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Janssen, L; Fennis, Bob

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ACADEMIC PAPER

Mindless resistance to persuasion: Low self-control fosters the use of resistance-promoting heuristics

Loes Janssen¹ | Bob M. Fennis²

¹Tilburg University, Tilburg, the Netherlands

²University of Groningen, Groningen, the Netherlands

Correspondence

Loes Janssen, Tilburg center for Cognition and Communication, Tilburg University, Tilburg, the Netherlands.

Email: l.janssen@uvt.nl

Abstract

In our consumer society, people are confronted on a daily basis with unsolicited persuasion attempts. The present research challenges the prevailing view that resisting persuasion is more likely to fail when consumers have low self-control. Four experiments tested the hypothesis that impaired self-regulation may actually facilitate resistance to persuasion when the influence context contains resistance-promoting heuristics. Indeed, participants with low self-control were less likely to comply with a persuasive request (Experiments 1 and 3), reported a less favourable attitude towards an advertised product (Experiment 2), and generated more negative responses towards a persuasive message (Experiment 4) than participants with high self-control, when they could rely on resistance-promoting heuristics: a violation of the norm of reciprocity (Experiments 1 and 3), an advertisement disclaimer (Experiment 2), or negative social proof (Experiment 4). Together, these studies demonstrate that contextual cues can bolster resistance when one does not carefully scrutinize an influence attempt.

KEYWORDS

compliance, heuristics, persuasion, resistance, self-control

1 | INTRODUCTION

Living in a consumer society, we are confronted on a daily basis with numerous persuasive requests and influence attempts. Advertisers, sales representatives, fundraisers, and other influence professionals use an impressive array of persuasive techniques to make us buy their products, use their services, and support their ideas. Although part of their messages is welcomed by its recipients, the overwhelming majority of these influence attempts can be categorized as unsolicited. To help consumers guard their minds and wallets, it is essential that we understand the process of resisting and yielding to persuasion. A growing body of research underscores the important role that self-regulation plays in this process (Baumeister, 2002; Burkley, 2008; Fennis & Janssen, 2010; Fennis, Janssen, & Vohs, 2009; Janssen, Fennis, & Pruyn, 2010; Janssen, Fennis, Pruyn, & Vohs, 2008; Wheeler, Briñol, & Hermann, 2007; for a review see Burkley, Anderson, & Curtis, 2011). These studies suggest that resistance to (unwanted) persuasion is more likely to succeed when people engage in active self-regulation. Conversely, attitude change and compliance in response to persuasive messages is often driven by self-regulatory failure.

The present research challenges the view that resisting persuasion is an active, effortful process that is more likely to fail when consumers

have low self-control (Burkley, 2008; Burkley et al., 2011; Fennis & Janssen, 2010; Fennis et al., 2009; Janssen et al., 2008, 2010; Wheeler et al., 2007). Specifically, in this paper, we examine conditions under which impaired self-regulation may actually promote resistance, rather than interfere with it. We report evidence across four studies demonstrating that temporary or chronic low self-control fosters mindless resistance to persuasion when the influence context provides resistance-promoting heuristics.

2 | THE ROLE OF SELF-REGULATION IN RESISTING AND YIELDING TO PERSUASION

Low self-control has been found to facilitate diverse acts of persuasion, from attitude change in response to a counter-attitudinal persuasive message (Burkley, 2008; Wheeler et al., 2007) to yielding to (unsolicited) requests to invest time, effort, or money supporting previously unknown causes (Fennis et al., 2009; Janssen et al., 2008, 2010). In other words, regulating our behaviour in the face of influence attempts has been shown to become more difficult when our resources or motivation for self-regulation have been worn down by a previous self-control activity. According to

the limited-resource model of self-control (Baumeister, Bratslavsky, Muraven, & Tice, 1998; Muraven, Tice, & Baumeister, 1998; Vohs & Heatherton, 2000; for a review see Baumeister, Vohs, & Tice, 2007), any task that requires active, controlled guidance by the self draws on a limited intrapsychic resource that resembles strength or energy. Whenever this strength is used up by an act of self-control (such as overriding impulses, managing emotions, or active problem solving), one is temporarily less able to self-regulate and performance on a subsequent self-control task will suffer. In this state of self-control depletion, one is more likely to fall back on low-effort and automatic forms of information processing and action, resulting in an overreliance on impulse, habit, and routine (Baumeister, 2002; Baumeister, Muraven, & Tice, 2000; Vohs, Baumeister, & Ciarocco, 2005). Although the limited-resource account of self-control is not uncontested (see for example Carter & McCullough, 2014), and recent reconceptualizations stress the role of motivation rather than (or in addition to) ability in explaining self-control failure (Inzlicht & Schmeichel, 2012; Inzlicht, Schmeichel, & Macrae, 2014), the notion that repeated acts of self-control impair self-regulation appears robust (see Hagger, Wood, Stiff, & Chatzisarantis, 2010, for a meta-analysis).

Evidence that impaired self-control increases susceptibility to persuasion was found by Fennis and Janssen (2010), Fennis et al. (2009) and Janssen et al. (2008). Self-control depletion was introduced by the authors as a key determinant of the effectiveness of social influence techniques that consist of a sequence of requests, such as a foot-in-the-door technique (Freedman & Fraser, 1966). These compliance-gaining procedures typically start with an initial request, answering one or multiple questions, before the target request is posed. Yielding to the initial request of such a technique was found to deplete people's self-control. The resulting state of low self-control paved the way for compliance with the request that concluded the sequence, because people's ability or motivation to offer resistance had been diminished (e.g., Fennis et al., 2009). In the domain of advertising, Gillespie, Joireman, and Muehling (2012) have shown that low self-control may also result in more positive attitudes towards an advertised product. Specifically, this was found because low self-control reduced recognition of a product that was placed in entertaining television content (Gillespie et al., 2012).

If low self-control fosters susceptibility to persuasion in a consumer context, then high self-control may do the opposite and foster resistance to (unwanted) influence, which is commonly defined as either behaviourally, cognitively, or emotionally moving away from influence or not being moved by it (cf. Knowles & Linn, 2004). Indeed, the literature underscores the important role of self-regulation in resisting persuasive attacks. In the domain of attitude change, Wheeler et al. (2007) showed that people high in self-control were better at resisting a counter-attitudinal persuasive message. These individuals were less likely to change their attitudes in favour of the message, and were better able to generate negative cognitive responses against the message than their depleted counterparts, who previously engaged in another self-control activity. In addition, Burkley (2008) found that actively resisting a counter-attitudinal message comes at an expense and depletes people's self-control.

Together, these studies suggest that resisting persuasion is an active, effortful process that requires high self-control to succeed. However, we argue that there are conditions under which low self-control is not necessarily a weakened state when it comes to resisting persuasion. Specifically, let us reconsider the previously discussed research by Fennis et al. (2009) and Janssen et al. (2008). Although their studies indeed found that low self-control fostered compliance with behavioural requests, the effects were not unconditional. Rather, the effects on persuasion were qualified by the presence of a compliance-promoting cue or heuristic in the influence context. More specifically, it was consistently found that low self-control promoted the use of simple decision heuristics as a guide to behaviour (cf. Chaiken & Trope, 1999). Compliance under these conditions was a function of the extent to which these decision heuristics pointed towards this specific type of behaviour. For example, low self-control participants were willing to spend more of their time volunteering in lab studies than high self-controls when the experimenter previously did them a favour (manipulating the salience of the reciprocity heuristic, Fennis et al., 2009, Experiment 4). Likewise, participants with low self-control donated more money to a charity organisation than high self-control participants when this organisation was presented as a field expert (manipulating the salience of the authority heuristic, Janssen et al., 2008, Experiment 2). Importantly, when no such heuristics were present, self-control depletion did not affect compliance.

Key to our reasoning is that in contrast to their high self-control counterparts, low self-control individuals seem to be more easily swayed by salient, easy-to-process information in the decision environment that helps them guide their behaviour. Increased compliance under conditions of low self-control should thus be considered the outcome of a process of mindless reliance on heuristics in the decision context. This makes the question imperative whether consumers low in self-control would similarly be prone to use decision heuristics that promote resistance to persuasion, rather than compliance.

On the one hand, one might argue that they do not, for at least two reasons. First, findings on the motivational effects of self-control have shown that exercising self-control (i.e., a state of self-control depletion) causes an increase in approach motivation (Schmeichel, Harmon-Jones, & Harmon-Jones, 2010). Specifically, self-control depletion produced higher self-reports of approach motivation (using the BIS/BAS scales by Carver & White, 1994), increased betting on low-stakes gambles (which is correlated with approach-motivation), and facilitated the perception of a reward relevant symbol (i.e., a dollar sign). In line with these results, the previous demonstrations of increased yielding to persuasion as a result of low self-control (Fennis & Janssen, 2010; Fennis et al., 2009; Janssen et al., 2008) may be understood as being driven by an increased motivation towards approach-related (compliance) cues, which challenges the thought that low self-control would also increase sensitivity towards avoidance-related (resistance) cues.

Second, another reason to suggest that low self-control increases sensitivity to compliance cues, but not resistance cues,

is that it is simply less effortful to acquiesce than to resist: as work on the "truth effect" suggests, people's default, low effort response towards persuasive content is to accept a persuasive claim as true, especially when processing resources are limited (e.g., Gilbert, Krull, & Malone, 1990; Gilbert, Tafarodi, & Malone, 1993). The presence of compliance-promoting heuristics is likely to strengthen this compliant response, whereas resistance-related cues may run counter to this automatic tendency and may therefore be less likely to be acted on.

On the other hand, research has consistently highlighted the increased sensitivity to proximal intrapersonal and interpersonal cues under conditions of impaired self-regulation, as well as the tendency to act in accordance with them (e.g., Vohs et al., 2005; Wan & Agrawal, 2011). Hence, to the extent that the opening observation of this paper stands, and the overwhelming majority of persuasive messages is indeed considered unwanted or at least unsolicited, it makes sense to assume that a persuasion attempt triggers a primary intrapersonal response of negative valence. Consequently, resistance may be considered a prevalent outcome under these conditions. In addition, such tendencies will be exacerbated by the presence of any resistance-promoting decision heuristics embedded in influence contexts, which may be perceived as the most proximal cues present for individuals low in self-control. In their tendency to rely on efficient, energy-saving or restoring decision making processes, these heuristics may exert a disproportionate influence on consumers' decision making. As a consequence, we explore the possibility that an influence context providing resistance heuristics moves low self-control individuals away from compliance and in the direction of resistance towards a persuasion attempt. Interestingly, under these conditions, a process of increased influence by heuristic cues would then produce decreased yielding to a persuasive request or message. This implies that a state of low self-control may not always hinder, but under certain conditions even facilitate resistance.

3 | THE PRESENT RESEARCH

The central hypothesis of the research presented in this article is twofold: (a) given that people low in self-control are more prone than those high in self-control to mindlessly rely on heuristics in decision making, they may not only rely on heuristics that promote compliance, but also heuristics that promote resistance, and (b) if an influence context provides a resistance-promoting heuristic, individuals low in self-control are likely to demonstrate more resistance to the influence attempt than individuals high in self-control.

As such, the present research contributes to the literature in several key ways. First, the main contribution of our research is the demonstration that processes of acquiescence and processes of resistance can be explained by the same underlying psychological dynamics, and more in particular, self-regulatory processes. Specifically, both an increase in persuasion, as well as an increase in resistance can be a consequence of self-control depletion, something that has not yet been demonstrated unequivocally in the literature. Second, our research demonstrates that resistance to

persuasion is not an invariantly effortful and consciously guided process that requires high self-regulation to succeed. On the contrary, in certain conditions resistance is the result of an act of mindlessness (Langer, 1992), and is more likely when one does not carefully scrutinize the influence attempt. Although demonstrations of effortless resistance are known in the literature (Petty & Wegener, 1998), the way persuasion processes tie up with a process of self-regulation offers a new perspective on how this type of resistance is effected. Provided that resistance-promoting heuristics are made salient in the influence context, low-effort, mindless resistance will be a likely and efficient course of action when one's ability or motivation for self-control is low. Third, and related to this point, uncovering a psychological state that bolsters consumer resistance has been deemed notoriously difficult (Knowles & Linn, 2004). Therefore, by showing that in interplay with situational heuristics low self-control increases resistance to persuasion, the present research adds important knowledge to the literature on (resistance to) persuasion.

Fourth and finally, the present studies imply that when the right circumstances are met, low self-control can actually benefit the self, in that it decreases the chance that one becomes the victim of (unsolicited) persuasion attempts. Paradoxically, by increasing the influence of heuristics in the persuasion context, low self-control decreases the influence of a persuasive request or message. Whereas previous work (e.g., Fennis et al., 2009) does not make a clear distinction between these two types of influence and confounds the process of "being influenced" with "yielding to persuasion," the present work aims to tease these two apart, and aims to demonstrate that a process of mindless influence by heuristics does not necessarily result in increased yielding to an influence attempt but can also result in the opposite, resistance. This demonstration also provides a qualification to the literature on persuasion where the same confound is frequently observed, and influence by a persuasive message is similarly equated with persuasion. Although some theoretical accounts have indeed allowed for increased influence resulting not in persuasion but in resistance (e.g., the notion of a boomerang effect such as proposed by Petty & Cacioppo, 1986), actual empirical demonstrations of this possibility have remained extremely rare in the literature (see Fennis & Stroebe, 2010), and so the present work might serve as a welcome counterpoint.

Four experiments were conducted to test our notions. In the first two studies, we examined the impact of previous exertions of self-control on subsequent resistance to persuasion. We expected that people who previously engaged in an (unrelated) self-control task and were depleted of their self-control resources would be more prone than their nondepleted counterparts to rely on a resistance-promoting heuristic in an influence context. Specifically, in the first study a condition in which a commonly used compliance-promoting heuristic was made salient (i.e., the norm of reciprocity, Cialdini, 1993; Gouldner, 1960) was contrasted with a condition associated with a resistance-promoting heuristic (i.e., a violation of the norm of reciprocity), and a control condition in which no heuristic was present. Depending on the valence of the heuristic, low self-control was expected to either increase (as in

previous research) or decrease behavioural compliance in response to a persuasive request, as compared to individuals not depleted of their self-control. Experiment 2 focused on a different outcome of persuasion: attitude change in response to a product advertisement. We expected that previous self-control performance would result in a more negative attitude towards an advertised product when the influence context contained a resistance-promoting heuristic in the form of an advertisement disclaimer (which has been found to negatively affect perception of an advertised product via heuristic processing, Herbst, Finkel, Allan, & Fitzsimons, 2012).

In Experiments 3 and 4, we extended the scope of our notions from state to trait self-control and examined the impact of chronic self-control differences on subsequent resistance to persuasion. We measured participants' dispositional self-control ability and expected that people low in trait self-control would be more prone to use a violation of the norm of reciprocity (Experiment 3) or a message disclaimer in the form of negative social proof (Experiment 4) as a guide to behaviour in an influence situation. As a result, they should be more likely to offer resistance to a subsequent persuasive message than individuals high in self-control ability, as evinced by lower levels of behavioural compliance (Experiment 3) and increased negative responding towards the persuasion attempt (Experiment 4).

4 | EXPERIMENT 1

The first study focused on testing the first part of our hypothesis, that low self-control increases susceptibility to both compliance-promoting and resistance-promoting heuristics. Depending on the valence of the heuristic that is present in the influence context, this may result in increased levels of compliance to an influence attempt as compared to individuals not depleted of their self-control resources (as in previous research), or increased resistance, which would support the second part of our hypothesis.

4.1 | Participants and Design

One hundred and seventeen people (82 female, 35 male, $M_{\text{age}} = 22.93$ years, $SD = 6.19$) voluntarily participated in this study. The study used a 2 (Self-control depletion condition: depletion vs. no depletion) $\times$ 3 (Type of heuristic: norm of reciprocity vs. violation of the norm of reciprocity vs. no heuristic) between-subjects factorial design.

4.2 | Procedure

Participants (partly undergraduate students and partly nonstudents) were approached at a Dutch university campus or in a local park, and asked whether they were willing to fill out a questionnaire as part of a student project. They were randomly assigned to one of the six conditions.

4.2.1 | Self-control depletion

The first part of the questionnaire contained our manipulation of self-control depletion that was adopted from Janssen, Fransen, Wulff, and Van Reijmersdal (2016). Participants were presented with 12 sentences that contained Dutch sayings, and in every sentence, one word was missing. The word that was missing contained one or multiple instances of the letter "e" (e.g., "as ____ as grass"; the missing word is "green"). All participants were instructed to fill in the missing word, but participants in the self-regulatory resource depletion condition were not allowed to use a word that contained the letter "e." Applying such a rule has been shown to require self-control, because one has to actively override using the word that first comes to mind, and think of another word that makes a grammatically correct sentence, while avoiding the use of a commonly used letter (cf. Schmeichel et al., 2010).

4.2.2 | Manipulation check

Next, serving as a manipulation check for the depletion-inducing task, we assessed participants' self-control efforts with four items adopted from Janssen et al. (2010). Participants indicated to what extent they found the task difficult and effortful, how much they needed to control themselves during the task, and how much energy they spent on suppressing automatic responses during the task (using 7-point scales; 1 = *not at all*; 7 = *very much*).

4.2.3 | Type of heuristic

Following the previous questions, participants read a short scenario and were instructed to imagine they were in the described situation. The scenario described an encounter with a fundraiser, asking the participant to donate money to a charity organization. There were three versions of the scenario: one in which no heuristic was present, a second in which the salience of the reciprocity heuristic was manipulated (Cialdini, 1993; Gouldner, 1960), and a third in which a resistance heuristic was made salient by violating the reciprocity norm. Each scenario read the following: "Imagine that in a minute you are walking through the city centre, and you are approached by a young man. The man is carrying a box of nice ballpoints with a printed logo of a charity organization. He asks you whether you are willing to donate money to the charity he is working for." In the no heuristic condition the scenario ended here. In the condition in which we manipulated the salience of the norm of reciprocity, the scenario ended with the following sentence: "The man is not handing out the ballpoints to everyone he asks for a donation, but you do get one!" According to the ingrained tendency to return favours, receiving an unexpected gift should increase people's willingness to accommodate the fundraiser's subsequent request (Gouldner, 1960; Burger, Sanchez, Imberi, & Grande, 2009). In the condition in which the norm of reciprocity was violated, the last sentence of the scenario read: "The man is handing out the ballpoints to everyone he asks for a donation, but you do not get one!" In contrast to the reciprocity condition in which people received an unexpected gift, being denied from an (expected) favour should decrease people's

willingness to comply with a subsequent request (Schindler, Reinhard, & Stahlberg, 2013).

4.2.4 | Compliance

After reading the scenario, participants were asked to indicate on a 7-point scale (1 = *not at all*; 7 = *very much*) to what extent they would feel inclined to donate money to the charity organization. The score on this scale served as our measure of (non) compliance.

4.3 | Results and discussion

4.3.1 | Manipulation check

t tests showed that participants in the depletion condition who had to complete sentences without using the letter “e,” considered this task more difficult ($M = 4.75$, $SD = 1.65$), $t(115) = 9.09$, $p < .001$, $d = 1.68$, and effortful ($M = 4.35$, $SD = 1.69$), $t(115) = 10.68$, $p < .001$, $d = 1.97$, than participants in the no depletion condition who did not have to apply such a rule ($M = 2.13$, $SD = 1.47$; $M = 1.58$, $SD = 1.06$, respectively). In addition, participants in the depletion condition indicated that they had to put more effort into controlling themselves during this task ($M = 4.88$, $SD = 1.58$), $t(115) = 10.19$, $p < .001$, $d = 1.88$, and suppressing automatic responses ($M = 5.93$, $SD = 1.35$), $t(115) = 14.24$, $p < .001$, $d = 2.64$, than participants in the no depletion control condition ($M = 2.07$, $SD = 1.40$; $M = 2.07$, $SD = 1.57$, respectively).

4.3.2 | Compliance

An ANOVA was conducted on participants' intention to donate money to the charity organization, as a function of self-control depletion condition (depletion vs. no depletion) and type of heuristic (norm of reciprocity vs. violation of the norm of reciprocity vs. no heuristic). The ANOVA showed a main effect of both factors. Participants who were depleted of their self-control were more inclined to donate money to charity ($M = 3.32$, $SD = 1.94$) than participants who were not depleted ($M = 2.82$, $SD = 1.52$), $F(1, 111) = 4.72$, $p = .032$, $\eta^2 = .03$. The type of heuristic that was present in the persuasion context also affected the intention to donate, $F(2, 111) = 15.34$, $p < .001$, $\eta^2 = .20$. Post-hoc Bonferroni comparisons indicated that participants who were confronted with the reciprocity heuristic were more inclined to donate money to charity ($M = 4.00$, $SD = 1.71$) than participants in the no heuristic control condition ($M = 3.08$, $SD = 1.81$), $p = .028$, $d = 0.52$. In contrast, participants who were confronted with a violation of the norm of reciprocity were less inclined to donate money ($M = 2.15$, $SD = 1.19$) than participants in the no heuristic control condition, $p = .025$, $d = 0.61$. The two heuristic conditions also significantly differed from each other, $p < .001$, $d = 1.26$.

As expected, the analysis also showed the interaction effect of self-control depletion and type of heuristic, $F(2, 111) = 3.78$, $p = .026$, $\eta^2 = .05$. Additional simple main effects analyses showed that the effect of type of heuristic was more pronounced among depleted individuals, $F(2, 111) = 16.69$, $p < .001$, see Figure 1. Depleted participants who were confronted with the reciprocity

FIGURE 1 Intention to donate as a function of self-control depletion and type of heuristic

heuristic were more inclined to donate money to charity ($M = 4.88$, $SD = 1.41$) than participants in the no heuristic control condition ($M = 3.37$, $SD = 2.03$), $p = .004$, $d = 0.86$, while depleted participants who were confronted with a violation of the norm of reciprocity were less inclined to donate money ($M = 2.00$, $SD = 1.14$) than those in the no heuristic control condition, $p = .006$, $d = 0.83$. The two heuristic conditions also significantly differed from each other, $p < .001$, $d = 2.25$. In contrast, among nondepleted individuals the type of heuristic did not significantly affect willingness to donate, although the pattern of results is similar to that of their depleted counterparts ($M_{\text{reciprocity}} = 3.29$, $SD = 1.62$ vs. $M_{\text{control}} = 2.80$, $SD = 1.58$ vs. $M_{\text{violation of reciprocity}} = 2.32$, $SD = 1.25$), $F(2, 111) = 2.01$, $p = .14$.

In sum, Experiment 1 aligns with previous research showing that a state of self-control depletion makes people more prone to use heuristics as a guide in decision making in response to a persuasion attempt (Fennis et al., 2009; Janssen et al., 2008). Furthermore, we hypothesized that the outcome of this mindless influence process would depend on the valence of the presented heuristic. Corroborating previous research (Fennis et al., 2009; Janssen et al., 2008), when there was no heuristic present in the influence context, depleted participants did not differ from nondepleted participants in the amount of compliance, $F(1, 111) = 1.35$, $p = .25$, but showed a larger amount of compliance than nondepleted individuals when the influence context fostered the use of the reciprocity heuristic, $F(1, 111) = 10.23$, $p = .002$, $d = 1.05$. However, contrary to our expectations, the contrast between depleted and nondepleted individuals in the condition featuring a resistance-promoting heuristic, the violation of the reciprocity norm, did not reach significance, $F < 1$.

Although the present study shows that individuals in a state of self-control depletion are more prone to use heuristics in decision making, irrespective of its valence, this did not result in increased resistance for depleted as compared to nondepleted individuals. The findings thus only confirm the first part of our hypothesis. An explanation may be that participants in this study were not actually persuaded into a course of action, but were only asked to imagine that they were, which may have been too subtle a manipulation to evince the effect (cf. Aronson, Wilson, & Brewer, 1998). To address this concern and to provide a stronger test of our proposed process of mindless

resistance, we performed a second experiment in which we replaced the imaginary scenario with an actual confrontation with a persuasion attempt.

5 | EXPERIMENT 2

In Experiment 2, people were confronted with a persuasive message about a product, and afterwards their attitude towards (buying) this item was assessed. Furthermore, the present study used a different type of resistance-promoting heuristic: an advertisement disclaimer—a short warning message at the end of an advertisement that undermines the content of the message but is frequently included by advertisers to adhere to industry or government regulations (Herbst et al., 2012). For example, a commonly used disclaimer in advertising messages on financial investment products reads: “past results do not guarantee future performance.” Since disclaimers have been found to negatively affect perceptions of an advertised product or brand via heuristic rather than elaborative processing (Herbst et al., 2012), we hypothesized that depleted individuals would show a more negative attitude in response to the advertising message when a disclaimer is present, compared to nondepleted individuals. Finally, to generalize our results beyond the specific methods used, self-control was lowered with a different self-control task than the one used in Experiment 1.

5.1 | Participants and design

One hundred and eleven students enrolled in various undergraduate programs of a Dutch university (71 female, 40 male, $M_{\text{age}} = 20.57$ years, $SD = 2.13$) participated in exchange for partial course credit. The study used a 2 (Self-control depletion condition: depletion vs. no depletion) $\times$ 2 (Resistance heuristic: disclaimer present vs. disclaimer absent) between-subjects factorial design.

5.2 | Procedure

Upon arrival at the laboratory, participants were seated in individual cubicles fitted with a desktop computer, which presented all instructions. Participants were randomly assigned to one of the four conditions, and informed that the experiment consisted of several different, unrelated tasks.

5.2.1 | Self-control depletion

A cognitive performance test was used to induce a state of self-control depletion (cf. Schmeichel, Vohs, & Baumeister, 2003). Participants in the depletion condition received a series of 10 multiple-choice questions, requiring high-level, abstract mental operations to calculate the right answer. A sample item includes: “In a certain month, Monday is the 21st of the month. Which day of the week was the 1st of the month: Saturday; Sunday; Monday; Tuesday; Thursday; Friday.” As to increase the complexity of the task, participants were not allowed to make notes while calculating the answers to the questions. Schmeichel et al. (2003) previously demonstrated that performing this type of complex mental activity requires active guidance by the self and relies on limited self-regulatory resources, as compared to less advanced cognitive

processing, like retrieving general knowledge from memory. Therefore, in the no-depletion control condition participants received a series of 10 multiple-choice questions demanding less effortful processing.¹ A sample item includes: “Tapioca is: ginger syrup; thin noodles; cassava.”

5.2.2 | Resistance heuristic

Participants then received a seemingly unrelated task. They were instructed to read a weblog page of a fellow student, about which they would receive a number of questions. This weblog page contained three messages in which the blogger told people about his daily activities. Two messages were neutral in content, but the third message (which was posted in between the two other messages) was persuasive in nature and entailed a type of word-of-mouth advertising: The student reported enthusiastically about his new smartphone and recommended it to his readership. In the resistance heuristic condition, the webpage ended with a short disclaimer, entitled: “Beware of

¹A separate sample was used to test the effectiveness of our manipulation in inducing a state of self-control depletion. The sample was drawn from the same population as the sample of our initial study ($N = 197$; 93 female, 104 male, $M_{\text{age}} = 21.24$ years, $SD = 2.34$). A robust manipulation check was assured in three steps. First, the depletion and no depletion conditions that were used in the present study (advanced vs. less advanced cognitive processing) were contrasted with an established self-control manipulation: retyping a paragraph of dense text without using the letter “e” or the space bar, actively overriding the natural inclination to type every letter (Muraven, Shmueli, & Burkley, 2006), and an established control condition in which participants simply had to list their current thoughts (Vohs et al., 2005). Second, in all four conditions participants' self-control efforts were assessed by asking them to report on a 7-point scale (1 = *not at all*; 7 = *very much*) to what extent they found the administered task difficult and effortful, how much they needed to control themselves during the task, how much energy they spent suppressing automatic responses during the task, and whether the task required willpower (cf. Janssen et al., 2010). Responses were averaged into a depletion scale for presentational purposes ($\alpha = 0.85$). Third, we assessed participants' persistence on a self-control task adopted from Vohs et al. (2008), solving as many as possible of 78 six-letter solvable anagrams until they solved them all or wanted to stop. Number of correctly solved anagrams served as our measure of persistence. A one-way ANOVA confirmed that the four conditions differed in reported self-control exertion, $F(3, 196) = 49.53, p < .001, \eta^2 = 0.44$. In line with expectations, post-hoc Fisher's least significant difference (LSD) comparisons showed that participants in the advanced cognitive processing condition reported their task to be more depleting ($M = 4.10, SD = 1.11$) than participants in the less advanced cognitive processing condition ($M = 2.85, SD = 1.03$), $p < .001, d = 1.17$, and the thought listing control condition ($M = 2.23, SD = 1.16$), $p < .001, d = 1.65$. Participants found the advanced cognitive processing task somewhat less depleting than the not typing e's task ($M = 4.61, SD = 1.06$), $p = .020, d = 0.47$, and the less advanced cognitive processing task was found somewhat more depleting than the thought listing task, $p = .006, d = 0.57$. The not typing e's task was also considered more depleting than the less advanced cognitive processing and thought listing control conditions, $p < .001, d = 1.68$ and $p < .001, d = 2.14$, respectively. Another one-way ANOVA confirmed that the four conditions also differed in persistence on the anagram task, $F(3, 196) = 3.84, p = .011, \eta^2 = .06$. As expected, post-hoc LSD comparisons showed that participants in the advanced cognitive processing condition solved less anagrams correctly ($M = 2.58, SD = 4.09$) than participants in the less advanced cognitive processing condition ($M = 5.60, SD = 6.31$), $p = .010, d = 0.57$, and the thought listing control condition ($M = 5.75, SD = 7.81$), $p = .007, d = 0.51$. Importantly, participants in the advanced cognitive processing condition solved a comparable amount of anagrams as participants in the not typing e's condition ($M = 3.27, SD = 4.39$), $p = .55$, and participants in the less advanced cognitive processing condition solved a comparable amount of anagrams as participants in the thought listing condition, $p = .90$. Participants in the not typing e's condition also solved significantly less anagrams than those in the less advanced cognitive processing and thought listing control conditions, $p = .049, d = 0.43$ and $p = .037, d = 0.39$, respectively. To conclude, we may assume that the manipulation that was used in Experiment 2 successfully induced a state of self-control depletion.

advertising stunts!" warning people about tricks that advertisers use to convince people of the quality of a product, and advising them not to believe everything they are told. In the control condition, this disclaimer was not present.

5.2.3 | Product attitude

After reading the weblog, participants were asked to judge the smartphone that the student recommended in one of the weblog messages. Participants' attitude towards the product was measured with 10 items on a 7-point scale (1 = *not at all*; 7 = *very much*). Sample items include: "I think positively about the product," "I would like to test the product," and "I would like to purchase the product." The mean score on these questions ($\alpha = 0.89$) served as our measure of product attitude. Higher scores indicate a more positive attitude towards (purchasing) the smartphone and thus indicate more persuasion. After filling out these questions, participants were debriefed and thanked.

5.3 | Results and discussion

An ANOVA on product attitude, as a function of self-control depletion condition (depletion vs. no depletion) and resistance heuristic (disclaimer present vs. disclaimer absent) showed a significant main effect of the resistance heuristic. Participants who perceived the weblog containing the disclaimer had a more negative attitude about the smartphone recommended in the weblog ($M = 4.33$, $SD = .92$) than participants who perceived the weblog without the disclaimer ($M = 4.71$, $SD = 0.96$), $F(1, 107) = 4.90$, $p = .029$, $\eta^2 = 0.04$. The disclaiming information thus decreased the persuasive impact of the weblog message about the smartphone. The main effect of self-control depletion condition was not significant, $F(1, 107) = 2.65$, $p = .11$.

Moreover, the analysis showed a significant interaction effect between self-control depletion condition and the resistance heuristic, $F(1, 107) = 4.68$, $p = .033$, $\eta^2 = 0.04$. As predicted, additional simple main effects analyses showed that the effect of the disclaimer on product attitude was more pronounced when participants were depleted of their self-control, $F(1, 107) = 9.32$, $p = .003$, $d = 0.96$, see Figure 2. Specifically, among depleted participants, those who perceived the weblog containing a disclaimer had a more negative attitude about the smartphone recommended

in the weblog ($M = 3.99$, $SD = .83$) than participants who perceived the weblog without the disclaimer ($M = 4.76$, $SD = .77$). Among nondepleted participants, the effect of the resistance heuristic was not significant ($M_{\text{disclaimer present}} = 4.65$, $SD = .90$ vs. $M_{\text{disclaimer absent}} = 4.66$, $SD = 1.12$, $F < 1$).

In line with previous findings (Fennis et al., 2009; Janssen et al., 2008) and the results of Experiment 1, low self-control resulted in increased reliance on heuristic information. However, in addition to the findings of Experiment 1, this second experiment not only shows that depleted individuals are more prone to use a resistance-promoting heuristic, but also confirms the second part of our hypothesis that mindless heuristic influence can result in increased resistance to a persuasive message for those depleted of their self-control, as compared to nondepleted individuals: when no heuristic was present, product attitude did not differ between depleted and nondepleted participants, $F < 1$, but depleted participants had a more negative product attitude than nondepleted participants when the weblog contained a resistance-promoting heuristic in the form of a disclaimer, $F(1, 107) = 7.12$, $p = .009$, $d = 0.96$.

This experiment provides evidence for our full hypothesis, yet in another domain of influence, attitude change, using a resistance heuristic commonly used in commercial content (a disclaimer), and a different operationalization of self-control depletion as used in Experiment 1. To test the robustness of our hypothesized process and extend the findings of the first two experiments to conditions of chronic, rather than temporary low (vs. high) self-control (Tangney, Baumeister, & Boone, 2004), a third study was performed.

6 | EXPERIMENT 3

To the extent that the proposed process is general, both situational and chronic states of low self-control should yield overall similar responses (see Fennis et al., 2009). Just as people whose self-control resources have been lowered by situational demands, individuals with chronic low levels of self-control are expected to rely more heavily on heuristic processing in judgment and decision making, resulting in more resistance than high self-control individuals when the influence context harbours a resistance-promoting heuristic. We tested this hypothesis by confronting people either high or low in self-control with a persuasive request and measuring their amount of (non)compliance. As in Experiment 1, the resistance heuristic in the present study was a violation of the reciprocity norm (Cialdini, 1993; Gouldner, 1960).

6.1 | Participants and design

Seventy-two undergraduate students of a Dutch university (42 female, 30 male, $M_{\text{age}} = 21.54$ years, $SD = 2.28$) participated in exchange for partial course credit. The study used one between-subjects factor (Resistance heuristic: violation of the norm of reciprocity vs. no heuristic) and dispositional self-control as the second independent variable. The current study was part of a larger project and formed part of a set of studies that was introduced as a series of unrelated tasks.

FIGURE 2 Product attitude as a function of self-control depletion and resistance heuristic

6.2 | Procedure

Participants were randomly assigned to one of the two conditions and seated in individual cubicles fitted with a desktop computer, which presented all instructions.

6.2.1 | Self-control

To determine one's level of dispositional self-control, participants first completed the Self-Control Scale developed by Tangney et al. (2004). The instrument consists of 36 statements of which one has to indicate how much each statement reflects how one typically is, rated on a 5-point scale (1 = *not at all*; 5 = *very much*). Sample items include, "I am good at resisting temptation," "People would say that I have iron self-discipline," and "I often act without thinking through all the alternatives" (reverse scored, for a complete listing of the items see Tangney et al., 2004). The reliability of the instrument was satisfactory ($\alpha = 0.85$), and an index was created by averaging the scores on the items. Higher scores indicate higher levels of dispositional self-control ($M = 3.12$, $SD = .45$).

6.2.2 | Resistance heuristic

Because the current experiment was part of a larger set of studies, a short study was conducted after the administration of the self-control questionnaire, and before the manipulation of the resistance heuristic. This short study functioned as a filler task to obscure the real purpose of the present experiment. When participants finished this filler study, the present experiment continued. The female experimenter entered their cubicle, ostensibly to explain the next part of the experiment. At this point a resistance heuristic was presented which, as in Experiment 1, was a violation of the norm of reciprocity (Cialdini, 1993; Gouldner, 1960). However, instead of the scenario set-up used in Experiment 1, we now used another, more direct and experiential manipulation: since people have the ingrained tendency to return favours, the reciprocity principle dictates targets to comply with a request from an agent who just favoured them. For example, Fennis et al. (2009) showed that participants responded more favourably to an experimenter's request when the experimenter previously excused them from a boring task during the experiment. Conversely, the reciprocity principle is violated when an agent that already owes the target a favour, asks for yet another favour (Gouldner, 1960). Hence, in the present experiment, the target favour or request (see below) was either or not preceded by a request to do the experimenter an initial favour. Specifically, in the reciprocity-violation condition, the experimenter informed participants that after the task they would start working on, the experiment would be finished and they were free to go, but because the experimenter needed more data on another study, they were asked to take an additional test. Paralleling the procedure previously used by Fennis et al. (2009), the experimenter showed the participants a test form, which contained a series of extensive-looking mathematical exercises, to convey the impression that the test would be rather tedious. All participants agreed to do this extra test after finishing the current experiment. The act of burdening participants with an additional, tedious task aimed to induce a sense of having done the

experimenter an initial favour, supposedly decreasing their willingness to accommodate the experimenter on the subsequent, target request, since asking two favours in a row would violate the norm of reciprocity (Gouldner, 1960). In the end, none of the participants actually had to complete the test. In the no heuristic condition, participants were not told about this additional test, nor were they asked to complete it.

6.2.3 | Compliance

Resistance to persuasion was measured as the extent of participant (non)compliance. Before leaving the cubicle, the experimenter handed the participants a short letter. She asked them to read it carefully and answer the question at the bottom of the page before returning it to her. The letter was printed on stationery of the Faculty of Behavioural Sciences, and stated the following: "Dear student, an extensive number of studies is momentarily being conducted in our lab, and our subject pool appears to be insufficient to meet the demand. As a consequence, our students and staff members often fail to collect their data on time to finish their research projects. To take care of this problem, we would like to ask you whether you are willing to participate in future studies of our researchers, without receiving course credit or financial compensation. If so, please indicate below how much time you would be willing to voluntarily participate." Length of time participants could volunteer ranged from 0 to 180 minutes in 30 minute intervals, which served as our measure of (non)compliance (Fennis et al., 2009; Kardes, Fennis, Hirt, Tormala, & Bullington, 2007). When participants returned the form to the experimenter, they were debriefed and thanked for their participation.

6.3 | Results and discussion

Overall, 72% of the participants agreed to volunteer. We performed a multiple regression (on the entire sample) with the number of minutes prepared to volunteer as the criterion and resistance heuristic (violation of the norm of reciprocity vs. control, dummy coded), self-control (a continuous, centered predictor), and their interaction as predictors.² The main effects of resistance heuristic and self-control were not significant, $b = -0.54$, $t(68) = -1.38$, $p = .17$; $b = -0.09$, $t < 1$, respectively, but the regression revealed a significant interaction between resistance heuristic and self-control, $b = 2.35$, $t(68) = 2.55$, $p = .013$. In line with our hypothesis, and as shown in Figure 3, simple slopes analysis (Aiken & West, 1991) revealed that the impact of the resistance heuristic on compliance was significant among participants low in dispositional self-control (evaluated at one standard deviation below the mean, $b = -1.59$, $t(68) = -2.76$, $p = .007$) and was not significant among

²The dependent variable was non-normally distributed, with a skewness of 0.73 ($SE = 0.28$) and kurtosis of 0.87 ($SE = 0.56$). For analytic purposes, the variable was therefore log-transformed (Stevens, 2002), whereby a value of 1 was added to participant scores before transformation to overcome the impossibility of log-transforming values of 0. Note that all findings reported with this variable that were statistically significant remained significant when performing analyses on the untransformed variable. Unstandardized regression coefficients are reported throughout (cf. Hayes, 2013). For interpretive purposes, values in Figure 3 were generated using the nontransformed variable.

FIGURE 3 Number of minutes volunteering as a function of dispositional self-control and resistance heuristic. SC = self-control; SD = standard deviation

participants high in dispositional self-control (evaluated at one standard deviation above the mean, $b = 0.51$, $t < 1$). Hence, low self-control participants showed less willingness to volunteer (or likewise, showed increased levels of non-compliance) when they could rely on the resistance heuristic compared to when such a heuristic was absent. In contrast, high self-control participants remained unaffected by the resistance heuristic.

Probing the interaction such that not self-control, but heuristic functions as the moderator (cf. Hayes, 2013) revealed that the number of minutes one was willing to volunteer did not differ between participants low ($M - 1$ SD) and high ($M + 1$ SD) in dispositional self-control when no heuristic was present, $b = -0.09$, $t < 1$. However, when the influence context contained a resistance heuristic, those low in self-control were less willing to volunteer than those high in self-control, $b = 2.26$, $t(68) = 3.09$, $p = .003$.

An additional logistic regression analysis with willingness to volunteer (yes or no) as the dependent variable also showed the significant interaction between resistance heuristic and self-control, Wald(1) = 4.85, $p = .028$. Probing the interaction (Hayes, 2013) showed that among those low in self-control ($M - 1$ SD), only 36% of participants complied with the volunteering request when a resistance heuristic was presented, as compared to 79% of participants when no heuristic was present, $p = .025$. Among those high in self-control ($M + 1$ SD), the presence or absence of a heuristic did not significantly affect compliance rates (91% vs. 74%, $p = .21$). Examining the effect of self-control within the conditions of heuristic showed that compliance rates did not differ between participants low ($M - 1$ SD) and high ($M + 1$ SD) in dispositional self-control when no heuristic was present (79% vs. 74%, $p = .70$). However, when the influence context contained a resistance heuristic, those low in self-control were less likely to volunteer than those high in self-control (36% vs. 91%, $p = .02$).

In sum, Experiment 3 aligns with and extends the previous studies, showing that not only situationally reduced but also dispositionally low levels of self-control increase resistance to an influence attempt when the influence context provides a salient resistance-promoting heuristic. Individuals low in self-control ability were more likely to use a heuristic suggesting a reciprocity-violation by the experimenter, and hence were less willing to comply than those high in self-control. In order to test whether this effect

generalizes to other manifestations of resistance, a fourth study was performed.

7 | EXPERIMENT 4

Instead of measuring (non)compliance or (negative) attitude change, in Experiment 4 we assessed a more direct manifestation of resistance: voiced refutations of a persuasive message. Moreover, we used yet another type of resistance-promoting heuristic: a message disclaimer in the form of negative social proof (Cialdini, 1993). According to the well-documented influence principle of social proof, people often make decisions according to what most other people do in that specific situation. When a persuasive message contains information that yielding to the request advocated in the message is uncommon, it is expected that low self-control evokes more negative responses to the persuasive message. Since we expect our process to be one of mindless resistance, we distinguish between low-effort, message unrelated and high-effort, issue-relevant refutations of the message, expecting low self-control to affect low-effort responding only.

7.1 | Participants and design

Seventy-four undergraduate students of a Dutch university (60 female, 14 male, $M_{\text{age}} = 19.64$ years, $SD = 2.15$) participated in return for partial course credit. The study used one between-subjects factor (Resistance heuristic: negative social proof vs. no heuristic) and dispositional self-control as the second independent variable. The current study was part of a larger project and formed part of a set of studies that was introduced as a series of unrelated tasks.

7.2 | Procedure

Participants were randomly assigned to one of the two conditions. Participants were seated in individual cubicles fitted with a desktop computer, which presented all instructions.

7.2.1 | Self-control

As in Experiment 3, participants completed the Self-Control Scale (Tangney et al., 2004) to determine their level of dispositional self-control. The reliability of the instrument was satisfactory ($\alpha = 0.82$), and an index was created by averaging the scores on the items. Higher scores indicate higher levels of dispositional self-control ($M = 3.17$, $SD = .37$).

7.2.2 | Resistance heuristic

Since the current experiment was part of a larger set of studies, a short study was conducted after the administration of the self-control questionnaire and before the manipulation of the resistance heuristic. This short study functioned as a filler task to obscure the real purpose of the present experiment. When participants finished this filler study, the present experiment continued. All participants received a persuasive message, advocating students to participate in future studies in the lab on a voluntary basis, rather than in exchange for money or partial course credit.

In the resistance heuristic condition, the message was accompanied by disclaiming information in the form of negative social proof (Cialdini, 1993)—conveying that only a minority of 18% of participants volunteered, while the majority of 82% did not. In the no heuristic condition, participants did not receive this information.

7.2.3 | Voiced resistance

To measure resistance to persuasion, all participants were asked to voice any resistance they might experience towards the persuasive message. Specifically, participants were instructed to type their responses in separate lines in a text box on their computer screen. All refutations were coded by the first author and a research assistant blind to conditions. The refutations were coded in one of two different categories: issue-relevant refutations, in which participants referred to the advocacy by restating specific arguments contained in the message (e.g., “I don’t feel like voluntarily participating in extra research without receiving course credit”; Cohen’s $\kappa = .64$), or unspecified, generic refutations, unrelated to the specific advocacy (e.g., “I don’t feel like it”; “I’m too busy”; Cohen’s $\kappa = .66$). These two categories were differentiated, because issue-relevant refutations are likely to be the result of cognitive elaboration of the message (resembling an effortful counter argumentation process), whereas unspecified, generic refutations are less likely to be the result of careful message scrutiny and thus reflect mindless, rather than mindful resistance. This distinction is important, since we aim to demonstrate that under conditions of low self-control, a resistance heuristic is not likely to elicit effortful resistance; however, relatively effortless forms of resistance will be more likely to occur. The number of refutations participants listed in each category served as our two indices of voiced resistance to persuasion. After this task, participants were debriefed and thanked.

7.3 | Results and discussion

We first performed a multiple regression with the number of generic refutations as the criterion and resistance heuristic (negative social proof vs. no heuristic, dummy coded), self-control (a continuous, centered predictor), and their interaction as predictors.³ The main effects of resistance heuristic and self-control did not reach significance, $b = 0.09$, $t < 1$; $b = 0.19$, $t(70) = 1.00$, $p = .32$, respectively, but the regression showed the expected interaction between resistance heuristic and self-control, $b = -0.70$, $t(70) = -2.54$, $p = .013$. In line with our hypothesis, and as shown in Figure 4, simple slopes analysis (Aiken & West, 1991) revealed that the impact of the resistance heuristic on the generation of unspecified negative responses to the persuasive message was significant among

FIGURE 4 Number of general refutations as a function of dispositional self-control and resistance heuristic. SC = self-control; SD = standard deviation

participants low in dispositional self-control (evaluated at one standard deviation below the mean, $b = 0.35$, $t(70) = 2.46$, $p = .016$) and was not significant among participants high in dispositional self-control (evaluated at one standard deviation above the mean, $b = -0.16$, $t(70) = -1.14$, $p = .26$). Hence, low self-control participants were more likely to refute the persuasive message in an unspecified, low-effort fashion when they could rely on the disclaiming information in the message, compared to when no such disclaiming information was present.

Probing the interaction such that not self-control, but heuristic functions as the moderator (cf. Hayes, 2013) revealed that the number of generic refutations did not differ between participants low ($M - 1$ SD) and high ($M + 1$ SD) in dispositional self-control when no heuristic was present, $b = 0.19$, $t(70) = 1.00$, $p = .32$. However, when the influence context contained a resistance heuristic, those low in self-control generated more unspecified negative responses to the persuasive message than those high in self-control, $b = -0.51$, $t(70) = 2.54$, $p = .013$.

As expected, a second multiple regression with the number of issue-relevant refutations as the criterion and resistance heuristic (negative social proof vs. no heuristic, dummy coded), self-control (a continuous, centered predictor), and their interaction as predictors,⁴ failed to show any significant effects, all t 's < 1 . Hence, whereas low self-control increases the number of low-effort negative responses to a persuasive request when the situation conveys that most people are not in favour of the message, it leaves the number of high-effort responses unaffected. Note that this null effect is in line with our predictions on two grounds: although low self-control participants are expected to be susceptible to the negative social proof heuristic, its impact would only be evinced on generic, not issue-relevant refutations. Second, high self-control participants are not expected to be as susceptible to the heuristic, and so not just generic, but also issue-relevant refutations yield no effects for those high in self-control.

³The dependent variable was non-normally distributed, with a skewness of 0.98 ($SE = 0.28$) and kurtosis of 1.26 ($SE = 0.55$). Hence, in line with procedures in Experiment 3, the variable was log-transformed. Note that all findings reported with this variable that were statistically significant remained significant when performing analyses on the untransformed variable. Unstandardized regression coefficients are reported throughout (cf. Hayes, 2013). For interpretive purposes, values in Figure 4 were generated using the non-transformed variable.

⁴The dependent variable was non-normally distributed, with a skewness of 0.56 ($SE = 0.28$) and kurtosis of -0.59 ($SE = 0.55$). Hence, in line with the previous procedure, the variable was log-transformed. Note that the null findings reported with this variable remain statistically nonsignificant when performing analyses on the untransformed variable.

8 | META-ANALYSIS

Our hypothesized process of mindless resistance was tested in a diverse range of studies, consistently showing the expected interaction between (state or trait) self-control and the presence of a resistance-promoting heuristic. In all four studies, participants low in self-control appeared to be more susceptible to the influence of a resistance-promoting heuristic as compared to participants high in self-control. In all but one study, this increased susceptibility resulted in higher resistance to persuasion for those low in self-control, as compared to those high in self-control, when a resistance-promoting heuristic was present. To assess the overall significance and robustness of the interaction effect of self-control and resistance heuristic on resistance to persuasion, we conducted a meta-analysis on the combined results of our four studies (Rosenthal, 1991), using the common Stouffer method of adding z-scores (Stouffer, Suchman, DeVinney, Star, & Williams, 1949). The overall interaction between self-control and heuristic appeared to be robust and significant across studies, $z = 4.66$, $p < .001$. As expected, the meta-analytic results showed that the effect of resistance heuristic on resistance to persuasion was highly significant for participants low in (state or trait) self-control, $z = 5.40$, $p < .001$, but was not significant for high self-control participants, $z = 1.52$, $p = .064$. We also explored the effect of self-control for the presence and absence of a resistance heuristic separately. Whereas self-control did not significantly affect resistance to persuasion in the absence of a heuristic, $z = 1.35$, $p = .090$, the effect of self-control was highly significant when a resistance-promoting heuristic was present in the influence context, $z = 4.36$, $p < .001$. In sum, these results convincingly show that our demonstration of mindless resistance is robust across studies.

9 | GENERAL DISCUSSION

Previous research has repeatedly shown that people are more successful at resisting (unwanted) persuasion when self-control is high, rather than low (Burkley, 2008; Gillespie et al., 2012; Fennis et al., 2009; Janssen et al., 2008, 2010; Wheeler et al., 2007). The present research aimed to demonstrate that high self-control is not always needed to successfully ward off an influence attempt. On the contrary, when the influence context fosters resistance-promoting heuristics as a behavioural guide, resistance is more likely when self-control is low. Evidence for this hypothesis was presented when (a) low self-control was situationally induced, or measured as a trait characteristic, (b) across a range of different influence settings including both interpersonal (non-mediated) persuasion (Experiments 1 and 3) and impersonal (mediated) persuasion (Experiments 2 and 4), (c) across a range of different manifestations of resistance: from noncompliance and nonpersuasion to direct, voiced resistance, and (d) using a range of different types of resistance-promoting heuristics: from subtle normative information that predisposes against persuasion, to an advertisement disclaimer.

Together, the findings from four studies converge on the idea that low consumer self-control is not invariantly associated with

increased yielding to (unwanted) influence attempts. To the extent that low self-control increases reliance on heuristic information, the type of heuristic that the influence context provides can either tip the balance to compliance, but can just as well increase the odds of resistance. In line with dual-process literature (Petty & Wegener, 1998), the demonstration of such a process implies that resistance to persuasion can still occur when the ability for elaboration is restricted. Instead of qualifying as an act of effortful self-regulation, in certain conditions resistance is more likely when one does not carefully scrutinize an influence attempt, and rather constitutes an act of mindlessness. More generally, the present findings underscore that it is plausible and relevant to disentangle influence as a function of persuasive communication from persuasion, and hence to carefully distinguish between process and outcome. As such, our findings supplement the vast body of literature on persuasion not only by highlighting the role of consumer self-regulation, but also by providing an empirical demonstration of the theoretical notions that have allowed for increased influence resulting not in persuasion but in resistance. In addition, we show that self-control dynamics may underlie resistance processes that surface both at the attitudinal, evaluative level in response to a persuasive message, as well as at the overt behavioural level in response to a specific request. The present work offers a new, unifying perspective on these two well-documented forms of persuasion by presenting a common set of principles driving these influence processes.

We would like to stress that although our findings are in line with dual-process notions, a state of low self-control does not equate a state of low elaboration likelihood per se (cf. Petty & Cacioppo, 1986). Specifically, low elaboration likelihood is induced by a host of situational and dispositional factors affecting the motivation and ability to critically process persuasive argumentation (e.g., product involvement, need for cognition, message repetition). In comparison, a state of low self-control is more tightly defined (and non-overlapping with low elaboration likelihood) as the consequence of previous self-control exertion affecting subsequent self-control performance (Baumeister et al., 2007).

We would also like to stress that our demonstration that low self-control fosters the use of resistance-promoting heuristics extends dual-process literature in that our heuristics are not supporting, but opposing the goals of the persuasive message or request. For example, in a study testing the effectiveness of different versions of a disposable razor-ad, Petty, Cacioppo, and Schumann (1983) demonstrated that low elaboration likelihood participants showed more negative attitudes when the ad was endorsed by a "weak", non-celebrity source (elderly citizens from Bakersfield, Arizona) than by a strong, celebrity source (professional athletes). More important, although a weak source heuristic could be viewed as the presence of a resistance-promoting heuristic for individuals low in elaboration (cf. Petty & Wegener, 1998), it actually is not. The weak source still argued in favour of the advocacy, that is, the "Edge" razor. Hence, although ineffective in promoting persuasion, the weak source cannot be considered as a resistance heuristic in the sense that we are using it. In contrast, the heuristics that were used in our experiments promote a response that is contrary to the goals of the message, which we view as a specific attribute of resistance heuristics. In our studies, resistance-promoting

heuristics were not a weaker version of convincing elements, but cues which purposefully made a compliant answer less attractive. The role of these resistance-promoting heuristics has not been investigated in persuasion literature before.

The present line of studies also extends relevant findings on the motivational effects of self-control exertion. Whereas Schmeichel et al. (2010) argued that exercising self-control causes an increase in approach motivation, the present research suggests that approach motivation may not be the only or even default orientation when self-control is low: When environmental cues communicate avoidance as a key behavioural strategy, depletion may well turn into a countervailing avoidance orientation, resulting in resistance to persuasion.

In the present studies, the presence of resistance-promoting heuristics mainly affected low self-control participants. It was assumed that those low in self-control use heuristics as a code of conduct, as due to their limited amount of resources for thorough decision making they are in need of a guide to (efficient) behaviour. High self-controls, on the other hand, are not in need for such a decisional guide, and above all, the impact of the resistance-promoting heuristics may have been overridden by pro-social motives, such as the desire to come across as a nice and polite person and providing a socially desirable answer, when asked to donate money to charity (Experiment 1) or volunteer in future lab experiments (Experiment 3, cf. Jenkins & Dragojevic, 2013). Indeed, such motives may not pose a challenge for low self-control individuals, as previous research has noted that depletion often gives rise to a more antisocial, egocentric orientation (DeWall, Baumeister, Gailliot, & Maner, 2008; Mead, Baumeister, Gino, Schweitzer, & Ariely, 2009). In addition, high self-controls may be more proficient at correcting the initial tendency to resist the appeal based on the heuristic information. Future research could further test the viability of these notions and explore the interplay of different motives that play a role in situations of influence.

In four between-subjects experiments, we have demonstrated that in the presence of a resistance heuristic, low self-control consumers are less compliant, and more resistant as compared to high self-control consumers. Although our results strongly build a case for when and how self-control interacts with heuristics to affect resistance to persuasion attempts, future research may profitably explore the implications of our notions for consumers' preexisting attitudes and intentions using a within-subjects design. That is, a testable implication would be to assess whether under low self-control conditions, these existing attitudes and behavioral intentions are more likely to change in the opposite direction than under high self-control conditions when a resistance heuristic is present (i.e., whether they are actually shifting from a positive to a negative position). Demonstrating such within-subject attitudinal and/or behavioral change (in addition to between-subject change) would further corroborate that low self-controls may indeed display more attitudinal and/or behavioral resistance as a function of suitable heuristics, and would rule out the alternative account that under these conditions, consumers mainly form less extreme attitudes and intentions, rather than resisting persuasion (although there is to our knowledge no plausible theoretical rationale to explain why our heuristics would yield such less extreme consumer responses).

Another point that deserves attention is that although the present research shows that under certain conditions people low in self-control are less likely to yield to a persuasive request or message than those high in self-control, this occurs because they are more likely to be influenced by heuristics in the persuasion context. Hence, low self-control paradoxically increases resistance to one source of influence by increasing susceptibility to another. In this respect, it would be interesting to investigate what would happen when the two sources of influence are clearly opposed to one another: The participants in our studies were presented with persuasive requests that were unsolicited and were expected to be received with mild resistance, but future research might explore how strong the effect of a resistance heuristic would be when the persuasive request or message elicits an initially positive response, and individuals are faced with strong temptation. Related to this notion, whereas this project focuses on resistance to unsolicited persuasion, it may also offer valuable insights on how to sidestep resistance, for instance when one wants to reach people with messages that are benign in content but are perceived as unsolicited (e.g., an advocacy for regular health checkups).

On a practical note, it would be important to further study the generalizability of our results with respect to the effectiveness of advertisement disclaimers. Many Western governments instruct advertisers to include disclaimers in their persuasive messages to protect consumers from unnecessary risks related to their products or services. For example, the Dutch government made it mandatory for all loan advertisements on television, radio, internet, and in print media to be accompanied by the disclaimer "Be careful! Borrowing money costs money" ("Let op! Geld lenen kost geld"). The sentence is accompanied by a symbol picturing a loan as a ball and chain, to increase consumer awareness of the costs and risks involved in buying financial products (The Netherlands Authority for the Financial Markets, 2009). A related example is the use of sponsorship disclosures, such as the European "PP" symbol that is shown at the beginning of television shows that contain brand placement (Tessitore & Geuens, 2013). On the basis of our current findings, it can be predicted that such warning messages are especially effective for low self-control individuals (provided that they are correctly understood and can be processed in an automatic fashion). Considering that people are most likely to indulge themselves in the use of entertaining media at the end of the day when their self-control is likely to be depleted (Gillespie et al., 2012; Hofmann, Vohs, & Baumeister, 2012; Reinecke, Hartmann, & Eden, 2014), these messages could effectively warn consumers against potentially unwanted persuasive messages when they are particularly susceptible to persuasion.

To conclude, the current investigation suggests that resistance to persuasion is not necessarily more likely to succeed when self-control is high, rather than low. On the contrary, impaired self-regulation may also promote successful resistance to persuasion. This demonstration sheds new light on the dynamics of influence, and underscores the significant role of self-control in resistance and persuasion processes.

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Dr. Loes Janssen is assistant professor at the Department of Communication and Information Sciences of Tilburg University. She was trained as a social psychologist and communication scientist and obtained a PhD in marketing communication and consumer psychology. She studies consumer persuasion and resistance processes in response to marketing communications.

Prof. Dr. Bob Fennis is professor in consumer behavior at the Department of Marketing at the University of Groningen. He was trained as a social psychologist and communication scientist. His research interests include social influence, persuasion, and self-regulation.

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