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How Do Self-Control Strategies Relate to Depressive Symptoms? Investigating Subjective Social Status as Moderator

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Abstract (English)

Self-control is essential for successful navigation in life. Contemporary research has expanded the concept of domain-general trait self-control beyond effortful inhibition to encompass the ability to resolve self-control conflicts using strategies in specific contexts. While effortful self-control has been linked to lower depressive symptoms, there is no evidence for self-control enactment through strategies in the context of depressive symptoms. This thesis investigates the influence of self-control strategies on depressive symptoms, while considering the moderating effect of subjective social status, which includes both economic circumstances and social status. A sample of 787 participants from the German-speaking general population completed an online questionnaire with the Self-Control Strategy Scale, The Patient Health Questionnaire, and the MacArthur Scale. Multiple regression analyses revealed that behavioral inhibition and pre-commitment significantly predicted lower depressive symptoms, while punishment significantly predicted higher depressive symptoms. Subjective social status did not act as moderator but was found to significantly predict lower depressive symptoms alongside the other strategies in the multiple regression model. Dominance analysis identified behavioral inhibition and subjective social status as the strongest predictors of depressive symptoms, suggesting that future research should hold particularly these factors in prevention and intervention focus. While pre-commitment and punishment also play a role, their influence is comparatively smaller.

Keywords: Self-Control Strategies, Depressive Symptoms, Subjective Social Status

Abstract (Deutsch)

Selbstkontrolle ist ein wichtiger Bestandteil für eine erfolgreiche Lebensführung. Die aktuelle Forschung hat das Konzept der generalisierten Selbstkontrolle als Persönlichkeitsmerkmal über die Verhaltenshemmung hinaus erweitert und umfasst nun auch die Fähigkeit, Selbstkontrollkonflikte mithilfe von kontextspezifischen Strategien zu lösen. Während verhaltensinhibierende Selbstkontrolle geringere depressive Symptome vorhersagt, gibt es bislang keine empirische Evidenz für die Umsetzung von Selbstkontrolle durch Selbstkontrollstrategien im Kontext depressiver Symptome. Die vorliegende Arbeit untersuchte den Einfluss von Selbstkontrollstrategien auf depressive Symptome, wobei der subjektive soziale Status als Moderator berücksichtigt wurde, da dieser sowohl ökonomische Bedingungen als auch den sozialen Status umfasst. Eine Stichprobe von 787 Versuchsteilnehmenden aus der deutschsprachigen Allgemeinbevölkerung nahm an einer Online-Studie teil und füllte die Self-Control Strategy Scale, den Patient Health Questionnaire, sowie die MacArthur Scale aus. Die Ergebnisse der multiplen Regressionsanalyse zeigten, dass Verhaltenshemmung und Vorabverpflichtung signifikante Prädiktoren für geringere depressive Symptome darstellten, während Bestrafung ein signifikanter Prädiktor für erhöhte depressive Symptome war. Subjektiver sozialer Status konnte nicht als Moderator identifiziert werden, trat jedoch in der multiplen Regressionsanalyse als signifikanter Prädiktor für geringere depressive Symptome neben den anderen Strategien hervor. Die Dominanzanalyse identifizierte Verhaltenshemmung und subjektiven sozialen Status als die stärksten Prädiktoren für depressive Symptome und legt nahe, dass zukünftige Forschung insbesondere diese Faktoren in den Mittelpunkt von Prävention und Interventionen stellen sollte. Während auch Vorabverpflichtung und Bestrafung eine Rolle spielen, fällt ihr Einfluss im Vergleich geringer aus.

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How Do Self-Control Strategies Relate to Depressive Symptoms? Investigating Subjective Social Status as Moderator

People high in self-control demonstrate greater skills controlling their thoughts, regulating their emotions, and promoting goal-directed behavior (De Ridder et al., 2017). Self-control is linked to a broad range of desirable outcomes, including reduced psychopathology, better physical health, increased happiness, satisfying interpersonal relationships, and work achievement (Allemand et al., 2019; Cheung et al., 2014; Forestier et al., 2018; Hofmann et al., 2014; Tangney et al., 2004; Vohs et al., 2011). As such, trait self-control is a key factor in leading healthier, happier, and more productive lives (Tangney et al., 2004).

Self-regulation helps facilitate the successful pursuit of personal goals by aligning thoughts, emotions, and behaviors with desired end states (Inzlicht et al., 2021). This is achieved through setting goals, acting on them, and monitoring progress (Inzlicht et al., 2021). Self-control is a form of self-regulation that is engaged when a conflict between two competing goals is experienced (Inzlicht et al., 2021). Such conflicts arise when a momentarily alluring goal competes with a more abstract, long-term goal that is deferred in time or psychologically distant (Duckworth & Gross, 2014). Smaller-immediate temptations with narrow consequences (e.g., eating a cake) compete against larger-delayed outcomes with broader implications (e.g., losing weight, which impacts health, relationships, and well-being) (Sklar et al., 2017). Exerting self-control by inhibiting the influence of the proximity and salience of the smaller immediate reward, to prefer the larger delayed reward, makes this act challenging (Fujita, 2011). Any psychological mechanism or behavioral strategy that facilitates the process of prioritizing the distal goal can be termed successful self-control (Sklar et al., 2017). Self-control failure occurs when the distal goal is sacrificed because temptation impulses are left unimpeded (Fujita, 2011).

Traditionally, the effortful inhibition of temptation impulses has been regarded as the primary mechanism by which self-control promotes these distal motivations (Fujita, 2011). The Brief Self-Control Scale has so far been the gold standard for measuring inhibition as the core component of trait self-control, representing a general self-control measure that is independent of specific self-control challenges and thus domain general (Hoyle & Davisson, 2017). The trait approach to self-control captures stable differences between individuals that do not vary across time and situations (Hoyle & Davisson, 2017). While inhibiting impulses, as an essential aspect of trait self-control, may serve as a means of pursuing distal goals, it is the enactment of proactive, goal-congruent strategies that ultimately leads to achieving these

goals (Fujita, 2011). This means that short-lived inhibition constitutes a necessary act of self-control, but it is not sufficient to initiate or sustain behavior once it has been initiated (Hoyle & Davisson, 2016). Complementary to the reactive process of inhibitory self-control, initiatory self-control describes proactive processes and strategies that stimulate behaviors aligned with long-term goals, often through either anticipatory strategies (e.g., avoiding temptations) or automatic, habitual responses (e.g., developing healthy habits) (De Ridder et al., 2011; Gillebaart & De Ridder, 2017).

Hennecke et al. (2019) showed that individuals high in trait self-control do indeed use certain self-control strategies more frequently. However, these strategies do not explain self-regulatory success. This suggests that in the navigation of self-control conflicts, trait self-control and self-control strategies represent distinct pathways leading to effective self-regulation. Trait self-control may operate through the broad range of behaviors and processes discussed so far, while strategy use provides a mechanism through which self-control is enacted in specific contexts (Hennecke et al., 2019). Strategies can therefore encompass not only effortful inhibition but also more effortless approaches that support the probability of goal-directed choices (Gennara et al., 2023). The Self-Control Strategy Scale (SCSS) by Katzir et al. (2021) integrates this recent research toward a broader self-control understanding by identifying domain-specific strategies that facilitate or impair self-control enactment.

The SCSS is based on the process model of self-control, a theoretical framework organizing different self-control strategies into five families on an impulse generation timeline. Impulses emerge in four stages within the situation-attention-appraisal-response cycle, allowing for intervention at any stage, though the earlier the better. The SCSS strategies are mapped onto the paths of the cycle in three categories: I) anticipatory control (situation selection, punishment, reward, pre-commitment), II) down-regulation of temptation–representing the second and third path–(distraction, cognitive change, acceptance), and III) behavioral inhibition (behavioral inhibition) (Duckworth et al., 2016).

While anticipatory strategies (I) target external circumstances, they are implemented by avoiding or modifying an environment to experience it as less tempting. This category also includes pre-committing to social contracts, or self-imposing punishments and rewards. Attentional and reappraising processes (II) can target the temptation more directly, for example by ignoring the temptation to distract oneself, cognitively refraining it through abstract thinking, or choosing to accept the craving for it. The final strategy simply involves suppressing the upcoming impulse voluntarily (III) (Duckworth et al., 2016).

Self-Control and Depressive Symptoms

Self-control strategies may prevent, buffer, or modify psychological problems that are linked to self-control. In line with this, trait self-control is not only associated with improved psychological adjustment but also with reduced pathology, but more specifically, high trait self-control is related to lower depressive symptoms (Boals et al., 2011; De Ridder et al., 2012). The enhancement of self-control has been demonstrated to improve depressive symptoms in adults diagnosed with depression (Yang et al., 2018). However, the emotional distress that depressed individuals experience compromises their capacity to self-control, leading to a preference for immediate, smaller rewards over larger, delayed rewards (Tice et al., 2001).

A closely related psychological factor that predicts levels of depression is the well-known concept of learned helplessness, the belief that nothing one does matters. In depressed patients, the experience of uncontrollability is assumed to be a key cause of the pathology, and consequently, therapeutic emphasis has been on reversing the debilitating effects of uncontrollability. A recent revisit of the concept found that the brain is not specifically activated by a lack of control, rather, in the presence of control, certain inhibitory circuits remain active. When these circuits are inactive, the brain's defaults to passive and anxious reactions to ongoing adverse events. This implies that prevention and therapy should not focus on undoing the effects of uncontrollability ("learned helplessness") but rather on enhancing the positive effects of controllability. Cortical control cognitions activate "goal-directed" pathways by tracking changes in external contingencies and adjusting expectations about the outcomes of actions, thus allowing individuals to learn that their behavior can influence outcomes. This fosters resilience in the face of adversity. Contemporary research suggests that the perception of control is learned through action-outcome contingencies by generalizing their controllability to novel situations (Maier & Seligman, 2016).

The link between self-control and psychological symptoms, in this case depressive symptoms, could be bidirectional. On one hand, difficulties with self-control can be a defining feature of a range of psychological disorders, as self-control has been consistently negatively linked to self-regulatory failure. On the other hand, psychological symptoms can hinder the execution of self-control, further burdening the individual's regulatory capacity. It is important to highlight that there is no such thing as too much self-control, as it is considered an inherently adaptive self-regulatory trait, consistently linked to positive outcomes (Tangney et al., 2004).

Depressive Symptoms

In 2008 the World Health Organization projected that by 2030 depression will be the most burdensome disease in the world (Kanter et al., 2012). Depressive symptoms impact more than a few–over 26% of adults in the general population, tripling the rate of those strictly meeting criteria for a depressive episode (Wittchen et al., 2010). Depressive symptoms differ from depression primarily in terms of symptom severity, suggesting a continuum of severity within depressive disorder rather than classifying individuals into a binary diagnosis of "having" or "not having" depression (Ayuso-Mateos et al., 2010). The continuum ranges from non-depression to unipolar major depressive disorder, with clinical forms representing the higher end of the spectrum (Bianchi et al., 2022). Therefore, depressive symptoms should not be confused with the clinical categories of depression, including subthreshold (subclinical/subsyndromal somatic) depression, minor depression, dysthymia, and major depression (Ayuso-Mateos et al., 2010; Rodríguez et al., 2012).

According to the DSM-IV, a major depressive episode is defined by nine symptoms, with at least five needing to be present, and at least one of the five must be "depressed mood" (anhedonia) or "loss of interest or pleasure" (dysphoria) for a diagnosis. The symptoms must be considered significant in terms of severity, duration, abnormality, distress, and impairment. The remaining symptoms include appetite alterations, sleep alterations, psychomotor alterations, fatigue/loss of energy, feelings of worthlessness or guilt, cognitive impairment, and thoughts of self-harm (Andrews et al., 2007; Bianchi et al., 2022). These symptoms show that depression is characterized by a variety of manifestations on the behavioral, affective, cognitive, and somatic level.

Key brain areas implicated in the pathogenesis of depression include the dorsolateral (dlPFC) and ventromedial (vmPFC) sectors of the prefrontal cortex. Depression is linked with reduced dlPFC activity, and heightened vmPFC activity. Lesions studies suggest that diminished dlPFC activity impairs cognitive control processes essential for emotion regulation strategies (such as reappraisal and suppression) when facing negative affect, while vmPFC hyperactivity may contribute to greater negative emotions associated with self-reflection (such as shame, guilt, and regret) (Koenigs & Grafman, 2009).

Subjective Social Status

The concept of subjective social status (SSS) also offers valuable insights into the pathogenesis of depression, serving as a mediating factor between objective socioeconomic status (SES) and depressive symptoms. Lower SSS has been independently associated with current depressive symptoms. Unlike objective SES measures such as education, occupation,

and income, SSS reflects individuals' perceptions of their standing in the social hierarchy and feelings of inequality compared to others. This subjective assessment captures nuances of social stratification that traditional SES measures may overlook. Perceiving oneself to be higher on the SSS ladder was consistently associated with a lower prevalence of depressive symptoms. Additionally, while markers of socioeconomic status (SES) are regularly linked with depressive symptoms, measures of social rank may exhibit a stronger association as they encompass more psychosocial factors than objective indicators (Hoebel et al., 2017; Wetherall et al., 2019). SSS is implemented into this study to serve as a moderator between self-control strategies and depressive symptoms.

Method

This thesis is one of four master's theses embedded as Study 2 in the project "Registered Report: Self-Control Beyond Inhibition–German Translation and Quality Assessment of the Self-Control Strategy Scale (SCSS)" by (Roth et al., 2024). Beyond translating and validating the SCSS, the project explored self-control strategies and various outcomes not covered in the initial study by Katzir et al. (2021). Each master's student preselected a self-control-related outcome, along with a potential mediator or moderator in their respective thesis: Olga Freiman, Loana-Corine Stenzel, Victoria Wagner. As part of open science practices, raw data, pre-processing code, prepared data, analysis code, and the manuscript can be accessed via the following link: https://osf.io/aup93/.

Current Study

Since previous research has demonstrated that greater self-control is linked to a decrease in depressive symptoms, the current study seeks to replicate this effect and examine whether self-control strategies exhibit a similar relationship, based on the latest approaches to self-control (Boals et al., 2011; De Ridder et al., 2012). Therefore, the first research question investigates the predictive value of different self-control strategies for depressive symptoms, which is operationalized through the following hypothesis:

Hypothesis 1a-h: Each strategy of the Self-Control Strategy Scale is a significant predictor of lower depressive symptoms while controlling for all other self-control strategies.

Given that subjective social status is associated with lower depressive symptoms, the second research question examines whether subjective social status moderates the strength and direction of the relationship between self-control strategies and depressive symptoms, captured by the following hypothesis (Hoebel et al., 2017; Wetherall et al., 2019):

Hypothesis 2a-h: Subjective social status moderates the effect of self-control strategies and depressive symptoms.

Hypotheses 1 and 2 are depicted in Figure 1.

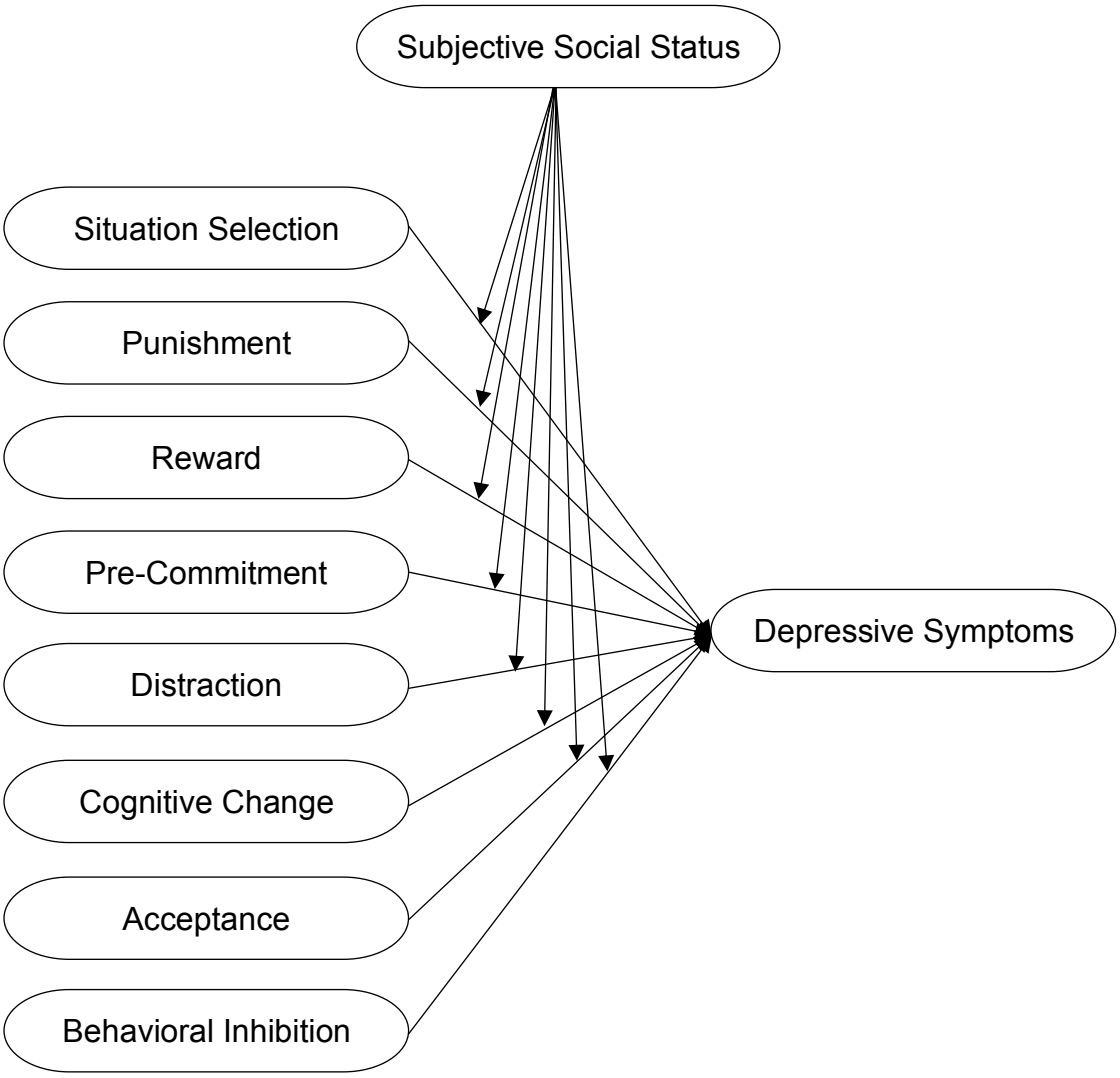

Figure 1. Research Model with Moderation

Sample

A post hoc power analysis (Appendix Figure A1) for a linear multiple regression was conducted using G*Power 3.1.9.7 (Faul et al., 2009). The analysis was based on an alpha level of .05, a total sample size of 600, an effect size f-squared of .11, and eight predictors. The resulting achieved power was 99.99%. This sample size and effect size were selected to ensure that the study had sufficient power to detect significant relationships.

The sample of German-speaking general population participants was recruited via Prolific (https://www.prolific.com), which provides high-quality data and a diverse sample (Douglas et al., 2023; Peer et al., 2017). A total of 902 participants started the online questionnaire during the four-week period from February 29, 2024, to March 26, 2024. 873

participants completed the study, and after applying the pre-registered exclusion criteria, the final sample consisted of 787 participants. Of participants in the final sample, 47% identified as female, 52% as male, and 1% identified as other. The average age was 32.13 years (*SD* = 10.15, range = 18-74). Regarding language proficiency, 83% of participants were native German speakers, while 17% were fluent in German. For details on occupational status distribution, see Appendix Table A2.

Procedure

Participants were informed at the outset about the study procedure, including the approximate duration of 17 minutes, the £2.55 reward they would receive for participation, and the inclusion of attention checks. Study conditions, such as voluntary participation, anonymity, and the requirement to be at least 18 years old, were also explained. Participants then provided informed consent regarding both their participation and the handling of their data.

At the beginning of the study, participants were asked which languages they were fluent in, and at the end of the study, they indicated their proficiency level in German. Before presenting the SCSS, an introduction to self-control conflicts was provided, emphasizing that only desires conflicting with other goals qualify as temptations. This definition was repeated seven times. Participants were then asked to evaluate their tendencies across various life domains.

After completing the questionnaires, they answered demographic questions. Before concluding the study, a participation check ensured that they had not taken part in similar studies before. Finally, participants were thanked and given the option to provide any additional comments or remarks, before receiving feedback on how frequently they reported using various self-control strategies.

Measures

The following measures are documented in their original German version in Appendix Table B1.

Self-Control Strategy Scale (SCSS). To assess engagement in self-control strategies, the German version of the SCSS by Katzir et al. (2021), translated by Roth et al. (2024), was applied (Table 1 provides an overview). This measure consists of 38 items, 5 of which are reverse coded, and is rated on a 5-point scale (1 = *not at all*, 5 = *very much*).

The Patient Health Questionnaire (PHQ-9). Depressive symptoms were assessed using the PHQ-9 (Löwe et al., 2002), a scale previously validated in the German general population (Martin et al., 2006). This measure evaluates the frequency of nine depressive

symptoms experienced over the past two weeks (e.g., “Little interest or pleasure in doing things”, 0 = *not at all*, 3 = *nearly every day*). The ninth item “thoughts that you would be better off dead or of hurting yourself in some way” was excluded, as the online format does not provide adequate support in critical situations.

MacArthur Scale. Subjective social status was measured using the MacArthur Scale (Adler et al., 2000), which asks respondents to position themselves on a 10-rung “social ladder”, a scale previously validated in the German general population (Hoebel et al., 2015). Designed as an instrument for adults, it helps respondents visualize and assess their relative social standing in German society, based on their perception of where they stand at this time in their life (e.g., 1st rung = *worst off: no job, lowest income, lowest education*, 10th rung = *best off: highest income, highest education, best job*).

Table 1

SCSS Strategies With Example Items

Strategy	***N* Items**	**Example Item**
Situation Selection (SS)	6	I seek out situations in my life so that I will not face temptations.
Punishment (PM)	4	I penalize myself for breaking my own “personal contracts”.
Reward (RE)	4	I reward myself for the achievement of a long-term goal.
Pre-Commitment (PC)	4	I commit myself in advance to goals I want to achieve (e.g., by committing to deadlines, by paying money in advance to activities I want to participate in).
Distraction (DI)	5	When I face a temptation, I shift my attention away from it.
Cognitive Change (CC)	5	When I face an unwanted desire I control myself by changing the way I think about it.
Acceptance (AC)	4	When I face a temptation I accept the craving for it.
Behavioral Inhibition (BI)	6	I find it easy to keep myself from acting on unwanted desires.

Data Cleaning and Analyses

The study included a total of five attention checks, of which missing more than one led to exclusion. Further, language proficiency below "fluent" and overly fast participation (> 3 *SD*) resulted in removal from the dataset. Incomplete datasets were filtered out of the analysis. For the participation check, participants who denied having previously taken part in similar studies were retained in the final dataset. The reasons for exclusions and the number of excluded participants per criterion can be found in Appendix Table B2. Data cleaning and analyses were conducted using R (Version 4.3.1; R Core Team, 2023) and RStudio (Version 2024.04.0+735; RStudio Team, 2024).

Before conducting the main analyses–multiple regression (H1) and moderation (H2)–all variables were mean centered in accordance with statistical guidelines aimed at reducing multicollinearity and protecting the main and interaction effects from becoming highly correlated (Field, 2017b; Iacobucci et al., 2017). Effect sizes were interpreted according to Cohen (1988).

Exploratory Analyses

For the exploratory analyses of the moderation, separate moderation analyses were conducted to ensure that variance contributing to main and interaction effects was not overly controlled for. These analyses revealed new significant main effects, likely due to shared variance, suggesting commonality analysis for clarification. Lastly, dominance analysis was performed to compare predictor effects individually and in different model sizes, also revealing their relative importance through average contributions to the explained variance. The 9-predictor model with subjective social status as a predictor provided the framework for these analyses, as it demonstrated the best fit to the outcome.

Results

The results in Table 2 display that nearly all of the SCSS subscales showed significant correlations, suggesting that the use of one strategy is associated with the use of other strategies (Katzir et al., 2021). Acceptance, however, was negatively associated with three of the eight subscales. Among the 25 significant correlations, five reached $r \geq .30$, suggesting that the subscales measure distinct constructs with limited overlap (Cohen, 1988). Most of the subscales reach the acceptable threshold for Cronbach's alpha ($\alpha \geq .7$), apart from pre-commitment, which shows a Cronbach's alpha of .52 (Field, 2017c).

Depressive symptoms displayed a small-effect-sized significant positive correlation with punishment, meaning that more pronounced depressive symptoms are linked to stronger self-control punishment strategies. Significant negative correlations were observed with pre-

commitment, distraction, cognitive change, and behavioral inhibition. Among these relationships, the correlation with behavioral inhibition was, as expected (Boals et al., 2011; De Ridder et al., 2012)

the strongest, representing a moderate effect size, while the remaining significant relationships showed small to very small effect sizes. The average total score for each participant on the PHQ-9 is 8.14, falling within the range of mild depressive symptoms (Kroenke et al., 2009). A more detailed categorization of depressive symptom severity is provided in Appendix Table C1. The Cronbach's alpha for the scale is 0.87, indicating good internal consistency (Field, 2017c).

Subjective social status, as anticipated (Hoebel et al., 2017), showed a significant negative correlation with depressive symptoms, indicating a moderate effect size. Additionally, it demonstrated small positive significant correlations with four strategies: reward, pre-commitment, cognitive change, and behavioral inhibition. Appendix A provides the distribution of subjective social status and in-depth descriptions. As an alternative to measuring Cronbach's alpha for this single item scale, the yearly gross income from the dataset was used as an estimate to assess convergent construct validity. Subjective social status showed a significant moderate correlation with yearly gross income (r = .42 [.37, .48]), supporting the validity of the scale.

Table 2

Means, Standard Deviations, Reliabilities, and Correlations With Confidence Intervals for the SCSS, the PHQ-9, and the MacArthur Scale

Variable	*M*	*SD*	α	1	2	3	4	5	6	7	8	9	10
1. Situation Selection	2.92	0.90	0.89	1									
2. Punishment	2.61	0.88	0.75	**.32**** [.25, .38]	1								
3. Reward	3.81	1.04	0.93	.09* [.02, .16]	.26** [.19, .32]	1							
4. Pre-Commitment	3.22	0.74	0.52	.21** [.14, .27]	**.38**** [.32, .44]	.29** [.22, .35]	1						
5. Distraction	3.43	0.75	0.85	**.35**** [.29, .41]	.21** [.14, .27]	.18** [.11, .25]	.22** [.15, .28]	1					
6. Cognitive Change	3.24	0.72	0.75	.25** [.19, .32]	.18** [.11, .25]	.17** [.11, .24]	.22** [.16, .29]	**.46**** [.40, .51]	1				
7. Acceptance	3.53	0.69	0.74	-.14** [-.21, -.08]	-.21** [-.28, -.15]	.07* [.01, .14]	-.01 [-.08, .06]	-.09* [-.16, -.02]	.08* [.01, .15]	1			
8. Behavioral Inhibition	2.94	0.85	0.88	.13** [.06, .20]	.04 [-.03, .11]	.05 [-.02, .12]	.25** [.18, .31]	.24** [.18, .31]	**.40**** [.33, .45]	.07* [.00, .14]	1		
9. Depressive Symptoms	0.90	0.65	0.87	-.02 [-.09, .05]	.12** [.05, .18]	-.05 [-.12, .02]	-.20** [-.26, -.13]	-.07* [-.14, .00]	-.11** [-.18, -.04]	-.06 [-.14, .00]	**-.39**** [-.44, -.32]	1	
10. Subjective Social Status	5.87	1.66		.03 [-.04, .10]	.02 [-.05, .09]	.09** [.02, .16]	.21** [.14, .27]	-0.02 [-.09, .05]	.14** [.07, .20]	.04 [-.03, .11]	.21** [.14, .27]	**-.30**** [-.36, -.23]	1

Note. $N = 787$. $|r| \geq .30$ are printed in bold. * $p < .05$, ** $p < .01$. 95% CIs reported in brackets, showing the limits within which 95% of sample correlations are expected to fall (Field, 2017a). The reliability for subjective social status could not be reported, which is why the cell for Cronbach's alpha is empty. Instead, construct validity was assessed by examining the correlation with yearly gross income ($r = .42$, $p < .001$, 95% CI [.37, .48]).

Hypothesis 1 a-h

Each strategy of the SCSS was hypothesized to significantly predict lower depressive symptoms while controlling for all other self-control strategies. The results indicate that three strategies are significant predictors of depressive symptoms: punishment, pre-commitment, and behavioral inhibition. Punishment positively predicts depressive symptoms ($\beta = .21$, $p < .001$), displaying a small effect size. In contrast, pre-commitment ($\beta = -.18$, $p < .001$) and behavioral inhibition ($\beta = -.36$, $p < .001$) are negatively associated with depressive symptoms, with behavioral inhibition showing a moderate effect size. Thus, higher values in these strategies are associated with lower depressive symptomatology (Table 3). The regression model demonstrates a significant fit, with a moderate adjusted R-squared value indicating that 18.8% of the variance would be accounted for by the predictors if the model were applied to the population.

Exploratory Analysis for Hypothesis 1 a-h

Given that the subscale for behavioral inhibition is potentially conflated with self-control success (Roth et al., 2024) the regression analysis was repeated without it.

In comparison to the model with eight strategies, the significant exploratory model excluding behavioral inhibition, demonstrates a weaker fit ($R^2_{adj} = .083$). The strategies punishment ($\beta = .24$, $p < .001$) and pre-commitment ($\beta = -.26$, $p < .001$) maintained the same direction of association showing high significance and increased standardized beta values in the small effect size range. Cognitive change reached significance ($\beta = -.08$, $p = .044$), displaying a very small negative effect (Table 3).

Table 3

Multiple Linear Regression Analyses of Depressive Symptoms

Predictors	Including Behavioral Inhibition				Excluding Behavioral Inhibition			
	β	95% CI		*p*	β	95% CI		*p*
		LL	*UL*			*LL*	*UL*	
Intercept	-.00	-.06	.06	1.000	.00	-.07	.07	1.000
Situation Selection	-.01	-.08	.06	.732	-.02	-.09	.06	.636
Punishment	.21	.13	.28	**<.001**	.24	.16	.32	**<.001**
Reward	-.04	-.11	.03	.261	-.02	-.09	.06	.641
Pre-Commitment	-.18	-.25	-.11	**<.001**	-.26	-.33	-.18	**<.001**
Distraction	.01	-.07	.08	.871	-.02	-.10	.06	.634
Cognitive Change	.04	-.03	.12	.285	-.08	-.16	-.00	**.044**
Acceptance	-.00	-.07	.06	.948	-.02	-.09	.05	.625
Behavioral Inhibition	-.36	-.43	-.29	**<.001**				
Model fit	R^2 / R^2_{adj} = .197 / .188 $F(8, 778) = 23.80$, p **<.001**				R^2 / R^2_{adj} =.091 / .083 $F(7, 779) = 11.11$, p **<.001**			

Note. $N = 787$. CI = confidence interval; *LL* = lower limit; *UL* = upper limit. All Variables were centered, therefore the regression intercept represents the outcome value when predictors are at their mean level (rather than at zero). Significant *p* values <.05, <.01, <.001 are printed in bold.

Hypothesis 2 a-h

The results displayed in Table 4 reveal no significant interaction effects for the moderation of subjective social status on the relationship between self-control strategies and depressive symptoms. In contrast, subjective social status emerged as a significant main effect with a small effect size. The overall model fit is significant, with a moderate adjusted R-squared of 24.2%. The inclusion of subjective social status contributes approximately 4% to this fit (in Appendix Table C2, the multiple regression of subjective social status as an additional predictor was calculated without the interaction effects).

Table 4

Moderator Analysis of Depressive Symptoms Controlling for All Other Predictors

Predictors	β	**95% CI**		***p***
		LL	***UL***	
Intercept	-.00	-.06	.06	.976
Situation Selection (SS)	-.01	-.08	.06	.789
Punishment (PM)	.17	.11	.23	**<.001**
Reward (RE)	-.03	-.08	.02	.269
Pre-Commitment (PC)	-.13	-.20	-.06	**<.001**
Distraction (DI)	-.02	-.09	.05	.598
Cognitive Change (CC)	.08	-.01	.17	.100
Acceptance (AC)	-.00	-.16	.16	.992
Behavioral Inhibition (BI)	-.36	-.43	-.28	**<.001**
Subjective Social Status (SSS)	-.13	-.17	-.09	**<.001**
SSS × SS	.01	-.03	.04	.742
SSS × PM	.01	-.04	.06	.720
SSS × RE	-.00	-.03	.03	.863
SSS × PC	-.03	-.07	.01	.180
SSS × DI	-.00	-.04	.04	.983
SSS × CC	.03	-.01	.08	.171
SSS × AC	-.02	-.07	.03	.425
SSS × BI	.03	-.06	.11	.546
Model fit				R^2 / R^2_{adj} = .243 / .242 $F(17, 769) = 14.52$, p **<.001**

Note. $N = 787$. CI = confidence interval; *LL* = lower limit; *UL* = upper limit. Significant *p* values <.05, <.01, <.001 are printed in bold.

Exploratory Analyses for Hypothesis 2 a-h

Individual moderation models testing each self-control strategy, without controlling for other predictors, revealed no significant interaction effects (Appendix Table C3). Aside from punishment, pre-commitment, and behavioral inhibition, new main effects of distraction ($\beta = -.08$, $p = .025$) and cognitive change ($\beta = -.07$, $p = .042$) were found to be significant, though with very small negative beta weights. The corresponding adjusted R-squared value for distraction is 9.3%, and 9.2% for cognitive change.

Commonality Analysis. To unravel the unique and common effects for each significant main effect from the separate moderations, commonality analysis was conducted within the 9-predictor model (including strategies and subjective social status), as it provides the model with the best fit to the outcome. In commonality analysis, the unique contribution of a predictor is represented by its squared semipartial correlation with the outcome. The common effect of a predictor represents its shared influence with other predictors on the outcome, by summing the variance it contributes across all predictor combinations in which it appears (Nathans et al., 2012; Reichwein Zientek & Thompson, 2006).

Appendix Table C4 displays that behavioral inhibition ($sr^2 = .086$, commonality = .063) and subjective social status ($sr^2 = .041$, commonality = .048) emerge as the most influential predictors for depressive symptoms, both in terms of unique and common effects. These predictors are followed by pre-commitment ($sr^2 = .015$, commonality = .023), which contributes slightly more to the common effect than punishment ($sr^2 = .27$, commonality = -.014). While punishment shows a moderate unique contribution, its common effect with other predictors is negative. In contrast, cognitive change contributes to depressive symptoms primarily through a small common effect ($sr^2 = .003$, commonality = .010). Distraction has a negligible unique effect and a very small common effect in the context of this model ($sr^2 = .000$, commonality = .005). These results demonstrate the parts of the predictors that uniquely account for the known variance in the outcome, as well as the parts that are common to any two or more variables.

Dominance Analysis. In contrast to the common effect in commonality analysis, which sums predictor combinations, the general dominance weight (GDW) includes both unique and shared variances of a predictor from the outset and averages the contributions across all model combinations. The GDW is then divided by the total R-squared of the model to calculate the predictor's relative importance within the overall model. Appendix Table C5 for dominance results also shows the average coefficients for different model sizes, providing

insights into the stability of each predictor's effect as more predictors are added to the model (Azen & Budescu, 2003).

Behavioral inhibition accounts for 48.03% of the variance explained by the predictors in depressive symptoms. Subjective social status follows as the second most important predictor, explaining 26.17% of the variance, thereby indicating its large impact to depressive symptoms. Pre-commitment (10.68%) and punishment (10.49%) make roughly equal small contributions. Cognitive change accounts for 2.18% of the explained variance, while distraction is close to zero (0.89%).

Discussion

The aim of this study was to examine the role of self-control strategies in their prediction of depressive symptoms, as well as the potential moderation by subjective social status. Results revealed that punishment predicts higher depressive symptoms, whereas pre-commitment, behavioral inhibition, and subjective social status predict lower depressive symptoms when controlling for other self-control strategies. However, subjective social status does not moderate the relationship between self-control strategies and depressive symptoms, even when conducting separate moderation analyses for each predictor. Exploratory analyses identified additional significant predictors; their impact on depressive symptoms is discussed below when considering their exact variance distributions within the best-fitting 9-predictor model (including strategies and subjective social status).

Interpretation of Results

Correlations revealed that punishment, pre-commitment, distraction, cognitive change, and behavioral inhibition relate significantly to depressive symptoms. Of these, punishment, pre-commitment, and behavioral inhibition significantly predicted the outcome variable. Specifically, greater use of punishment predicts higher depressive symptoms, underscoring its maladaptive role for depressive symptoms. In contrast, pre-commitment and behavioral inhibition emerged as adaptive strategies that may help in reducing depressive symptoms.

Notably, by excluding behavioral inhibition in the exploratory analysis of hypothesis 1, the adjusted R-squared value of the model decreased from 18.8% to 8.3%. This change underscores the influence of behavioral inhibition, given its moderate correlation and moderate beta weight with the outcome. Still, the model with the best fit to the outcome (R^2_{adj} = 22.9%) is the one containing subjective social status as an additional, significant predictor of lower depressive symptoms. Dominance analysis of this model revealed that behavioral inhibition contributes an average of 48.03% across all possible model sizes to the explained variance, making the strategy the strongest predictor. Subjective social status follows with

26.17%, while punishment and pre-commitment each account for approximately 10%. Cognitive change contributes 2.18% of the variance. The remaining predictors (situation selection, reward, distraction, and acceptance) contribute negligibly to the variance.

The strong contribution of behavioral inhibition to the model suggests that directly coping with temptations appears to be more crucial in the context of depressive symptoms than applying anticipatory strategies, which contradicts the process model of self-control claiming earlier strategies to be more effective (Duckworth et al., 2016). There is evidence, as indicated by the bridge node analysis by He et al. (2023), that the negative link between self-control and depressive symptoms is primarily explained by the ability to resist temptation. Moreover, the items of the behavioral inhibition subscale that assess resistance to temptations also measure self-control success, indicating that the strong predictive value of behavioral inhibition for depressive symptoms may be confounded by participants' perceptions of their effective self-control abilities (Katzir et al., 2021). The behavioral inhibition subscale is also the reason why the SCSS is closely related to trait self-control, with pre-commitment playing a smaller role (Katzir et al., 2021; Roth et al., 2024). In summary, this supports behavioral inhibition as a key predictor for lower depressive symptoms, probably through the mechanism of resisting temptation, while also reinforcing the relationship between trait self-control and lower depressive symptoms (Boals et al., 2011; De Ridder et al., 2012).

Pre-commitment and punishment showed that anticipatory strategies also play a predictive role in depressive symptoms. Both predictors arguably show a positive, moderate correlation with each other. When looking at their respective items, this appears intuitive, as both strategies involve self-imposed consequences for behavior. The correlation could indicate that individuals who use one of these strategies also tend to use the other. Pre-commitment predicts fewer depressive symptoms, meaning that purposefully changing the physical or social situation to strengthen favorable impulses or to weaken unfavorable ones may serve as an adaptive function in depressive symptoms.

In contrast, punishment predicts greater depressive symptoms. Individuals experiencing depression often exhibit heightened sensitivity to negative feedback and punishment, as evidenced by their hypersensitivity to aversive stimuli (Beevers et al., 2013). Depression is also associated with a preventive regulatory style that emphasizes the avoidance of losses and failures, making them more inclined to avoid punishment as a motivational factor rather than pursue rewards (Miller & Markman, 2007). Nevertheless, the positive association of punishment and depressive symptoms means that both self-administered internal and external punishments, even when intended as an anticipatory strategy, are

maladaptive for depressive symptoms. Individuals may therefore engage in harsh self-punishment, despite their avoidant tendencies, which then worsens their depressive symptoms.

At the same time, depression is characterized by a reduced responsiveness to rewarding stimuli (Beevers et al., 2013). Behavioral Activation is an effective treatment for depression that involves individuals monitoring their engagement in both rewarding and non-rewarding behaviors. The therapy encourages to schedule pleasurable activities to increase positive reinforcement actively, rather than waiting for the "right moment". Following an adequate schedule of reinforcement, the depressed mood is expected to improve. Conversely, the negative correlation of the self-control strategy reward and depressive symptoms was not significant, suggesting further investigation in a replication study (Treadway & Zald, 2011).

Exploratory analyses

In the 9-predictor model subjective social status predicted fewer depressive symptoms. The correlations with the other strategies were rather small; however, with depressive symptoms, it exhibited a moderate negative correlation. A prospective study suggests a causal effect of subjective social status on depressive symptoms, although further research is required to confirm this (Schubert et al., 2016). One significant advantage of subjective social status lies in its subjective categorization, which allows for experiential manipulation. Research shows that even temporary shifts in one's perceived social rank can have measurable impacts on depressive thinking. Participants with lower perceived status reported higher levels of depressive cognitions and rumination, revealing the underlying mechanisms in this relationship (Schubert et al., 2016).

Cognitive change predicted fewer depressive symptoms when behavioral inhibition was excluded from the model and as a main effect in separate moderation analyses. The beta weights from cognitive change shift towards a positive value across models, starting from its individual main effect ($\beta = -.10$, $p = .042$) to the model without behavioral inhibition ($\beta = -.08$, $p = .044$), then further to the 8-predictor ($\beta = .04$) and 9-predictor model ($\beta = .06$). The average coefficients of dominance analysis confirm this pattern, showing that cognitive change turns positive, but loses significance as the model size increases. Since cognitive change is correlating to a small, positive extent with the outcome, and exhibits correlations with significant predictors of the outcome–such as behavioral inhibition, pre-commitment, and punishment–increased model size may then lead to variance being attributed to these predictors. This pattern is further supported by commonality analysis, which shows that cognitive change mainly contributes to the explained variance by its common effect, whereas

behavioral inhibition explains a substantial unique portion of the outcome variance. Overall, this pattern shows that cognitive change primarily operates in interaction with other strategies that mediate its influence rather than as an independent predictor. Even though its general dominance weight is 2.18% in the 9-predictor model, other significant predictors appear to play a more crucial role for prevention and intervention.

A similar effect can be reported for distraction, showing its strongest coefficient alone ($\beta = -.08$, $p = .024$), which decreases in the 9-predictor model ($\beta = -.02$), where distraction operates primarily through its common effect. Its negative correlation with the outcome is very small. Therefore, its main effect may be primarily explained through an overlap in variance or mediation with cognitive change ($r = .46$), behavioral inhibition ($r = .24$), pre-commitment ($r = .22$), or punishment ($r = .21$), when other predictors are not controlled for. Though the last three correlations are small, these predictors consistently show the strongest beta weights and significance in all models. Given its very small beta weights and its general dominance weight of 0.89%, its significance should not be overinterpreted (Cumming, 2014).

Overall, these findings suggest that behavioral inhibition and subjective social status explain the most variance in predicting depressive symptoms. The anticipatory strategies pre-commitment and punishment indicate that self-control conflicts can be circumvented, though the theoretical mechanisms behind the adaptive role of pre-commitment and the maladaptive role of punishment need further exploration. The remaining strategies show negligible contributions.

Limitations

A limitation of the study design was that all variables were measured based on self-reported evaluations, which may have caused social desirability or central tendency biases. The cross-sectional study design examined correlational variables, focusing on the extent of using specific strategies to achieve certain outcomes, without implying causality.

Depressive symptoms were measured by summing an individual's item score across all items and then averaging the total score. This approach serves practical purposes, such as ensuring comparability between individuals in large samples. A categorical classification of total scores would have exceeded the aim of a non-clinical sample. Research has shown that averaging total scores is a valid approach when all items measure the construct of depression, meaning the scale is unidimensional (Bianchi et al., 2022). Nevertheless, depressive symptoms were classified to gain further insight into the distribution of symptom severity (Appendix Table C1). Based on the thresholds of Corson et al. (2004) and Kroenke et al. (2001), 36.08% of the sample scores indicated clinically significant depression though this is

not exhaustive for diagnosing depression. The majority of the sample exhibited “no significant” to “moderate” symptoms. This classification suggests that the results of the study are particularly relevant to individuals with no significant, mild, and moderate symptoms. Since moderate symptoms are considered clinically significant, preventive and interventive efforts might especially be advocated for this group.

Contributions

The predominant use of self-reports of general self-control, reflecting a trait, relies on the high stability of the construct (Hoyle & Davisson, 2017). Much of the research has focused on understanding the mechanisms of what makes individuals high in trait self-control successful, while investigations into the specific strategies people use to control themselves, independent of personal disposition, are relatively recent (Hennecke et al., 2019). This study, therefore, employed the newly translated German version of the SCSS (Roth et al., 2024) to investigate the use of self-control strategies in the unexplored context of depressive symptoms. This suggests the need for replication to confirm these findings. Notably, the sample used in this study was a general population sample, which increases the external validity of the findings and suggests that certain self-control strategies associated with lower depressive symptoms could be applied in a broadly preventive manner. The study design, which featured a large sample size and strong statistical power, enabled the detection of small but significant effects–such as punishment, pre-commitment, cognitive change, and distraction. The value of significant predictor strategies could differ in clinical settings, as well as their potential to serve as an prevention or intervention factor; therefore, differences in the application of self-control strategies should be investigated between a control group and a group diagnosed with depression.

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Appendix A

Sample Descriptives

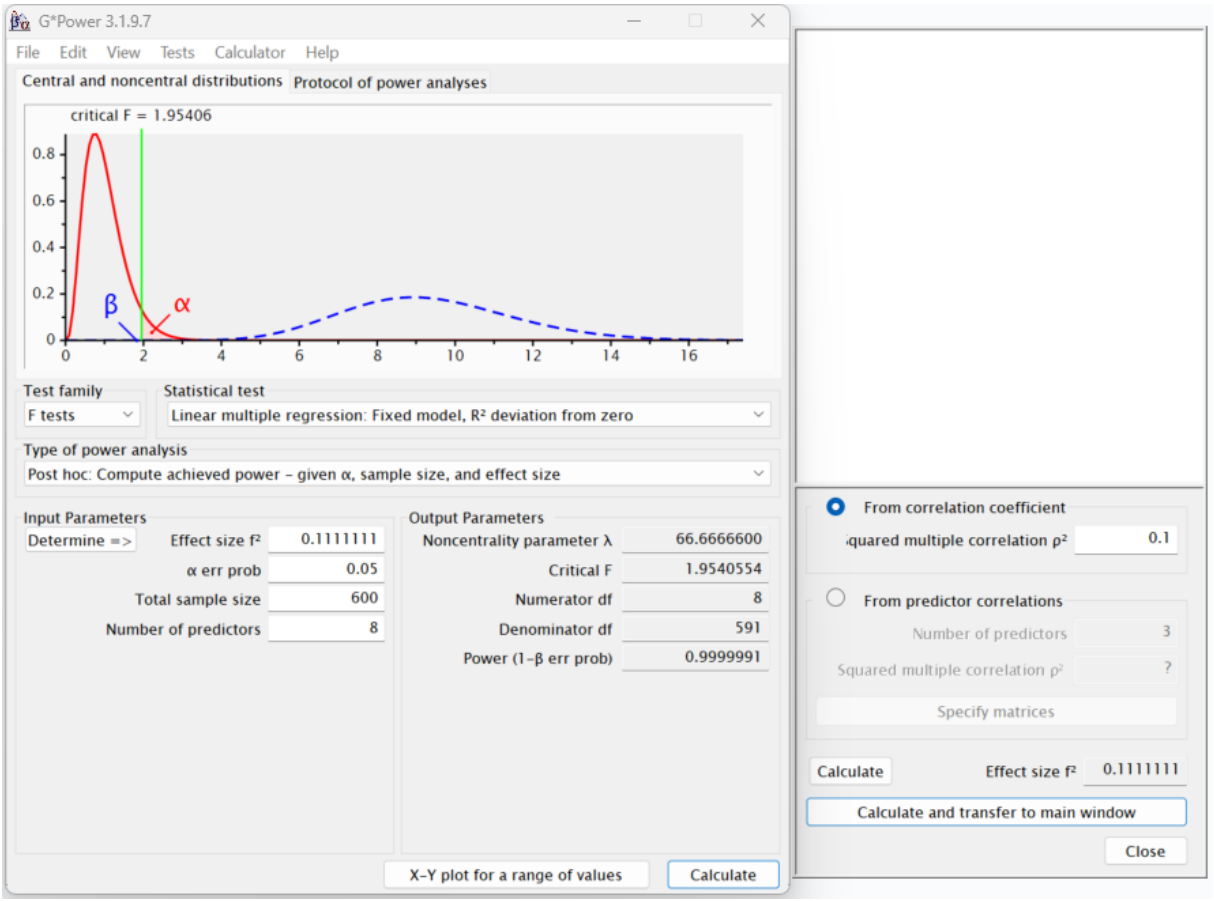


Figure A1. Power Analysis

Table A2

Job Status Distribution

Job Status	Absolute Frequency	Relative Frequency
Student	262	33.28%
Employed	498	63.27%
Self-employed	83	10.54%
Job-seeking	42	5.34%
Housewife/Househusband	16	2.03%
Retired	14	1.78%
Unable to work	13	1.65%
Other: [Free text]	18	2.29%

Note. Multiple responses were allowed, resulting in an absolute number of responses exceeding the sample size of $N = 787$. Consequently, categories could overlap, and individuals who selected multiple statuses have been counted in more than one category. Therefore, relative frequencies were calculated based on the sample size.

Table A3

Subjective Social Status Distribution

Ladder Score	Absolute Frequency	Female	Male	Other
1	4	25%	75%	0%
2	15	13.3%	86.7%	0%
3	71	36.6%	62%	1.4%
4	90	51.1%	46.7%	2.2%
5	91	60.4%	38.5%	1.1%
6	177	44.6%	54.8%	0.6%
7	233	46.4%	51.9%	1.7%
8	90	50%	50%	0%
9	13	30.8%	69.2%	0%
10	3	66.7%	33.3%	0%

Table A4

Mean and Standard Deviation of Subjective Social Status by Gender

Gender	Mean	Standard Deviation
Female	5.95	1.55
Male	5.81	1.76
Other	5.56	1.59

Table A5

Mean and Standard Deviation of Subjective Social Status by Age Group

Age Group	Mean	Standard Deviation
18-29	5.79	1.59
30-44	5.9	1.72
45-64	6.12	1.71
65+	5.55	1.75

Note. The age group classification was adopted directly from Hoebel et al. (2015) for comparison.

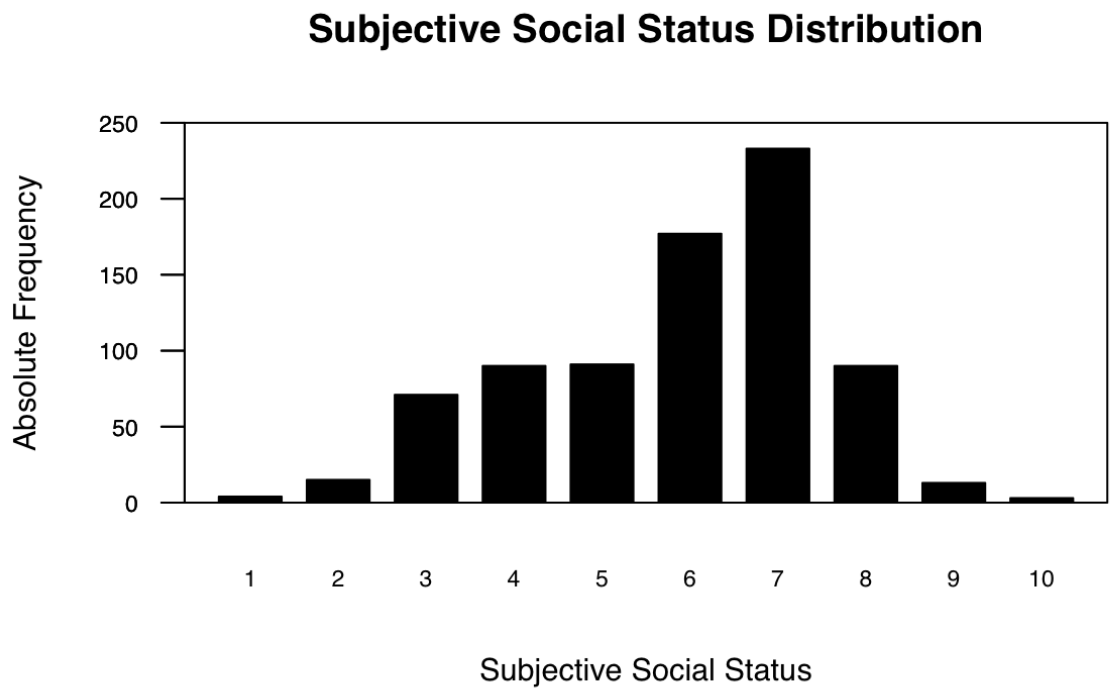


Figure A6. Subjective Social Status Histogram

Note. Ranked position on the 10-rung social ladder (1st rung = *worst off: no job, lowest income, lowest education*, 10th rung = *best off: highest income, highest education, best job*) as reported by each participant, shown on the x-axis. Skewness = -0.51. A negative value indicates a slight asymmetry in the distribution, with values below the mean showing a stronger spread than those above the mean.

Appendix B

Measures

Table B1

Relevant Measures from Study 2 of the SCSS Prolific Online Survey by Roth et al. (2024)

Item	Response Format
Willkommen!	
Liebe Teilnehmende, vielen Dank für Ihr Interesse an unserer Studie! Die Studie besteht aus einem Fragebogen zum Thema Selbstkontrolle und verschiedenen Fragen zu Ihren persönlichen Eigenschaften, Einstellungen und Verhalten wie z.B. mental Gesundheit, berufliche Zufriedenheit und Schlaf. Insgesamt wird die Beantwortung der Fragen ca. 17 Minuten dauern. Für Ihre Teilnahme erhalten Sie £2,55 (entspricht ca. 3,00€). Im Laufe der Studie gibt es einige Fragen, die sicherstellen sollen, dass die Studie aufmerksam bearbeitet wird (z.B. „Bitte wählen Sie bei dieser Frage Option A aus“). Wenn Sie zwei dieser Fragen nicht korrekt beantworten, müssen wir Sie bitten Ihre Submission zurückzugeben. Ihre Angaben werden vor der Auswertung anonymisiert, sodass es dann nicht möglich ist, Rückschlüsse auf Ihre Person zu ziehen. Die Teilnahme ist freiwillig, das heißt Sie können die Studie jederzeit ohne Angabe von Gründen abbrechen. Für die Teilnahme müssen Sie mindestens 18 Jahre alt sein. Bei Rückfragen erreichen Sie uns gerne unter der folgenden Mailadresse: julia.jankowski@univie.ac.at. Vielen Dank für Ihre Unterstützung des Projektes!	
Ich habe die oben stehenden Informationen gelesen und verstanden und stimme der Teilnahme an der Studie zu.	Ja Nein

Ich habe die oben genannten Informationen gelesen und verstanden und stimme der Erhebung meiner Daten zu.	Ja Nein

For the present study, it is important that you understand the instructions well.

Which of the following languages are you fluent in?	English German Spanish Others

Der folgende Fragebogen wurde entwickelt, um Ihren Umgang mit Selbstkontrollkonflikten zu messen. Ein Selbstkontrollkonflikt kann entstehen, wenn…
man **mit einer Versuchung konfrontiert wird**, während man versucht ein längerfristiges Ziel zu erreichen (z.B. Freund:innen wollen ausgehen, dabei will man eigentlich einen regelmäßigen Schlafrhythmus aufrechterhalten)
man **etwas beginnen möchte, das einem widerstrebt**, um ein langfristiges Ziel zu erreichen (z.B. an einem kalten Abend laufen gehen, um gute Ausdauer anzutrainieren)
man **bei etwas durchhalten will, das anstrengend ist**, um ein Ziel zu erreichen (z.B. einen langen Text lesen, um eine Prüfung zu bestehen)

Nicht jedes Verlangen ist eine Versuchung, sondern nur jene, die wir eigentlich ablehnen, weil sie in Konflikt mit etwas anderem stehen, das wir erledigen wollen (z.B. kann im vorherigen Beispiel auch das frühe zu Bett gehen eine Versuchung sein in Bezug auf das Ziel, seine sozialen Kontakte aufrecht zu erhalten).

Personen reagieren nicht immer gleich; das heißt man kann in einigen Situationen sehr kontrolliert sein und in anderen Lebensbereichen weniger kontrolliert. Das kann das Beantworten mancher Fragen schwierig machen. Wir bitten Sie hier Ihre persönliche Tendenz über verschiedene Lebensbereiche hinweg anzugeben (z.B. Essen, Sex, Gesundheit, Arbeit, Studium, Kindererziehung, Dating, Shopping, Sparen, Alkohol- und / oder Tabakkonsum).

Zur Erinnerung: Ein Selbstkontrollkonflikt kann entstehen, wenn…
man **mit einer Versuchung konfrontiert wird**, während man versucht ein längerfristiges Ziel zu erreichen (z.B. Freund:innen wollen ausgehen, dabei will man eigentlich einen regelmäßigen Schlafrhythmus aufrechterhalten)
man **etwas beginnen möchte, das einem widerstrebt**, um ein langfristiges Ziel zu erreichen (z.B. an einem kalten Abend laufen gehen, um gute Ausdauer anzutrainieren)
man bei **etwas durchhalten will, das anstrengend ist**, um ein Ziel zu erreichen (z.B. einen langen Text lesen, um eine Prüfung zu bestehen)

German SCSS by (Roth et al., 2024)

SCSS_1_SS Ich suche Situationen in meinem Leben so aus, dass ich **keine** Versuchungen erlebe.	Stimme gar nicht zu Stimme eher nicht zu Weder noch Stimme etwas zu Stimme voll und ganz zu
SCSS_2_SS Ich distanziere mich von Situationen, die Versuchungen beinhalten könnten.	
SCSS_3_SS Ich organisiere mein Leben auf eine Art, durch die ich Versuchungen leichter vermeiden kann.	
SCSS_4_SS Ich passe meine Umgebung an, um **keine** Versuchungen zu erleben.	
SCSS_5_SS Wenn ich versuche ein wichtiges Ziel zu erreichen, gestalte ich mein Umfeld so, dass es frei von Versuchungen für mich ist.	
SCSS_6_SS Ich organisiere mein Umfeld so, dass ich **keine** Versuchungen erlebe.	

Zur Erinnerung: Ein Selbstkontrollkonflikt kann entstehen, wenn…
man **mit einer Versuchung konfrontiert wird**, während man versucht ein längerfristiges Ziel zu erreichen (z.B. Freund:innen wollen ausgehen, dabei will man eigentlich einen regelmäßigen Schlafrhythmus aufrechterhalten)
man **etwas beginnen möchte, das einem widerstrebt**, um ein langfristiges Ziel zu erreichen (z.B. an einem kalten Abend laufen gehen, um gute Ausdauer anzutrainieren)
man bei **etwas durchhalten will, das anstrengend ist**, um ein Ziel zu erreichen (z.B. einen langen Text lesen, um eine Prüfung zu bestehen)

SCSS_7_PM_R Normalerweise bestrafe ich mich **nicht** dafür, falls ich einer Versuchung nachgegeben habe.	Stimme gar nicht zu Stimme eher nicht zu Weder noch Stimme etwas zu Stimme voll und ganz zu
SCSS_8_PM Um sicherzustellen, dass ich meine Pläne und Ziele erfolgreich umsetze, erlege ich mir selbst strenge Regeln auf.	
SCSS_9_PM Ich bestrafe mich dafür, wenn ich „Verträge mit mir selbst“ breche.	
SCSS_10_PM Wenn ich längerfristige Ziele verfolge, schließe ich gerne „Verträge mit mir selbst“ ab, die Belohnungen für Erfolg und Bestrafungen für Misserfolg enthalten.	
SCSS_11_RE Ich belohne mich normalerweise für das Erreichen langfristiger Ziele.	
SCSS_12_RE Wenn ich ein langfristiges Ziel erreicht habe, belohne ich mich.	

Zur Erinnerung: Ein Selbstkontrollkonflikt kann entstehen, wenn…
man **mit einer Versuchung konfrontiert wird**, während man versucht ein

längerfristiges Ziel zu erreichen (z.B. Freund:innen wollen ausgehen, dabei will man eigentlich einen regelmäßigen Schlafrhythmus aufrechterhalten)
man **etwas beginnen möchte, das einem widerstrebt**, um ein langfristiges Ziel zu erreichen (z.B. an einem kalten Abend laufen gehen, um gute Ausdauer anzutrainieren)
man bei **etwas durchhalten will, das anstrengend ist**, um ein Ziel zu erreichen (z.B. einen langen Text lesen, um eine Prüfung zu bestehen)

SCSS_13_RE Wenn ich meine Ziele verfolge, belohne ich mich für meine Fortschritte.	Stimme gar nicht zu Stimme eher nicht zu Weder noch Stimme etwas zu Stimme voll und ganz zu
SCSS_14_RE Wenn ich mir ein längerfristiges Ziel setze, plane ich mich zu belohnen, wenn ich dieses erreiche.	
SCSS_15_PC Wenn ich ein Ziel erreichen will, sorge ich durch Handlungen oder Einschränkungen dafür, dass es für mich kaum möglich ist, zu versagen.	
SCSS_16_PC_R Ich setze mir selten Deadlines.	
SCSS_17_PC Ich erzähle Anderen von meinen langfristigen Zielen, um sichtbar zu machen, ob ich mich daran halte oder nicht.	
Es ist wichtig für uns zu wissen, ob Sie diese Fragen aufmerksam gelesen haben. Wenn Sie diese Fragen aufmerksam lesen, drücken Sie bitte „Stimme voll und ganz zu“.	

Zur Erinnerung: Ein Selbstkontrollkonflikt kann entstehen, wenn…
man **mit einer Versuchung konfrontiert wird**, während man versucht ein längerfristiges Ziel zu erreichen (z.B. Freund:innen wollen ausgehen, dabei will man eigentlich einen regelmäßigen Schlafrhythmus aufrechterhalten)
man **etwas beginnen möchte, das einem widerstrebt**, um ein langfristiges Ziel zu erreichen (z.B. an einem kalten Abend laufen gehen, um gute Ausdauer anzutrainieren)
man bei **etwas durchhalten will, das anstrengend ist**, um ein Ziel zu erreichen (z.B. einen langen Text lesen, um eine Prüfung zu bestehen)

SCSS_18_PC Ich verschreibe mich frühzeitig Zielen, die ich erreichen möchte (z.B. setzen von Deadlines, im Vorhinein Aktivitäten bezahlen, an denen ich teilnehmen möchte).	Stimme gar nicht zu Stimme eher nicht zu Weder noch Stimme etwas zu Stimme voll und ganz zu
SCSS_19_DI Wenn ich mit einer Versuchung konfrontiert bin, konzentriere ich mich auf etwas anderes.	
SCSS_20_DI Wenn ich mit einer Versuchung konfrontiert bin, lenke ich meine Aufmerksamkeit von dieser weg.	
SCSS_21_DI Wenn ich mit einer Versuchung konfrontiert bin, denke ich an etwas anderes.	
SCSS_22_DI Wenn ich mit einer Versuchung konfrontiert bin, der ich widerstehen möchte, lenke ich mich von dieser ab.	
SCSS_23_DI Wenn mir ein ungewolltes	

Verlangen in den Kopf kommt, versuche ich an etwas anderes zu denken.

Zur Erinnerung: Ein Selbstkontrollkonflikt kann entstehen, wenn…
man **mit einer Versuchung konfrontiert wird**, während man versucht ein längerfristiges Ziel zu erreichen (z.B. Freund:innen wollen ausgehen, dabei will man eigentlich einen regelmäßigen Schlafrhythmus aufrechterhalten)
man **etwas beginnen möchte, das einem widerstrebt**, um ein langfristiges Ziel zu erreichen (z.B. an einem kalten Abend laufen gehen, um gute Ausdauer anzutrainieren)
man bei **etwas durchhalten will, das anstrengend ist**, um ein Ziel zu erreichen (z.B. einen langen Text lesen, um eine Prüfung zu bestehen)

SCSS_24_CC Wenn ich ein ungewolltes Verlangen erlebe, kontrolliere ich mich selbst, indem ich anders darüber nachdenke.	Stimme gar nicht zu Stimme eher nicht zu Weder noch Stimme etwas zu Stimme voll und ganz zu
SCSS_25_CC Wenn ich eine Versuchung weniger stark spüren möchte, ändere ich die Art und Weise, wie ich über die Versuchung nachdenke.	
SCSS_26_CC Wenn ich einer Versuchung begegne, denke ich auf eine Weise darüber nach, die mir hilft, weniger versucht zu sein.	
SCSS_27_CC Wenn ich ein unerwünschtes Verlangen spüre, denke ich in einer kalten, unabhängigen und neutralen Art darüber nach.	

Wenn Sie diese Frage lesen, ist es wichtig, die Anweisungen sorgfältig zu lesen. Wenn

Sie aufmerksam sind, wählen Sie bitte „Stimme eher nicht zu“ aus.

SCSS_28_CC Wenn ich einer Versuchung begegne, denke ich über diese in einem anderen Licht nach.

Zur Erinnerung: Ein Selbstkontrollkonflikt kann entstehen, wenn…
man **mit einer Versuchung konfrontiert wird**, während man versucht ein längerfristiges Ziel zu erreichen (z.B. Freund:innen wollen ausgehen, dabei will man eigentlich einen regelmäßigen Schlafrhythmus aufrechterhalten)
man **etwas beginnen möchte, das einem widerstrebt**, um ein langfristiges Ziel zu erreichen (z.B. an einem kalten Abend laufen gehen, um gute Ausdauer anzutrainieren)
man bei **etwas durchhalten will, das anstrengend ist**, um ein Ziel zu erreichen (z.B. einen langen Text lesen, um eine Prüfung zu bestehen)

SCSS_29_AC Wenn ich weniger Verlangen gegenüber einer Versuchung verspüren möchte, akzeptiere ich das Verlangen.

Stimme gar nicht zu
Stimme eher nicht zu
Weder noch
Stimme etwas zu
Stimme voll und ganz zu

SCSS_30_AC Wenn ich eine Versuchung spüre, akzeptiere ich mein Verlangen danach.

SCSS_31_AC Immer wenn ich den Drang spüre, etwas Unerlaubtes zu tun, akzeptiere ich, dass ich dieses Gefühl habe.

SCSS_32_AC Auch wenn es Versuchungen gibt, über die ich lieber nicht nachdenken würde, akzeptiere ich meine Gedanken über die Versuchungen.

SCSS_33_BI Es fällt mir leicht, mich davon abzuhalten, unerwünschten Drängen nachzugeben.

SCSS_34_BI_R Wenn ich den Drang nach etwas habe, das nicht gut für mich ist, fällt es mir schwer, diesem zu widerstehen.

Zur Erinnerung: Ein Selbstkontrollkonflikt kann entstehen, wenn…
man **mit einer Versuchung konfrontiert wird**, während man versucht ein längerfristiges Ziel zu erreichen (z.B. Freund:innen wollen ausgehen, dabei will man eigentlich einen regelmäßigen Schlafrhythmus aufrechterhalten)
man **etwas beginnen möchte, das einem widerstrebt**, um ein langfristiges Ziel zu erreichen (z.B. an einem kalten Abend laufen gehen, um gute Ausdauer anzutrainieren)
man bei **etwas durchhalten will, das anstrengend ist**, um ein Ziel zu erreichen (z.B. einen langen Text lesen, um eine Prüfung zu bestehen)

Auch wenn es manchmal schwierig ist, aufmerksam zu sein, drücken Sie bitte „Weder noch“, wenn Sie diese Frage lesen.

Stimme gar nicht zu
Stimme eher nicht zu
Weder noch
Stimme etwas zu
Stimme voll und ganz zu

SCSS_35_BI_R Es fällt mir schwer, gewisse Dinge zu vermeiden, auch wenn sie schlecht für mich sind.

SCSS_36_BI Wenn ich einer Versuchung begegne, stehen die Chancen gut, dass ich dieser widerstehe.

SCSS_37_BI_R Es fällt mir schwer, mein Verhalten zu kontrollieren, wenn ich einen unerwünschten Drang verspüre.

SCSS_38_BI Ich kann mich normalerweise davon abhalten, einem unerwünschten Drang nachzugeben, auch, wenn dieser verlockend ist.	
Gehen Sie aktuell einer Erwebsarbeit nach (das beinhaltet Voll- und Teilzeitarbeit in Anstellung, Selbstständigkeit etc.)?	Ja Nein

Im letzten Fragenblock geht es um Zufriedenheit und mentale Gesundheit.

German PHQ-9 by (Löwe et al., 2002)

PHQ-9 Wie oft fühlten Sie sich im Verlauf der letzten 2 Wochen durch die folgenden Beschwerden beeinträchtigt?	Überhaupt nicht An einzelnen Tagen An mehr als der Hälfte der Tage Beinahe jeden Tag
PHQ-9_1 Wenig Interesse oder Freude an Ihren Tätigkeiten	
PHQ-9_2 Niedergeschlagenheit, Schwermut oder Hoffnungslosigkeit	
PHQ-9_3 Schwierigkeiten, ein- oder durchzuschlafen, oder vermehrter Schlaf	
PHQ-9_4 Müdigkeit oder Gefühl, keine Energie zu haben	
PHQ-9_5 Verminderter Appetit oder übermäßiges Bedürfnis zu essen	
PHQ-9_6 Schlechte Meinung von sich selbst; Gefühl, ein Versager zu sein oder	

die Familie enttäuscht zu haben	
PHQ-9_7 Schwierigkeiten, sich auf etwas zu konzentrieren, z. B. beim Zeitunglesen oder Fernsehen	
PHQ-9_8 Waren Ihre Bewegungen oder Ihre Sprache so verlangsamt, dass es auch anderen auffallen würde? Oder waren Sie im Gegenteil „zappelig“ oder ruhelos und hatten dadurch einen stärkeren Bewegungsdrang als sonst?	

Zum Schluss haben wir noch einige Fragen zu Ihrer Person.

Wie alt sind Sie (in Jahren)?	_____
Welchem Geschlecht fühlen Sie sich am ehesten zugehörig?	Weiblich Männlich Divers
Auf welchem Niveau sprechen Sie Deutsch?	Muttersprache Fließend Gut Nicht sehr gut
Wie definieren Sie Ihren derzeitigen Berufsstatus? (Mehrfachnennungen möglich)	Studierend Angestellt Selbstständig Arbeitssuchend Hausfrau*mann in Rente/Pension Arbeitsunfähig Sonstiges:_____

Wie hoch ist Ihr **Brutto-Einkommen** (d.h. Ihr noch nicht versteuertes Einkommen)? _____

Bitte geben Sie als erstes an, ob sie ihr Jahres- oder Monatseinkommen angeben möchten.

Monatseinkommen
Jahreseinkommen

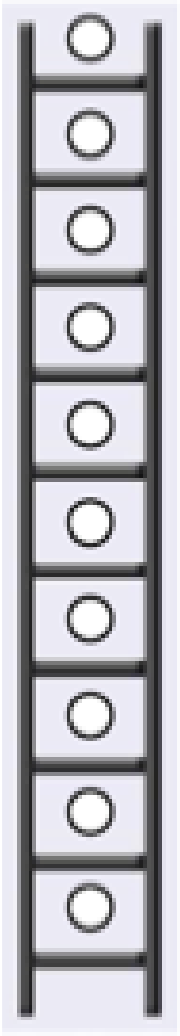
Bitte geben Sie nun Ihr Brutto-Einkommen an. Beziehen Sie sich dabei auf ihr Jahres- oder Monatseinkommen, so wie Sie es oben angegeben haben. _____

Bitte geben Sie außerdem an wie viele Gehälter Sie im Jahr erhalten. (12 Monate + X Sonderzahlungen)

12
13
14
Andere Anzahl: _____

German MacArthur Scale by (Hoebel et al., 2015)

Stellen Sie sich vor, dass die Leiter unten darstellt, wo die Menschen in der Gesellschaft in dem Land, in dem Sie leben, stehen.



Ganz oben stehen die Menschen mit dem meisten Geld, der höchsten Bildung und den besten Jobs. Ganz unten stehen diejenigen mit dem wenigsten Geld, der niedrigsten Bildung und den schlechtesten Jobs oder ohne Job.

Je höher man auf der Leiter steht, desto näher ist man den Personen ganz oben, und je niedriger, desto näher ist man den

Personen ganz unten.

Wo würden Sie sich auf der Leiter platzieren?

Bitte geben Sie mit dem Schieberegler an, auf welcher Sprosse Sie sich Ihrer Meinung nach in Ihrer aktuellen Lebensphase im Verhältnis zu anderen Menschen in der Gesellschaft befinden.

Als letztes haben wir noch eine allgemeine Frage zu Ihrer Teilnahme an der Studie.

Am Anfang haben Sie einen Fragebogen zum Umgang mit Selbstkontrollkonflikten (z.B. wenn Versuchungen auftreten) ausgefüllt. Haben Sie denselben Fragebogen schon einmal in einer anderen Studie ausgefüllt?

Ja
Nein
Ich bin nicht sicher

Ende der Studie

Vielen Dank für Ihre Teilnahme! Der Hauptteil der Studie ist beendet.

Wenn Sie möchten, können Sie ein **Feedback** zu Ihren eigenen Angaben zum Thema Selbstkontrolle in dieser Studie erhalten.
Wenn Sie „ja“ angeben, wird Ihnen auf der nächsten Seite eine Übersicht über Ihre Angaben angezeigt.

Ja, ich möchte das Feedback sehen
Nein, ich möchte kein Feedback

Sonstige Kommentare oder Anmerkungen: _____

Note. Item indicators with item numbers and abbreviations for SCSS, PHQ-9, and Subjective Social Status (e.g., SCSS_1_SS*)* were not visible to participants in the study. The same applies to the source references included for the questionnaires.

Table B2

Exclusions by Sample and Pre-Registered Criterion

	Study	Percentage Decrease for Each Step
Started	902	
Incompleteness	873	3.22%
Attention checks	804	7.9%
Language	792	1.49%
Earlier participation	787	0.63%
Speeding	787	0%
Final	787	0%

Appendix C

Results

Table C1

Depressive Symptoms Severity Based on the PHQ-9 Classification by Kroenke et al. (2001)

Depressive Symptoms	Item Score	Absolute Frequency	Relative Frequency
No significant	0-4	219	27.89%
Mild	5-9	284	36.09%
Moderate	10-14	186	23.63%
Moderately severe	15-19	75	9.53%
Severe	20-24	23	2.92%

Note. Evidence suggests that a PHQ-8 score of ≥10 reflects clinically significant depression, aligning with the diagnostic criteria for major depression as defined by the DSM-IV (Corson et al., 2004; Kroenke et al., 2001). Assessing the severity of depressive symptoms on the syndrome level rather than on the disorder level improves internal consistency and predictive validity compared to categorical classification (Markon et al., 2011). For a comprehensive categorical diagnosis of depressive disorders, however, the PHQ-9 questionnaire does not replace the full psychological evaluation necessary, which would involve ruling out organic causes and differentiating depressive symptoms from other clinical conditions (Löwe et al., 2002).

Table C2

Regression With Moderator as an Additional Predictor of Depressive Symptoms

Predictors	β	**95% CI**		***p***
		LL	***UL***	
Intercept	-.00	-.06	.06	1.000
Situation Selection	-.01	-.08	.06	.759
Punishment	.23	.14	.31	**<.001**
Reward	-.02	-.07	.03	.423
Pre-Commitment	-.14	-.21	-.07	**<.001**
Distraction	-.02	-.10	.05	.505
Cognitive Change	.06	-.01	.13	.097
Acceptance	-.00	-.08	.08	.921
Behavioral Inhibition	-.65	-.78	-.51	**<.001**
Subjective Social Status	-.11	-.15	-.08	**<.001**
Model fit				R^2 / R^2_{adj} = .238 / .229
				$F(9, 777) = 26.90$, p **< .001**

Note. $N = 787$. CI = confidence interval; *LL* = lower limit; *UL* = upper limit. Significant *p* values <.05, <.01, <.001 are printed in bold.

Table C3

Each Predictor Moderated by Subjective Social Status (SSS) on Depressive Symptoms

Predictors	**Main Effect**				**Interaction**				
	β	**95% CI**		***p***		**β**	**95% CI**		***p***
		LL	***UL***				***LL***	***UL***	
Situation Selection	-.01	-.06	.04	.707	SS × SSS	.03	.01	.06	.330
									R^2 / R^2_{adj} = .090 / .087
									$F(3, 783) = 25.92$, p **<.001**
Punishment	.13	.08	.17	**<.001**	PM × SSS	.02	-.00	.05	.474
									R^2 / R^2_{adj} = .105 / .102
									$F(3, 783) = 30.62$, p **<.001**
Reward	-.02	-.07	.02	.485	RE × SSS	-.02	-.04	.01	.613
									R^2 / R^2_{adj} = .090 / .086
									$F(3, 783) = 25.77$, p **<.001**
Pre-Commitment	-.14	-.20	-.08	**<.001**	PC × SSS	.00	-.03	.04	.946
									R^2 / R^2_{adj} = .108 / 104
									$F(3, 783) = 31.46$, p **<.001**
Distraction	-.08	-.13	-.02	**.025**	DI × SSS	.03	-.00	.07	.359
									R^2 / R^2_{adj} = .096 / .093
									$F(3, 783) = 27.71$, p **<.001**
Cognitive Change	-.07	-.13	-.00	**.042**	CC × SSS	.03	-.01	.07	.382
									R^2 / R^2_{adj} = .095 / .092
									$F(3, 783) = 27.44$, p **<.001**
Acceptance	-.06	-.12	.01	.094	AC × SSS	.00	-.03	.04	.951
									R^2 / R^2_{adj} = .092 / .089
									$F(3, 783) = 26.55$, p **<.001**
Behavioral Inhibition	-.34	-.39	-.29	**<.001**	BI × SSS	.032	.00	.06	.319
									R^2 / R^2_{adj} = .200 / .197
									$F(3, 783) = 65.17$, p **<.001**

Note. N = 787. Significant p values <.05, <.01, <.001 are printed in bold.

Table C4

Commonality Analysis With Moderator as an Additional Predictor of Depressive Symptoms

Predictors	Unique	Common	Total
Situation Selection	.000	.000	.001
Punishment	.027	-.014	.014
Reward	.001	.002	.003
Pre-Commitment	.015	.023	.038
Distraction	.000	.005	.010
Cognitive Change	.003	.010	.013
Acceptance	.000	.005	.005
Behavioral Inhibition	.086	.063	.149
Subjective Social Status	.041	.048	.090

Note. Unique = unique effect; Common = Σ common effects; Total = Σ unique + common effects.

Table C5

Dominance Analysis With Moderator as an Additional Predictor of Depressive Symptoms

	GDW	GD % of R^2	Average Coefficients for Different Model Sizes								
Predictors			**1x**	**2x**	**3x**	**4x**	**5x**	**6x**	**7x**	**8x**	**9x**
Situation Selection	.002	0.22%	-.02	-.01	-.00	.00	.00	-.00	-.00	-.01	-.01
Punishment	.105	10.49%	.09	.11	.12	.13	.13	.14	.14	.14	.14
Reward	.006	0.56%	-.03	-.02	-.02	-.02	-.01	-.01	-.01	-.02	-.02
Pre-Commitment	.107	10.68%	-.17	-.16	-.15	-.15	-.14	-.14	-.13	-.13	-.12
Distraction	.009	0.89%	-.06	-.05	-.03	-.03	-.02	-.02	-.02	-.02	-.02
Cognitive Change	.022	2.18%	-.10	-.07	-.05	-.03	-.01	.01	.03	.04	.06
Acceptance	.008	0.79%	-.06	-.06	-.05	-.04	-.03	-.02	-.02	-.01	-.00
Behavioral Inhibition	.480	48.03%	-.29	-.29	-.28	-.28	-.27	-.27	-.26	-.26	-.25
Subjective Social Status	.262	26.17%	-.12	-.11	-.11	-.10	-.10	-.09	-.09	-.09	-.08
Model fit											R^2 / R^2_{adj} = .238 / .229
											$F(9, 777) = 26.90$, p **<.001**

Note. GDW = general dominance weight, the average contribution of each predictor to R^2 across all possible models. GD % of R^2 = proportion of total explained variance attributed to each predictor (Azen & Budescu, 2003).