



## The role of consumer self-control in the consumption of virtue products

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### ABSTRACT

Virtue products (such as sunscreen lotion and dental floss) promise future benefits and, at the same time, carry immediate and ongoing usage costs. Although consumers acknowledge the benefits of virtue products, they find it difficult to consume them on a daily basis. This research focuses on a key problem in the consumption of virtue products—ongoing use—and identifies ways to help consumers maintain ongoing consumption. We propose and show that products' attributes (in terms of future versus present benefits) and consumers' dispositional self-control interact to shape the consumption of virtue products. In two field experiments that use different product categories—dental floss and sunscreen lotion—we show that low self-control participants consume a virtue product whose product description highlights a present benefit more than they consume a virtue product whose description highlights a future benefit. Among high self-control participants the reverse effect was observed. In a third study we show the same pattern of results when willingness to pay is measured.

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### 1. Introduction

Virtue products (e.g., sunscreen lotion, dental floss, condoms, gym workouts and car seatbelts) are products whose usage is associated with future benefits and immediate costs (Read, Loewenstein, & Kalyanaraman, 1999; Wertenbroch, 1998). These costs include not only purchase costs, which are common to all products, but also psychological, physical and emotional costs that are experienced during consumption and that lead many people to consume virtue products less often than they should (e.g., Arthey & Clarke, 1995; DellaVigna & Malmendier, 2006; Wichstrøm, 1994). The present research investigates how a virtue product's attributes (in terms of present benefits versus future benefits) interact with the consumer's dispositional self-control to influence product consumption.

Our research focuses on a key problem in the consumption of virtue products: ongoing use. Consumers find it difficult to consume virtue products on a daily basis. For example, DellaVigna and Malmendier (2006) show that health-club members paid a monthly fee that reflected an expectation to visit the club more than seven times a month, but they actually visited, on average, less than four and a half times per month. Similarly, research on sunbathing and the use of sunscreen indicates that consumers fail to use sunscreen adequately, even though they are aware of the potential damage caused by exposure to the sun (Arthey & Clarke, 1995; Wichstrøm, 1994).

Frequent consumption of virtue products is difficult for several reasons. The benefits gained from using these products are

experienced not immediately but in the distant future. Moreover, the consumption of such products can be physically or emotionally costly, time-consuming, painstaking, and in many cases unpleasant (e.g., a dental checkup).

To encourage consumers to purchase and use virtue products, traditional marketing approaches have usually highlighted the essence of these products and the benefits they provide. Thus, for example, campaigns for dental floss illustrate the importance of protecting one's teeth and gums from plaque build-up, and these campaigns also emphasize product attributes, such as the strength of the floss, that help achieve the goal of a beautiful smile. We argue that the main essence of a virtue product is typically associated with a benefit that is experienced in the *future*. Past research suggests that future-focused messages may be effective in encouraging consumers to purchase virtue products because these are products that people feel they “should” use, and people are more prone to spend money on “should” products when making decisions that apply to the distant future (for a review, see Milkman, Rogers, & Bazerman, 2010). However, we conjecture that the persuasiveness of such approaches is limited in establishing ongoing consumption because these approaches fail to change the basic premise that the cost, no matter how small, is to be experienced immediately and throughout consumption (i.e., in the present), whereas the benefit, no matter how important, is to be experienced sometime in the distant future. More specifically, we suggest that emphasizing the future benefit appeals only to some consumers, depending on the consumers' levels of self-control.

In two field studies measuring the actual, ongoing consumption of sunscreen lotion (Study 1) and dental floss (Study 2), we hypothesize and show that among consumers with low self-control, a virtue

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product description that highlights a present benefit yields higher consumption than does a virtue product description highlighting a future benefit. We find the opposite pattern for consumers with high self-control: a product description that highlights a future benefit yields higher consumption of the virtue product than does a description highlighting a present benefit. Study 3 expands these findings and shows that consumer willingness to pay for a virtue product is affected in a similar manner.

We begin by laying the theoretical basis for our proposed model. We define the construct of dispositional self-control and discuss its relationships to time focus (present versus future). We then draw from the literature on congruency effects to establish our benefit-congruency hypotheses. Finally, we report findings of three studies demonstrating how dispositional self-control and product attributes influence consumption of virtue products and discuss the implications.

## 2. Theoretical background

Past studies refer to self-control as the ability to delay gratification (Funder, Block, & Block, 1983; Metcalfe & Mischel, 1999; Mischel, Shoda, & Rodriguez, 1989), avoid being impulsive (Ainslie, 1975), avoid procrastination (Ariely & Wertenbroch, 2002; Lay, 1986; O'Donoghue & Rabin, 1999; Steel, 2007) and override short-term goals that stand in the way of long-term goals (Fishbach, Friedman, & Kruglanski, 2003; Fishbach & Shah, 2006; Muraven & Baumeister, 2000). Integrating these studies into a general theoretical framework, we suggest that self-control can be viewed as a process reflecting an inner struggle and an intentional effort that individuals invest to override the desire to perform actions or inactions that promise immediate gratification in the present, yet at the same time promote future negative outcomes. Ein-Gar and colleagues (Ein-Gar, Goldenberg, & Sagiv, 2008; Ein-Gar & Sagiv, 2011; Ein-Gar & Steinhart, 2011) have suggested that such actions can be categorized into two general types: "doing wrong" (impulsive, self-satisfying actions that harm one's future well-being, such as eating a cake while on a diet, buying products one cannot afford), and "not doing right" (actions of procrastinating about what needs to be done and thus, once again, risking one's future well-being, such as failing to exercise, use sunscreen or write an important paper).

Like many other psychological constructs (e.g., emotions (Kahneman, Diener, & Schwarz, 2003) and anxiety (Spielberger, 1996)), self-control can be viewed as both a trait (i.e., a stable, individual attribute) and a state (i.e., affected by the immediate context). Most of the research has studied self-control as a state, inferring it on the basis of how individuals perform tasks demanding self-control (e.g., Ariely & Wertenbroch, 2002; Mischel et al., 1989; Muraven & Baumeister, 2000; Vohs & Faber, 2003). In contrast, a growing body of literature has investigated self-control as a stable, personal attribute (notable examples include McCabe, Cunningham, & Brooks-Gunn, 2004; Mischel et al., 1989; O'Gorman & Baxter, 2002; Tangney, Baumeister, & Boone, 2004; Turner & Piquero, 2002). These studies provide evidence for the stability of self-control as an individual difference. For example, Mischel, Shoda, and Rodriguez (1989) showed that a four-year-old's ability to resist temptations predicted achieving high grades in school later between the ages of six and twelve. More recently, Duckworth and Seligman (2005) found that eighth-grade students' self-discipline predicted (above and beyond intelligence) grades, school attendance, and high school selection at older ages. These studies suggest that dispositional self-control is a stable personality aspect with a powerful role in shaping people's behavior.

In the current research, we adopt the perspective that self-control is an inherent personality trait. We suggest that dispositional self-control predicts the actual, ongoing consumption of virtue products, and that this relationship depends on the congruency between the product's benefit and the consumer's self-control. Specifically, we

propose that consumers with high self-control are more likely to consume a virtue product when the product offers future-focused benefits than when present-focused benefits are offered, whereas consumers with low self-control are more responsive when present-focused rather than future-focused benefits are offered.

Past studies have pointed to the relationships between self-control and time orientation, showing that individuals who focus on the distant future have higher levels of conscientiousness, higher impulse control, lower sensation seeking and a stronger focus on the future consequences of their actions, compared with those who focus on the near future (Strathman, Gleicher, Boninger, & Edwards, 1994; Zimbardo & Boyd, 1999). Individuals who focus on the distant future show less impulsive and more controlled behavior in consumption-related activities such as smoking, drinking and drug use (Keough, Zimbardo, & Boyd, 1999), impulsive and compulsive buying, and credit card use (Nenkov, Inman, & Hulland, 2008). Thus, the literature has established a basis for the notion that having a future-oriented time perspective is related to a self-controlled behavior.

This idea is further supported by a pilot study we conducted that directly investigated the relationships between dispositional self-control and time-focus measures. One hundred and twenty-one participants ( $M_{age} = 26$ , 52% females) completed a self-control measure (the Dispositional Self-Control scale (DSC), Ein-Gar et al., 2008; Ein-Gar & Steinhart, 2011), and three self-reported measures of time orientation: the consideration of future consequences (Strathman et al., 1994), the elaboration of potential outcomes (Nenkov et al., 2008) and time perspective (Zimbardo & Boyd, 1999). As expected, respondents with higher levels of self-control were more likely to consider the future consequences of their actions ( $r = .54$ ), to consider the positive and negative potential outcomes of their actions ( $r = .42$ ), and to hold a future time perspective ( $r = .61$ ) but not a hedonic present perspective ( $r = -.51$ ; for the full list of correlations, see Appendix B).

Following the above, consumers with high self-control tend to have a long-term time orientation. They are motivated to enhance their long-term well-being, and their goals are future-oriented. Thus, they are likely to value and to focus their attention on those benefits that are experienced in the future, and that are expected to enhance future well-being. Consequently, consumers with high self-control are expected to be more persuaded by messages that highlight the *future* rather than the present benefits of consuming virtue products. Individuals with low self-control, in contrast, have a short-term time orientation; they focus on their current well-being rather than their future well-being. Their goals are present-oriented and strongly associated with immediate gratification and the inability to resist temptations. Accordingly, consumers with low self-control are likely to value those benefits that are experienced immediately and that immediately affect their well-being, and they are expected to be more persuaded by messages highlighting present benefits as opposed to future benefits. Consumers with low self-control are less occupied with the consideration of future outcomes, whether good or bad; therefore, they are less likely to be attentive to benefits related to future experiences. This implies that traditional marketing approaches that highlight virtue products' essences (i.e., their future benefits) are less likely to be effective for promoting consumption among such consumers.

What approach, then, might encourage the consumption of virtue products among individuals with low self-control?

If the focus of consumers with low self-control is indeed on the present, the key to influencing such consumers lies in introducing *present benefits* associated with consuming virtue products. Specifically, we suggest that introducing an additional product attribute (or emphasizing an existing attribute) whose benefit can be experienced immediately and continuously would be effective for encouraging consumers with low self-control to consume a virtue product.

Furthermore, for this attribute to be meaningful in terms of changing consumers' expected (and actual) experience of the product, not only must this attribute provide an immediate benefit, but this benefit should also be ongoing and dependent on consumption.

This is necessary to ensure that, unlike a one-time handout (e.g., a gift added to the product), the benefit is perceived by the customer as part of the product itself.

We further reason that the added present-benefit attribute can be peripheral and does not necessarily have to be essential: it should merely offset the immediate cost associated with consuming the virtue product. Thus, for example, in a dental floss campaign, we propose that instead of focusing on a message that one's teeth will be healthier with frequent flossing, the persuasion message might emphasize that the dental floss has a refreshing mint flavor. Although mint flavor is a peripheral attribute and is less dominant and important in comparison with the product's essence (i.e., a means of achieving healthy teeth), it provides an immediate and ongoing benefit (i.e., the enjoyable taste and smell of mint) that depends on ongoing consumption and offsets, in a sense, the immediate and ongoing cost associated with flossing.

Adding a present benefit to product consumption often provides the consumer with an enjoyable consumption experience (Chitturi, Raghunathan, & Mahajan, 2008), which could serve as an alternative explanation for increased consumption among consumers with low self-control. Thus, for example, dental floss with mint flavor may be more enjoyable to use than regular dental floss. In designing our studies, we aimed to show that an added present benefit affects consumption above and beyond its impact on the enjoyment of consumption.

Research has given a great deal of attention to different benefit-congruency effects such as the one proposed. Chandon, Wansink, and Laurent (2000), for example, explored the congruency between product type (utilitarian or hedonic) and benefit type (monetary or non-monetary). Work within the persuasion literature has focused on message-receiver congruency (e.g., Fabrigar & Petty, 1999). Wheeler, Petty, and Bizer (2005) tested a benefit-congruency effect from a dispositional perspective, focusing on consumers' levels of extraversion (Experiment 1) and need for cognition (Experiment 2). A growing body of research is focusing on benefit-congruency effects related to consumer regulatory goals. These studies explore congruency effects when a message's appeal matched the consumer's regulatory state (e.g., Cesario, Grant, & Higgins, 2004; Chang & Chou, 2008; Chernev, 2004) or regulatory disposition (e.g., Cesario & Higgins, 2008; Latimer et al., 2007; Latimer et al., 2008; Zhao & Pechmann, 2007). For example, Latimer et al. (2007) demonstrate that information about a virtue act—a physical activity—framed in terms of prevention elicited positive feelings toward this act among people with a prevention-goal orientation, whereas the same activity framed in terms of promotion elicited positive feelings among people with a promotion-goal orientation. Similar results were found for messages encouraging other virtue acts such as the intake of fruit and vegetables (Latimer et al., 2008). In general, studies in the regulatory focus domain show that marketing messages that use a benefit-congruency approach enhance individuals' positive cognitive and emotional reactions; when there was a fit between consumer regulatory goals and the message appeal, overall persuasion increased (Chang & Chou, 2008), and the value consumers inferred from their choices or actions increased (Avnet & Higgins, 2006) as did their positive feelings and confidence about the choices made (Cesario & Higgins, 2008). Chernev's (2004) work on goal-attribute compatibility further reveals the underlying process for these congruency effects by demonstrating that specific product attributes that are compatible with consumers' goals are given more weight in the consumer's evaluation process.

In this same vein, we suggest that a virtue product's message appeal should go hand in hand with consumers' self-control in creating

benefit-congruency experiences. The goals of consumers with low self-control are embodied in their current existence. Although the essence of a virtue product is the future benefit that it offers, the addition of a present benefit can enhance the product's fit with the present-time orientation of consumers with low self-control. Consumers with high self-control, in contrast, focus on their long-term goals and well-being, and therefore a virtue product that offers future benefits is congruent with their orientation. Present benefits, however, are incongruent with the orientation of consumers with high self-control. Adding present benefits may, therefore, result in lower overall congruency as compared with offering only future benefits. Therefore, although it may seem counterintuitive, we suggest that consumers with high self-control may be less likely to consume virtue products when a present benefit is offered together with a future benefit than when only a future benefit is offered.

In sum, we hypothesize that the time focus of the product's attribute (whether present or future) will interact with consumers' dispositional self-control to shape the consumption of virtue products.

Previous studies measure the consumption behavior of virtue products by observing whether consumers cashed in coupons for free samples of a product (e.g., sunscreen) or reported the intention to use a product (e.g., Detweiler, Bedell, Salovey, Pronin, & Rothman, 1999; Rothman, Salovey, Antone, Keough, & Martin, 1993). However, these measures have two shortcomings. First, as the consumption of virtue products requires ongoing effort, such consumption is not well-reflected in these measures (e.g., Detweiler et al., 1999, p. 194, with regard to sunscreen). Second, these measures provide little indication for consumer behaviors when they actually need to pay for the product. In the current paper, we try to address these two issues.

In the first two studies, we test ongoing consumption in natural settings, whereas in Study 3 we test willingness to pay. Specifically, in Study 1, participants were given a dental floss product that either did or did not include an additional present benefit. In Study 2, all participants were given the same sunscreen lotion, and the experimental conditions differed in the type of benefit highlighted (present vs. future). In both studies, we tested our hypotheses for the ongoing consumption of the product. Study 3 was designed to test whether similar effects would be observed for participants' willingness to pay for the product and to rule out alternative explanations for the findings of Studies 1 and 2.

### 3. Study 1

In Study 1, we measured the ongoing consumption of dental floss over several weeks, in a natural, everyday consumption environment. We hypothesized that consumers with low self-control will consume a virtue product that provides an immediate benefit more than a virtue product with no present benefit. Consumers with high self-control, in contrast, will consume a virtue product that offers only a future benefit more than a product that offers both future and present benefits. We further expected the interaction effect to go above and beyond the effect of consumption enjoyment.

#### 3.1. Method

##### 3.1.1. Participants

Undergraduate students ( $n = 111$ ;  $M_{\text{age}} = 26$ , 53% females) participated in the study in exchange for a package of Plackers dental floss (containing 30 units)<sup>1</sup> and were offered course credit and a raffle ticket (the winning ticket holder had a choice of one of the following three

<sup>1</sup> Placcontrol manufactures single-use flossing aids, which are sold worldwide. Their Tuffloss dental floss, which was used in this study, is one of Placcontrol's licensed technologies and is imported to the local market by Dentalon, Inc.

prizes: a TV, a coffee maker, and a DVD player; all prizes were priced at \$180).

### 3.1.2. Procedure and design

Participants were informed that they were part of a two-session market research study on Plackers dental floss, conducted in collaboration with a respectable international manufacturer. Participants were randomly assigned to one of two experimental conditions (present- or future-benefit focus).

All participants first completed a self-reporting self-control measure. They then read a description of a virtue product and responded to pre-consumption attitude questions based on the product description (as part of the “market research” cover story). Next, participants received the product for personal use. The product was a package of Plackers dental floss, manufactured with patented “Tuffloss,” that (according to the manufacturer) increases floss strength and durability. Two weeks later, participants came back to the laboratory. They reported their overall enjoyment of the product, and we collected their packages of Plackers to assess their usage of the product. The Plackers packages were returned to the participants, who received their course credit and raffle tickets. Participants were then debriefed and thanked.

### 3.1.3. Instruments

**3.1.3.1. The self-control measure.** To measure self-control, we used the Dispositional Self-Control scale (DSC; Ein-Gar et al., 2008; Ein-Gar & Steinhart, 2011). The DSC conceptualizes self-control as the combination of overcoming “doing wrong” and overcoming “not doing right” impulses. This scale is the first to measure these two aspects of self-control. It includes 17 context-free items measuring self-control as a general and stable trait-like attribute. Participants report their agreement with each statement on a scale of 1 (“does not describe me at all”) to 5 (“describes me very much”). For the full list of items, see Appendix A.

The scale has been validated in several ways. First, confirmatory factor analysis (CFA) has verified the conceptualization of self-control, showing that “doing wrong” and “not doing right” are two latent factors of self-control ( $N=1902$ ,  $\chi^2$  (df=107)=1083.06,  $p<.001$ , RMSEA=.07, NFI=.90, CFI=.93; Ein-Gar & Sagiv, 2011). Second, construct validity was confirmed, relating the DSC to conceptually relevant constructs. Third, concurrent predictive validity was established, showing that DSC measurements correlate negatively with measurements of deviant behavior (for the full list of correlations, see Appendix B). In addition, self-control, as measured by the DSC, has predicted performance in self-control-demanding tasks. For example, in a recent study, Ein-Gar and Steinhart (2011) use this scale to predict persistence in monotonous, boring tasks and to predict impulsive buying and the consumption of hedonic food. (For complete details of the scale construction and validation, see Ein-Gar et al., 2008; Ein-Gar & Sagiv, 2011; Ein-Gar & Steinhart, 2011.)

**3.1.3.2. Present/future benefit focus.** Although all participants received Plackers dental floss manufactured with Tuffloss, we used different product descriptions to highlight benefits differently. Participants were each assigned at random to one of the following two conditions.

The future-focus condition highlighted the Tuffloss attribute, emphasizing its future benefit:

“The product is Plackers Dental Floss. This product employs patented Tuffloss™, the preferred floss for prevention of future dental problems: Tuffloss is seven times stronger than nylon and does not wear or tear. Tuffloss does not shred during use. Its efficacy in ensuring

future tooth and gum health considerably exceeds that of other flosses.”

The present-focus condition did not mention the Tuffloss patent and highlighted “mint flavor” as an attribute with a present benefit:

“The product is Plackers Dental Floss. This dental floss cleans your teeth and, in addition, features a breath-refreshing mint flavor. Thus, with one action, you can clean your teeth, keep them healthy, and freshen your breath with mint.”

These two manipulations were pre-tested twice. In the first pre-test ( $n=65$ ), we conducted a pairwise  $t$ -test comparing the two attributes. According to participants' ratings on a scale of 1 (present benefit) to 5 (future benefit), the mint flavor attribute was perceived by participants as more of a present benefit (mean rating ( $M$ ) = 1.20,  $STD = .59$ ), and the Tuffloss attribute was perceived as more of a future benefit ( $M=2.65$ ,  $STD=1.2$ ;  $t_{(1,64)} = -10.05$ ,  $p<.001$ ). The second pre-test ( $n=63$ ) confirmed that the descriptions used in the manipulations (present benefit and future benefit) were preferred over a generic product description (containing no added special attribute), ( $\chi^2_{\text{present benefit}}(1) = 4.83$ ;  $p<.05$ ;  $\chi^2_{\text{future benefit}}(1) = 7.4$ ;  $p<.01$ ). The descriptions of the two conditions did not significantly differ from each other in their attractiveness ( $t_{(1,51)} = -.55$ , NS).

Each participant in the present- and future-focus conditions received a 30-unit package of Plackers. All packages looked identical; however, only participants in the present-focus condition received mint-flavored Plackers.

Along with the product, participants received a self-report log, in which they were asked to document each time they used the product. The self-report log was intended to reinforce the manipulation. To that end, the product description (corresponding to the participant's assigned condition) appeared at the top of each page in the log.

**3.1.3.3. Product usage.** In the second session, which took place 2 weeks after the first, the experimenter counted the number of units remaining in the packages. Use of the Plackers dental floss was evaluated according to the average daily number of units used by each participant. To ensure that participants did not anticipate in advance that the number of dental floss units they used would be measured, they were asked in the first session to bring the package with them to the second session under the pretext that the experimenter wished to test whether the graphics on the package wear off after frequent use, as part of the market research.

**3.1.3.4. Enjoyment.** To measure enjoyment, we asked participants to respond to three items in which they indicated how much they liked the product, enjoyed using it, and thought it was good. An index of enjoyment was calculated for each participant by averaging the three items ( $\alpha = .91$ ).

## 3.2. Results

We tested our hypothesis with a hierarchical regression to predict the average daily use of dental floss. In the first step, participants' self-control, time-focus condition (present vs. future) and enjoyment were entered as predictors of product usage, and the model was significant ( $F_{(3,107)} = 7.86$ ;  $p<.01$ ). Enjoyment positively predicted the average daily use of dental floss ( $\beta = .42$ ,  $p<.01$ ). No other significant effect emerged. Overall, the model explained 42% of the variance. In the second step, the interaction between the time-focus condition and self-control was added. This second model was significant as well ( $F_{(4,106)} = 9.69$ ;  $p<.01$ ). The interaction was a significant predictor of product usage ( $\beta = 1.48$ ,  $p<.01$ ), explaining an additional 8.7% of the variance ( $p<.01$ ).

To further interpret our findings, we conducted a univariate ANOVA and planned contrasts. Participants were designated as having high or low self-control according to median split. We conducted a 2(self-control: high vs. low)  $\times$  2(time-focus condition: present vs. future benefit) ANOVA to predict participants' consumption. Enjoyment was added as a covariate.<sup>2</sup> The findings revealed a significant main effect of enjoyment ( $F_{(1,106)} = 25.0, p < .01$ ). No other main effect emerged (time-focus condition:  $F_{(1,106)} = .28, NS$ ; self-control:  $F_{(1,106)} = .30, NS$ ). As hypothesized, the interaction between self-control and time focus was significant ( $F_{(1,106)} = 10.52, p < .01$ ; see Fig. 1). Thus, the findings supported our hypothesis, showing that the consumer's self-control interacts with the time focus of product benefits (present vs. future) in predicting product usage, and that this effect goes above and beyond the effect of consumption enjoyment.

Planned contrasts revealed, as expected, that participants with high self-control used more units in the future-focus condition (i.e., the description emphasizing Tuffloss;  $M = .67$  units,  $STD = .50$ ) than in the present-focus condition (i.e., the description emphasizing mint flavor;  $M = .46$  units,  $STD = .32$ ;  $t_{(1,107)} = 2.12, p < .05$ ). In addition, as hypothesized, participants with low self-control used more units in the present-focus condition ( $M = .68$  units,  $STD = .41$ ) than in the future-focus condition ( $M = .44$  units,  $STD = .23$ ;  $t_{(1,107)} = 2.10, p < .04$ ). Thus, the findings fully supported our hypothesis.

### 3.2.1. Conclusions

The findings of Study 1 indicate that a virtue product's time focus interacts with a consumer's level of self-control in predicting the consumer's consumption. More specifically, our findings are consistent with our reasoning that congruency between self-control and type of benefit increases consumption. Among participants with low self-control, adding a present benefit (a mint flavor) resulted in more consumption as compared with highlighting a future benefit. Conversely, participants with high self-control used the product more if a future benefit was highlighted than if a present benefit was added.

Past studies suggest that utilitarian product benefits and hedonic benefits play different roles in consumer satisfaction and delight (Chitturi et al., 2008). Taste, as a specific type of hedonic benefit, was found to impact consumers' actual experience of products (e.g., Raghunathan, Naylor, & Hoyer, 2006) and to influence consumers' judgment of product quality (e.g., Warlop, Ratneshwar, & van Osselaer, 2005). In addition, the literature on emotions suggests that consumers' actual and anticipated emotions play a significant role in shaping their preferences (e.g., Phillips & Baumgartner, 2002; Pollai, Hoelzl, & Possas, 2010; Shiv & Huber, 2000; Wang, Novemsky, & Dhar, 2009). We ruled out the possibility that enjoyment was the only driver of increased consumption, showing that the interaction between self-control and the time focus of the product's benefit affected consumption above and beyond the effect of enjoyment. To further rule out enjoyment as an alternative explanation, in Study 2 we tested our hypothesis with an attribute that provides a present benefit that lacks a hedonic aspect. Again, we controlled for enjoyment.

Study 2 was also designed to generalize our findings in several ways. First, in Study 1, participants in the two experimental conditions used somewhat different products (the product in the present-focus condition was mint-flavored and the product in the future-focus condition was not). In contrast, in Study 2, all participants used the same product, and different benefits were highlighted in each experimental condition. Second, in Study 1, participants' familiarity with the product and its essential benefits was expected to be low: a pre-test we conducted prior to running this study showed that only about 2% of the sample population was familiar with the product category of Plackers dental floss. Moreover, we expected low expertise with Plackers specifically as it is imported to the local

<sup>2</sup> There were no differences in enjoyment between the experimental conditions ( $t_{(109)} = -.59, NS$ ).

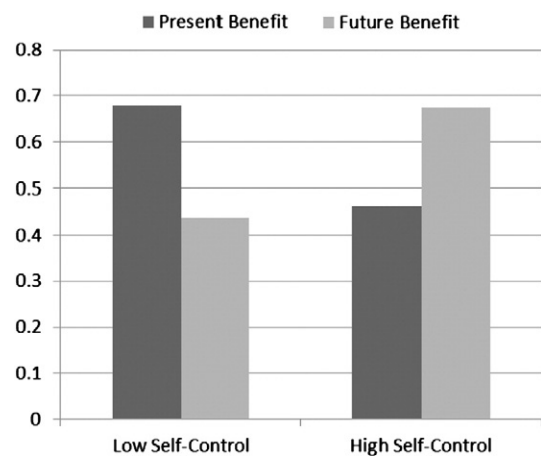


Fig. 1. Average daily consumption of dental floss (units per day).

market without any marketing communication efforts and is sold both in very small amounts and in only a handful of stores. Thus, in Study 2, we sought to investigate the effect on a product category that participants were familiar with.

## 4. Study 2

Marketing campaigns for virtue products often emphasize product essence, which generally entails an important future benefit. Unlike Study 1, the product's essence was described in both the present focus and the future focus conditions and in the same way in this study.

In the future-focus condition, participants were exposed to a description highlighting the product's essence—its primary future benefit. In the present-focus condition, participants were exposed to the same description used in the future-focus condition alongside a description of an additional, present benefit. This was done for the purpose of showing how a traditional marketing approach, which focuses on the product's generic, primary essence, can induce the same effect as a message focusing on a specific future benefit. Because the essence of a virtue product is an outcome in the future, traditional marketing campaigns that focus on product essence are actually future-focused messages. Therefore, the same pattern of consumption that emerged in Study 1 for present versus future benefit messages should be observed for present-benefit versus essence-focused messages.

We expected consumers with high self-control to consume the product more when the product's essence (which is a future benefit) was highlighted than when a present benefit was highlighted because this present benefit is less congruent with their time orientation. Consumers with low self-control, however, are less likely to be influenced by an appeal emphasizing a product's essence because it is future-oriented. Therefore, we expected consumers with low self-control to consume the product more when its appeal emphasized an attribute with a present benefit rather than the product's essence. In addition, this study used a less hedonic present benefit as compared with Study 1.

### 4.1. Method

#### 4.1.1. Participants

Female undergraduate students ( $n = 71$ ;  $M_{\text{age}} = 24$ ) participated in this experiment in exchange for a tube of facial sunscreen lotion (retail value: \$30 per unit),<sup>3</sup> course credit and a raffle ticket. (The prize was a \$100 gift certificate at a retail fashion chain.)

<sup>3</sup> Anna Lotan Laboratories manufactures skin care products such as such as the facial sunscreen lotion used in Study 2 for use and sale in beauty salons. The company also makes private-label cosmetics such that are sold in pharmacies and department stores in Europe.

#### 4.1.2. Procedure

As in Study 1, this study consisted of two sessions, and participants were told that they were participating in a market research study. In the first session, participants began by completing the DSC scale. They then read a description of the product and were asked to evaluate it (as part of the “market research” cover story). To ensure that the product category used in this study (facial sunscreen lotion) is characterized by high product experience we conducted a pre-test. We tested the evaluation of facial sunscreen lotion among participants from the same population as that of the study. On a 5-point scale ranging from 1 (“not at all”) to 5 (“very much”), respondents rated how important sunscreen lotion was and the frequency with which they used it. These two measures of category involvement and general usage provide some indication of product experience. *t*-Tests against the scale’s midpoint (3) showed that participants had high product experience ( $t_{\text{importance}}(47) = 4.44$ ;  $t_{\text{usage}}(47) = 4.15$ ; both  $p < .001$ ). Results suggest that sunscreen lotion is a product category with high product experience.

Participants were each assigned at random to one of the two following experimental conditions. The future-focus condition highlighted the product’s essential nature, which in itself includes a future benefit:

“The product you are receiving is facial sunscreen lotion. This lotion will protect your face from sunburn and future skin damage. This lotion is suitable for everyday use, for all skin types, and is approved by the Health Ministry.”

The present-focus condition highlighted a present benefit in the form of moisturizing ingredients. Participants in this condition received the same description that was used in the product essence condition, yet with an addition highlighting the moisturizing ingredients:

“The product you are receiving is facial sunscreen lotion. This lotion will protect your face from sunburn and future skin damage. This lotion is suitable for everyday use, for all skin types, and is approved by the Health Ministry. To this special sunscreen lotion we added moisturizing ingredients. Thus, in one action, you can nurture your skin and moisturize it, and protect it from sun damage.”

It is important to note that participants in both conditions actually received the exact same product; that is, the sunscreen lotion did contain moisturizing ingredients, but this information was highlighted only in the present-focus condition.

This manipulation was validated in the pre-test described in Study 1. We conducted a pairwise *t*-test to compare the moisturizing ingredients attribute to an attribute with a future benefit (anti-wrinkle ingredients). Moisturizing ingredients received a significantly lower score on a scale from 1 (present benefit) to 5 (future benefit) (mean rating ( $M$ ) = 2.06,  $STD = .97$ ) than did anti-wrinkle ingredients ( $M = 4.17$ ,  $STD = .82$ ;  $t_{(1,64)} = -13.31$ ,  $p < .001$ ). Thus, the moisturizing feeling experienced when putting on the lotion is perceived as a present benefit.

As in Study 1, participants read the product description, answered an attitude questionnaire as part of the cover story, and received the product for their personal use along with a self-report log.

In the second session, which took place three weeks later, the experimenter weighed participants’ tubes of lotion to evaluate product usage. For each participant, average daily use of the lotion was calculated. As in Study 1, participants answered three survey items measuring “enjoyment” ( $\alpha = .79$ ). Finally, the tubes of lotion were returned to the participants, who then received their course credit and raffle ticket and were debriefed.

#### 4.2. Results

We tested our hypothesis with a hierarchical regression to predict the average daily use of sunscreen. In the first step, participants’ self-

control, time-focus condition (present vs. future) and enjoyment were entered as predictors. This model was insignificant ( $F_{(3,67)} = .97$ ; NS). When the interaction of self-control and time focus was added as a predictor in the second step, the model became significant ( $F_{(3,66)} = 4.89$ ;  $p < .01$ ), indicating that the interaction contributed significantly to the consumption prediction ( $\beta = -.58$ ,  $p < .01$ ) and explaining an additional 19% of the variance ( $p < .01$ ).

To further test our hypotheses, we conducted an ANOVA with planned contrasts. To that end, participants were designated as having high or low self-control based on median split. We conducted a 2(self-control: high vs. low)  $\times$  2 (time focus: future benefit (essence) vs. present benefit) ANOVA to predict the consumption of the sunscreen lotion; enjoyment was added as a covariate.<sup>4</sup> Consistent with the regression results, the interaction between self-control and time focus was significant ( $F_{(1,66)} = 22.51$ ,  $p < .01$ ). No main effect was found for either self-control ( $F_{(1,66)} = .80$ , NS), time focus ( $F_{(1,66)} = .70$ , NS) or enjoyment ( $F_{(1,66)} = .74$ , NS).

Participants with high self-control used the lotion more when only the product’s future benefit (essence) was highlighted (average consumption ( $M$ ) = .23 ml per day,  $STD = .17$ ) than when an additional present benefit (moisturizing ingredients) was highlighted ( $M = .14$  ml per day,  $STD = .08$ ;  $t_{(1,67)} = 2.61$ ,  $p < .02$ ). Participants with low self-control used the lotion more when a present benefit was highlighted ( $M = .24$  ml per day,  $STD = .11$ ) than when only the future benefit was highlighted ( $M = .09$  ml per day,  $STD = .06$ ;  $t_{(1,67)} = 4.02$ ,  $p < .001$ ). Fig. 2 presents the average daily consumption of the facial sunscreen lotion as a function of self-control and time focus.

As in Study 1, we used participants’ reported enjoyment of the product as a covariate. As expected, the findings suggest that consumption was not affected by an enjoyable aspect, in this case ( $F_{(1,66)} = .74$ , NS). This is consistent with our reasoning that sunscreen is a product with no special enjoyment aspect. Hence, the impact of the present benefit on the consumption of the lotion among participants with low self-control cannot be attributed to enjoyment derived from the consumption experience and is attributable to the timing of the benefit.

#### 4.2.1. Conclusions

Study 2 indicates further support for the benefit-congruency hypothesis by showing that emphasis on a virtue product’s essence constitutes a future-focused appeal. Thus, participants with high self-control were more responsive to such an appeal than to an appeal focusing on a present benefit, whereas participants with low self-control showed the opposite response. Unlike Study 1, all participants in Study 2 received the same product, differing only in the product’s description, which highlighted an existing present benefit in the present-focus condition but not in the future-focus condition. In addition, whereas we focused on a product that was unfamiliar to the participants in Study 1, Study 2 focused on a product of which participants had experience and knowledge and showed the same pattern of results.

Our findings indicate that consumers with high self-control consumed the product less when more benefits were offered (present and future) compared to when only a future benefit was highlighted. These findings may seem surprising. However, they are consistent with our reasoning that consumption is higher when the product message is congruent with individual goals (in this case, long-term focus for participants with high self-control). The added present benefit is incongruent with the future-orientation of participants with high self-control, resulting in a less attractive product, which leads to less consumption. Participants with high self-control were more likely to consume the product whose description emphasized only a future benefit because this product offered higher overall benefit-congruency.

<sup>4</sup> There were no differences in enjoyment between the experimental conditions ( $t_{(69)} = .24$ ; NS).

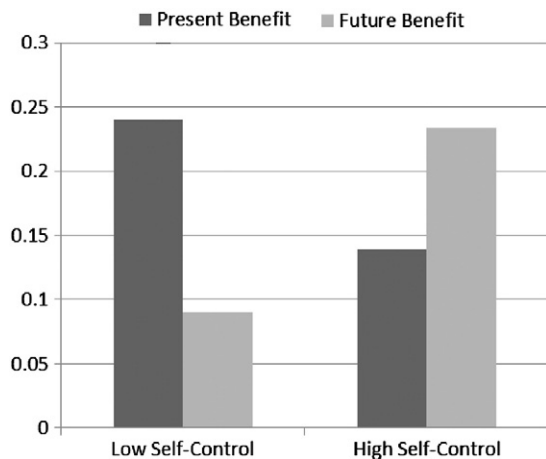


Fig. 2. Average daily consumption of sunscreen lotion (ml. per day).

Combined together, Studies 1 and 2 provide consistent support for our hypotheses. Study 3 was designed to further evaluate the robustness of our findings by ruling out additional alternative explanations. First, in Studies 1 and 2, more information and more benefits were provided in the present-focus condition than in the future-focus condition. This is especially true for Study 2, in which participants were knowledgeable about the product, and the future benefit was presented clearly in both conditions. To rule this out as an alternative explanation, in Study 3 we provide more information in the future-focus condition.

Second, in Studies 1 and 2, the present benefits were described in a promotion-oriented manner. Additionally, in both studies, the present condition included a peripheral benefit. Thus, it could be argued that as compared with participants with high self-control, participants with low self-control are either more influenced by peripheral benefits or more sensitive to promotion information, especially in a prevention context as in the case of virtue products. To rule out these two alternative explanations, Study 3 was designed to relate the present-focus manipulation to the primary essence of the product, and we used a prevention-oriented description.

### 5. Study 3

In this study, we go one step further in testing the robustness of our theoretical model by showing that benefit-congruency affects not only actual consumption but also consumers' willingness to pay. Additionally, in this study, we manipulated time focus by emphasizing different types of benefits, aiming to rule out the alternative explanations discussed above. In Studies 1 and 2 we conducted field experiments, thus providing ecological validity, whereas in Study 3 we conducted the experiment in a more controlled environment.

#### 5.1. Method

##### 5.1.1. Participants

Participants ( $n = 315$ ;  $M_{\text{age}} = 36$ , 72% females) volunteered to complete an online survey and in return were included in a raffle for an Amazon.com gift certificate of \$25.

##### 5.1.2. Procedure

This study consisted of only one session. In that session, participants first completed the self-control measure, completed a filler task, and then read a description of facial sunscreen lotion. Finally, participants were asked to indicate how much they were willing to pay for the product. As in Study 2, the beginning of the product description, which explained the product's essence and future benefit, was the same in both conditions:

"The product you are receiving is facial sunscreen lotion. This lotion will protect your face from sunburn and future skin damage. This lotion is suitable for everyday use, for all skin types, and is approved by the Health Ministry."

However, the ending of the description varied across the two following experimental conditions.

The future-focus condition highlighted an additional attribute with a future benefit:

"This special sunscreen includes anti-wrinkle ingredients. These ingredients help prevent future skin damage such as wrinkles and pigmentation spots."

The present-focus condition highlighted an existing attribute that was framed as a present benefit:

"This special sunscreen contains SPF 60! This extremely high SPF will protect your skin from UVB rays, which are short waves, thus preventing short-term sun damage such as sunburn."

These manipulations were validated in a pre-test similar to that described in Study 1. We carried out a  $t$ -test against the scale's middle score (of 3) to test the manipulation. Participants' average rating of the SPF 60 attribute was significantly lower than the scale's middle score ( $M = 2.03$ ,  $STD = 1.27$ ;  $t_{(1,91)} = -7.3$ ,  $p < .001$ ). The anti-wrinkle attribute received a significantly higher score than the scale's middle score ( $M = 3.85$ ,  $STD = 1.11$ ;  $t_{(1,90)} = 7.24$ ,  $p < .001$ ). Thus, SPF 60 is perceived as a present benefit, whereas the anti-wrinkle attribute is seen as a future benefit.

Finally, participants were asked in an open-ended question to indicate the amount of money they would be willing to pay for the product.

#### 5.2. Results

We tested our hypothesis with a hierarchical regression to predict participants' willingness to pay. In the first model, participants' self-control and the time-focus condition were entered as predictors. In the second model, the interaction of self-control and time focus was added as a predictor. Neither model was significant (Model 1:  $F_{(2,313)} = .20$ ; Model 2:  $F_{(3,312)} = 1.45$ ; both NS). However, results show that in the second model, time focus and the interaction were significant ( $\beta_{\text{timefocus}} = -.62$ ;  $\beta_{\text{interaction}} = .64$ ; both  $p < .05$ ).

To further test our hypothesis, we carried out an ANOVA and planned contrasts. To that end, participants were designated as having high or low self-control based on median split. We conducted a 2(self-control: high vs. low)  $\times$  2(time focus: future vs. present benefit) ANOVA to predict willingness to pay. As hypothesized, the interaction between self-control and time focus was significant ( $F_{(1,312)} = 7.17$ ,  $p < .01$ ). No main effect was found for either self-control or time focus. Fig. 3 presents the average price participants indicated as a function of self-control and time focus. Participants with low self-control were willing to pay more after reading a present-focused description ( $M = \$20.19$ ,  $STD = 7.48$ ) than after reading a future-focused description ( $M = \$17.83$ ,  $STD = 7.67$ ;  $t_{(1,312)} = 2.07$ ,  $p < .04$ ). Participants with high self-control were willing to pay more after reading a future-focused description ( $M = \$20.76$ ,  $STD = 8.31$ ) than after reading a present-focused description ( $M = \$18.5$ ,  $STD = 6.43$ ). This difference, however, was only marginally significant ( $t_{(1,312)} = 1.74$ ,  $p = .08$ ).

##### 5.2.1. Conclusions

The results of Study 3 provide additional support for the benefit-congruency effect. A present-benefit focus affected participants with low self-control more than a future-benefit focus did, and the opposite effect occurred among participants with high self-control.

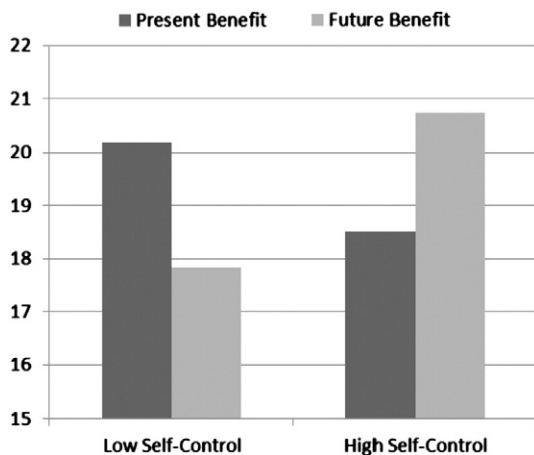


Fig. 3. Willingness to pay for facial sunscreen lotion (\$).

Whereas Studies 1 and 2 evaluated daily usage, which is a habitual behavior, Study 3 shows that the effect took place when participants were asked to indicate a price they were willing to pay for the product, a process that might call for calculation and deliberate thinking. In addition, Study 3 rules out the promotion focus, the significance of the benefit (peripheral or central), and the number of benefits as alternative explanations. The results of this study reproduced the pattern found in Studies 1 and 2, when the future-focus condition offered more benefits and was framed in a prevention-oriented manner.

## 6. General discussion

This research focused on virtue products, which are characterized by sub-optimal consumption. We suggested that the interaction between consumer self-control and product attributes can influence the consumption of such products. Among consumers with low self-control, a product description that added an attribute (Study 1) or highlighted an existing attribute (Studies 2 and 3) offering an *immediate* benefit resulted in more consumption compared with a product description that highlighted a future benefit only. Conversely, among participants with high self-control, highlighting an attribute that provides a future benefit (Studies 1 and 3) or merely mentioning the product's essence (which entails a future benefit, or Study 2) resulted in more consumption compared with highlighting a present benefit. These findings are in line with the benefit-congruency theory and suggest that when product benefits are congruent with consumers' time focus—whether future for consumers with high self-control or present for consumers with low self-control—overall responsiveness increases in terms of both actual consumption (Studies 1 and 2) and willingness to pay (Study 3).

Past studies on self-control have typically measured induced effects of situational cues on behaviors that call for self-control (e.g., Ariely & Wertenbroch, 2002; Fishbach & Trope, 2005; Kivetz & Simonson, 2002; Muraven & Baumeister, 2000). Our research extends the scope of examination by investigating the role of the interaction between a personality trait (i.e., dispositional self-control) and a situational factor (i.e., time-focused product description) in shaping actual behavior.

We show that highlighting a present- or a future-focused benefit can encourage consumption and that the effect depends on consumers' dispositional self-control. This effect was observed for products with which consumers had either little (Study 1) experience or knowledge or a great deal (Studies 2 and 3) of experience and knowledge. In addition, the effect occurred regardless of whether more benefits were offered in the present-focus condition (Studies 1 and 2) or in

the future-focus condition (Study 3), whether the present-focus condition offered a promotion-oriented, enjoyable benefit (Study 1) or a prevention-oriented, non-enjoyable benefit (Study 3), and whether the present benefit was peripheral to the product's main purpose (Studies 1 and 2) or primary and part of the product's main essence (Study 3).

Because we did not measure the consumption of a control group, we do not have a baseline estimate of consumption. Therefore, future studies might test whether a present-focused message is indeed less appealing than a future-focused message to consumers with high self-control, and whether it actually reduces consumers' liking and usage of the product.

In the current research, dispositional self-control affected consumer responsiveness to different product features. It would be interesting to explore whether induced levels of self-control yield the same results. Thus, for example, future research could test whether consumers respond differently to product features when depleted (i.e., having few self-control resources) versus when not depleted (i.e., having sufficient resources for applying self-control). We argue that the ongoing consumption of virtue products is a complex behavior by which individuals express different aspects of self-control (i.e., "doing wrong" aspects and "not doing right" aspects), and as a result, dispositional self-control can provide insights into this consumption behavior.

In the current research, we measured participants' usage after one time period. It would be interesting in future research to carry out a longitudinal study to learn about differences in usage patterns between high and low self-control segments. In addition, the environment in our studies was somewhat different from consumers' usual consumption environment. For example, participants received the products for free. It would be interesting to test whether our findings still hold for purchasing decisions. We took one step in this direction in Study 3, in which we tested and reproduced the effect on consumer willingness to pay. Future research could provide more insight regarding the point of purchase phase. For example, past research has discussed the controversial issue of how distributing small gifts or handouts at the moment of decision-making affect the consumer's behavior (e.g., Raghuram, 2004). We speculate that for virtue products, a one-time gift or handout given at the moment of purchase may influence the purchase decision but will not facilitate ongoing usage, especially in the segment with low self-control. One-time handouts and attributes that provide ongoing present benefits are not identical, but may be compatible. It is possible that changes in the purchase decision are influenced more by a one-time handout, whereas a change in ongoing consumption is influenced more by a present versus a future benefit.

Although this research focuses on virtue products, the proposed conceptualization of benefit-disposition congruency may apply to vice products as well. We theorized (and found) that highlighting a future benefit increases consumption of virtue products among consumers with high self-control, whereas highlighting a present benefit increases consumption among consumers with low self-control. A similar effect might apply to vice products, such that highlighting a future benefit of a vice product may increase consumption among consumers with high self-control. Research (Kivetz & Keinan, 2006) has shown that providing consumers with a long-term perspective can result in increased orientation toward vice products. The authors interpret these findings as showing that when thinking about the future, people fear they might regret not indulging enough and hence choose hedonic options in the present. This behavior might be even more prominent among consumers who have high self-control and are more likely to anticipate experiencing such regret in the future. Our findings suggest an additional process that might lead to the same outcome, wherein consumption of vice products increases not because people anticipate regret for not indulging but because the product highlights features that are congruent with consumers' time



orientations. An example for such a product is facial make-up (a vice product) containing anti-aging ingredients (a future benefit). In this sense, adding future benefits to vice products makes these products more “virtuous.” Future research could further explore this idea.

Our findings have practical implications for policy-makers and profit-maximizing firms in that adding a seemingly small and secondary present benefit to “virtue” products can enhance consumption among consumers with low self-control. Such present benefits might seem negligible in comparison to the essence of the virtue product; however, as long as the present benefit offsets the cost, counters it, or even serves as a mental excuse for enduring the present cost, it has the potential to promote consumption among consumers with low self-control. Note that adding such benefits does not necessarily entail substantial increases in manufacturing costs. For example, according to the manufacturer, the cost of adding moisturizing ingredients to the facial sunscreen lotion used in Study 2 was negligible (3%), yet emphasizing these ingredients to consumers significantly increased the actual consumption in a specific segment (31.25%). These numbers demonstrate how small changes sometimes make a big difference. However, it is also important to control for the counter effect that such an emphasis may create for other segments. Our findings suggest that a present-benefit focus might not be as appealing to consumers with high self-control. It would be worthwhile to explore whether, among consumers with low self-control, a future-focused message is simply less favorable than a present-focused message or whether a future-focused message actually creates a negative response of reduced consumption, and whether the opposite effect occurs among consumers with high self-control.

This research takes one step toward a better understanding of the problematic consumption of virtue products. Virtue products are an important part of our everyday lives. Although consumers acknowledge these products' important benefits, they tend to display sub-optimal consumption patterns. Based on the benefit-congruency rationale, we suggest that matching the product's highlighted attributes with the consumer's self-control (i.e., the sensitivity of consumers with low self-control to present benefits and the sensitivity of consumers with high self-control to future benefits) may increase consumers' ability to establish the ongoing consumption of such products.

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### Appendix A. The Dispositional Self-Control scale (DSC)

Adapted from: Ein-Gar, Goldenberg and Sagiv (2008)

I usually succeed in overcoming temptations.

Usually, when something tempts me, I manage to withstand it.

Even when something exciting happens to me, I do not get carried away by my feelings or act without thinking.

Even when stressed, most of the decisions I make are considered and calculated.

I rarely act impulsively.

I am able to work effectively toward long-term goals, while resisting temptations along the way.

People can trust me to stay on schedule even if I am busy and under a lot of pressure.

It is important for me to finish all of my tasks on time, even if I do not feel like doing them.

I never delay work that needs to be done, even if I am busy.

I tend to finish assignments right away, even if they are unpleasant.

\* I do many things on the spur of the moment.

\* People say I often make up my mind without thinking things through.

\* I often act without thinking through all of the alternatives.

\* I often make spontaneous and rather hasty decisions.

\* I tend to postpone completing unpleasant tasks.

\* When I need to run errands, I usually put them off until the last minute.

\* I sometimes postpone tasks that I have to do until it is almost too late.

Items marked \* are reverse coded.

### Appendix B. A table of correlations between the DSC and other, related constructs

Construct	Scale source	Alpha	Data source
<i>Time orientation constructs</i>			
Consideration of future consequences	Strathman et al. (1994)	.54**	3
Elaboration of potential outcomes	Nenkov et al. (2008)		3
General		.42**	
Positive		.15	
Negative		-.33**	
Time perspective	Zimbardo and Boyd (1999)		3
Future		.61**	
Present hedonic		-.51**	
Present fatalistic		-.36**	
Past positive		.13	
Past negative		-.41**	
<i>Personality constructs</i>			
Self-control	Tangney et al. (2004)	.68**	2
Five factor model (Big 5)	Saucier (1994)		2
Agreeableness		.10	
Extraversion		.05	
Openness		.06	
Neuroticism		-.33	
Conscientiousness		.59**	
Procrastination	Lay (1986)	-.71**	2
Impulsiveness (UPPS)	Whiteside and Lynam (2001) (short version)		2
Premeditation		.39**	
Urgency		-.50**	
Sensation seeking		-.10	
Perseverance		.43**	
<i>Behavioral constructs</i>			
Buying impulsiveness	Rook and Fisher (1995)	-.41**	1
Frugality	Lastovicka et al. (1999)	.35**	1
Driving behavior (errors, violations and lapses)	Westerman and Haigney (2000)	-.21**	2
Alcohol consumption	Saunders et al. (1993) (AUDIT)	-.19**	2
Aggressive behavior	Driscoll, Campbell, and Muncer (2005) (short EXPAGG)	-.29**	2

Notes:

*Time orientation constructs:* These three measures indicate the extent to which the respondent engages in thoughts that are future or present in nature. Future thoughts are positively correlated with

self-control, whereas present thoughts are negatively correlated with self-control.

**Personality constructs:** These four scales measure general personality aspects; a self-control measure (different from the DSC), the five-factor model scale, general impulsiveness and general procrastination scales. DSC is positively correlated with another self-control measure; it is also positively correlated with aspects of the five-factor model relating to being responsible, doing the right thing and persisting in a task (i.e., Conscientiousness, the Perseverance facet of UPPS) yet negatively correlated to impulsivity and hasty decision-making (i.e., the Urgency aspect of UPPS) and to procrastination.

**Behavioral constructs:** These five scales measure behaviors that are strongly related to self-control. Self-control is negatively correlated to harmful behaviors (i.e., impulsive buying, risky driving, alcohol consumption and aggression) and positively correlated to beneficial behaviors (i.e., frugality).

**Data sources:**

- (1) Ein-Gar, Goldenberg and Sagiv (2008). Taking control: An integrated model of dispositional self-control and measure. *Advances in Consumer Research*, 35, 542–550.
- (2) Ein-Gar and Sagiv (2011). Overriding “Doing Wrong” and “Not Doing Right” –Validation of the Dispositional Self-Control scale (DSC). Manuscript in preparation.
- (3) Data reported in the pilot study.

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