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And deplete us not into temptation: Automatic attitudes, dietary restraint, and self-regulatory resources as determinants of eating behavior ☆

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Abstract

Linking contemporary models of self-regulation to recent research on automatic attitudes, the present study investigated the impact of automatic candy attitudes, dietary restraint standards, and self-regulation resources on eating behavior. Participants were assigned to either an emotion suppression task (low self-regulation resources) or an emotion flow task (high self-regulation resources), and were then given an opportunity to taste candies. When self-regulation resources were high, candy consumption was uniquely related to dietary restraint standards (but not automatic candy attitudes). In contrast, when self-regulation resources were low, candy consumption was primarily predicted by automatic candy attitudes, with dietary restraint standards showing a tendency for counterintentional effects. These results indicate that the behavioral impact of automatic attitudes and personal standards depends on available control resources. Implications for research on automatic attitudes and self-regulation are discussed.

Keywords: Automatic attitudes; Dietary restraint; Eating behavior; Ego depletion; Impulsive behavior; Self-control; Self-regulation

People are often tempted by their impulses, urges, and cravings. Because giving way to one's immediate hedonic impulses is not always possible or advisable in the light of social or personal constraints, human beings acquired the capacity for *self-control* or *self-regulation* in a historical process of civilization (Elias, 1939/2000; Freud, 1930/1961). This capacity can be defined as the "ability to override or change one's inner responses, as well as to interrupt undesired behavioral tendencies and refrain from acting on them" (Tangney, Baumeister, & Boone, 2004, p. 275).

Obviously, not all impulses require self-control, as acting in line with one's impulses often has no negative consequences (e.g., drinking a cup of water when being thirsty). However, in many circumstances the implications of a certain impulse (e.g., the desire to eat a candy bar) are at odds with personal goals (e.g., "I want to lose weight."). In such cases, the resulting conflict between impulse and self-control can be described as a tug-of-war in which the stronger competitor wins (Baumeister, Heatherton, & Tice, 1994; Mischel, 1996; Muraven & Baumeister, 2000). For example, in their model of *ego depletion*, Baumeister and colleagues argued that the capacity for self-control resembles a muscle that may become "tired" over the course of using it (Baumeister, Bratlavasky, Muraven, & Tice, 1998; Muraven, Tice, & Baumeister, 1998). Thus, engaging in self-regulation often depletes people's subsequent ability to control their

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behavior. Consistent with this assumption, Vohs and Heatherton (2000, Study 3) showed that emotion suppression undermined participants' success in restraining their eating behavior in a subsequent ice-cream tasting task. In a similar vein, Muraven, Collins, and Neinhaus (2002) found a decrease in the control of alcohol consumption when participants had to suppress thoughts of a white bear before. Finally, in the domain of prejudice, Richeson and colleagues demonstrated that controlling one's behavior in interracial interactions led to impaired performance in a subsequent task that required a high level of executive control (Richeson et al., 2003; Richeson & Shelton, 2003).

So far, research on self-regulation has primarily focused on the control aspect of human behavior. However, the determinants of impulsive tendencies are much less clear. In the present article, we make a suggestion to fill this gap by linking the proposed conflict between self-control and impulse to recent research on automatic attitudes (for a review, see Petty, Fazio, & Briñol, in press). Specifically, we argue that impulsive action tendencies can be linked to and often are the consequence of automatically activated evaluations. More precisely, we argue that impulsive action tendencies to approach or avoid a particular stimulus are the result of automatically activated evaluations of this stimulus (Strack & Deutsch, 2004). As such, ego depletion should moderate not only the impact of self-control on human behavior. Rather, the impact of ego depletion should be twofold, such that it determines whether behavior is determined either by automatic attitudes or by personal standards. More precisely, we argue that behavior should be predominantly influenced by automatic attitudes when self-regulation resources are low, but by personal standards when self-regulation resources are high.

Automatic attitudes and personal standards

Drawing on Strack and Deutsch's (2004) Reflective-Impulsive Model (RIM), automatic attitudes can be understood as spontaneous evaluations that have their roots in associative processes of spreading activation (see also Gawronski & Bodenhausen, in press). Such automatic evaluations are assumed to predispose the organism to spontaneously approach or avoid relevant stimuli (e.g., Chen & Bargh, 1999; Neumann, Hülsenbeck, & Seibt, 2004), thus providing a quick and efficient means of behavioral orientation in the environment. Consistent with this assumption, Neumann et al. (2004), for example, found that automatic attitudes toward people with AIDS significantly predicted impulsive approach and avoidance tendencies toward these people.

It is important to note, however, that impulsive action tendencies often have only small or minor overlap with one's goals or personal standards (e.g., Devine, 1989; Hofmann, Gawronski, Gschwendner, Le, & Schmitt, 2005). In Strack and Deutsch's (2004) model, such goals or standards have their origin in reflective processes of higher-order propositional reasoning. Hence, impulsive action tendencies resulting from automatic evaluations are often in conflict with deliberate action tendencies resulting from personal goals or standards, implying a tug-of-war similar to the one proposed by contemporary models of self-regulation (e.g., Baumeister et al., 1994; Mischel, 1996; Muraven & Baumeister, 2000). Moreover, because reflective processes usually require more cognitive capacity than associative processes (Strack & Deutsch, 2004), the behavioral impact of automatic attitudes and personal standards should depend on available resources: if cognitive capacity is high, personal standards (but not automatic attitudes) should influence behavior. However, if cognitive capacity is low, behavior should be influenced by automatic attitudes (but not by personal standards).

Similar predictions can be derived from Fazio's MODE Model of attitude–behavior consistency (e.g., Fazio & Olson, 2003). According to the MODE Model, automatically activated attitudes should guide behavior unless people are motivated and able to control the influence of these attitudes. Applied to eating behavior, for example, one could argue that automatic attitudes toward candies should influence the consumption of candies unless dietary standards motivate people to restrain their consumption of candies. However, because controlling one's attitudes is a cognitively effortful process, reduced cognitive capacity may undermine the impact of dietary restraint standards. In such cases, eating behavior should be influenced by automatic candy attitudes even when people are highly motivated to restrain their candy consumption.

Preliminary evidence for these assumptions can be derived from research showing double dissociations in the prediction of spontaneous versus controlled behavior (Dovidio, Kawakami, & Gaertner, 2002; Dovidio, Kawakami, Johnson, & Johnson, 1997; Fazio, Jackson, Dunton, & Williams, 1995; McConnell & Leibold, 2001; Perugini, 2005). From a general perspective, these studies demonstrated that automatically activated (but not self-reported) attitudes predict spontaneous behavior, whereas self-reported (but not automatically activated) attitudes predict controlled behavior. These results are generally consistent with the assumption that impairing the ability to control one's behavior should increase the impact of automatic attitudes, whereas enhanced control should reduce the impact of automatic attitudes. However, all of these studies were concerned with the impact of automatic attitudes on various behaviors that differ a priori with regard to their controllability (e.g., nonverbal reactions in interactions with Black people vs. judgments of court cases in which Black people are involved). As such, they provide no evidence for the present assumption that *one and the same* behavior can be influenced by either automatic attitudes or personal standards, and that their relative influence depends on self-regulation resources.

The main goal of the present research was to test these predictions with regard to eating behavior as a classic area of self-regulation. Specifically, we investigated whether the rela-