

Implicit Theories about Willpower as a Moderator of the Adverse Effect of Daily Emotional Dissonance on Ego-Depletion

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Abstract: Laboratory findings have demonstrated that peoples' implicit theories about willpower (whether willpower is seen as a limited vs. nonlimited resource) influence the adverse effects of self-control processes on psychological well-being. Integrating these findings and arguments brought up by the strength model of self-control, we propose that employees who believe that willpower is a nonlimited resource feel less depleted after experiencing demands on emotion regulation at work than employees who believe that willpower is a limited resource. In a diary study covering ten working days (N=71), we examine implicit theories about willpower as a moderator of the adverse day-specific effects of emotional dissonance on ego-depletion. Our results show that implicit theories about willpower indeed moderate the effect of emotional dissonance on ego-depletion, when both variables are measured at midday. However, this moderating effect cannot be replicated when ego-depletion in the evening is examined as outcome. In light of these findings, we discuss whether implicit theories about willpower only affects psychological well-being in the short-term.

Keywords: ego-depletion, emotional dissonance, implicit theories about willpower, strength model of self-control

1. Theoretical Background

Today's working environment is characterized by highly dynamic structures, an increasing complexity of communication technologies and a rising significance of the services sector. As a result, emotional labor as a form of emotion regulation, which requires individuals to create a bodily or facial display to meet organizational requirements has gained in importance in many occupational fields (Hochschild, 1983). According to past research, these processes of emotion regulation involve self-control, which comprises volitionally inhibiting, altering, and overriding automatic or habitual responses (e.g., Gailliot & Baumeister 2007).

A burgeoning body of evidence has demonstrated that different self-control processes draw on a common regulatory resource capacity that becomes depleted after exertion so that subsequent attempts at self-control are impaired and a feeling of exhaustion emerges. To account for these observations, Muraven and Baumeister (2000) delineated the *strength model of self-control*. According to this model, self-control strength can be thought of as a muscle, which becomes exhausted after prolonged exertion – a state referred to as *ego-depletion* (Baumeister et al. 1998). In line with these propositions, research in the occupational context has revealed that

self-control processes at work can result in strain, impaired well-being and absenteeism (Schmidt 2010; Diestel & Schmidt 2011).

Nevertheless, in order to meet job demands, employees are required to exert self-control by displaying specific emotions, even when these emotions are contrary to one's truly felt emotions (Zapf & Holz 2006). This discrepancy between felt and displayed emotions is commonly referred to as *emotional dissonance* (Morris & Feldman 1996), a state that has been shown to predict job dissatisfaction, absenteeism (Hülshager & Schewe 2011), burnout (Diestel & Schmidt 2010), and ego-depletion (Diestel et al. 2015). Hence, to protect employees from the adverse consequences of emotional dissonance, researchers have been concerned with identifying resources which attenuate the adverse relations between emotional dissonance and indicators of psychological strain at work.

One moderator that has been shown to influence the consequences of acts of self-control is *implicit theories about willpower*. According to a series of studies, people differ in their implicit theories whether willpower – the capacity to exert self-control – relies on a limited vs. nonlimited resource (Job et al. 2010). While some people believe that willpower relies on a limited resource that is easily used up and needs to be replenished after a demanding task (limited resource theory), others believe that willpower is nonlimited, implying that it is not easily used up and can even be fueled by the exertion of self-control (nonlimited resource theory; Job et al. 2010; Job et al. 2015). These authors have come to the conclusion that believing in a nonlimited resource theory of willpower prevents (at least to some degree) the adverse effects of repeated exertion of self-control, whereas believing in a limited resource theory leads to reversed effects.

By conducting a diary study covering 10 days in everyday working environments, we examine whether holding a nonlimited resource theory about willpower can work as a protective buffer of the proposed day-specific relationship between emotional dissonance and ego-depletion throughout the day. This proposition is grounded in a theoretical integration of arguments brought up by the strength model of self-control and recent empirical findings on implicit theories about willpower. Thereby, we go beyond previous research that has exclusively focused on between-day differences in ego-depletion (e.g., Job et al. 2010; Vohs et al. 2012).

2. Method

To test our hypotheses, we conducted a diary study in Germany and focused on employees from the services sector who had regular contact with other individuals at work. Overall, 71 participants were included in our study. In advance of the day-specific measurements, the participants responded to a general questionnaire that assessed biographical variables and person-level constructs (e.g., implicit theories about willpower). Over 10 consecutive workdays, two times per day (midday and evening; 655 daily measurements), participants received emails in order to answer day-specific questionnaires. At midday, participants rated emotional dissonance and ego-depletion. In the evening after work, ego-depletion was assessed again.

The measurement of day-specific *emotional dissonance* was based on five items that assessed the frequency of experienced discrepancies between felt emotions and those required by the job role. The items were adapted from the Frankfurt Emotion Work Scales (Zapf et al. 1999).

We assessed day-specific *ego-depletion* using five items related to the participant’s current experiences with resource depletion. The scale was developed and validated by Bertrams et al. (2011).

To measure *implicit theories about willpower*, we used four items of Job et al.’s (2010) strenuous mental activity scale, in which higher values represent greater agreement with a limited resource theory. A typical (reversed) item is “When you have been working on a strenuous mental task, you feel energized and you are able to immediately start with another demanding activity.”

We controlled for self-control capacity as an individual trait, because it has been found to influence the appraisal of stressors (like emotional dissonance) and strain (Schmidt et al. 2012). It was assessed in the general questionnaire with a 17-item version of Tangney et al.’s (2004) self-control scale.

3. Results

Table 1: Multilevel estimates for predicting ego-depletion (at midday and evening)

Parameter	Ego-Depletion - Midday							
	Null model		Model 1		Model 2		Model 3	
	γ	SE	γ	SE	γ	SE	γ	SE
Fixed effects								
γ ₀₀ = Intercept	1.82**	(0.07)	2.01**	(0.19)	1.92**	(0.19)	1.92**	(0.19)
γ ₀₁ = Gender			-0.13	(0.13)	-0.07	(0.13)	-0.07	(0.13)
γ ₀₂ = Age			-0.22**	(0.07)	-0.24**	(0.07)	-0.24**	(0.07)
γ ₀₃ = Self-control capacity			-0.15*	(0.07)	-0.15*	(0.07)	-0.15*	(0.07)
γ ₀₄ = Theories about willpower (TW)					0.11+	(0.06)	0.11+	(0.06)
γ ₁₀ = Emotional dissonance (ED)					0.14**	(0.03)	0.15**	(0.03)
γ ₁₁ = ED x TW							0.07**	(0.03)
Random effects								
Level 1 intercept variance	0.28		0.28		0.27		0.27	
Level 2 intercept variance	0.34		0.24		0.24		0.24	
- 2*log (lh)	1243.8		1219.8		1187.7		1180.0	
Δ - 2*log (lh)			24.0**		32.1**		7.7**	
df			3		2		1	

Parameter	Ego-Depletion - Evening							
	Null model		Model 1		Model 2		Model 3	
	γ	SE	γ	SE	γ	SE	γ	SE
Fixed effects								
γ ₀₀ = Intercept	1.98**	(0.07)	2.42**	(0.19)	2.32**	(0.19)	2.32**	(0.19)
γ ₀₁ = Gender			-0.31*	(0.13)	-0.25+	(0.13)	-0.25+	(0.13)
γ ₀₂ = Age			-0.23**	(0.07)	-0.25**	(0.07)	-0.25**	(0.07)
γ ₀₃ = Self-control capacity			-0.07	(0.07)	-0.07	(0.07)	-0.07	(0.07)
γ ₀₄ = Theories about willpower (TW)					0.12+	(0.06)	0.12+	(0.06)
γ ₁₀ = Emotional dissonance (ED)					0.07*	(0.03)	0.07*	(0.03)
γ ₁₁ = ED x TW							0.01	(0.01)
Random effects								
Level 1 intercept variance	0.35		0.35		0.35		0.35	
Level 2 intercept variance	0.32		0.23		0.23		0.23	
- 2*log (lh)	1350.8		1327.0		1301.0		1296.0	

$\Delta - 2 \cdot \log(Ih)$	23.8**	26.0**	5.0*
df	3	2	1

Note: Gender, age, self-control capacity, and theories about willpower are person-level (Level 2) variables; emotional dissonance is a day-level (Level 1) variable.

+ $p < .10$ * $p < .05$ ** $p < .01$.

We used stepwise multi-level modeling with the MLwiN program (Rasbash et al. 2014). When the parameters were included in MLwiN, emotional dissonance was centered around the person mean (group-mean centering; Enders & Tofighi 2007), whereas the person-level variables were centered around the grand mean. We examined our moderator hypothesis by testing cross-level interactions with implicit theories about willpower (level 2) moderating the effect of emotional dissonance (level 1) on ego-depletion at midday / evening (level 1).

Results are depicted in Table 1. Consistent with our proposition, the multi-level estimates indicate that after controlling for demographic variables and self-control capacity, emotional dissonance is positively related to ego-depletion at midday ($\gamma = 0.14, p < .01$) and in the evening ($\gamma = 0.07, p < .05$).

We suggested that implicit theories about willpower moderate the day specific relationship between emotional dissonance and ego-depletion. When ego-depletion is considered at midday, results reveal a significant effect of the interaction between emotional dissonance and implicit theories about willpower. To facilitate the interpretation of the interaction effect, we depicted the interaction effect and performed simple slope tests, as recommended by Preacher et al. (2006). As shown in Figure 1, individuals who believe that willpower is a limited resource reported an increase in ego-depletion at midday as a result of an increase in day-specific emotional dissonance, while individuals who believe that willpower is a nonlimited resource did not report such an increase in ego-depletion.

However, when ego-depletion is considered in the evening, results reveal that there is no significant interaction effect of emotional dissonance and implicit theories about willpower. This finding is not consistent with our proposition.

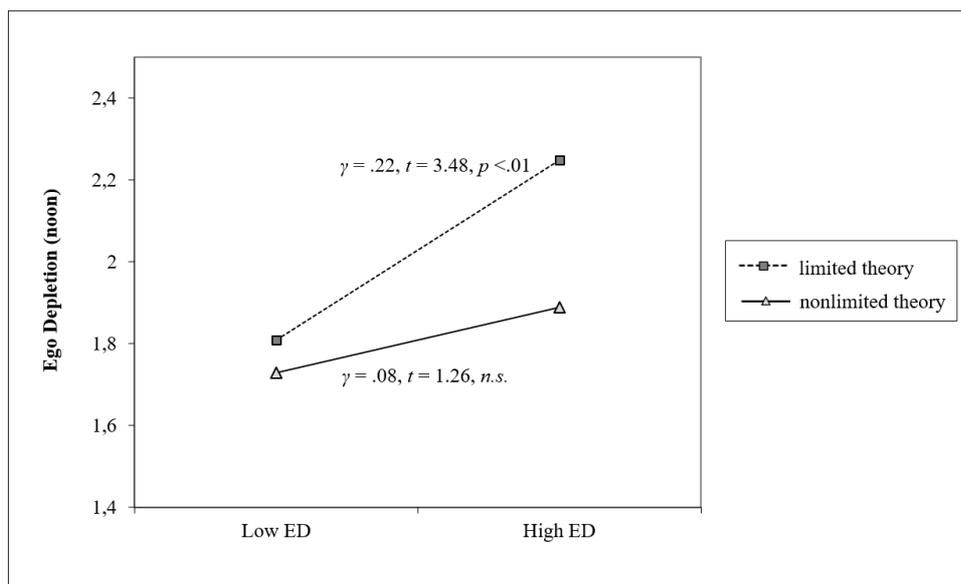


Figure 1: Interaction effect of emotional dissonance and implicit theories about willpower (limited vs. nonlimited resource theory) on ego-depletion (midday).

4. Discussion

In support of our predictions, data from a diary study showed a main effect of emotional dissonance on ego-depletion and furthermore indicated that the intraindividual relationship between emotional dissonance and ego-depletion *at midday* was strongest when people held a limited resource theory. However, implicit theories about willpower did not significantly interact with emotional dissonance to predict ego-depletion *in the evening*. Our findings lend credence to the notion that believing in a nonlimited resource theory facilitates coping with emotional self-regulation only in the short-term by temporarily neglecting signs of regulatory resource depletion. However, over the course of the day, while demands on emotional self-regulation accumulate, this effect vanishes.

The present study empirically replicated the adverse effect of emotional dissonance as a form of self-control on psychological well-being. Just like research on emotional labor has repeatedly found, portraying emotions inconsistent with one's genuinely felt emotions results in psychological strain (Zapf & Holz 2006; Diestel & Schmidt 2010; Diestel et al. 2015).

Moreover, we theoretically and empirically integrated two issues of research on self-control that have recently been discussed in the literature: adverse effects of emotional self-regulation and beneficial effects of believing in a nonlimited resource theory. The findings of this study add to our understanding of the relationships between self-control processes, implicit theories about willpower and psychological resources and provide further insights into the temporary variability of the effects of implicit theories about willpower. In line with several laboratory findings, we replicated the short-term attenuating effects of believing in a nonlimited resource theory. Just like it was demonstrated by Job et al. (2010), believing that willpower relies on a nonlimited resource eliminated the direct effects of exerting self-control on ego-depletion: *Directly after* experiencing emotional dissonance, people who held a nonlimited resource theory reported no increase in ego-depletion as a reaction to an increase of emotional dissonance. However, in contrast to these studies, we found differential effects when delayed effects of exerting self-control were considered. When there was a time lag between experienced emotional dissonance and ego-depletion, believing that willpower relies on a nonlimited resource had no buffering effect on the adverse consequences of emotional dissonance. This result contradicts the assumption that reduced psychological well-being after exhausting tasks solely results from people's implicit theories about willpower (e.g., Job et al. 2010). Rather, our findings propose that the ego-depletion effect might be delayed, but cannot be reversed by believing in a nonlimited resource theory.

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