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Not doing bad things is not equivalent to doing the right thing: Distinguishing between inhibitory and initiatory self-control

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ABSTRACT

The present study investigated whether a conceptual distinction between two components of self-control (inhibitory and initiatory self-control) is empirically valid. To that purpose, a series of confirmative factor analyses were employed in two samples (total $N = 577$), providing support for a distinction between inhibitory and initiatory self-control. In addition, the predictive validity of the two components of self-control was examined by regression analyses with (un)desired health/academic behavior as dependent variables, showing that inhibitory self-control was a superior predictor of undesired behavior and initiatory self-control a better predictor of desired behavior.

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1. Introduction

Many studies assert that self-control is associated with a variety of positive outcomes, including interpersonal success (Finkel & Campbell, 2001), academic performance (Duckworth & Seligman, 2005), and adjustment (Tangney, Baumeister, & Boone, 2004). Regardless of the specific behavioral domain that is involved, adaptive outcomes of self-control are considered to result from the ability to withstand impulses for immediate gratification of one's needs (Baumeister, Bratslavsky, Muraven, & Tice, 1998). Empirical research shows that people with high self-control are better able to control their thoughts, regulate their emotions, and inhibit their impulses than people with low self-control (Baumeister et al., 1998).

Although the literature provides different definitions of self-control, existing theories generally agree that self-control can be defined as "the self's capacity to override or change one's inner responses, as well as to interrupt undesired behavioral tendencies and to refrain from acting on them" (Tangney et al., 2004, p. 274), thus emphasizing self-control as an inhibitory mechanism. Notwithstanding this emphasis, the literature also agrees that self-control efforts both stimulate desired responses and inhibit undesired responses (Baumeister et al., 1998). Most self-control theories thus posit that being able to inhibit one's impulses may establish beneficial effects either by refraining from an undesired

behavior (resisting to spend the whole evening watching television) or by engaging in desired behavior (studying the whole evening to prepare an exam) to the same extent.

Remarkably, whether self-control primarily exerts its influence via the inhibition of an undesired behavior or via the initiation of a desired behavior or via both has not been the subject of empirical scrutiny (de Boer, van Hooft, & Bakker, 2010). There is hardly any research that examines whether the beneficial effects of self-control are established via inhibition of one's impulses or via acting upon one's personal goals (Carver, 2005). Researchers often seem to assume that when self-control affects undesired behavior (e.g., less binge eating; Tangney et al., 2004) this also implies that it affects desired behaviors (e.g., healthy eating; Gerrits et al., 2010). Moreover, most research focuses on the influence of self-control on either inhibiting an undesired behavior or promoting a desired behavior. A recent meta-analysis provides one of the few direct comparisons of the effects of self-control on desired and undesired behavior and contests that engaging in desired behavior and refraining from undesired behavior are equally affected by self-control, with effect sizes of similar magnitude in the medium range (De Ridder, Van Lensvelt-Mulders, Finkenauer, Stok, & Baumeister, under review), thus giving credit to the idea that self-control can affect behavior by either doing the positive or avoiding the negative.

Positive and negative are relative terms and in the present paper we will refer to behavior as either desired or undesired to the extent that it is beneficial for achieving long-term goals (desired or adaptive behavior) or thwarts long-term goals (undesired or maladaptive behavior). Generally, self-control is assumed to help people to inhibit an impulse toward a desired outcome

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(e.g., foregoing an enjoyable evening with friends) in the service of attaining another desired outcome (e.g., a high grade for an exam). In this example, the undesired behavior is actually a desired outcome, yet this outcome is in conflict with a delayed, even more desirable outcome. Whether behavior is regarded as desirable or undesirable is thus highly influenced by contextual factors and may even be idiosyncratic as it relates to the personal goals an individual holds. To avoid confusion with respect to the ambiguity of desirability in the long- versus short-term, we conceptualize desired behavior as all behavior associated with people's goals to meet their responsibilities and adjust to social norms to live happy, successful, and healthy lives. Undesired behaviors, in contrast, are behaviors that interfere with this goal.

The question arises whether similar effects of self-control on desired and undesired behavior can be accounted for by a self-control concept that highlights inhibition of impulses as its central working mechanism. If self-control can affect undesired and desired behavior to the same extent, it is reasonable to assume that the concept should be able to account for both effects and comprise components that are relevant for both behavioral inhibition and initiation. The present study was designed to examine whether such distinct components of self-control exist and whether these components have differential effects on desired and undesired behavior.

1.1. Two types of self-control

Whereas the majority of self-control theories emphasize that self-control involves the inhibition of undesired thoughts, feelings, and behaviors per se (Tangney et al., 2004), some authors have emphasized that inhibition is always performed in service of a larger benefit in the long run. The discounting model of impulsiveness (Ainslie, 1975), for example, considers self-control as the choice of a delayed but more valuable outcome over an immediate outcome that is ultimately of less value. This perspective on self-control is similar to the delay of gratification concept (Mischel, 1974) that equally emphasizes the importance of controlling immediate responses in service of long-term benefit. Similarly, other approaches in this tradition highlight that self-control requires one to act in accordance with long-term rather than short-term outcomes (Wertenbroch, 1998). Self-control in these models thus concerns decisions in which people sacrifice short-term outcomes in favor of long-term interests, suggesting that self-control may comprise elements of initiating behavior as well.

Other approaches propose a more marked distinction between different types of self-control, highlighting the regulation of impulses and engaging in goal-directed behavior as separate forms of self-control. Different labels have been used to refer to these distinct aspects of self-control (e.g., Wills, Isasi, Mendoza, & AINETTE, 2007). For example, Wills and colleagues (2007) distinguish between 'good' and 'poor' self-control as separate constructs, measured by several conceptually related indicators: good self-control comprises such elements as planfulness and future time perspective whereas poor self-control refers to impulsiveness and present orientation. Wills et al. were able to demonstrate the relevance of this distinction with good self-control predicting more positive well-being, more fruit/vegetable intake, and more participation in sports, and poor self-control predicting more symptomatology, more saturated fat intake, and less vigorous exercise (Wills et al., 2007).

A more comprehensive theoretical account of two types of self-control has been put forward by Myrseth and Fishbach (2008). Their model highlights the experience of a self-control conflict between immediate temptations and long-term benefits as a prerequisite for being able to engage in self-control. According to the model, the very notion of a self-control conflict implies that

self-control may be accomplished in two ways, either by directing efforts to the temptation itself (avoiding the temptation or inhibiting a response to it) or by directing self-control efforts to the very goal the temptation is supposed to threaten (activate goals). Therefore, self-control efforts can result both in inhibiting certain behaviors and initiating others.

Viewed in terms of the classic self-control conflict of choosing either the immediate but ultimately smaller reward or the delayed but ultimately bigger award of a long-term goal pursuit, self-control may thus be directed at the inhibition of indulgence or the activation of the long-term goal. Thus, although the specific labels differ, the aforementioned approaches share a distinction between self-control processes that relate to the inhibition of immediate impulses and those that are related with the initiation of goal-directed behavior. In the following we will refer to these types of self-control as *inhibitory self-control* and *initiatory self-control*, respectively. Distinguishing between both types of self-control corresponds with previously suggested distinctions in the self-regulation domain, such as the Behavioral Inhibition System (BIS) vs. the Behavioral Activation System (BAS) (Gray, 1994). BIS/BAS Theory, also referred to as Reinforcement Sensitivity Theory (Corr, 2008), describes the differences between both systems in terms of responding either to goal-conflict (BIS) or signals of reward (BAS) and thus emphasizes the difference between inhibition and initiation as separate means to achieve goals like our differentiated self-control concept does.

1.2. The present research

Relative to the theoretical suggestions that have been made to distinguish between types of self-control, few empirical studies have examined the relevance of a differentiated self-control construct. The present study examines the hypothesis that a differentiated self-control construct is conceptually meaningful and a better predictor of outcomes that involve the inhibition of undesired behavior and the initiation of desired behavior. We do so by employing the brief version of the Self-Control Scale (SCS) developed by Tangney and colleagues (2004), and make a conceptual distinction between two forms of self-control to examine its differential effects on (un)desired behavior. In line with the defining features of self-control, the SCS focuses on people's ability to interrupt undesired behavioral tendencies and refrain from acting on them (e.g., "I am good at resisting temptations") but also comprises items that relate to initiating wanted behavior (e.g., "I am able to work effectively toward long-term goals"). The SCS is one of the most widely used scales to assess dispositional self-control and has proven relevant for a wide range of behaviors (Tangney et al., 2004). Using the SCS as a measure means that we apply our distinction to self-control as a trait. Although the distinction could be applied to state self-control as well, this was not the topic of the present study. It is important to note that we do not propose to develop a new scale by differentiating between two types of self-control within the SCS. Our sole intention is to use the SCS for illustrative purposes.

We will first empirically test the conceptual distinction between two types of self-control by confirmative factor analysis in one sample and subsequently replicate this distinction in another sample. Subsequently, we will test the validity of the distinction by using the empirically validated types of self-control as predictors of (un)desired behavior. We expect inhibitory self-control to be superior in predicting refraining from undesired behavior and initiatory self-control to be a better predictor of engaging in desired behavior. We also expect that the specific types of self-control outperform the more generic self-control concept as a predictor of both kinds of behavior.

2. Method

2.1. Participants and procedure

Data were collected at two universities in the Netherlands. Sample 1 consisted of 351 psychology freshmen who completed an online questionnaire by an individualized URL (response rate 79%). Mean age of the sample was 19.5 years ($SD = 2.51$); 95% of the participants were Caucasian and 79% were female.¹ Sample 2 consisted of 226 students who participated in a study on health behavior and academic performance. Mean age of the sample was 20.2 years ($SD = 2.33$); 91% of the participants were Caucasian and 87% were female.

2.2. Measures

Measures in both samples included the brief SCS (Tangney et al., 2004), which consists of 13 items rated on a 5-point scale (Sample 1) or a 7-point scale (Sample 2), ranging from 'completely disagree' to 'completely agree'. Cronbach's alpha of the brief SCS was .81 in Sample 1 and .85 in Sample 2.

In order to distinguish between two types of self-control, the following procedure was adopted. First, all authors independently evaluated the original 13 items from the brief SCS as representing either inhibitory or initiatory self-control. Criteria for categorization were whether the item explicitly referred to inhibiting immediate impulses (e.g., refuse things) or to initiating goal-directed behavior (e.g., work toward long-term goals). Items that were categorized by all raters as representing either inhibitory or initiatory self-control were included in the analyses, resulting in six inhibitory items and four initiatory items (see Appendix A for the categorization of items). Three items could not be categorized as they were of a generic nature (e.g., "I wish I had more self-discipline").

In the second sample, participants were presented with a number of questions about behavior assumed to be dependent on self-control, either in terms of performing a desired behavior (e.g., "How many hours do you study per week?") or refraining from an undesired behavior (e.g., "How many cigarettes do you smoke per week?"). Both indicators of academic performance and health behavior have been employed in previous research and were found to be associated with general self-control (Duckworth & Seligman, 2005; Tangney et al., 2004). Exercise and study hours were selected as desired behaviors based on the assumption that a student sample in general will hold personal goals that involve high grades and a good physical condition. Based on the same line of reasoning, smoking and alcohol consumption were selected as undesired behaviors. Although (some) students may like to smoke or drink alcohol, in general they are well aware of the negative long-term consequences and are therefore likely to hold personal goals that involve a restriction of these behaviors.

2.3. Analyses

To determine whether the ten selected items represent two separate types of self control, we examined a two-factor model with a confirmatory factor analysis (AMOS 7.0) in the first sample. We subsequently replicated this model in the second sample and tested the equivalence of the two-factor model in the two samples and compared it with a one-factor model. Missing items were imputed using the Full Information Maximum Likelihood procedure implemented in Amos 7.0 (Arbuckle, 2007). As a final step, we tested the predictive validity of the two-factor model. To that pur-

pose, the behavioral measures were regressed on the two distinct types of initiatory and inhibitory self-control and the generic self-control measure one by one.

3. Results

3.1. Distinguishing between two types of self-control

We first examined the conceptually derived distinction between inhibitory self-control and initiatory self-control by subjecting the ten items to a confirmatory factor analysis. A two-factor model with six items representing inhibitory self-control and four items representing initiatory self-control was evaluated in Sample 1. The indicators of fit χ^2 , the Comparative Fit Index (CFI), and the Root Mean Square Error of Approximation (RMSEA) were used for testing and improving the model. Taken by the χ^2 , the two-factor model did not fit the data very well ($\chi^2(34) = 79.25, p = .00$), but CFI (.86) and RMSEA (.062) indicated reasonable fit (Vernon & Eysenck, 2007). As χ^2 is generally not regarded as the superior indicator of fit (Kline, 2005), these findings provide a first piece of evidence for the assumed distinction between two types of self-control.

We subsequently evaluated the two-factor model in Sample 2. The results from that analysis corroborate those derived from the first sample. Again, according to the χ^2 indicator of fit the two factor model did not fit the data very well ($\chi^2(34) = 82.06, p = .00$), but CFI (.91) and RMSEA (.079) again demonstrated a reasonable fit of the model to the data, providing a second piece of evidence. As a third element of support we tested the equivalence of the two-factor model in both samples. We started with a factor model in which all parameters are freely estimated (free model). Building upon this initial model, the factor loadings across the two data sets were constrained to be equal in both samples. Because this model is equivalent to the unconstrained model except for the constrained factor loadings, the difference in fit ($\Delta\chi^2$) can be employed to evaluate whether the constrained model fits significantly better than the free model. A non-significant $\Delta\chi^2$ means that the constrained (parsimonious) model does not fit significantly worse than the free model. In such cases, the parsimonious model is preferred over the less parsimonious one. The results are summarized in Table 1 and show that the constrained model did not fit significantly worse than the free model ($\Delta\chi^2(2) = 5.97, p = .65$), implying that factor loadings were equal and that the two self-control factors measured the same concepts across the two samples.² Our final two-factor model ($\chi^2(76) = 167.30, p = .00, CFI = .90, RMSEA = .046$) fits the data better than the alternative one-factor model ($\chi^2(79) = 208.31, p = .00, CFI = .84, RMSEA = .053$).

The standardized coefficients from the final model are shown in Fig. 1. Factor loadings for both datasets were in between .45 and .70, showing that the items are successfully explained by two latent factors of initiatory and inhibitory self-control.³ Reliability analyses demonstrated adequate internal consistency for both initiatory self-control (Cronbach's α .65/.68 in Samples 1 and 2, respectively) and inhibitory self-control (Cronbach's α .76/.78 in Samples 1/2, respectively). The mean scores of inhibitory self-control were $M = 2.91$ (Sample 1) and 3.69 (Sample 2) and for initiatory self-control $M = 3.45$ (Sample 1), and 4.33 (Sample 2). Taking the different response scales across samples into account (5-point scale in

² Ideally, the next step in testing the model implies constraining the item means to test for scalar invariance. As slightly different response scales were used in the two samples, we were not able to test this by using the $\Delta\chi^2$ method. Therefore, the model with constrained factor loadings (metric invariance) is the final model.

³ The differentiation between initiatory and inhibitory self-control was not caused by the relatively high number of reversed coding items in the initiatory scale (De Boer et al., in press).

¹ The high number of female participants in both samples reflects the high number of female psychology students at Dutch universities.

Table 1
Fit measures testing for invariance of the Inhibitory/Initiatory Self-Control model for Sample 1 (N = 351) and Sample 2 (N = 226).

Fit measures	Type invariance	χ^2	df	p-value	CFI	RMSEA	$\Delta\chi^2$	Δdf	p-value
1 factor model Sample 1 and 2	Metric invariance	208.31	79	.00	.84	.053			
2 Factor model Sample 1	–	79.25	34	.00	.86	.062	–	–	–
2 Factor model Sample 2	–	82.06	34	.00	.91	.079	–	–	–
2 factor model Sample 1 and 2	Configural invariance	161.33	68	.00	.89	.049	–	–	–
2 factor model Sample 1 and 2	Metric invariance	167.30	76	.00	.90	.046	5.97	8	.65

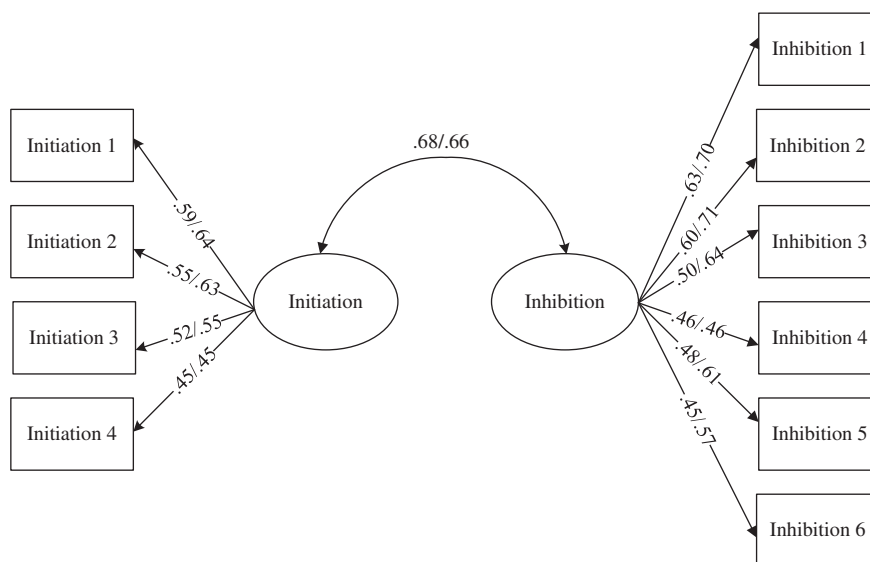


Fig. 1. Standardized factor loadings of the confirmatory inhibitory/initiatory self-control model with equal factor loadings (Sample1/Sample2).

Sample 1, 7-point scale in Sample 2), these means were fairly similar. The correlation between the two types of self-control is high ($r = .68/.66$ in Samples 1/2, respectively), as was expected because the two constructs refer to distinguished but related dimensions of self-control.

3.2. Two types of self-control predicting behavior

As the confirmatory factor analyses showed a meaningful and reliable distinction between two types of self-control, the next step was to determine their validity in predicting (un)desired behavior.⁴ Table 2 presents descriptive statistics and regression coefficients for the behavioral measures that were assessed in Sample 2. The data convincingly show that inhibitory self-control is a better predictor of behavior that requires regulating impulses to engage in something undesired (smoking, alcohol) compared to both initiatory self-control and generic self-control. The results also show that initiatory self-control is the superior predictor of desired behavior (hours of exercise, hours of study) compared to inhibitory self-control and generic self-control.

4. Discussion

Self-control is considered essential for adaptive behavior (Duckworth & Seligman, 2005; Finkel & Campbell, 2001; Tangney et al., 2004). Indeed, self-control helps people to do what they are supposed to do or should do in terms of leading healthy, happy,

⁴ The distributions of the number of cigarettes, glasses of alcohol, and hours of exercise were skewed. We therefore used the base 10-logarithm of the original variables as dependent variables. The means and standard deviations reported are those of the original variables.

and productive lives. Self-control also helps people to not do what they should not do if they do not want to jeopardize those healthy, happy, and productive lives. The very fact that self-control is equally beneficial for desired and undesired behavior suggests that self-control may operate in two ways – either supporting the initiation of goal-directed behavior or inhibiting impulsive behavior. It was the aim of the present investigation to examine whether there is empirical support for such a distinction.

Our findings show that it was possible to differentiate between inhibitory and initiatory self-control. Confirmatory factor analyses provided empirical support for two types of self-control that were derived from the brief SCS, showing that a generic self-control concept comprises interrelated but separate components. Our study also found evidence that these two types of self-control are distinct predictors with initiatory self-control better predicting the engagement in desired behavior and inhibitory self-control the superior predictor of refraining from undesired behavior. Initiatory and inhibitory self-control also were stronger predictors of both types of behavior than the generic self-control concept.

This study shows that a distinction between inhibitory and initiatory self-control is plausible and bears relevance for the prediction of different types of behavior. As such, our findings may contribute to greater predictive power of the self-control construct. Notwithstanding the evidence that is available from previous studies showing that generic self-control has impressive ability to predict a wide range of behaviors (Tangney et al., 2004), the literature also witnesses cases of less strong effects of generic self-control. For example, associations of self-control with interpersonal behavior, moral behavior, and anger-regulation have been reported to be low (Tangney et al., 2004). It may be that such modest associations result from confounding two related but still different components of self-control which operate in a different manner.

Table 2
Standardized regression coefficients between inhibitory/initiatory self-control and behavior. <table id="t0010">

Scale	Number of cigarettes	Glasses of alcohol	Hours of exercise	Hours of study
Inhibitory self-control	-.52**	-.57**	-.07	-.18
Initiatory self-control	.26	.21	.19	.48**
Brief SCS	-.22*	-.31**	.14	.30**
<i>M</i>	5.49	3.50	2.98	18.78
<i>SD</i>	16.14	5.02	3.05	9.03

Note: Standardized regression coefficients were calculated by adding the behavioral measures to the confirmatory factor model shown in Fig. 1, thus correcting for measurement errors in the inhibitory/initiatory latent factors. The same procedure was repeated for the SCS. In order to check for multicollinearity we repeated the analyses for each factor separately, which did not affect the results.

* $p < .05$.

** $p < .01$, Sample 2 ($N = 226$).

Apart from these empirical considerations, our results also bear implications for the conceptualization of self-control. Whereas most existing theories of self-control implicitly or explicitly emphasize the power of being able to inhibit as a crucial adaptive mechanism, our study suggests that inhibition only may not explain why people manage to succeed in behavior that requires the initiation of acts that contribute to accomplishing a personal goal such as getting good grades or spending more hours on exercise. Apparently, not doing bad things is not equivalent to doing the right thing. Disentangling both aspects of self-control in the way we propose may contribute to a better understanding of why some people are fairly successful in refraining from unwanted behavior but do not manage to realize their personal ambitions. A conceptual parallel with the literature on positive psychology is obvious as these theories have claimed that not being ill does not mean that one is healthy, that not suffering from burnout is not equal to being engaged in one's work, and that meeting obligations is not identical to being creative (Seligman & Csikszentmihalyi, 2000). Adopting the same line of reasoning, we may argue that withholding oneself from giving into impulses does not automatically result in striving toward valued goals.

As mentioned previously, the present study focused on self-control as a trait. Nevertheless, our findings may bear relevance for state self-control as well. The self-regulatory strength model proposes that all self-control efforts rely on the same resource (Baumeister et al., 1998). When one uses this resource in an initial attempt of self-control, a subsequent attempt of self-control may fail because of depletion of the resource. Theoretically, it may be that inhibitory and initiatory self-control use different resources, such that efforts of inhibitory self-control do not affect the capacity for initiatory self-control (or vice versa). Both types of self-control may also rely on the same resource, although for some individuals inhibitory self-control may require more energy than initiatory self-control (or vice versa). Future research should examine these possibilities to find out whether the distinction in trait self-control also applies to state self-control.

Our study has some limitations. First, our findings are based on the analysis of an existing scale which does not intend to assess separate components of self-control.⁵ Nevertheless, we considered it appropriate to select items from this questionnaire as it is the only scale that is recommended to examine the relation of self-control with a variety of behaviors (Tangney et al., 2004). We hasten to add that it was not our intention to criticize the scale as a measure of generic self-control: our sole purpose was to examine the validity of the underlying conceptual structure of self-control in terms of its

two constituting components. Future research should address the differential components of self-control with a new measure that is specifically designed to assess inhibitory and initiatory self-control.

Another limitation of the present research lies in its use of a cross-sectional design with self-reported behaviors from two student samples. Future research should examine whether the differential components of self-control are also found when employing community samples and objective behavioral measures in prospective designs.

Taken together, our findings demonstrate that there is more to self-control than inhibition only and that appreciating the component of self-control that deals with initiating desired behaviors as separate from inhibition helps to explain why self-control is relevant for desired goal-directed behavior, an issue which until now has not been explicitly addressed by the self-control literature. At the very least, this implies that the initiatory component of self-control should be acknowledged in the definition of a generic self-control construct. In addition, explicitly considering the two components of self-control may increase our understanding of why both desired and undesired behaviors are influenced by self-control.

Appendix A

A.1. Inhibitory self-control

1. I am good at resisting temptation.
2. I have a hard time breaking bad habits (R).
3. I do certain things that are bad for me, if they are fun (R).
4. I refuse things that are bad for me.
5. Sometimes I can't stop myself from doing something, even if I know it is wrong (R).
6. Pleasure and fun sometimes keep me from getting work done.

A.2. Initiatory self-control

1. I am lazy (R).
2. I have trouble concentrating (R).
3. I am able to work effectively toward long-term goals.
4. I often act without thinking through all the alternatives (R).

A.3. Items not categorized

- I say inappropriate things (R).
- I wish I had more self-discipline.
- People would say that I have iron self-discipline.

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⁵ Tangney et al. (2004) report findings from an exploratory factor analysis of the full SCS that identified five factors. However, as the authors state, their aim was not to explore the underlying conceptual structure of self-control.

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