint this does not seem the best of reasons.

Implications

Self-Licensing. We find that tempting situations make reasons to give in to these temptations seem more acceptable. This process can also shed new light on existing theories, one of which is self-licensing theory (Miller and Effron 2010). Various different theories on how the licensing process precisely operates exist (see for reviews, Blanken *et al.* 2015; Effron and Conway 2015), but they tend to focus on self-licensing as the process in which the initial good act later influences people’s behavior. As an example of research on licensing, Fishbach and Dhar (2005) found that participants who first perceived that they made progress on their weight loss objectives were later more likely to choose a chocolate bar over an apple as a participation gift. However, if people see a reason for indulgence as more compelling when behavior is more tempting, as we propose in the current research, licensing theory should in our view also focus on the possibility that this process goes in the different direction as well: It can also be the temptation to eat the chocolate that makes someone look for a compelling reason, and in typical licensing studies that might be the good behavior that has just been made salient by the set-up of the experiment (e.g., the prior gain in the weight loss goal).

Miller and Effron (2010) argue that self-licensing occurs via one of two processes: the prior good deed creates either a credit (something that can later be used to trade in so one can transgress) or serves as a credential (the good deed builds a positive reputation, after which a transgressions is seen as less

bad because of one's good reputation). In both these cases it is the prior good deed that builds a credit or a credential, which later allows the transgression. This reflects how self-licensing is typically investigated in the lab; people are asked to perform or recall a good deed, after which a subsequent less desirable behavior is (see for often cited licensing studies for example Conway and Peetz 2012; Jordan *et al.* 2011; Sachdeva *et al.* 2009). However, it has not explicitly been tested whether the process of self-licensing necessarily operates in the order of these two consecutive behaviors. Our results (especially Experiments 2a and 3), but also motivated reasoning theory in general, suggest that the opposite process also works: A temptation triggers a search for acceptable reasons to transgress, and a prior good deed is seen as an acceptable reason to do so.

Licensing is often interpreted as a non-conscious process (Khan and Dhar 2006), where a prior good deed boosts one self-view that can in turn influence the likelihood that one engages in a subsequent immoral or indulgent action. Our work points to the idea that it might also be a relatively more conscious or somewhat deliberative process as well. Furthermore, the process proposed by Khan and Dhar implies that a self-boost is needed for licensing to occur, while we would predict that also when the past prior good deed does not provide such a self-boost, the prior good deed would make an indulgence more likely. In our Experiment 3 people thought that participating in the study in exchange for a monetary reward was a better reason to indulge when the temptation was stronger, and in that case the "good deed" does not seem one that will actually bolster one's self-view.

Our work can also shed light on recent work by Garvey and Bolton (2017), who found that after a virtuous act people subsequently perceived the taste of a hedonic product as better, but only when they were not really hungry. We would argue that when one is hungry, there already is a (relatively) good reason to eat something unhealthy, reducing the conflict of eating it and allowing one to savor its taste. When someone is not hungry, another reason is needed to justify eating something unhealthy, and the prior virtuous act can be such a reason.

Recent work suggests that the effects of moral licensing (i.e., psychological licensing in the moral domain) turn out not to be as robust as previously assumed. For instance, Blanken *et al.* (2014) could not replicate the original findings of Sachdeva *et al.* (2009) that writing about one's positive traits leads to lower donations to charity and decreased cooperative behavior in a commons dilemma. In addition, a meta-analysis (Blanken *et al.* 2015) including 91 experimental studies revealed that the average effect size of moral licensing is small-to-medium (Cohen's $d = 0.31$). Since our current findings show that temptations play an important role in the interpretation of previous behaviors, the licensing effect may be stronger and more robust in situations in which the undesirable behavior is more tempting.

Comfort buying and comfort eating. Another domain in which the temptation-based reasoning model that we put forward here could be of importance is in comfort buying. Comfort buying or retail therapy refers to buying products as a way to alleviate negative moods (e.g., Garg and Lerner 2013; Rick *et al.* 2014). Atalay and Meloy (2011) found that negative moods lead to a greater consumption of unplanned self-treats. If our prediction is correct that any reason for indulgence is regarded as more compelling when behavior is more tempting, research on comfort buying could also focus on the possibility that perhaps the temptation to buy a self-treat makes someone look for a compelling reason, which could be found in the saliency of the current negative mood (e.g., “These fabulous shoes are too expensive. But I feel sad about failing my exam and think I deserve a break now and then”).

In a similar vein, research on comfort eating — that is, eating to relieve negative emotions (Ganley 1989) — could investigate the possibility that it is mainly the temptation to eat a mouthwatering snack that makes someone look for a compelling reason. For example, the finding that overweight individuals are more likely to overeat when feeling emotionally distressed than healthy-weight individuals (Arnou *et al.* 1992; Baucum and Aiken 1981; Chua *et al.* 2004; McKenna 1972; Slochower *et al.* 1981) may also occur if the food is more tempting for overweight individuals, and, as a consequence, feeling emotionally distressed might be regarded as a more compelling reason for indulgence by those who find that type of food more tempting than others.

If our findings partially explain comfort buying and eating, interventions that focus on restoring someone’s self-esteem or improving someone’s mood (i.e., Schmeichel and Vohs 2009) might not be fully effective for reducing these behaviors when the process we document in the current research is at play as well. Improving someone’s mood might just remove the prior negative feeling as a reason to indulge, but replace it with a positive mood that could serve as a reason to indulge as well. Interventions aimed at for example distracting oneself from the temptation might be more effective then (Hoch and Loewenstein 1991). We do not wish to claim that interventions aimed at improving mood or self-esteem do not work, but do think that the current research helps in identifying boundary conditions in which they are most likely to be effective.

Conclusion

The current experiments reveal a temptation-based reasoning process, in which the temptingness of the temptation strongly influences how people interpret different reasons for indulgence. The contents of these reasons do not seem that relevant: If something is very tempting, “any” reason becomes seen as a better reason to give in to temptation. If externally provided or self-generated reasons are actually regarded as better reasons to indulge, this

could have important practical and theoretical implications. For instance, providing in-store advertisements with a possible justification could be more effective for more tempting products.

These findings are not only important for our understanding of how people deal with temptations, but also have important implications for other theories. Notably, our findings suggest an alternative account of self-licensing where the temptingness of the undesirable behavior initiates a search for a license, instead of the previous good behavior making subsequent undesirable behaviors more likely. A similar account can be proposed for findings on comfort buying and eating, where the temptingness of the indulgence can initiate a search for a compelling reason for indulgence.

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