TECHNISCHE UNIVERSITÄT DORTMUND

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Zur dynamischen Entstehung psychischer Erschöpfung durch Selbstkontrolle bei der Arbeit

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"Ideas set free beliefs, and the beliefs set free our wills."

William James, 1907

Danksagung

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Zusammenfassung

Durch die rasante Verschiebung einer produktionsorientierten Industriegesellschaft zu einer wissensbasierten sowie dienstleistungs- und technologierorientierten Arbeitswelt ergeben sich neue Anforderungen für die Arbeitnehmer. Die erfolgreiche Bewältigung dieser Anforderungen erfordert die flexible Steuerung von Verhalten und setzt in einem beträchtlichen Ausmaß die Ausübung von Selbstkontrolle voraus. Doch dies fordert seinen Tribut: Anforderungen an Selbstkontrolle gelten als eine der bedeutendsten Arbeitsbelastungen der heutigen Zeit und werden in Verbindung gebracht mit einer Vielzahl an psychischen Erschöpfungssymptomen. Jedoch stehen Unternehmen vor einem Dilemma, denn eine direkte Reduktion dieser Arbeitsbelastung ist kaum möglich, ohne die eigene Wettbewerbsfähigkeit zu gefährden. Gefragt sind daher Maßnahmen, die die Folgen von Selbstkontrollausübung abschwächen können sowie ein tiefgehendes Verständnis darüber, wie Erschöpfung im Verlauf der Zeit entsteht.

Vor diesem Hintergrund beschäftigt sich die vorliegende Dissertation mit den Fragen (i) welche (organisationalen sowie persönlichen) Rahmenbedingungen die Auswirkungen von Selbstkontrolle auf Erschöpfung beeinflussen, (ii) wie chronische sowie kurzfristige Erschöpfung im Verlauf der Zeit entstehen und sich wechselseitig beeinflussen und (iii) inwiefern zugrundliegende theoretische Modellvorstellungen erweitert werden müssen, um neue Erkenntnisse zu integrieren und zu erklären.

Um diese Fragen zu adressieren, wurden vier empirische Studien durchgeführt. Die gemeinsame theoretische Grundlage dieser Studien stellt das Stärke-Modell der Selbstkontrolle dar. Demzufolge erschöpft die Ausübung von Selbstkontrolle eine begrenzte regulatorische Ressource (Willensstärke), wodurch nachfolgende Selbstkontrolle – zumindest vorübergehend – erschwert wird und kurzfristige Erschöpfungszustände entstehen. Um aufzudecken, wie die Ausübung von Selbstkontrolle am Arbeitsplatz zur Entstehung von sowohl kurzfristiger, als auch langfristiger Erschöpfung beiträgt, wurde in der Dissertation eine drei-schrittige methodische Herangehensweise gewählt. Durch die Kombination unterschiedlicher Analysemethoden und verschiedener zeitlicher Perspektiven wird Erschöpfung als ein dynamischer Prozess untersucht, der im Verlauf der Zeit entsteht.

Bei Studie 1 (Kapitel 2) handelt es sich um eine Längsschnittstudie, die die Entstehung von chronischer Emotionaler Erschöpfung über einen Zeitraum von sechs Monaten aufklärt und Handlungs- und Kontrollspielräume als Moderator untersucht. Die Ergebnisse einer Cross-Lagged Panel Analyse weisen darauf hin, dass sowohl der Umgang mit Emotionaler Dissonanz (definiert als

Diskrepanz zwischen eigenen Emotionen und denen, die durch die Arbeitsrolle verlangt werden), als auch mit Handlungs- und Kontrollspielräumen die Ausübung von Selbstkontrolle erfordern und die Entstehung von Emotionaler Erschöpfung beeinflussen.

Studien 2 und 3 (Kapitel 3) sind (zwei-Level) Tagebuchstudien, die tagesspezifische (kurzfristige) Erschöpfungszustände betrachten und aufklären, inwiefern die implizite Vorstellung über Willensstärke (ob Willensstärke auf einer begrenzten oder unbegrenzten Ressource basiert) die Zusammenhänge zwischen tagesspezifischer Selbstkontrollausübung und tagesspezifischer Erschöpfung moderiert. Die Ergebnisse unterstützen die Annahme, dass der Glaube an eine unbegrenzte Willensstärke die Konsequenzen von Selbstkontrolle auf (zumindest kurzfristige) Erschöpfungszustände abmildert. Darüber hinaus wird aufgedeckt, inwiefern Erschöpfung zur Mittagszeit über den Arbeitstag und sogar bis nach Feierabend andauert.

In Studie 4 (Kapitel 4) werden schließlich dynamische Wechselwirkungen zwischen chronischer und tagesspezifischer Erschöpfung im Rahmen einer (drei-Level) Tagebuchstudie untersucht, in der tagesspezifische Verlaufskurven von Ich-Erschöpfung modelliert und durch tagesspezifische Selbstkontrollausübung sowie chronischer Emotionaler Erschöpfung vorhergesagt werden. Multi-level latente Wachstumsmodelle decken auf, dass das Ausmaß an Ich-Erschöpfung im Verlauf eines Arbeitstages linear zunimmt und durch Emotionale Dissonanz beeinflusst wird. Darüber hinaus weisen die Ergebnisse darauf hin, dass Emotionale Erschöpfung als Indikator einer chronisch reduzierten regulatorischen Ressource fungiert und somit tagesspezifische Selbstkontrollprozesse bei der Arbeit erschweren kann.

Zusammenfassend betonen die empirischen Studien die beanspruchungswirksamen Konsequenzen von berufsbezogener Selbstkontrollausübung. Durch die Integration unterschiedlicher arbeitspsychologischer Modelle, empirischer Befunde und unterschiedlicher zeitlicher Perspektiven erweitern die Studien das theoretische Verständnis zur dynamischen Entstehung von Erschöpfung durch arbeitsbezogene Anforderungen an Selbstkontrolle. Darüber hinaus lassen sich einige relevante Implikationen für die Gestaltung der Arbeit ableiten.

Abstract

The rapid shift from manufacturing-oriented work to a knowledge-based, service-oriented and technically challenging working environment causes an emergence of new work demands. Successful coping with these demands requires flexible control of behaviour and necessitates to a considerable extent the exertion of self-control. This takes its toll: Nowadays, demands on self-control are considered as a major source of stress at work and as a driver of exhaustion and impaired psychological well-being. In the wake of these developments, companies face a dilemma, because directly reducing these work demands is almost impossible without jeopardizing the own productivity and competitiveness. Therefore, identifying strategies, which might attenuate the adverse consequences of exerting self-control and gaining a deeper understanding how psychological exhaustion evolves over time constitute two important challenges for employers and employees alike.

In light of the above, this doctoral thesis is devoted to a detailed evaluation of the questions (i) which (organisational and personal) boundary conditions influence the effect of self-control exertion on exhaustion, (ii) how chronic as well as short-term indicators of exhaustion evolve over time and interact with each other, and (iii) to what extent underlying theoretical models need to be updated in order to integrate and explain recent empirical findings.

To address these questions, four empirical studies were conducted. The common theoretical foundation of these studies is the Strength Model of Self-Control. According to this model, every act of self-control draws on and depletes a common regulatory resource (willpower), thereby rendering this resource – at least temporarily – less available for subsequent self-control and giving rise to short-term indicators of exhaustion. In order to uncover how the exertion of self-control at work contributes to the development of short-term and long-term indicators of exhaustion, a methodological approach was chosen that combines three different methods of analysis. By means of this procedure, the development of exhaustion is examined as a dynamic process that unfolds over time.

Study 1 (Chapter 2) is a longitudinal study that investigates the development of chronic emotional exhaustion over a 6-month time lag and sheds light on the role of job control as a moderator. The results of a cross-lagged panel analysis indicate that coping with emotional dissonance (defined as the discrepancy between one's truly felt emotions and those being expected by the work role) and simultaneously dealing with job control requires the exertion of self-control and therefore adversely affects the development of emotional exhaustion.

Studies 2 and 3 (Chapter 3) are (two-level) diary studies that focus on predicting day-specific (short-term) indicators of exhaustion. Furthermore, implicit theories about willpower (the belief whether willpower relies on a limited or nonlimited resource) are examined as a moderator of the relation between day-specific self-control exertion and short-term indicators of exhaustion. The results support the assumption that believing in a nonlimited resource of willpower mitigates the consequences of self-control on (at least short-term) indicators of exhaustion. Moreover, it is examined how exhaustion in the afternoon persists over the course of a workday and causes feelings of exhaustion even after work.

In study 4 (Chapter 4), a (three-level) diary study uncovers the dynamic interplay between chronic and day-specific indicators of exhaustion by modelling day-specific trajectories of ego-depletion and by testing how these trajectories are effected by self-control exertion and chronic emotional exhaustion. Multi-level latent growth modelling reveals that levels of ego-depletion increases linearly over the course of a workday and are adversely affected by emotional dissonance. Furthermore, the results suggest that emotional exhaustion can be considered as an indicator of a chronically reduced regulatory resource, thereby impeding day-specific self-control functioning at work.

In summary, the empirical studies emphasize the straining effects of work-related self-control processes. By integrating different theoretical models, recent empirical findings, and different temporal perspectives, these studies extend our theoretical understanding of the dynamic development of exhaustion that is caused by work-related demands on self-control. Finally, several implications for the design of work are derived.

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KAPITEL 1

Einordnung der empirischen Studien in den Gesamtkontext der vorliegenden Dissertation

Einleitung

Die derzeitige Arbeitswelt wandelt sich rasant. Unternehmen verlagern zunehmend ihre Produktion aus den westlichen Industrienationen in Länder mit niedrigeren Lohnkosten. Als Konsequenz hat sich innerhalb der letzten Jahrzehnte eine wirtschaftliche Dominanz des Dienstleistungssektors in diesen Nationen entwickelt (Sonnentag & Frese, 2003) – eine Entwicklung, die sich in 8 Millionen neuen Beschäftigten im Dienstleistungsbereich der EU niederschlägt (Entwicklung von 2011 bis 2016; Eurofound, 2017). Gleichzeitig führt die voranschreitende Automatisierung und der vermehrte Einsatz von Maschinen dazu, dass Arbeitnehmer[1] immer weniger Routine-Tätigkeiten (z.B. Fließband-Arbeit) ausführen und der Anteil an komplexeren Arbeitsaufgaben, wie die Bedienung, Kontrolle und Wartung komplexer Maschinen (siehe Eurofound, 2018a), steigt. Der rasche Fortschritt von Kommunikationstechnologien und die globale Vernetzung von Unternehmen jenseits geographischer Grenzen bedingen darüber hinaus, dass Abstimmungen schneller erfolgen, der Arbeitstakt zunimmt und der globale Wettbewerb steigt.

Veränderungen wie diese stellen ganz neue Anforderungen an die Arbeitnehmer. So ergab eine Befragung von 1650 deutschen Arbeitnehmern (pronova BKK, 2018), dass heutzutage 34% unter ständigem Termindruck arbeiten und 30% mit emotionalem Stress bei der Arbeit umgehen müssen. Eine Erhebung auf EU-Ebene (Eurofound, 2016) deckte darüber hinaus auf, dass sich der Anteil an Arbeitnehmern, die mit aufgebrachten Kunden umgehen müssen, von 2010 bis 2015 fast verdoppelt hat.

Der Wandel unserer Arbeitswelt und die damit einhergehenden veränderten Arbeitsanforderungen bedingen somit einen Anstieg an psychischen Belastungen bei der Arbeit (Bhagat, Krishnan, Nelson, Leonard, Ford, & Billing, 2010). Währenddessen beobachten wir eine rasante Zunahme an krankheitsbedingten Fehltagen, die auf psychische Erkrankungen zurückgehen. So stieg der Anteil der Arbeitsunfähigkeits-Tage in Deutschland aufgrund eines diagnostizierten Burnouts („Zustand der totalen Erschöpfung"; ICD-10: Z 73) innerhalb von nur 10 Jahren (von 2006 bis 2016) um das Vier-Fache (Eurofound, 2018b). Im Jahr 2018 gibt jeder zweite Arbeitnehmer in Deutschland an, für sich selbst ein mäßiges bis hohes Burnout-Risiko zu sehen (pronova BKK,

[1] Zur besseren Lesbarkeit wird in dieser Arbeit bei Bezugnahme auf beide Geschlechter stellvertretend das generische Maskulinum verwendet. Wenn nicht explizit ein Geschlecht genannt wird, sind jedoch ausdrücklich männliche und weibliche Personen sowie Personen gemeint, die sich mit diesem Geschlechterkonzept nicht identifizieren können.

2018). Inzwischen besteht kein Zweifel mehr daran, dass die Zunahme an psychischen Erschöpfungssymptomen in Zusammenhang mit den veränderten Arbeitsanforderungen steht (siehe z.B. Häusser, Mojzisch, Niesel, & Schulz-Hardt, 2010).

Zur Bedeutung der flexiblen Verhaltenssteuerung am Arbeitsplatz

Um den veränderten Arbeitsanforderungen gerecht zu werden, bedarf es eines hohen Maßes an flexibler Verhaltenssteuerung. Statt an starren Verhaltensroutinen festzuhalten, müssen Arbeitnehmer ihr Verhalten ständig an den unternehmensspezifischen Zielen ausrichten und sich veränderten Bedingungen flexibel anpassen.

Während die Abflachung der Hierarchien und der Fortschritt der Informations- und Kommunikationstechnologien mehr Autonomie der Arbeitnehmer ermöglicht, bedeutet er gleichzeitig erhöhte Anforderungen an die eigene Selbstorganisation. Eine vorrausschauende Planung und Koordinierung von komplexen Arbeitsprozessen wird dadurch notwendig. Außerdem verlangt die Bearbeitung von immer mehr komplexen Aufgaben, Ablenkungen auszublenden, Versuchungen zu widerstehen und Impulse zu kontrollieren (Neubach & Schmidt, 2007). Durch die Zunahme an Teamarbeit und den Wachstum des Dienstleistungssektors werden Interaktionen mit anderen Personen bei der Arbeit (Kunden, Patienten, Schüler, Kollegen, etc.) immer bedeutsamer. In vielen Berufen wird dazu der rollenkonforme Ausdruck von Emotionen instrumentell eingesetzt, um organisationale Ziele (z.B. Erhöhung der Kundenzufriedenheit) zu erreichen (Grandey, 2000; Hochschild, 1983). Dazu wird verlangt, dass der emotionale Ausdruck unabhängig von den tatsächlich erlebten Emotionen gezielt gesteuert wird (Zapf, 2002).

Diese Beispiele zeigen, dass das Verhalten bei der Arbeit kaum mehr gewohnheitsgemäß und automatisiert erfolgen kann, sondern vielmehr ein hohes Maß an zielgerichtetem, flexiblem und willentlich gesteuertem Verhalten erfordert (Neubach & Schmidt, 2007). Die dazu erforderliche Kontrolle von Emotionen, Gedanken und Verhalten wird in der sozialpsychologischen Forschung als *Selbstkontrolle* bezeichnet (Baumeister, Heatherton, & Tice, 1994). Demzufolge ist die flexible, zielbezogene Steuerung, Veränderung, Anpassung sowie Kontrolle von verhaltenswirksamen Prozessen (Muraven & Baumeister, 2000; Schmeichel, Vohs, & Baumeister, 2003) notwendig, um das eigene Verhalten immer wieder neu auf Unternehmenserfordernisse und Kundenwünsche auszurichten. Erkenntnisse aus der Grundlagenforschung weisen allerdings darauf hin, dass die Ausübung von Selbstkontrolle ihren Preis hat (Muraven & Baumeister, 2000) und sich sowohl in kurz-

fristigen (z.B. Ich-Erschöpfung oder Bedürfnis nach Erholung), als auch in langfristigen Erschöpfungszuständen (z.B. Emotionale Erschöpfung als eine Facette von Burnout) niederschlagen kann (z.B. Sonnentag, Kuttler, & Fritz, 2010; für einen Überblick, siehe Hagger, Wood, Stiff, & Chatzisatantis, 2010).

In einer Zeit, in der die Ausübung von Selbstkontrolle am Arbeitsplatz einen immer höher werdenden Stellenwert erreicht und für die Zunahme an psychischen Erschöpfungszuständen mitverantwortlich gemacht wird (Schmidt & Neubach, 2007), ergeben sich daher neue Herausforderungen für die Praxis und die Forschung. Auf der einen Seite werden Unternehmen dazu angehalten, Strategien zu entwickeln, um die Konsequenzen der veränderten Arbeitsanforderungen zu bewältigen und Erschöpfungssymptomen vorzubeugen. Auf der anderen Seite ist es Aufgabe der Forschung, die zugrundeliegenden psychologischen Mechanismen aufzudecken, um erklären zu können, wie Selbstkontrollausübung am Arbeitsplatz zur Entstehung von psychischen Erschöpfungssymptomen beiträgt. Die vorliegende Dissertation widmet sich dieser Herausforderung.[2]

Herausforderungen auf Seiten der Praxis und Forschung

Spätestens seitdem das Deutsche Arbeitsschutzgesetz 2013 explizit die Berücksichtigung von psychischen Belastungen in der Gefährdungsbeurteilung von Arbeitsplätzen verlangt, müssen sich Unternehmen mit den Auswirkungen ihrer psychischen Arbeitsanforderungen auseinandersetzen. Häufig ergibt die Gefährdungsbeurteilung, dass insbesondere quantitative Arbeitsanforderungen (z.B. hoher Zeitdruck), kognitiv-anspruchsvolle Anforderungen (z.B. komplexe Aufgaben, die eine hohe Aufmerksamkeit erfordern), oder emotionale Anforderungen (z.B. Unterdrückung wahrer Gefühle und Ausdruck gewünschter Emotionen) beanspruchungswirksam sind (z.B., Sonnentag et al., 2010; van der Doef, & Maes, 1999). Jedoch steht eine direkte Reduktion dieser Anforderungen in der Regel in Verbindung mit negativen Konsequenzen für die Wettbewerbsfähigkeit der Unternehmen. Die gezielte Reduktion von Zeitdruck kann beispielsweise mit Rückgängen der Produktivität in Verbindung gebracht werden, und die Abschaffung von Erwartungen bezüglich bestimmter Emotionen wirkt sich negativ auf die Kundenzufriedenheit aus (Grandey, 2000).

[2] Im Rahmen dieser Dissertation werden ausschließlich psychische Erschöpfungszustände in Form von mentaler, kognitiver, oder emotionaler Ermüdung thematisiert. Physische Komponenten werden dabei bewusst ausgeklammert, wenngleich die Vermeidung dieser auch eine wichtige Herausforderung der heutigen Zeit darstellt.

Um somit langfristig Erschöpfungszuständen vorzubeugen, ohne die eigene Wettbewerbsfähigkeit zu riskieren, müssen Rahmenbedingungen geschaffen werden, die es Arbeitnehmern ermöglichen, ihren (hohen) Arbeitsanforderungen nachzukommen, ohne dass sie dadurch erschöpfen. Außerdem wird ein grundlegendes Verständnis über den Entstehungsprozess psychischer Erschöpfung auch für Unternehmen zunehmend wichtig: Welche Belastungen führen zu Erschöpfung und in welchem zeitlichen Rahmen werden diese bedeutsam? Inwiefern beeinträchtigt chronische Erschöpfung die täglichen Prozesse bei der Arbeit?

Vor diesem Hintergrund hat sich die Forschung im Bereich der Arbeitspsychologie innerhalb der letzten Jahrzehnte mit der Herausforderung beschäftigt, unterschiedliche Arbeitsbelastungen zu untersuchen, die kurzfristige Erschöpfungszustände sowie langfristige Erschöpfungssymptome aufklären können und Rahmenbedingungen (hier: Moderatoren) zu identifizieren, die den Zusammenhang zwischen Arbeitsbelastung und psychischer Erschöpfung abmildern können. Geleitet von einem der bedeutsamsten arbeitspsychologischen Ansätzen, dem Job Demands – Control Model (Karasek, 1979), haben sich viele Studien mit der Bedeutung von *Handlungs- und Kontrollspielräumen* als Moderator beschäftigt. Handlungs- und Kontrollspielräume sind definiert als das Ausmaß, in dem Personen den zeitlichen Arbeitsablauf sowie die Art und Weise der Aufgabenbearbeitung autonom beeinflussen können. Während dieser potentielle Moderator eher im Einflussbereich der Unternehmen liegt und somit als eine organisationale Rahmenbedingung gilt, wurden darüber hinaus auch Moderatoren identifiziert, die eher im Einflussbereich der Arbeitnehmer liegen. So rückte beispielsweise in den letzten Jahren die *implizite Vorstellung über Willensstärke* als potentieller Moderator in den Fokus der Aufmerksamkeit. Dieser Forschungsansatz beschäftigt sich mit der persönlichen Grundüberzeugung, ob Willensstärke entweder auf einer stark begrenzten Ressource beruht, die schnell erschöpft, oder ob Willensstärke auf einer nahezu endlosen Ressource beruht, die sich automatisch regeneriert (Job, Dweck, & Walton, 2010). In Laborexperimenten (Job et al., 2010) wurde dazu beobachtet, dass Personen, die glaubten, Willensstärke sei endlos, nach der Ausübung von Selbstkontrolle weniger erschöpft und in ihrer Leistungsfähigkeit beeinträchtigt waren als Personen, die glaubten, Willensstärke sei stark begrenzt.

Wenngleich die Forschung in diesem Bereich wegweisend ist, bleiben jedoch einige Fragen bislang unbeantwortet. Die vorliegende Dissertation beschäftigt sich daher mit drei spezifischen Problemstellungen der bisherigen arbeitspsychologischen Forschung mit dem Ziel, einen bedeutsamen Beitrag zur Behebung dieser Schwächen zu leisten.

Erstens, Befunde zu einigen Moderatoren der Auswirkungen von Selbstkontrolle sind gemischt oder lückenhaft. Aktuell ist nicht geklärt, unter welchen Bedingungen und über welche zugrundeliegenden psychologischen Mechanismen die Moderatorwirkungen der beiden Konstrukte Handlungs-und Kontrollspielräume sowie implizite Vorstellung über Willensstärke zum Tragen kommen. Darüber hinaus ist unklar, inwiefern chronische Erschöpfung mit täglichen Anforderungen an Selbstkontrolle interagiert. Erste Erkenntnisse deuten darauf hin, dass chronische Erschöpfung als Vulnerabilitätsfaktor fungieren könnte, der die adversen Auswirkungen von Selbstkontrollausübung bei der Arbeit verstärkt (Trougakos, Beal, Cheng, Hideg, & Zweig, 2015). Bislang wurde jedoch nicht untersucht, inwiefern chronische Erschöpfung die Entstehung von kurzfristigen Erschöpfungszustände nach der Ausübung von Selbstkontrolle beeinflusst.

Zweitens, ein Großteil bisheriger Erkenntnisse zur Vorhersage von Erschöpfungszuständen wurde im Querschnitt erlangt. Diese Erkenntnisse sind insofern begrenzt, als dass sie wenig Aufschluss darüber geben, in welchem zeitlichen Rahmen Erschöpfung (als ein dynamischer Prozess) entsteht. Darüber hinaus lassen solche Forschungsansätze nur Rückschlüsse auf interindividuelle Unterschiede zu (warum ein Arbeitnehmer erschöpfter ist als ein anderer), nicht aber auf intraindividuelle (warum derselbe Arbeitnehmer an machen Arbeitstagen abends erschöpfter ist als an anderen Arbeitstagen). Erst durch die Kombination unterschiedlicher analytischer Vorgehensweisen kann ein umfassenderes Verständnis zur Entstehung von Erschöpfung erlangt werden.

Drittens, empirische Erkenntnisse aus der Selbstkontrollforschung haben in den letzten Jahrzehnten zu einer Fragmentierung des zugrundeliegenden theoretischen Modells beigetragen. So wurden neue Erkenntnisse kaum miteinander verbunden und in ein weiterentwickeltes Selbstkontroll-Modell integriert (siehe auch Baumeister & Vohs, 2016). Eine theoretische Integration neuerer Befunde und eine Weiterentwicklung veralteter Modellvorstellungen sind daher notwendig.

Bevor auf die einzelnen Studien im Detail eingegangen wird, werden im weiteren Verlauf des aktuellen Kapitels zunächst relevante Erkenntnisse aus der Forschung zu Selbstkontrolle skizziert. Dazu wird zuerst thematisiert, welche Arbeitsbelastungen die Ausübung von Selbstkontrolle erfordern. Anschließend wird das *Stärke-Modell der Selbstkontrolle* (Muraven & Baumeister, 2000) vorgestellt und der daraus abgeleitete Zusammenhang zwischen Selbstkontrollausübung und Erschöpfungszuständen erklärt. Darauf aufbauend werden die Forschungsziele der vorliegenden Dissertation konkretisiert und das Rahmenmodell erläutert.

Selbstkontrollausübung als Arbeitsanforderung

Parallel zu den Veränderungen der Arbeitsanforderungen ist in der arbeitspsychologischen Forschung ein bemerkenswertes Interesse an Prozessen der Selbststeuerung am Arbeitsplatz entstanden. Diese Prozesse beinhalten die zielorientierte Steuerung und flexible Anpassung von (Arbeits-)Verhalten an ständig wechselnde Anforderungen. Kuhl (2001) unterscheidet hierbei zwei Formen der Selbststeuerung, die er in Abhängigkeit der Übereinstimmung zwischen innerlich bevorzugten und von außen bestimmten Zielen definiert. Auf der einen Seite liegt bei *autonomer Selbstregulation* eine Übereinstimmung zwischen persönlichen und fremden Zielen vor, die es ermöglicht, selbstkompatiblen Zielen nachzugehen und dadurch positive Emotionen zu erzeugen. Autonome Selbstregulation wird als wenig anstrengend erlebt und in Verbindung gebracht mit intrinsischer Motivation. Auf der anderen Seite liegt bei *willentlicher Selbstkontrolle* ein Konflikt zwischen persönlichen und geforderten Zielen vor, sodass selbstdiszipliniertes Verhalten (z.B. die Hemmung von konkurrierenden Impulsen und Emotionen) notwendig wird, um das geforderte Ziel zu erreichen. Die zugrundeliegenden Prozesse bei der Ausübung von willentlicher Selbstkontrolle werden als anstrengend erlebt und stehen in Zusammenhang mit Erschöpfungssymptomen. Vor diesem Hintergrund ist die Untersuchung der willentlichen Selbstkontrolle (nachfolgend als Selbstkontrolle bezeichnet) Gegenstand der vorliegenden Dissertation.

Die arbeitspsychologischen Forschungsbemühungen zur Ausübung von Selbstkontrolle am Arbeitsplatz konzentrieren sich hierbei auf zwei spezifische Themenfelder. Auf der einen Seite hat die Entwicklung eines Fragebogeninstruments zur Messung unterschiedlicher verhaltensbezogener Formen von *Selbstkontrollanforderungen* am Arbeitsplatz (Neubach & Schmidt, 2007) dazu beigetragen, die Konsequenzen verschiedener Selbstkontrollanforderungen aufzudecken. Auf der anderen Seite hat sich die Forschung im Bereich *Emotionsarbeit* (definiert als die zielgerichtete Steuerung der eigenen Emotionen mit der Absicht, dem Interaktionspartner einen bestimmten emotionalen Eindruck zu vermitteln, Hochschild, 1983) damit auseinandergesetzt, inwiefern die rollenkonforme Anpassung des emotionalen Ausdrucks die Ausübung von Selbstkontrolle erfordert (Grandey, 2000).

Im nachfolgenden Abschnitt werden zunächst die unterschiedlichen Selbstkontrollanforderungen nach Neubach und Schmidt (2007) vorgestellt. Danach wird *Emotionale Dissonanz* als eine spezifische Arbeitsbelastung vorgestellt, die in den Bereich der Emotionsarbeit einzuordnen ist.

Formen von Selbstkontrolle im Arbeitskontext

Selbstkontrollanforderungen

Seitdem Neubach und Schmidt (2007) verschiedene Facetten von Selbstkontrollanforderungen durch ein Fragebogeninstrument messbar gemacht haben, erlangt diese Form der Arbeitsbelastung zunehmend Aufmerksamkeit in der arbeitspsychologischen Forschung (z.B., Diestel & Schmidt, 2011b; Diestel & Schmidt, 2012; Prem, Kubicek, Diestel, & Korunka, 2016; Rivkin, Diestel, & Schmidt, 2018). Der Konzeptualisierung von Neubach und Schmidt (2007) zufolge können Selbstkontrollanforderungen in drei verschiedene situationsbezogene Anforderungen unterschieden werden, die Arbeitnehmer dazu veranlassen, Selbstkontrolle auszuüben (siehe auch Schmidt & Neubach, 2009). Die erste Form von Selbstkontrollanforderungen, *Impulskontrolle*, bezieht sich auf die Unterdrückung und Kontrolle impulsiver, spontaner sowie gewohnheitsmäßiger Reaktionstendenzen und den damit assoziierten Emotionen, die sich in Zuständen der Gereiztheit oder in unbedachten, affektgeleiteten verbalen Äußerungen zeigen. Die zweite Form, *Ablenkungen widerstehen*, beschreibt die Notwendigkeit, Ablenkungen durch aufgabenirrelevante Reize und störende Informationen auszublenden, die ansonsten mit der erfolgreichen Aufgabenbearbeitung interferieren würden. Die dritte Form, *Überwinden innerer Widerstände*, beinhaltet das Ausmaß, in dem innere Hemmungen, Motivationsblockaden oder Abneigungen überwunden werden müssen, um unattraktive Arbeitsaufgaben zu bearbeiten.

Wenngleich eine Bewältigung dieser Anforderungen für den Arbeitskontext unerlässlich ist, fordert sie dennoch einen Tribut. So konnte gezeigt werden, dass Selbstkontrollanforderungen über andere Belastungsquellen (Konzentrationsanforderungen, starker Arbeitsdruck, mangelnde Rollenklarheit, etc.) hinaus bedeutsame Varianzanteile in unterschiedlichen Indikatoren chronischer Erschöpfung aufklären (z.B. Emotionale Erschöpfung und Depersonalisation, Schmidt & Neubach, 2009) und einen Anstieg an Fehltagen erklären (Diestel & Schmidt, 2012). Außerdem dienen tagesspezifische Selbstkontrollanforderungen als zuverlässiger Prädiktor von kurzfristigen Erschöpfungszuständen (z.B. Bedürfnis nach Erholung und Ich-Erschöpfung am Ende eines Arbeitstages; Rivkin, Diestel, & Schmidt, 2015a).

Emotionale Dissonanz

In ihrem einflussreichen Werk „Das gekaufte Herz“ widmete sich Hochschild (1983) erstmals der zielgerichteten Steuerung von tatsächlich erlebten Gefühlen zugunsten eines von der Arbeitsrolle geforderten emotionalen Ausdrucks. Bei der Untersuchung von Flugbegleiterinnen stellte sie fest,

dass das stets aufmerksame und freundliche Verhalten gegenüber Fluggästen keinesfalls aus eigenem Ermessen der Flugbegleiterinnen gezeigt, sondern vielmehr durch die Fluggesellschaft erwartet wurde. Somit erlangte die gleichbleibende Freundlichkeit den Status einer Arbeitsanforderung. Auf Grundlage solcher und ähnlicher Beobachtungen führte Hochschild den Begriff Emotionsarbeit ein und definierte diese als zielgerichtete Regulation der eigenen Gefühle, um nach außen über Mimik, Gestik und Stimme bestimmte Emotionen zum Ausdruck zu bringen, die den organisatorischen Regeln, Normen sowie Zielsetzungen entsprechen (Hochschild, 1983).

Einige Jahre später erarbeiteten Zapf, Vogt, Seifert, Mertini und Isic (1999) eine differenziertere Konzeptualisierung von Emotionsarbeit und unterschieden dabei fünf Dimensionen: (1) Ausdruck positiver Gefühle, (2) Umgang mit negativen Gefühlen, (3) Wahrnehmung von Gefühlen anderer, (4) Interaktionsspielraum und (5) Emotionale Dissonanz. Die Autoren nahmen an, dass die größte Beanspruchungswirkung von der Dimension Emotionale Dissonanz ausgehen würde, welche eine Diskrepanz zwischen tatsächlich empfundenen und durch die Arbeitsrolle geforderten Emotionen beschreibt. Die Analyse der fünf Dimensionen in unterschiedlichen Stichproben (Zapf, Seifert, Schmutte, Mertini, & Holz, 2001) unterstützt diese Annahme und verleiht Emotionaler Dissonanz den Rang der Belastungsquelle mit den stärksten Effekten auf Burnout-Symptome. Außerdem sagt Emotionale Dissonanz psychosomatische Beschwerden voraus (Zapf et al., 1999), steht in einem negativen Zusammenhang mit Arbeitszufriedenheit (Pugh, Groth, & Hennig-Thurau, 2011; Zapf et al., 1999) und bedingt eine Zunahme an Fehlzeiten (Diestel & Schmidt, 2011a). Sogar nach Kontrolle von aufgaben- und organisationsbezogener Stressoren (situationsbezogene Konflikte, Zeitdruck, arbeitsorganisatorische Probleme), erklärt Emotionale Dissonanz eigenständige Varianzanteile in chronischen Erschöpfungssymptomen (Dormann, Zapf, & Isic, 2002; Zapf et al., 2001). Zudem ruft der Umgang mit emotionaler Dissonanz unmittelbare, kurzfristige Erschöpfungssymptome im täglichen Arbeitsprozess hervor (Diestel, Rivkin, & Schmidt, 2015). Zusammenfassend lässt sich als zentrale Erkenntnis festhalten, dass Emotionsarbeit insbesondere dann beanspruchungswirksam ist, wenn Emotionale Dissonanz auftritt (für einen Überblick, siehe Zapf, 2002).

Inzwischen belegt eine Vielzahl von empirischen Studien, dass die Beanspruchungswirkung von Emotionaler Dissonanz durch die Ausübung von Selbstkontrolle entsteht (Diestel & Schmidt, 2011a; Diestel & Schmidt, 2011b; Schmidt & Diestel, 2014; Zapf & Holz, 2006). Um die Diskrepanz zwischen wahren Gefühlen und gefordertem emotionalen Ausdruck aufzulösen, müssen sich Arbeitnehmer demzufolge jederzeit ihrer eigenen Gefühle bewusst sein, unpassende Gefühle konti-

nuierlich unterdrücken und den emotionalen Ausdruck fortlaufend an äußere Erwartungen anpassen. All diese Prozesse involvieren die Ausübung von Selbstkontrolle und sind darüber mit Erschöpfungszuständen assoziiert.

Somit gibt es eine Reihe an empirischen Belegen dafür, dass die Ausübung von Selbstkontrolle bei der Arbeit mit kurzfristigen Erschöpfungszuständen und langfristigen Erschöpfungssymptomen in Verbindung steht. Das Stärke-Modell der Selbstkontrolle (auch als *Modell der Ich-Erschöpfung* bekannt; Muraven & Baumeister, 2000) stellt einen theoretischen Ansatz dar, um den zugrundeliegenden psychologischen Mechanismus der Beanspruchungswirkung von Selbstkontrolle zu konzeptualisieren. Gleichzeitig bildet das Stärke-Modell der Selbstkontrolle den theoretischen Rahmen aller empirischen Studien dieser Dissertation und soll daher in dem folgenden Abschnitt näher erläutert werden.

Das Stärke-Modell der Selbstkontrolle

Das Stärke-Modell der Selbstkontrolle (Muraven & Baumeister, 2000) basiert auf der zentralen Annahme, dass unterschiedliche Formen der Selbstkontrolle dieselbe begrenzte regulatorische Ressource (Willensstärke) beanspruchen. Bei der Ausübung von Selbstkontrolle wird diese Ressource in Anspruch genommen, wodurch sie vorübergehend erschöpft und dadurch Leistungseinbußen bei nachfolgender Selbstkontrolle verursacht (ähnlich wie ein Muskel bei Inanspruchnahme ermüdet). Den Zustand der erschöpften regulatorischen Ressource beschreiben Baumeister, Bratslavsky, Muraven und Tice (1998) als *Ich-Erschöpfung* (ego-depletion).

Das experimentelle Paradigma, das zur Untersuchung dieser theoretischen Annahme eingesetzt wurde, beinhaltet die Bearbeitung zweier aufeinanderfolgender Aufgaben. Während die Experimentalgruppe zur Bearbeitung beider Aufgaben Selbstkontrolle ausüben muss, ist bei der Kontrollgruppe nur zur Bearbeitung der zweiten Aufgabe die Ausübung von Selbstkontrolle notwendig. Dabei konnte für die unterschiedlichsten Selbstkontrollaufgaben (Ablenkungen ausblenden, Versuchungen widerstehen, emotionale Reaktionen kontrollieren, etc.) beobachtet werden, dass die Teilnehmer aus der Experimentalgruppe bei der zweiten Aufgabe schlechtere Leistungen erbrachten und erschöpfter waren, als die Teilnehmer der Kontrollgruppe, die zuvor keine Selbstkontrolle ausgeübt hatten (z.B. Baumeister et al., 1998; Muraven & Baumeister, 2000; Muraven & Slessareva, 2003; Schmeichel et al., 2003). Die empirischen Erkenntnisse aus einem Jahrzehnt dieser Laborexperimente wurden im Rahmen einer Meta-Analyse zusammengetragen (Hagger et al.,

2010). Dabei ergab die Analyse (N = 10782), dass der Effekt der vorangegangenen Selbstkontrollausübung auf die Leistung in der zweiten Selbstkontrollaufgabe eine durchschnittliche standardisierte Effektstärke von d = 0.62 aufweist, deren Ausprägung nach Cohen (1987) als moderat bis hoch einzuschätzen ist. Diese Beobachtungen wurden als Belege für die zentrale Annahme des Stärke-Modells interpretiert, dass unterschiedliche Prozesse der Selbstkontrolle eine begrenzte regulatorische Ressource erschöpfen, wodurch nach der Ausübung von Selbstkontrolle die Möglichkeit zur weiteren Selbstkontrolle (zumindest vorübergehend) eingeschränkt ist.[3]

Neben dieser zentralen Vorstellung von Selbstkontrolle formulieren Muraven und Baumeister (2000) einige weitere implikationsreiche Annahmen, die im weiteren Verlauf der Dissertation von Relevanz sind. So gehen sie davon aus, dass sich die erschöpfte Ressource nach Selbstkontrollausübung wieder regeneriert, sodass nach einer unbestimmten Zeit die volle Ressource wieder abrufbar ist. Stehen allerdings keine ausreichenden Erholungsmöglichkeiten zur Verfügung oder bleiben Anforderungen an Selbstkontrolle konstant hoch, so können aus akuten Erschöpfungszuständen (z.B. Ich-Erschöpfung) chronische Erschöpfungssymptome (z.B. Emotionale Erschöpfung) sowie andauernde Selbstkontrolldefizite resultieren.

Darüber hinaus nehmen Muraven und Baumeister (2000) an, dass die Ressource durch hohe interindividuelle Unterschiede in ihrer Größe gekennzeichnet ist, welche zeitlich stabile Variabilität in der Fähigkeit zur Selbstkontrolle erklären. Personen mit einer größeren Ressourcenkapazität sind demzufolge in der Lage, ihre eigenen Gedanken, Gefühle und Handlungen erfolgreicher und über längere Zeiträume zu kontrollieren, als Personen mit einer kleineren Ressourcenkapazität (ähnlich wie ein stärkerer Muskel physischen Belastungen länger standhält).

Kurz- und langfristige Folgen von Selbstkontrollausübung

In der vorliegenden Dissertation steht die Entstehung von Erschöpfung im Verlauf der Zeit sowie in Abhängigkeit vorheriger Selbstkontrollausübung im Fokus der Untersuchungen. Dazu werden auf der einen Seite kurzfristige Erschöpfungszustände analysiert, die bereits unmittelbar nach der Ausübung von Selbstkontrolle entstehen. Auf der anderen Seite wird die Entstehung langfristiger (chronischer) Erschöpfungssymptome untersucht. Es wird davon ausgegangen, dass chronische Erschöpfung dann entstehen kann, wenn die Ausübung von Selbstkontrolle zu einer anhaltenden Arbeitsanforderung wird.

[3] Eine kritische Würdigung der Meta-Analyse sowie eine Diskussion widersprüchlicher Erkenntnisse zum Stärke-Modell der Selbstkontrolle sind in den Limitationen dieser Dissertation zu finden.

Kurzfristige Erschöpfungszustände

Baumeister und Kollegen (1998) bezeichneten den Zustand der kurzfristigen Ressourcenerschöpfung als *Ich-Erschöpfung*. Dieser Zustand ist durch eine vorübergehende Einschränkung in der Fähigkeit zur Selbstkontrolle sowie durch mentale Ermüdung gekennzeichnet. Neben den laborexperimentellen Untersuchungen zeigen inzwischen auch einige Felduntersuchungen, dass die Ausübung von Selbstkontrolle bei der Arbeit mit erhöhter Ich-Erschöpfung einhergeht (z.B., Prem et al., 2016; Rivkin et al., 2015a; Rivkin et al., 2018).

Weitere theoretische Ansätze (z.B. Conservation of Resources Theory; Hobfoll, 1989), sowie neuste theoretische Ergänzungen des Stärke-Modells der Selbstkontrolle (Baumeister & Vohs, 2016) weisen darauf hin, dass die Verminderung einer verfügbaren Ressource das Bedürfnis auslöst, diese Ressource wieder aufzufüllen und weiteren Ressourcenverbrauch zu vermeiden. Dadurch, dass die Ausübung von Selbstkontrolle die Verfügbarkeit der regulatorischen Ressource vermindert und mit Ermüdungserscheinungen einhergeht, entwickeln Personen daher ein *Bedürfnis nach Erholung*, um die verbrauchten Ressourcen wieder herzustellen. Empirische Befunde belegen diese Annahme und zeigen, dass die Ausübung von Selbstkontrolle während eines Arbeitstages mit einem erhöhten Bedürfnis nach Erholung nach Feierabend einher geht (z.B. Rivkin et al., 2015a; Rivkin et al., 2018; Sonnentag, Binnewies, & Mojza, 2008; Xanthopoulou, Bakker, Oerlemans, & Koszucka, 2018).

Innerhalb des letzten Jahrzehnts haben Felduntersuchungen zur Aufklärung kurzfristiger Erschöpfungszustände enorm an Bedeutung gewonnen. Diese Entwicklung geht auf die Einführung von Tagebuchstudien zurück, die es ermöglichen, an mehreren Arbeitstagen und zu unterschiedlichen Tageszeiten Daten zu erheben (siehe z.B. Ohly, Sonnentag, Niessen, & Zapf, 2010). Somit können Arbeitsanforderungen im natürlichen Arbeitsumfeld erhoben und deren unmittelbare Auswirkungen auf kurzfristige Erschöpfungszustände ermittelt werden. Das daraus generierte Wissen ist von besonderer praktischer Bedeutung, da es Rückschlüsse zulässt, wie Arbeitsplätze gestaltet werden sollten, um kurzfristige Erschöpfungszustände zu reduzieren und dadurch chronischen Erschöpfungssymptomen vorzubeugen. Denn ein Arbeitnehmer, der nach seinen Arbeitstagen selten oder nie erschöpft ist, gilt als weniger gefährdet chronische Erschöpfungssymptome zu entwickeln (z.B. Sluiter, de Croon, Meijman, Frings-Dresen, 2002).

Langfristige (chronische) Erschöpfungssymptome

Bereits Anfang der 80er Jahre entwickelten Maslach und Jackson ein Fragebogeninventar (Maslach-Burnout-Inventar; 1981), mit dem sie erstmals das durch Freudenberger (1974) geprägte Erschöpfungssymptom *Burnout* messbar machten. Burnout wird verstanden als die individuelle Beanspruchungsreaktion auf chronische Anforderungen sowie intensiv empfundene emotionale Belastungen bei der Arbeit und gilt als Endzustand eines schleichenden Prozesses, bei dem die Ressourcen fast unmerklich, aber stetig versiegen (Hobfoll, 1998). Dabei werden drei Dimensionen des Burnouts thematisiert (Maslach, Jackson, & Leiter, 1986): (1) *Emotionale Erschöpfung* bildet die psychische und physische Reaktion der Überbeanspruchung ab, die sich vor allem in negativen Gefühlen gegenüber der Arbeit ausdrückt; (2) *Depersonalisierung* umfasst die gefühllose und abgestumpfte Reaktion gegenüber Interaktionspartnern bei der Arbeit; (3) *Mangel an persönlicher Erfüllung* beschreibt die verminderte subjektive Leistungsfähigkeit und beinhaltet das Gefühl, den gestellten Ansprüchen nicht mehr zu genügen. Inzwischen weist eine Vielzahl empirischer Studien darauf hin, dass Emotionale Erschöpfung als *erlebensbezogene Kerndimension* von Burnout gilt (Cordes & Dougherty, 1993; Gaines & Jermier, 1983; Maslach, Schaufeli, & Leiter, 2001; Wright & Bonett, 1997; Wright & Cropanzano, 1998). Diese Annahme wird gestützt durch die Erkenntnis, dass Emotionale Erschöpfung die weitere Entstehung von Depersonalisierung und dem Mangel an persönlicher Erfüllung vorhersagt (aber nicht umgekehrt), und somit die Entwicklung eines Burnouts zu initiieren scheint (Diestel & Schmidt, 2010). In Übereinstimmung mit dieser Erkenntnis werden die Symptome von Emotionaler Erschöpfung (emotionale und körperliche Kraftlosigkeit, ständige Müdigkeit und Antriebslosigkeit sowie chronische Niedergeschlagenheit) in der breiten Population häufig mit den Symptomen von Burnout gleichgesetzt.

Befunde aus der Selbstkontrollforschung zeigen, dass insbesondere Emotionale Erschöpfung durch chronische Überbeanspruchung der regulatorischen Ressource verursacht wird (Diestel & Schmidt, 2010, 2011a; Schmidt & Neubach, 2007; Schmidt, Neubach, & Heuer, 2007). Arbeitnehmer, die fortlaufend Selbstkontrolle am Arbeitsplatz ausüben und dabei regelmäßig ihre regulatorische Ressource (über-)beanspruchen, sind demnach gefährdeter, Symptome von Emotionaler Erschöpfung zu entwickeln. Darüber hinaus legen erste laborexperimentelle Ergebnisse die Schlussfolgerung nahe, dass Personen, die emotional erschöpft sind, eine chronisch erschöpfte (das heißt reduzierte) regulatorische Ressource aufweisen und somit unter chronischen Selbstkontrolldefiziten leiden (Diestel, Cosmar, & Schmidt, 2013; Kleinsorge, Diestel, Scheil, & Niven, 2014). Eine erste Felduntersuchung bestätigt diese Schlussfolgerung und zeigt, dass Arbeitnehmer, die emotional erschöpft sind, stärker durch die Ausübung von Emotionsarbeit bei der Arbeit

beansprucht werden als Arbeitnehmer, die nicht emotional erschöpft sind (Trougakos et al., 2015). Mit anderen Worten scheint emotional erschöpften Personen die Ausübung von Selbstkontrolle schwerer zu fallen.

Abschließend lässt sich festhalten, dass Emotionale Erschöpfung in der Selbstkontrollforschung einen wichtigen Stellenwert einnimmt. Auf der einen Seite wird Emotionale Erschöpfung als eine der bedeutungsvollsten langfristigen Beanspruchungssymptome untersucht, die aus der Ausübung von Selbstkontrolle resultieren. Auf der anderen Seite nimmt Emotionale Erschöpfung die Rolle eines Vulnerabilitätsfaktors ein, der die weitere Ausübung von Selbstkontrolle erschwert und nachfolgende Erschöpfungszustände verstärkt.

Forschungsziele der vorliegenden Dissertation

Aufgrund der zunehmenden Relevanz von Anforderungen an Selbstkontrolle am Arbeitsplatz und vor dem Hintergrund des direkten Zusammenhangs mit Erschöpfung, gilt es, Strategien zu ermitteln, die der Entstehung von Erschöpfung entgegenwirken[4]. Da die unmittelbare Reduktion von Anforderungen an Selbstkontrolle nur sehr begrenzt möglich ist, müssen daher Rahmenbedingungen identifiziert werden, die bei gleichbleibenden (hohen) Anforderungen die daraus resultierende Erschöpfung vermindern können. Statistisch ausgedrückt geht es um die Ermittlung von Moderatoren, die den direkten Zusammenhang zwischen Selbstkontrollausübung und Erschöpfung beeinflussen. Vor dem Hintergrund der zunehmenden Dominanz des Dienstleistungssektors und der daraus resultierenden Relevanz von sozialen Interaktionen am Arbeitsplatz, liegt ein Schwerpunkt auf der Identifikation von Moderatoren, die sich auf den Umgang mit Emotionaler Dissonanz auswirken. Dabei werden zwischen organisationalen Rahmenbedingungen, die im Einflussbereich des Unternehmens liegen, und persönlichen Rahmenbedingungen, die im Einflussbereich des Arbeitsnehmers liegen, unterschieden. Darüber hinaus stellt die Identifikation von Vulnerabilitätsfaktoren (Moderatoren, die den Zusammenhang zwischen Anforderungen und Erschöpfung verstärken) einen weiteren wichtigen Schritt dar, um die Entstehung von Erschöpfung zu verstehen und zukünftig gezielt vorzubeugen. Somit lässt sich als Forschungsziel ableiten:

Forschungsziel 1: *Identifikation von Moderatoren auf organisationaler sowie persönlicher Ebene, die die Auswirkungen von Selbstkontrollausübungen bei der Arbeit auf Erschöpfung beeinflussen.*

[4] Wenn im weiteren Verlauf der Dissertation von „Erschöpfung" die Rede ist, ohne dass zwischen kurzfristigen Erschöpfungszuständen oder langfristigen Erschöpfungssymptomen differenziert wird, so ist Erschöpfung als ein Überbegriff zu verstehen, der durch alle untersuchten Erschöpfungsindikatoren (Ich-Erschöpfung, Bedürfnis nach Erholung und Emotionale Erschöpfung) abgebildet wird.

Die ersten Felduntersuchungen zur Ermittlung des Zusammenhangs zwischen Selbstkontrolle am Arbeitsplatz und Erschöpfung wurden im Rahmen von Querschnittstudien durchgeführt. In diesen Untersuchungen wurden Anforderungen an Selbstkontrolle als ein stabiles Arbeitsmerkmal betrachtet, das in manchen Berufen von besonderer Relevanz ist und Erschöpfung als chronischer Zustand, der aus den gleichbleibenden Anforderungen resultiert (z.B. in der Krankenpflege, Schmidt, 2010; bei Call-Center Mitarbeitern, Dormann et al., 2002; im Hotelgewerbe, Zapf et al., 2001). Dieser Forschungsansatz fokussiert die Aufklärung *interindividueller Unterschiede* und ist von Natur aus eher korrelativ (z.B.: Ein Arbeitnehmer, der grundsätzlich höhere Selbstkontrollanforderungen bei der Arbeit erlebt, hat ein höheres Risiko erschöpft zu sein, als ein Arbeitnehmer, der weniger Selbstkontrollanforderungen erlebt; Schmidt & Diestel, 2015). Ein Forschungsansatz, der Daten im Querschnitt erfasst und analysiert, erlaubt somit keine Rückschlüsse auf den Entstehungsprozess psychischer Erschöpfung und lässt Fragen hinsichtlich der Kausalität und der Abfolge von Prozessen offen.

Darüber hinaus haben einige Längsschnittstudien, die durchgeführt wurden, Arbeitsanforderungen lediglich zu einem ersten Zeitpunkt und Erschöpfungssymptome ausschließlich zu einem zweiten Zeitpunkt erfasst (für einen Überblick, siehe Zapf, Dormann, & Frese, 1996). Obwohl dieser Ansatz eher der zeitlichen Abfolge des Erschöpfungsprozesses entspricht, sind auch hier keine Rückschlüsse auf die Kausalität oder die Entwicklung von Erschöpfung über die Zeit möglich.

In den letzten zehn Jahren haben Tagebuchstudien, als eine neue methodische Herangehensweise, wiederholt hohe Fluktuationen im Belastungs- und Beanspruchungserleben über den Tagesverlauf aufgedeckt. Der Einsatz dieser Methodik, die Arbeitnehmer dazu veranlasst, an mehreren Arbeitstagen ihre Anforderungen und ihr psychisches Wohlbefinden zu dokumentieren, erlaubt die Analyse von *intraindividuellen Unterschieden*. Somit können tagesspezifische Zusammenhänge zwischen Selbstkontrollausübung und Erschöpfungszuständen ermittelt werden und es kann aufgedeckt werden, weshalb derselbe Arbeitnehmer nach manchen Arbeitstagen erschöpfter ist als an anderen Arbeitstagen (siehe z.B. Ohly et al., 2010). Obwohl diese Ansätze zeitlich spezifischere Aussagen ermöglichen, sagen sie jedoch auch nur Erschöpfungszustände zu einem bestimmten Zeitpunkt am Tag voraus, statt Erschöpfung als einen dynamischen Prozess zu untersuchen, der erst im Laufe der Zeit entsteht.

Bis heute gibt es kaum Ansätze, die beide Perspektiven miteinander verbinden und aufklären, inwiefern sich interindividuelle Unterschiede in chronischer Erschöpfung auf intraindividuelle, tagesspezifische Zusammenhänge und Erschöpfungszustände auswirken. Darüber hinaus wird Erschöpfung selten als ein dynamischer Prozess untersucht, der erst über die Zeit entsteht. Um dem Prozess-Charakter der Erschöpfung gerecht zu werden, muss daher eine analytische Vorgehensweise gewählt werden, die Erschöpfung aus unterschiedlichen zeitlichen Perspektiven untersucht und dazu verschiedene methodische Herangehensweisen miteinander integriert. Daraus ergibt sich das folgende Forschungsziel:

Forschungsziel 2: *Integration verschiedener zeitlicher Perspektiven des (inter- und intraindividuellen) Zusammenhangs zwischen Selbstkontrollausübung und (kurz- und langfristigen) Erschöpfungsindikatoren durch den Einsatz unterschiedlicher Analysemethoden.*

Zu Beginn dieser Dissertation, im Jahr 2016, veröffentlichten Baumeister und Vohs einen Beitrag, in dem sie Stellung nahmen zu den jüngsten Erkenntnissen der Selbstkontrollforschung. Darüber hinaus stellten die Autoren zukünftige Forschungsansätze dar, in denen sie das Potential sahen, das Stärke-Modell der Selbstkontrolle weiterzuentwickeln. Insbesondere drei dieser Ansätze weckten mein Interesse:

(1) "Planning and initiative deserve more study. Identifying any other activity that draws on the resource would strengthen and expand the theory." (p.116)
(2) "Another major challenge is the idea that depletion is 'all in your head'." (p.107)
(3) "At present, the notion of chronic depletion remains purely speculative, but it holds some promise of being able to shed light on the suffering of many unfortunate individuals." (p. 116)

Die Dissertation adressiert diese Punkte, um das grundsätzliche Verständnis von Selbstkontrolle am Arbeitsplatz zu erweitern. In diesem Sinn und in Übereinstimmung mit Baumeisters und Vohs' Bemerkung „[the] strength model is in need of updating" (2016, p. 69), wird folgendes Forschungsziel abgeleitet:

Forschungsziel 3: *Theoretische Ausdifferenzierung des Stärke-Modells der Selbstkontrolle durch die Einbettung neuer empirischer Erkenntnisse.*

Einordnung der Studien ins Rahmenmodell

Vier empirische Studien tragen jeweils zum Erreichen der drei Forschungsziele bei. Alle vier Studien wurden in *peer-reviewed Journals* eingereicht. Die ersten drei Artikel sind bereits veröffentlicht (Studie 1, 2017, *International Journal of Environmental Research and Public Health*; Studie 2, 2018, *Zeitschrift für Arbeitswissenschaft* und Studie 3, 2019, *European Journal of Work and Organisational Psychology*) und der vierte Artikel befindet sich in der ersten Revision (Studie 4, under review, *Journal of Applied Psychology*).

Die verschiedenen Analysemethoden der vier Studien bauen jeweils aufeinander auf und ermöglichen dadurch, die dynamische Entstehung von Erschöpfung aus drei zeitlichen Perspektiven zu untersuchen. Von der ersten bis zur vierten Studie wird der zeitliche Rahmen, in dem die Auswirkungen von Selbstkontrollausübung auf Erschöpfung betrachtet werden, kontinuierlich kleiner.

Im Sinne einer besseren Übersichtlichkeit wurden die vier Studien anhand der methodischen Vorgehensweisen und inhaltlichen Schwerpunkte in drei Kapitel untergliedert. Eine Übersicht der Kapitel sowie der untersuchten Zusammenhänge der Studien sind in Abbildung 1.1 zu finden.

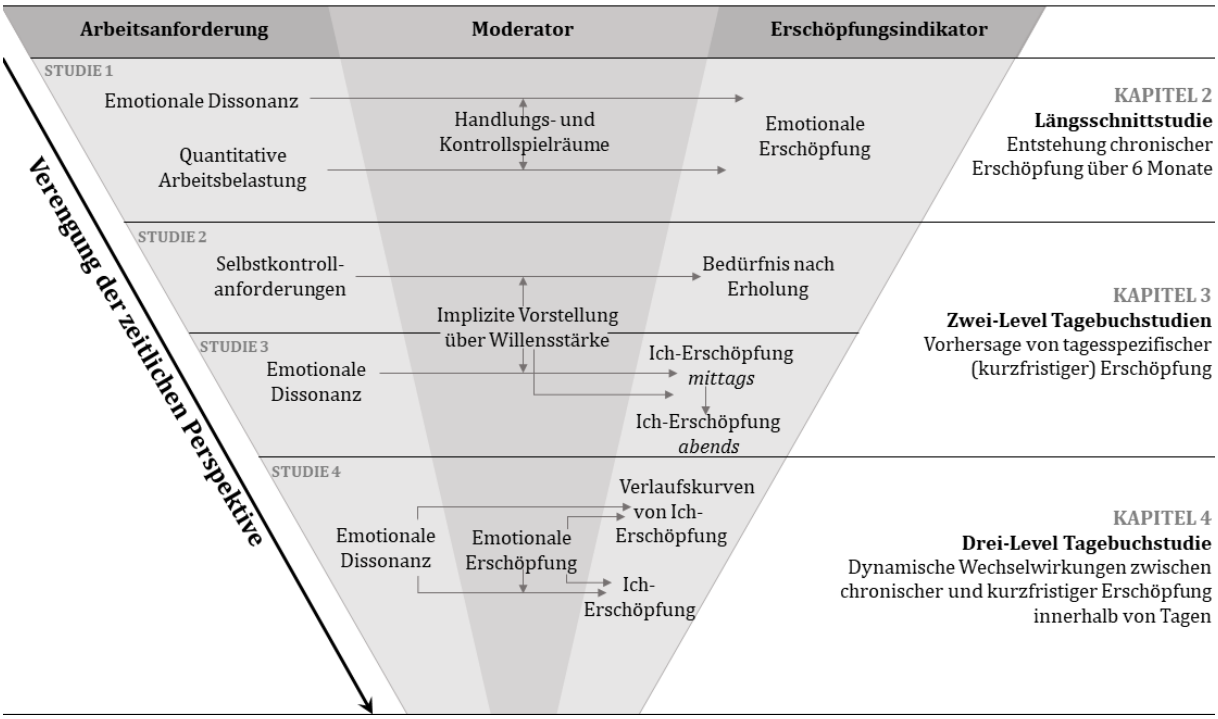

Abbildung 1.1. Rahmenmodell der vorliegenden Dissertation

Ausblick auf die Studien

Studie 1

Neuere meta-analytische Ergebnisse zeichnen ein durchwachsenes Bild von Handlungs- und Kontrollspielräumen als Moderator, der die Auswirkungen von Arbeitsanforderungen auf Erschöpfung reduziert (de Lange, Taris, Kompier, Houtman, & Bongers, 2003; Häusser et al., 2010; Van der Doef & Maes, 1999). Um diese gemischten Befunde zu erklären, wird in der ersten Studie der moderierende Effekt von Handlungs- und Kontrollspielräumen auf die Auswirkungen von quantitativen Arbeitsbelastungen und Emotionaler Dissonanz (als zwei distinkte Arbeitsanforderungen) auf die Entstehung Emotionaler Erschöpfung (über einen Zeitraum von sechs Monaten) untersucht. Auf Grundlage des Job Demands-Control Modells (Karasek, 1979), des Stärke-Modells der Selbstkontrolle (Muraven & Baumeister, 2000) und des Matching-Prinzips (de Jonge & Dormann, 2006) wird angenommen, dass Handlungs- und Kontrollspielräume zwar den Umgang mit arbeitsbezogenen Anforderungen vereinfachen können, aber zur selben Zeit die Ausübung von Selbstkontrolle erfordern. Darauf aufbauend wird argumentiert, dass Handlungs- und Kontrollspielräume die Auswirkungen von quantitativen Arbeitsbelastungen reduzieren, aber gleichzeitig die Auswirkungen von Emotionaler Dissonanz verstärken. Dieser Verstärkungseffekt wird vermutet, da die Auflösung von Emotionaler Dissonanz auch Selbstkontrolle erfordert (Diestel & Schmidt, 2011a; Diestel & Schmidt, 2011b; Schmidt & Diestel, 2014; Zapf & Holz, 2006) und dies in Kombination mit Handlungs- und Kontrollspielräumen die begrenzte regulatorische Ressource überproportional erschöpft.

Um diese Annahmen zu überprüfen, wurde eine Cross-Lagged-Panel Studie mit Arbeitnehmern eines Versorgungsunternehmens (N = 139) durchgeführt. Dabei wurden die Merkmale der Arbeit (Quantitative Arbeitsbelastung, Emotionale Dissonanz und Handlungs- und Kontrollspielräume) sowie Emotionale Erschöpfung als Indikator chronischer Erschöpfung zu zwei Zeitpunkten mit einem Abstand von sechs Monaten erhoben. Somit ist die Überprüfung von kausalen, sowie von reziproken und inversen Zusammenhängen möglich. Darüber hinaus erlaubt diese Analysemethode die Erfassung von *Veränderungen* in Emotionaler Erschöpfung.

Studie 2

Verschiedene Laborstudien konnten belegen, dass die implizite Vorstellung über Willensstärke (ob davon ausgegangen wird, dass Willensstärke auf einer begrenzten oder unbegrenzten Ressource beruht) die Auswirkungen von Selbstkontrollanforderungen auf Erschöpfungszustände

beeinflusst (Job et al., 2010; Job, Walton, Bernecker, & Dweck, 2015). Diese Befunde wurden allerdings kaum außerhalb experimenteller Bedingungen überprüft und bisher nicht in den Berufsalltag von Arbeitnehmern übertragen. Vor diesem Hintergrund werden in der zweiten Studie neue Erkenntnisse über die implizite Vorstellung über Willensstärke und Argumente aus der Selbstkontrollforschung (Muraven & Baumeister, 2000) zusammengeführt und im Rahmen einer Feldstudie validiert. Es wird der Frage nachgegangen, ob Arbeitnehmer, die glauben, Willensstärke beruhe auf einer begrenzten Ressource, nach einem anforderungsreichen Arbeitstag ein höheres Bedürfnis nach Erholung erleben als Arbeitnehmer, die glauben, Willensstärke beruhe auf einer unbegrenzten Ressource.

Anhand von Daten einer zehntägigen Tagebuchstudie (N = 71; 10 Tage) wird eine multi-level Moderationsanalyse durchgeführt. Es wird überprüft, ob die implizite Vorstellung über Willensstärke den tagesspezifischen Zusammenhang zwischen Selbstkontrollanforderungen bei der Arbeit und dem Bedürfnis nach Erholung nach Feierabend moderiert.

Studie 3

Aufbauend auf Studie 2 werden in Studie 3 die Erkenntnisse zur impliziten Vorstellung über Willensstärke als Moderator anhand derselben Population vertieft und erweitert. Dazu werden empirische Ergebnisse zur Vorstellung über Willensstärke (Job et al., 2010), Annahmen des Stärke-Modells der Selbstkontrolle (Muraven & Baumeister, 2000) und Erkenntnissen zu Übertragungseffekten (Work-to-Home Spillover, Bakker, & Geurts, 2004; Germeys & de Gieter, 2018; Ilies, Schwind, Wagner, Johnson, DeRue, & Ilgen, 2007) miteinander integriert. Darauf aufbauend wird abgeleitet, dass der Umgang mit Emotionaler Dissonanz am Arbeitsplatz die Ausübung von Selbstkontrolle erfordert und sich unmittelbar in erhöhten Werten von Ich-Erschöpfung niederschlägt. Da angenommen wird, dass der Zustand der erschöpften regulatorischen Ressource eine Weile anhält, findet eine Übertragung der Ich-Erschöpfung am Arbeitsplatz auf die Ich-Erschöpfung nach Feierabend statt. Darüber hinaus wird davon ausgegangen, dass die implizite Vorstellung über Willensstärke die Auswirkungen von Emotionaler Dissonanz auf die Ich-Erschöpfung am Arbeitsplatz moderiert und darüber hinaus auch die Übertragung der Ich-Erschöpfung von mittags (bei der Arbeit) auf abends (nach Feierabend) beeinflusst.

Zur Überprüfung dieser Annahmen wurde eine Tagebuchstudie (N = 71; 10 Tage) durchgeführt, anhand derer ein multi-level Strukturgleichungsmodell berechnet wird. Es wird getestet, ob der

Zusammenhang zwischen Emotionaler Dissonanz bei der Arbeit und Ich-Erschöpfung nach Feierabend durch Ich-Erschöpfung bei der Arbeit mediiert wird. Außerdem wird geprüft, ob die implizite Vorstellung über Willensstärke diese mediierten Zusammenhänge moderiert.

Studie 4

Da der Zustand der erschöpften regulatorischen Ressource selten im Hinblick auf unterschiedliche Zeitfenster untersucht wurde, gibt es bislang keine zugrunde liegende theoretische Annahme darüber, wie sich Ich-Erschöpfung innerhalb von Episoden längerer Selbstkontrollausübung (wie bspw. innerhalb von Arbeitstagen) entwickelt. Um das empirische Wissen über den Erschöpfungsprozess der regulatorischen Ressource zu erweitern, werden daher in der vierten Studie Verlaufskurven von Ich-Erschöpfung innerhalb von Arbeitstagen modelliert. Durch die explizite Integration der Bedeutung von Zeit in das Stärke-Modell der Selbstkontrolle (Muraven & Baumeister, 2000) werden Hypothesen über dynamische Beziehungen zwischen Ich-Erschöpfung, Emotionaler Dissonanz und Emotionaler Erschöpfung aufgestellt.

Um diese Annahmen zu überprüfen, wurde eine Tagebuchstudie (N = 64; 10 Tage; 4 Messzeitpunkte pro Tag) durchgeführt, in der Daten auf drei Analyseebenen gesammelt wurden (Messwiederholungen innerhalb von Tagen; zwischen den Tagen; und zwischen den Personen). Um latente Wachstumskurven innerhalb der Tage modellieren zu können, erforderte diese drei-level Datenstruktur die Entwicklung einer neuen methodischen Vorgehensweise. Schritt für Schritt wird diese neue Methode der Datenanalyse beschrieben und durchgeführt. Somit wird die Annahme überprüft, dass Ich-Erschöpfung im Laufe eines Arbeitstages linear zunimmt und durch tagesspezifische Emotionale Dissonanz verstärkt wird. Darüber hinaus wird getestet, ob Emotionale Erschöpfung, welche im Modell (in Anlehnung an das Ressourcen-basierte Modell nach Trougakos et al., 2015) als Indikator für die chronische Erschöpfung der regulatorischen Ressource integriert wird, mit erhöhten Werten von Ich-Erschöpfung in Verbindung steht und den Zusammenhang zwischen Emotionaler Dissonanz und Ich-Erschöpfung moderiert.

Beiträge der Studien zur Erreichung der Forschungsziele

Die Dissertation ist so gestaltet, dass jede der empirischen Studien zur Erreichung aller drei Forschungsziele beiträgt. Eine detaillierte Übersicht über die einzelnen Beträge der Kapitel ist in Tabelle 1.1 dargestellt.

Tabelle 1.1. Übersicht der Beiträge zur Erreichung der Forschungsziele

	Forschungsziel 1: *Moderatoren*	**Forschungsziel 2:** *Zeitliche Perspektive*	**Forschungsziel 3:** *Theoretische Erweiterung*
Kapitel 2 *(Studie 1)*	**Handlungs- und Kontrollspielräume** als organisationale Rahmenbedingung	- Entstehung von Erschöpfung über 6 Monate in einer Längsschnittstudie - Analyse anhand einer **Cross-Lagged-Panel Methode** ➢ *Interindividuelle Unterschiede in Erschöpfung*	- Integration von Annahmen des Job-Demands Control Modells (Karasek, 1979) und des Stärke-Modells - Überprüfung der Annahme, dass der Umgang mit Handlungs- und Kontrollspielräumen Selbstkontrolle erfordert
Kapitel 3 *(Studien 2& 3)*	**Implizite Vorstellung über Willensstärke** als persönliche Rahmenbedingung	- Vorhersage tagesspezifischer Erschöpfung am Abend in zwei Tagebuchstudien - Analyse von **zwei-level Strukturgleichungsmodellen** - Untersuchung von Übertragungseffekten von Ich-Erschöpfung von mittags auf abends ➢ *Intraindividuelle Unterschiede in Erschöpfung*	- Integration empirischer Befunde zur impliziten Vorstellung über Willensstärke - Überprüfung der Behauptung, Ich-Erschöpfung sei „all in your head“ (Job et al., 2010) - Untersuchung, ob der Glaube an eine unbegrenzte Willensstärke direkte Auswirkungen von Selbstkontrolle abmindert sowie die Erholung der erschöpften Ressource verstärkt
Kapitel 4 *(Studie 4)*	**Emotionale Erschöpfung** als Vulnerabilitätsfaktor	- Vorhersage momentaner Ich-Erschöpfung in einer Tagebuchstudie - Modellierung von tagesspezifischen Verlaufskurven von Ich-Erschöpfung durch **multi-level latente Wachstumsmodelle** - Untersuchung dynamischer Wechselwirkungen zwischen chronischer und tagesspezifischer Erschöpfung ➢ *Inter- und Intraindividuelle Unterschiede in Erschöpfung*	- Integration von Annahmen des Ressourcen-basierten Modells (Trougakos et al., 2015) und des Stärke-Modells - Validierung von Emotionaler Erschöpfung als Indikator einer chronisch reduzierten regulatorischen Ressource - Explizite Ergänzung zeitlicher Aspekte in das Stärke-Modell

KAPITEL 2

Handlungs- und Kontrollspielräume als Moderator, der die Entstehung von Emotionaler Erschöpfung beeinflusst

STUDIE 1

Konze, A.-K., Rivkin, W., & Schmidt, K.-H. (2017). Is job control a double-edged sword? A cross-lagged panel study on the interplay of quantitative workload, emotional dissonance, and job control on emotional exhaustion. *International Journal of Environmental Research and Public Health, 14*(12), 1608. https://doi.org/10.3390/ijerph14121608

Is job control a double-edged sword? A cross-lagged panel study on the interplay of quantitative workload, emotional dissonance, and job control on emotional exhaustion.

Abstract

Previous meta-analytic findings have provided ambiguous evidence on job control as a buffering moderator of the adverse impact of job demands on psychological well-being. To disentangle these mixed findings, we examine the moderating effect of job control on the adverse effects of quantitative workload and emotional dissonance as distinct work-related demands on emotional exhaustion over time. Drawing on the job demands-control model, the limited strength model of self-control, and the matching principle we propose that job control can facilitate coping with work-related demands but at the same time may also require employees' self-control. Consequently, we argue that job control buffers the adverse effects of quantitative workload while it reinforces the adverse effects of emotional dissonance, which also necessitates self-control. We examine the proposed relations among employees from an energy supplying company (N = 139) in a cross-lagged panel study with a six-month time lag. Our results demonstrate a mix of causal and reciprocal effects of job characteristics on emotional exhaustion over time. Furthermore, as suggested, our data provides evidence for contrasting moderating effects of job control. That is, job control buffers the adverse effects of quantitative workload while it reinforces the adverse effects of emotional dissonance on emotional exhaustion.

Keywords: cross-lagged panel; emotional dissonance; emotional exhaustion; job control; job demands-control model; quantitative workload

Introduction

Over the past decades, work environments have undergone significant changes caused by fast developing technologies, an increasing focus on service orientation and highly competitive conditions. Due to these changes, employees are confronted with an increase in mentally stressful job demands. In 2016, roughly a third of EU employees reported to work to tight deadlines at least half of their time (37%) and to suppress their emotions at work either all or most of the time (31%; Eurofound, 2016). Time pressure and high levels of work volume, in other words, high quantitative workload has continuously increased in advanced industrialized societies (Sonnentag & Frese, 2003). Furthermore, due to the increase of service sector occupations, employees increasingly face high emotional demands, as they are required to display emotions and behaviors that are in line with organizational rules or expectations, even if this means "faking" emotions and suppressing true feelings (referred to as emotional dissonance; Grandey, 2000). So far, research has provided convincing evidence that high levels of these job demands can cause impairments in employees' psychological well-being (Häusser et al., 2010; Van der Doef & Maes, 1999), such as burnout. A core characteristic of burnout is emotional exhaustion (Maslach et al., 1986), which reflects a lack of energy and adversely affects important organizational outcomes, such as turnover and job performance (Wright & Cropanzano, 1998). Therefore, understanding how burnout develops over time and investigating the interplay between job characteristics in order to identify factors, which may protect employees' psychological well-being has become of central interest in the field of occupational health psychology (Häusser et al., 2010).

One of the most influential models guiding this research is the Job Demand–Control (JD-C) model (Karasek, 1979; Karasek & Theorell, 1992), which identifies two crucial job characteristics that influence employees' well-being. On the one hand, job demands refer to stressors (i.e., having to work under time pressure or having to cope with emotionally demanding situations), which require employees' effort. On the other hand, job control is defined as the extent to which an employee has potential control over decisions concerning when, where, and how to perform work tasks. According to the JD-C model (Karasek, 1979; Karasek & Theorell, 1992), impairments in psychological well-being are most likely to arise in jobs with high job demands and low job control.

This theoretical notion has been examined on the basis of two distinct hypotheses (Beehr, Glaser, Canali, & Wallwey, 2001; de Lange et al., 2003; Häusser et al., 2010; Van der Doef & Maes, 1999): First, the strain hypothesis suggests job demands and job control as distinct predictors of well-being, implying that these two job characteristics are directly related to psychological well-being. Second, the buffer hypothesis proposes that job control interacts with job demands in predicting well-being. More specifically, job control is argued to buffer the adverse impact of job demands and thus, mitigate their detrimental consequences on employees' psychological well-being.

Despite its dominant prevalence in occupational health research, empirical evidence for the validity of the JD-C model has been mixed so far. While three meta-analyses found compelling evidence

for the strain hypothesis in cross-sectional studies (de Lange et al., 2003; Häusser et al., 2010; Van der Doef & Maes, 1999), longitudinal evidence for the additive (direct) effects of job demands and job control on well-being is not yet definite (de Lange et al., 2003; Häusser et al., 2010; Mauno, Maekikangas, & Kinnunen, 2016; Van der Doef & Maes, 1999). Moreover, as the majority of studies on the JD-C model have been conducted on the basis of cross-sectional designs, questions concerning the causality of effects still remain. Accordingly, de Lange and colleagues (2003) have called for more longitudinal research "to obtain a fuller understanding of the dynamic interplay between work and worker health" by analyzing reversed and reciprocal relations (p. 302).

Making this picture even more complicated, empirical evidence for the buffer hypothesis is even less consistent. Several meta-analyses found support for the interaction of job demands and job control in less than half of the studies (only 30–48% of studies supported the buffer hypothesis; de Lange et al., 2003; Häusser et al., 2010; Van der Doef & Maes, 1999). Moreover, Tanner and colleagues (Tanner, Bamberg, Kersten, Kozak, & Nienhaus, 2017) also demonstrate counterintuitive reinforcing effects of job control in the relation between misfit of personal and organizational standards and depressive symptoms. In light of this ambiguous evidence on job control as a buffering moderator, several methodological and conceptual explanations have been proposed, such as small sample size (de Lange et al., 2003), lack of longitudinal studies (de Lange et al., 2003; Van der Doef & Maes, 1999), and the use of (overly) general measures for job demands (Brough & Biggs, 2015; De Jonge, Van Vegchel, Shimazu, Schaufeli, & Dormann, 2010; Schmidt & Diestel, 2011). However, most of these explanations did not consider theoretical arguments for the lack of evidence on interactions between job demands and job control. One notable exception is a study by de Jonge and colleagues (De Jonge et al., 2010), who contend that the failure to distinguish between different, domain-specific types of job demands (i.e., mental demands, emotional demands, and physical demands) may be one reason for the inconsistent findings on the JD-C model. This proposition is consistent with the matching principle (de Jonge & Dormann, 2006), which suggests that the buffering effect of resources will most likely emerge, if the type of resource matches the specific demand.

In the present study, we aim to advance this proposition by analyzing quantitative workload and emotional dissonance as two distinct job demands. We argue that compared with quantitative workload, which can require different forms of effort (i.e., cognitive-, self-control- or even motor effort), coping with emotional dissonance predominantly necessitates the exertion of volitional self-control to suppress genuine emotions and express emotions, which are not truly felt (De Jonge et al., 2010). In line with the strength model of self-control, which suggests that self-control draws on and depletes a limited regulatory resource (Diestel et al., 2015; Muraven & Baumeister, 2000), and that the chronical depletion of this resource is related to adverse consequences for employees' psychological well-being (i.e., emotional exhaustion, Muraven & Baumeister, 2000), we propose that the particularly high requirement to exert self-control can account for the adverse consequences of emotional dissonance. In addition, drawing on experimental findings, which show that decision making can also consume this regulatory resource

(Vohs, Baumeister, Schmeichel, Twenge, Nelson, & Tice, 2014), we propose that job control may also require employees' self-control, because it involves thoughtful decision-making and choosing between different strategies to accomplish work tasks. Integrating these arguments and the matching principle (de Jonge & Dormann, 2006), we propose that on the one hand, job control as a resource can provide coping opportunities (i.e., rescheduling tasks) when dealing with quantitative workload and through this match may buffer the adverse consequences of quantitative workload. On the other hand, we argue that job control may not be appropriate when coping with emotional dissonance. More specifically, we propose that job control may even reinforce the adverse effects of emotional dissonance, because both job characteristics are thought to necessitate self-control, resulting in overadditive depletion of the limited regulatory resource and associated emotional exhaustion.

Given the limitations of existing JD-C studies (first, a lack of longitudinal study designs that examine the causality of effects and second, a lack of theoretical reasoning for inconsistent findings on the buffer hypothesis that might be accounted for by a one-sided, biased view on job control), the present study may offer at least two contributions to research on the JD-C model. First, we intend to broaden the understanding of the causality of effects by analyzing the relations in a two-wave cross-lagged panel design, thereby considering potential reversed and reciprocal effects. Second, we integrate notions from the JD-C model (Karasek, 1979; Karasek & Theorell, 1992), the limited strength model of self-control (Muraven & Baumeister, 2000), and the matching principle (de Jonge & Dormann, 2006) to introduce theoretical refinements of the JD-C model. We argue that job control can be a double-edged sword, which can exert beneficial, as well as harmful effects on emotional exhaustion, contingent on the type of demand the employee faces. By that means, we provide a possible explanation for previously inconsistent findings on the buffer hypothesis (Tanner et al., 2017).

In the following, we first focus on the strain hypothesis to develop distinct predictions for the direct effects of quantitative workload, emotional dissonance, and job control on emotional exhaustion. After that, we discuss the buffer hypothesis to shed new light on the potential ambiguous role of job control as a moderator. Our predictions are then tested in a two-wave cross-lagged panel study design.

The Strain Hypothesis: Examining the Causality of Direct Effects

According to the strain hypothesis, high job demands, defined as "psychological stressors involved in accomplishing the workload" (Karasek & Theorell, 1992, p. 291), are proposed to directly impair psychological well-being. Nowadays, a plethora of studies has provided strong empirical support for this hypothesis (de Lange et al., 2003; Häusser et al., 2010; Van der Doef & Maes, 1999).

While the relations between job demands and well-being are widely acknowledged, empirical evidence on the underlying causality of these relations is still rare (de Lange et al., 2003). This shortcoming is caused by an overrepresentation of cross-sectional studies within the JD-C literature, given that about 80% of studies have been conducted using cross-sectional designs (Häusser et al., 2010;

Mauno et al., 2016). These study designs, however, do not allow for examining reversed or reciprocal relationships (Zapf et al., 1996) and therefore, cannot rule out the possibility of reversed or reciprocal causality (e.g., job demands and well-being might influence each other reciprocally). For example, Zapf and colleagues (1996) suggest several different processes that might account for reciprocal effects (i.e., healthier employees might perceive their jobs more positively and might promote positive changes in their work). Accordingly, researchers (de Lange et al., 2003; Häusser et al., 2010) have emphasized the importance of examining the association between job demands and well-being in longitudinal studies, thereby considering reversed and reciprocal causal relationships.

Among the most studied job demands in the current JD-C literature, quantitative workload stands out as being predominant (Häusser et al., 2010; Van der Doef & Maes, 1999). High time pressure and excessive amounts of work constitute the core aspects of quantitative workload, which has been shown to be positively related to several indicators of impaired psychological well-being, such as emotional exhaustion (Diestel & Schmidt, 2009). Even though some aspects of high workload may necessitate the exertion of self-control (i.e., resist distractions when working under high time pressure; Diestel & Schmidt, 2009) overall high workload constitutes a job demand, which can be thought to require a variety of different forms of effort, such as cognitive (i.e., memory and attention) and even motor functions (i.e., precise movements and stamina). For example, to fix a broken electricity line in a short amount of time, technicians need to make use of their previous knowledge (i.e., to figure out the problem) and potentially use some form of motor skills to fix the problem. Accordingly, high quantitative workload is proposed to necessitate different forms of effort, which is associated with load reactions (i.e., increase of heart rate, mental fatigue) and if maintained for longer time periods can result in impairments of psychological well-being (Geurts, Kompier, Roxburgh, & Houtman, 2003). Consistently, we propose that the adverse effects of high quantitative workload on emotional exhaustion are likely to rely on different forms of effort.

Moreover, complementing notions from existing studies (e.g., de Lange et al., 2003; Häusser et al., 2010; Van der Doef & Maes, 1999), we examine the causality of effects by analysing whether quantitative workload predicts emotional exhaustion over time. Emotional exhaustion, as one of the core dimensions of burnout, is defined as a lack of energy and a sense of emotional resources being consumed fully by work (Maslach et al., 1986; Schaufeli & Taris, 2005). In the present study, we examine emotional exhaustion as an indicator of well-being because (a) it constitutes a dominant indicator of well-being, which was examined in a plethora of studies drawing on the framework of the JD-C model (de Lange et al., 2003) and (b) it has been suggest to result from the chronic depletion of the regulatory resource underlying acts of self-control (Schmidt & Diestel, 2015). Thus, we predict:

Hypothesis 1: *Quantitative workload has a positive effect on the development of emotional exhaustion over time.*

Since the emergence of the JD-C model in the 1980s, there has been a decline of manufacturing industries and an increase of service-oriented occupations (Judge, Woolf, & Hurst, 2009; Wharton, 1993). This transition has led to a shift from physical demands to emotional demands (Dormann & Zapf, 2004; Lewig & Dollard, 2003). For example, regardless of their true emotions, service employees are expected to be friendly and helpful, health service workers are expected to be caring and nurturing, and funeral home directors are expected to be sober (Abraham, 2000). Contrasting this development, the majority of studies on the JD-C model focused on more traditional job demands (i.e., physical effort and quantitative workload), thereby excluding other important job demands (i.e., emotional demands; De Jonge et al., 2010; Lewig & Dollard, 2003). De Jonge and colleagues (2010) concluded that this limitation of existing JD-C studies contrasts with the considerable empirical evidence showing that emotional demands are meaningful and unique predictors of impaired psychological well-being.

Indeed, employees are increasingly required to display organizationally mandated emotions, even when they contradict genuinely felt emotions (Grandey, 2000; Hochschild, 1983). The extent to which employees experience a mismatch between felt and displayed emotions is commonly referred to as emotional dissonance, a demand that is strongly associated with different indicators of impaired psychological well-being (Diestel et al., 2015; Diestel & Schmidt, 2010). These adverse effects of emotional dissonance can be accounted for by the strength model of self-control (Muraven & Baumeister, 2000). According to this model, acts of self-control involve volitionally inhibiting, altering, and overriding automatic or habitual responses (cf., Gailliot & Baumeister, 2007). These effortful internal processes are proposed to require the expenditure of a limited regulatory resource capacity, thereby rendering it less available for subsequent self-control attempts. Hence, previous research has strongly suggested that coping with emotional dissonance puts high demands on volitional self-control (Diestel et al., 2015), because portraying emotions contrary to one's genuinely felt emotions can be thought to require continual monitoring of organizationally mandated emotions, effortful suppression of genuine emotions, and a continuous modification of the required emotional expression (Schmidt & Diestel, 2014). While the expression of specific emotions at work might contribute to achieving organizational goals, there is compelling evidence that this adaptation of emotions may come at a cost for employees. In particular, there is broad empirical evidence drawing on the strength model of self-control, which suggests that coping with emotional dissonance drains the limited regulatory resource (e.g., Diestel et al., 2015; Muraven & Baumeister, 2000; Schmidt & Diestel, 2014). Consequently, coping with emotional dissonance, as a potential form of self-control, is likely to draw on and deplete a common regulatory resource capacity. Moreover, when employees frequently exert self-control without being able to replenish their depleted resources, psychological well-being is proposed to be considerably impaired (Muraven & Baumeister, 2000). In line with this proposition, emotional dissonance has been found to be related to symptoms of burnout (such as emotional exhaustion) in cross-sectional, as well as in longitudinal studies (e.g., Gailliot & Baumeister, 2007).

Taken together, coping with emotional dissonance can be expected to drain a limited regulatory resource, resulting in emotional exhaustion. Again, to examine the causality of effects, this relationship is tested longitudinally. Thus, we hypothesize:

Hypothesis 2: *Emotional dissonance has a positive effect on the development of emotional exhaustion over time.*

Despite the direct effect of high job demands on impaired psychological well-being, the strain hypothesis further suggests that high job control directly relates to increased psychological well-being. According to Karasek (1979), this favorable impact of job control results from the opportunity to exercise judgment and the freedom to select the most appropriate skills and ways to complete work tasks. To the extent that an organization permits its employees to set priorities autonomously and to allocate their efforts most appropriately, feelings of efficacy and the ability to cope with the environment are enhanced (Abraham, 2000; Karasek, 1979). Furthermore, as human beings generally strive for self-determination rather than being controlled by others (Skinner, 1995), the fulfillment of this need is directly associated with psychological well-being.

Some prior research on job control has conceptualized job control in terms of broad and distal measures, thereby combining different facets of control, with aspects such as job complexity, skill discretion, and learning opportunities (Sargent & Terry, 1998; Schmidt & Diestel, 2011; Wall & Jackson, 1996). The use of these broad measures might have limited the probability of detecting true effects, as they involve the risk of masking specific effects of job control (Schmidt & Diestel, 2011). Consequently, Wall and Jackson (1996) developed a more specific measure of job control that incorporates timing control (as the employee's opportunity to determine the scheduling of work) and method control (as the employee's choice on how to perform a work task). This measure of job control has provided better chances for detecting specific effects of job control (Schmidt & Diestel, 2011). For instance, Wall and Jackson (1996) found the hypothesized effects of job control using their more specific measure, whereas parallel analyses applying a broader measure did not show equivalent effects.

We shall notice at this point, that as suggested in the title of this study ("Is Job Control a Double-Edged Sword?"), we expect job control to have differential effects on emotional exhaustion. In short, we argue that the freedom of choice that results from high levels of job control can constitute a beneficial or detrimental boundary condition. On the one hand, we propose that high levels of job control enhance feelings of self-efficacy and self-determination. On the other hand, we suggest that dealing with high job control may require effortful decision-making and active initiative that just like other processes of self-control (i.e., coping with emotional dissonance) may deplete a common regulatory resource (Vohs et al., 2014). Accordingly, we suggest that under specific circumstances, job control can have an adverse impact on emotional exhaustion. In particular, its potential disadvantages (effortful decision-making that depletes a common regulatory resource), may outweigh its potential advantages (enhanced feelings of

self-efficacy) in situations when an employee simultaneously faces high levels of job control and high levels of demands that also necessitate self-control. However, although we argue that dealing with high levels of job control may involve effortful decision-making, we do not expect that this internal process on its own is crucial in substantially depleting the regulatory resource. Thus, in accordance with the JD-C model as the dominant theoretical framework of the current study and in line with a plethora of studies on this model, we expect job control to exhibit a direct, beneficial impact on employees' emotional exhaustion.

In sum, we suggest that job control (defined as timing and method control) offers the freedom to allocate time and effort in completing work tasks in a way that is most suitable for each individual. Therefore, we expect job control to be negatively related to feelings of emotional exhaustion:

Hypothesis 3: *Job control has a negative effect on the development of emotional exhaustion over time.*

Because we test Hypothesis 1 to 3 in a cross-lagged panel design, we hypothesize that quantitative workload, emotional dissonance, and job control as distinct job characteristics at Time 1 (T1) predict changes in emotional exhaustion from T1 to Time 2 (T2), while simultaneously considering potential reversed or reciprocal effects. By choosing this method of analysis, we intend to examine the direction of the relations between these job characteristics and emotional exhaustion.

The Buffer Hypothesis: Is Job Control a Double-Edged Sword?

In addition to the direct effects that are postulated in the strain hypothesis, the JD-C model further suggests that impairments in psychological well-being can also result from joint effects of job demands and job control (Karasek, 1979). In particular, the buffer hypothesis proposes that high levels of job control can protect employees from the adverse consequences of high job demands (Karasek, 1979). This moderating effect of job control is expected to result from the opportunity to decide how to perform work tasks, the freedom to decide how to schedule and pace the work processes and the choice over methods to accomplish work goals (Karasek & Theorell, 1992). From an action-regulation perspective, job control offers the possibility to appraise and seek constructive coping responses by addressing job demands at times and in ways that fit an employee's coping strategy (Prem et al., 2016). If employees are granted the freedom to exercise control over their tasks, methods, scheduling, and pacing, they have the possibility to face demands when they are best able to do so and in ways they find most appropriate (Schmidt & Diestel, 2011). Consequently, employees with high levels of control over their work are able to utilize a wide range of strategies when being confronted with high job demands (Ilies, Dimotakis, De Pater, 2010), such as deciding on the pacing of their work and taking short breaks (Sonnentag, 2001), prioritizing goals (Adams & Jex, 1999), or choosing between different methods to accomplish tasks (Luchman & González-Morales, 2013).

It is especially this hypothesis that has received much attention, because its central implication is that job demands can be increased with little or even no threat to employees' psychological well-being, as long as there is sufficiently high job control (Wall & Jackson, 1996). However, it is also this hypothesis that has received limited empirical support. For example, in a review of JD-C studies conducted between 1998 and 2007, Häusser and colleagues (2010) found support for the buffer hypothesis only in 29 out of 97 tests (30%). Besides the low support rates in cross-sectional studies, longitudinal support for the lagged interaction effect was even weaker (10%, Häusser et al., 2010). Moreover, a longitudinal study by Tanner and colleagues (2017) has even demonstrated that job control can reinforce the adverse effects of misfit between organizational values and personal practices as a job related stressor.

Due to this inconclusive evidence on the buffer hypothesis, van der Doef and Maes (1999) further examined existing JD-C studies and detected that non-supportive findings were most likely when job demands and job control were broadly conceptualized. On the other hand, supportive findings were more likely when more focused measures were applied and when the type of control corresponded to the type of demand. In other words, job control only buffers the adverse consequences of high job demands, if the type of job control is applicable to the type of demand. This proposition is in line with the matching principle, which suggests that the match of demands and protective resources, such as job control increases the probability of demonstrating interactive effects on well-being (de Jonge & Dormann, 2006).

Consistently, in the present study, we propose that employees, who face high quantitative workload and thus, feel pressured by challenging deadlines and excessive amounts of work, will benefit from high job control. More specifically, when confronted with time pressure, timing control as a matching resource offers the possibility to adjust the scheduling of work. Similarly, when facing excessive workloads, method control offers the opportunity to choose how to perform the task. Therefore, when facing high quantitative workload, employees with high levels of job control can control how they conduct their work tasks, they can decide on the pacing and timing, and they can choose the methods involved in how to accomplish their work-related goals (Luchman & González-Morales, 2013). Consequently, when confronted with high quantitative workload, employees with high levels of job control modify their work processes in order to cope with the workload in a way that fits their coping strategy. Therefore, they will feel less exhausted than employees with low levels of job control, who face the same amount of quantitative workload. Hence, we hypothesize:

Hypothesis 4: *Job control moderates (i.e., buffers) the positive impact of quantitative workload on the development of emotional exhaustion: The relation is attenuated as a function of job control.*

Expanding the approach that job control only buffers the adverse consequences of high job demands, if the type of control is applicable to the type of demand (Tanner et al., 2017; Van der Doef & Maes, 1999), we believe that job control (as timing and method control) will not buffer the impact of

emotional dissonance. Given that many sources of emotional dissonance, such as customer complaints or angry clients, occur unexpectedly, coping with these emotional demanding situations cannot be planned and scheduled proactively. In contrast, employees are required to deal with these situations in the moment they occur. Therefore, job control, as the opportunity to determine the scheduling of work, will not be beneficial when coping with emotional dissonance because it does not appropriately match this demand (de Jonge & Dormann, 2006). Accordingly, Grandey, Fisk, and Steiner (2005) concluded that job control does not impact the need to control tempers or to trigger positive feelings in others, because even the most autonomous employees (i.e., managers) need to regulate emotions. Thus, we do not expect job control to buffer the adverse consequences of coping with emotional dissonance on psychological well-being.

On the contrary, we propose that high job control in combination with high emotional dissonance may even intensify the adverse effects on psychological well-being. This assumption is derived by drawing from research on decision-making and self-regulation. While job control offers several favorable opportunities, it is also likely to require thoughtful decision-making. The freedom to decide when and how to accomplish work tasks and the expectation to choose wisely between different options and strategies can render psychological costs:

"It leaves people indecisive about what to do and why. Freedom of choice is a two-edged sword, for just on the other side of liberation sits chaos and paralysis."

—Schwartz, in *The Tyranny of Freedom* (2000, p. 87)

In several studies, Vohs and colleagues (2014) demonstrated that making choices is depleting and that this depletion results from thinking about and comparing different options. Employees with high levels of job control are expected to organize their work process autonomously, thereby flexibly adapting their behavior according to changing time schedules or organizational rules. These expectations cannot be fulfilled by rigid, automatic, or habitual behavioral patterns; rather, they seem to cause employees to constantly compare different behavioral options and to identify the best strategy to accomplish the work task. This contemplation of alternatives and the selection among them is an effortful internal act that requires more than habitual behavioral patterns (Vohs et al., 2014).

Instead, decision-making is likely to involve the self's executive function, which initiates and maintains action and regulates the self. This view of decision-making as an executive control process implies that choosing between different strategies to accomplish a work task may draw on and deplete a common, limited regulatory resource (Baumeister, Sparks, Stillman, & Vohs, 2008). When choosing between different strategies, a decision maker must trade off advantages and disadvantages, which are thought to induce costly cognitive conflicts (Wang, Novemsky, Dhar, & Baumeister, 2010). In fact, several studies have demonstrated that decision making, just like other self-control processes, consumes a limited regulatory resource (Muraven & Baumeister, 2000), thereby rendering the resource less avail-

able for further acts of self-control (Vohs et al., 2014). Accordingly, the chronic depletion of this resource is likely to manifest in high levels of impaired psychological well-being (Muraven & Baumeister, 2000).

Hence, if coping with high emotional dissonance is likely to consume a limited regulatory resource and if dealing with high job control may also consume the same limited regulatory resource, in line with the strength model of self-control, we expect that these two job characteristics will exert interactive effects on employees' psychological well-being. In other words, because both job characteristics seem to draw on and deplete a common regulatory resource, we propose that the positive relation between emotional dissonance and emotional exhaustion is likely to be amplified as a function of job control. Strong empirical support for this argument is provided by Diestel and Schmidt (2011b), who demonstrated that simultaneous coping with two distinct demands on self-control causes higher levels of strain than accounted for by the additive effects of each demand. Thus, in jobs that are characterized by high levels of emotional dissonance and high levels of job control, employees may have to exert higher amounts of self-control, which is expected to draw on the common limited resource, resulting in disproportionate levels of regulatory resource depletion. Consequently, depletion of this resource is more likely and recovery of that resource is more difficult compared to coping with only one of these job characteristic. Therefore, we hypothesize:

Hypothesis 5: *Job control moderates (i.e., reinforces) the positive impact of emotional dissonance on the development of emotional exhaustion: The relation is reinforced as a function of job control.*

Methods

Research Design and Participants

A complete two-wave panel survey was conducted among employees from an energy supplying company in Germany. In this sample, quantitative workload (many deadlines and high workload due to competitive pressure) and emotional dissonance (customer interactions, especially customer complaints) constitute major stressors. The study was announced at staff meetings and via emails sent by managers and the research team. Invitations to the online surveys were sent to employees' email addresses who completed the surveys during working hours. Participation was anonymous, voluntary and not motivated by any incentives. Moreover, the study was conducted with agreement of the workers' council. The self-report surveys were sent on two occasions with a six-month time lag. By choosing this time lag, we complied with a recent request for longitudinal studies with time lags shorter than one year (de Lange et al., 2003). As de Lange and colleagues (de Lange et al., 2003) pointed out, the majority of longitudinal JD-C studies have collected data at least one year apart. Hence, in this study, we adopted the approach by Baillien, De Cuyper, and De Witte (2011) and chose a six-month time lag to enhance insights in shorter term consequences of job characteristics and job control.

At the first occasion (in July/August 2016), 238 out of 452 employees followed the invitation to participate in the study (response rate 52.7%). At the second measurement point (in January/February 2017), 195 employees took part (response rate 43.1%); leading to an overlap of 139 participants who responded to the surveys on both occasions. Of these participants, 34.5% were female, 16.2% worked part-time, and the majority of participants (62.0%) were at least 46 years old. On average, employees had been working in the company for 20.0 years (SD = 10.7) at the first measurement point.

Measures and Control Variables

We designed the study as a complete two-wave cross-lagged panel. Therefore, questionnaires at both occasions were identical and comprised of the same scales.

Quantitative workload was measured with three items that were based on the Short Questionnaire for Job Analysis by Prümber, Hartmannsgruber, and Frese (1995). The original two-item subscale of quantitative demands was extended by constructing a third item (Diestel & Schmidt, 2009). Overall, the measure addressed demanding aspects, such as time pressure and work volume and thus, covered demands that have been considered in prior investigations of the JD-C model (de Jonge & Kompier, 1997; Schmidt & Diestel, 2011; Van der Doef & Maes, 1999). An exemplary item is "At my work, I often feel that I am pressed for time." Participants responded on a five-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

Emotional dissonance was assessed with five items from the Frankfurt Emotion Work Scale (Zapf et al., 1999). Participants were asked to report the frequency of experienced discrepancies between felt emotions and those required by the job role (e.g., "How often do you have to show feelings at work that you do not really feel?"). The items were slightly modified by asking specifically about interactions with colleagues and customers. The five-point response format ran from 1 (*never*) to 5 (*very often*).

Job control was measured by combining items from the timing control (three items) and method control (four items) subscales developed by Jackson and colleagues (Jackson, Wall, Martin, & Davids, 1993). This procedure is consistent with previous work on the JD-C model (Schmidt & Diestel, 2011; Wall & Jackson, 1996). All items, such as "Do you decide on the order in which you do things?" and "Can you choose the methods to use in carrying out your work?" were scored on a five-point scale with anchors from 1 (*not at all*) to 5 (*a great deal*).

Emotional Exhaustion as the focal dimension of burnout was assessed with eight items from the German translation (Büssing & Perrar, 1992) of the Maslach Burnout Inventory (Maslach et al., 1986). This specific dimension of burnout refers to feelings of being emotionally overextended of emotional and physical resources resulting from demands of one's work. An exemplary item is "I feel emotionally drained by my work". Participants responded on a six-point scale that ranged from 1 (*never*) to 6 (*very often*).

All measures revealed satisfactory internal consistencies, as presented in Table 2.1.

Analytical Procedure

To investigate the hypotheses in the cross-lagged panel, we analyzed path models using the software R and the lavaan package (Rosseel, 2012). Thereby, we adopted the procedure proposed by Hakanen, Schaufeli, and Ahola (2008). Accordingly, to gain a deeper understanding of the causal process, we tested several competing full-panel path models to examine the cross-lagged relations. All path models included all study variables at both occasions. Model 1, the *stability model*, only included autoregressive effects in order to control for baseline levels of each variable. By adding the autoregressive effects to the path models, it is possible (a) to examine the stability of the study variables over time, and, more importantly, (b) to predict the change in emotional exhaustion over time. In Model 2, the *causality model*, we added the hypothesized causal relations to the autoregressive effects. Model 3, the *reversed causation model*, combined the autoregressive effects with reversed effects to test the possibility that the effects run opposite to the hypothesized effects. In Model 4, the *reciprocal model*, we combined the causality and the reversed causation model to test whether job characteristics and emotional exhaustion mutually influence each other over time. An illustration of these four competing models is presented in Figure 2.1

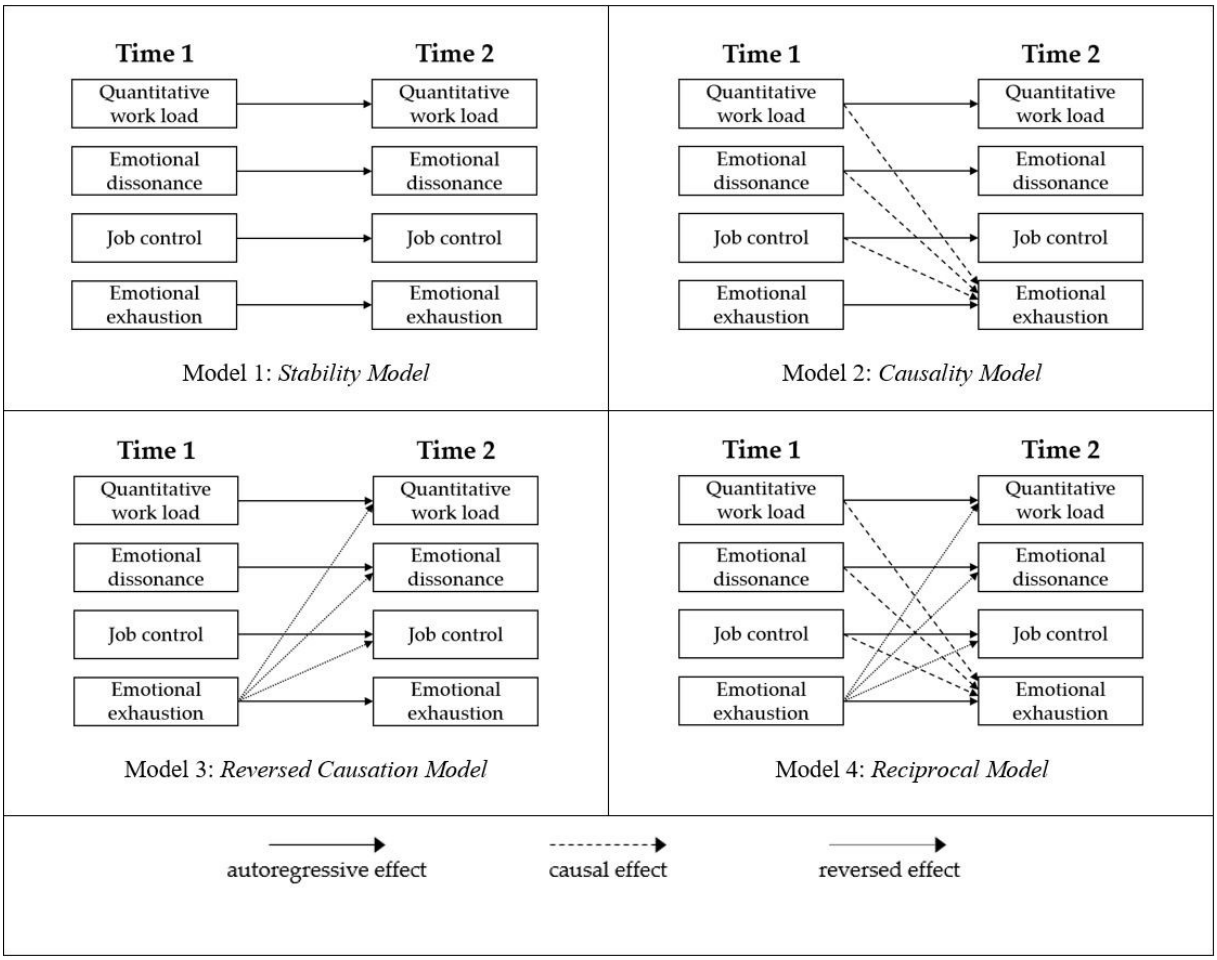

Figure 2.1. Path models for investigating cross-lagged relationships as suggested by Hakanen and colleagues (1999).

We compared these four models on the basis of Comparative Fit Index (CFI $\geq$ 0.95), Tucker-Lewis Index (TLI $\geq$ 0.95), Root Mean Square Error of Approximation (RMSEA $\leq$ 0.05), and $\chi 2$-difference test to identify the best fitting model (numbers in brackets represent cutoff values for good model fit; Hu & Bentler, 1999).

After identifying the best fitting model, the moderation hypotheses (Hypotheses 4 and 5) were tested. Therefore, the interaction terms of (1) quantitative workload and job control and of (2) emotional dissonance and job control were computed by multiplying the z-standardized variables measured at T1. Subsequently, in Model 5, the *moderation model*, these interaction terms were added to the best fitting panel model.

Results

Analysis of Dropout Effects

To examine if a systematic drop out of respondents between the first and the second occasion might have distorted the results, we compared the panel group (participants who responded at both occasions) with the dropouts (participants who only responded at the first occasion) by calculating t-tests with data obtained at T1. There were no significant differences between these two groups, neither for the demographic variables, nor for the study variables. Therefore, we can conclude that no systematic dropout influenced our results.

Measurement Model

As a next step in our analyses, we evaluated the overall measurement model through confirmatory factor analysis (CFA). CFA is a multivariate statistical procedure, which is applied to determine, whether the theoretical factor structure of the constructs is adequately represented by empirical data (Thompson, 2004). In line with the prerequisite of measurement invariance, factor loadings and intercepts were hold equal across time. Moreover, the residual errors of the same items were allowed to be correlated over time. Because emotional exhaustion and job control were each measured with a large number of items, we aggregated the items of both variables into parcels. This procedure offers a number of advantages, such as a reduced number of parameters, more normally-distributed and more reliable measures, and more efficient parameter estimates (Bandalos & Finney, 2001). For emotional exhaustion, we applied the random parceling method to create two distinct parcels with four items each. For job control, as a multidimensional construct, we applied the domain-representative parceling method by joining items from each subscale to create one parcel for timing control (three items) and one parcel for method control (four items; Little, Cunningham, Shahar, & Widaman, 2002). The CFA model that allowed all factors to be correlated over time showed a good fit to the data (χ^2 (221) = 327.02, $p < 0.01$; *CFI* = 0.961; *TLI* = 0.952; *RMSEA* = 0.059).

Descriptive Analyses

For an initial overview of the data, descriptive statistics, internal consistencies (Cronbach's alpha), and correlations among the study variables are presented in Table 2.1. All correlations between T1 job characteristics and T2 emotional exhaustion were in the hypothesized direction and significant. That is, quantitative workload and emotional dissonance at T1 were positively correlated with emotional exhaustion at T2, while job control at T1 was negatively correlated with emotional exhaustion at T2.

Table 2.1. Means, standard deviations, internal consistencies (Cronbach's Alpha) and bivariate correlations of study variables.

	Variable	Time	1	2	3	4	5	6	7	8
1	Quantitative workload	T1	(*0.82*)							
2	Quantitative workload	T2	**0.66**	(*0.80*)						
3	Emotional dissonance	T1	**0.18**	**0.17**	(*0.94*)					
4	Emotional dissonance	T2	0.12	**0.18**	**0.79**	(*0.95*)				
5	Job control	T1	**−0.33**	**−0.28**	**−0.35**	**−0.32**	(*0.85*)			
6	Job control	T2	**−0.23**	**−0.26**	**−0.34**	**−0.40**	**0.70**	(*0.86*)		
7	Emotional exhaustion	T1	**0.42**	**0.38**	**0.49**	**0.48**	**−0.45**	**−0.37**	(*0.91*)	
8	Emotional exhaustion	T2	**0.32**	**0.47**	**0.49**	**0.56**	**−0.25**	**−0.34**	**0.74**	(*0.91*)
	M		2.62	2.61	3.52	3.57	3.23	3.24	2.19	2.27
	SD		0.93	0.84	0.97	0.99	0.59	0.56	0.92	0.93

Note: $N = 139$; numbers in italics are internal consistencies (*Cronbach's Alpha*); numbers in bold are significant at $p < 0.05$.

The Strain Hypothesis: Examining the Causality of Direct Effects

Hypotheses 1–3 focused on the causality of effects between job characteristics and emotional exhaustion. Because the size of our sample did not allow to conduct structure equation modelling with latent constructs (Westland, 2010), we tested our hypotheses on the basis of the means of the relevant constructs and specified cross-lagged path models (all job characteristics and emotional exhaustion at both occasions). In comparison to traditional linear regression analysis, path modelling allows to assess how well different types of theoretical models fit the empirical data (Sarstedt, 2008). As can be seen in Table 2.2, all path models showed an acceptable fit to the data, while the stability model obtained the worst fit. The causality model provided a better fit to the data than the stability model ($\Delta\chi^2 = 15.96$, $p < 0.01$). Furthermore, the reversed causation model fitted the data better than the stability model ($\Delta\chi^2 = 8.62$, $p < 0.05$), but performed worse than the causality model. In comparison with the causality model, the reciprocal model provided no increase in data fit ($\Delta\chi^2 = 7.29$, n.s.). Thus, our results reveal that the causality model fits the data best.

Table 2.2. Model comparison.

#	Model	χ^2	df	CFI	TLI	RMSEA	Model Comparison	$\Delta\chi^2$	Δdf
1	Stability Model	27.42	*12*	0.973	0.937	0.096			
2	Causality Model	11.46	9	0.996	0.987	0.044	1 vs. 2	15.96 **	3
3	Reversed Causation Model	18.80	9	0.983	0.947	0.089	1 vs. 3	8.62 *	3
4	Reciprocal Model	4.17	6	1.000	1.000	0.000	1 vs. 4	23.25 **	6
							2 vs. 3	-7.34	0
							2 vs. 4	7.29	3
							3 vs. 4	14.63 **	3

Note: $N = 139$; * $p < 0.05$; ** $p < 0.01$.

Table 2.3. Parameter estimates of path models.

	Model 2: *Causality Model*		Model 5: *Moderation Model*	
	γ	SE	γ	SE
Autoregressive Effects				
Quantitative workload	0.55 **	0.05	0.55 **	0.05
Emotional dissonance	0.76 **	0.05	0.76 **	0.05
Job control	0.38 **	0.03	0.38 **	0.03
Emotional exhaustion	0.57 **	0.06	0.56 **	0.06
Predicting Emotional Exhaustion T2				
Quantitative workload (T1)	0.07	0.05	0.08	0.05
Emotional dissonance (T1)	0.18 **	0.05	0.17 **	0.05
Job control (T1)	0.14 **	0.05	0.09	0.06
Quantitative workload × job control (T1)			−0.09 *	0.05
Emotional dissonance × job control (T1)			0.11 **	0.04

Note: $N = 139$; * $p < 0.05$; ** $p < 0.01$.

Accordingly, Hypotheses 1–3 were tested within the causality model. Parameter estimates of this model are displayed in Table 2.3. As to be seen, all variables showed significant autoregressive effects, indicating that the variables were somewhat stable with medium (job control) to large effect sizes.

Hypothesis 1 suggested a positive impact of quantitative workload on the change of emotional exhaustion. However, there was no significant lagged effect from quantitative workload to emotional exhaustion (Model 2: $\gamma = 0.07$; *n.s.*). Therefore, the data does not support Hypothesis 1. This seems especially surprising given the significant bivariate correlation between these two variables ($r = 0.32$, $p < 0.01$).

Hypothesis 2 proposed a positive impact of emotional dissonance on the change of emotional exhaustion over time. The results support this hypothesis, showing that emotional dissonance at T1 had a positive effect on the change of emotional exhaustion from T1 to T2 (Model 2: $\gamma = 0.18$, $p < 0.01$).

With regard to Hypothesis 3, we expected a negative impact of job control on the change of emotional exhaustion. Surprisingly, the results reveal a positive cross-lagged relationship between job control at T1 and emotional exhaustion at T2 (Model 2: $\gamma = 0.14$, $p < 0.01$). Thus, Hypothesis 3 was also not confirmed.

The Buffer Hypothesis: Testing Differential Moderating Effects of Job Control

Hypothesis 4 and 5 proposed moderation effects of job control. Therefore, the interaction terms of (1) quantitative workload and job control and of (2) emotional dissonance and job control were added to the causality model (Model 5). Results of this final model are displayed in Table 2.3 and illustrated in Figure 2.2. Again, this model fitted the data well ($\chi^2(12) = 11.92$, *n.s.*; $CFI = 1.000$; $TLI = 1.000$; $RMSEA = 0.000$).

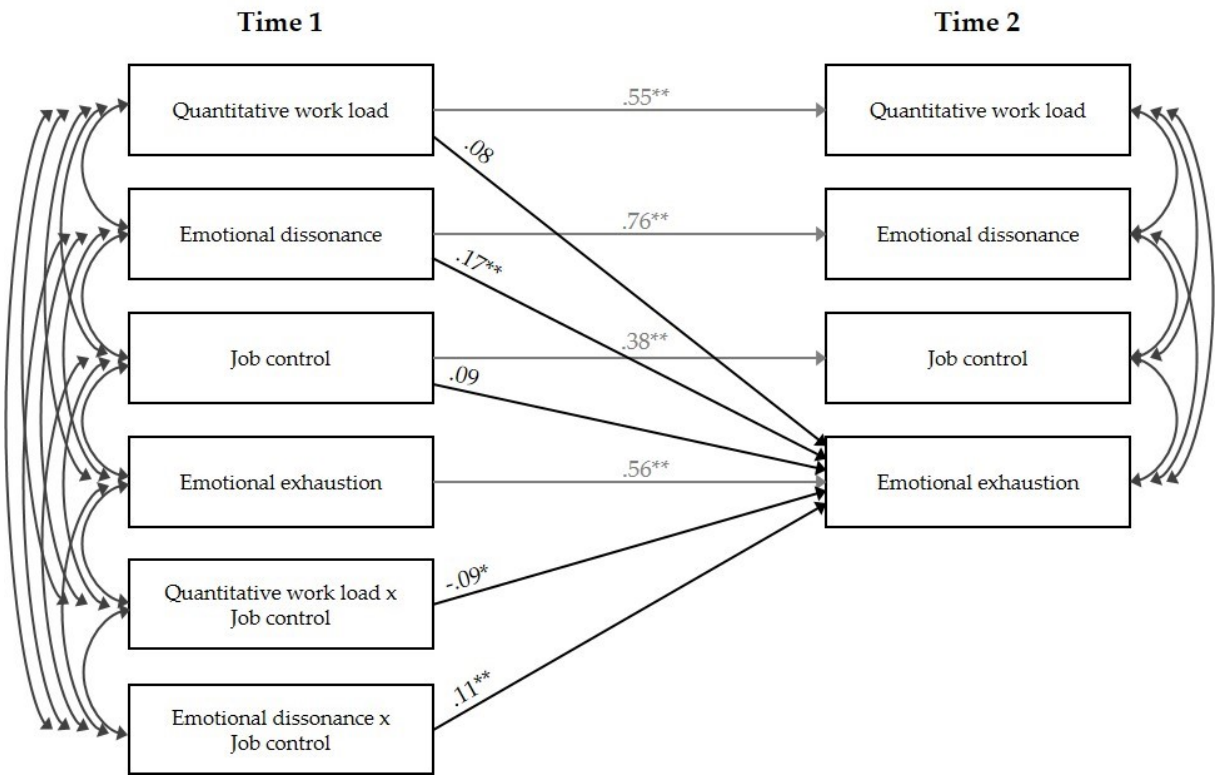

Figure 2.2. Parameter estimates of Model 5 (moderation model); black paths represent causation paths, grey paths represent autoregressive effects; $^{*}p < 0.05$; $^{**}p < 0.01$.

Hypothesis 4 suggested that job control moderates (buffers) the adverse impact of quantitative workload on the development of emotional exhaustion. In line with this hypothesis, the results reveal that the interaction of job control and quantitative workload was negatively related to the change of emotional exhaustion over time (Model 5: $\gamma = -0.09$, $p < 0.05$), thereby providing first support for Hypothesis 4.

Furthermore, Hypothesis 5 proposed that job control moderates (reinforces) the adverse effect of emotional dissonance on the development of emotional exhaustion. The results also support this hypothesis, as indicated by the positive interaction effect of job control and emotional dissonance on the change of emotional exhaustion (Model 5: $\gamma = 0.11$, $p < 0.01$).

In order to facilitate the interpretation of the interaction effects, we plotted the effects and performed simple slope tests as recommended by Preacher, Curran, and Bauer (2006). Before interpreting the plots, a special aspect of this analysis shall be noticed: Due to the inclusion of autoregressive effects within the path models, baseline levels of emotional exhaustion at T1 were controlled. Consequently, the present model does not predict mean levels in emotional exhaustion at T2, but inter-individual differences in changes of emotional exhaustion from T1 to T2. This procedure enables us to examine how job characteristics affect the development of emotional exhaustion over time.

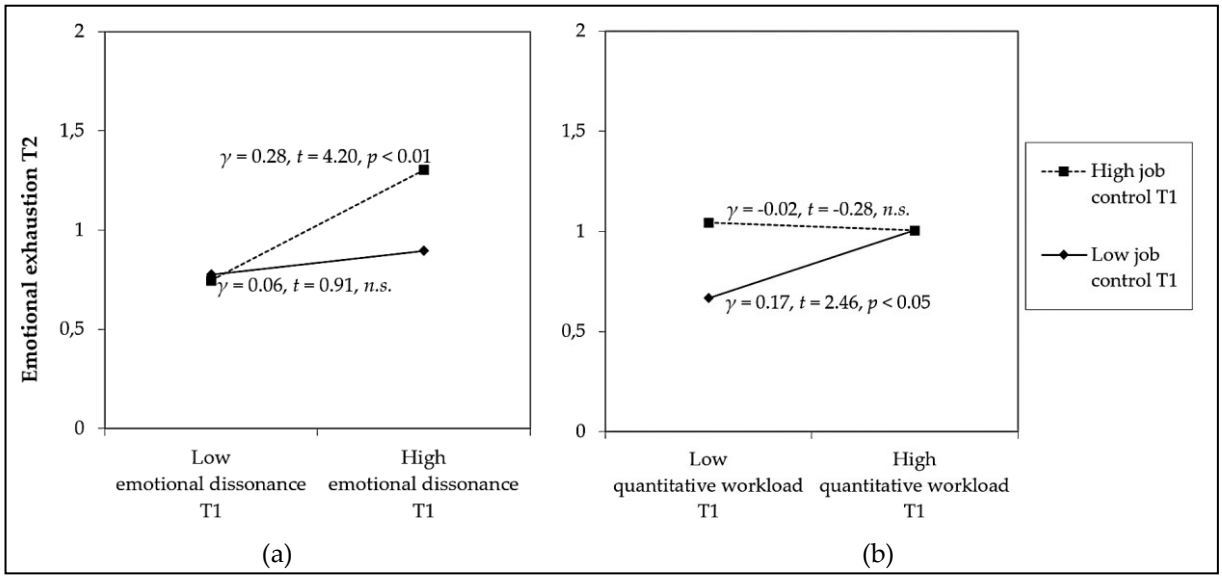

Figure 2.3. Interaction effects of job control and (a) quantitative workload and (b) emotional dissonance on emotional exhaustion; high and low values were operationalized by one standard deviation above and below the mean.

As shown in Figure 2.3, both interactions correspond with Hypotheses 4 and 5. In particular, the buffering effect of job control on the relation between quantitative demands and the development of emotional exhaustion is displayed in Figure 2.3a. As to be seen, under the condition of high job control, increases in quantitative workload do not affect the change in emotional exhaustion ($\gamma = -0.02$, *n.s.*). In other words, the change of emotional exhaustion from T1 to T2 does not differ between employees with low vs. high quantitative workload, as long as job control is high. However, if job control is low, increases in quantitative workload adversely affect the development of emotional exhaustion ($\gamma = 0.17$, $p < 0.05$). Thus, our data fully supports Hypothesis 4. Furthermore, our results also support Hypothesis 5, proposing that job control reinforces the adverse effect of emotional dissonance on the development of emotional exhaustion. As presented in Figure 2.3b, under the condition of high job control, increases in emotional dissonance adversely relate to the development of emotional exhaustion over time ($\gamma = 0.28$, $p < 0.01$). Conversely, if job control is low, increases in emotional dissonance do not relate to the development of emotional exhaustion ($\gamma = 0.06$, *n.s.*). Put differently, the growth in emotional exhaustion from T1 to T2 is subjective to the level of emotional dissonance, only for employees with high job control. Taken together, high levels of job control buffer the adverse effect of quantitative workload, while they reinforce the adverse effect of emotional dissonance on emotional exhaustion over time.

Additional Analyses

In addition to the causal model, we examined the relations of T1 emotional exhaustion to all three job characteristics in the reciprocal model since it has also provided an acceptable data fit. These results indicate that there was only a significant relation between T1 emotional exhaustion and T2 emotional dissonance ($\gamma = 0.13$, $p < 0.05$), thereby demonstrating a reciprocal rather than a causal relation between

emotional dissonance and emotional exhaustion. However, T2 quantitative workload and T2 job control were not affected by T1 emotional exhaustion.

Moreover, due to the fact that our results regarding the strain hypothesis of the JD-C model, specifically (a) the non-significant longitudinal effect of quantitative demands on the change in emotional exhaustion and (b) the significant positive longitudinal effect of job control on the development of emotional exhaustion, seem to be incompatible with the otherwise compelling evidence of the strain hypothesis in cross-sectional studies, we decided to conduct additional analyses. In these analyses, we tested the relationships between job characteristics and emotional exhaustion as predicted in the strain hypothesis of the JD-C model in a cross-sectional design. Therefore, we examined path models with data obtained separately at T1 and T2. When the three job characteristics at T1 simultaneously predicted emotional exhaustion at T1, the results revealed the hypothesized pattern for quantitative workload ($\gamma = 0.25$, $p < 0.01$) and for emotional dissonance ($\gamma = 0.33$, $p < 0.01$). Moreover, in a cross-sectional snapshot, job control was negatively related to emotional exhaustion ($\gamma = -0.22$, $p < 0.01$). Accordingly, cross-sectional analyses of T2 revealed that quantitative workload ($\gamma = 0.41$, $p < 0.01$) and emotional dissonance ($\gamma = 0.44$, $p < 0.01$) were also significantly and positively related to emotional exhaustion. However, we did not find a significant effect for job control ($\gamma = -0.07$, *n.s.*) even though the direction of this effect was in line with the strain hypothesis.

In sum, our results suggest that although quantitative workload and emotional exhaustion are positively associated in a momentary snapshot, quantitative workload does not predict the change in emotional exhaustion over time. Additionally, if analyzed in a cross-sectional design, job control is negatively associated with emotional exhaustion, while it is positively associated with the development of emotional exhaustion, if analyzed longitudinally. A possible explanation for these findings will be discussed in the following.

Discussion

In the present study, we investigated the JD-C model longitudinally, thereby analyzing the development of emotional exhaustion over time within a two-wave cross-lagged panel design. Thus, we addressed several limitations of research on the JD-C model by (a) shedding light on the causality of effects through analyzing causal, reversed, and reciprocal path models and by (b) integrating notions from the JD-C model (Karasek, 1979; Karasek & Theorell, 1992) and the limited strength model of self-control (Muraven & Baumeister, 2000) to introduce theoretical refinements of the JD-C model. By doing so, the present study is one of the first to demonstrate that there is a dark side of job control.

Summary of Results

The results of our study with employees from a German energy supplying company reveal that (1) the causality model provides the best fit to the data of the cross-lagged panel; (2) quantitative workload does not impact the development of emotional exhaustion over time; (3) emotional dissonance has a positive reciprocal relation with emotional exhaustion over time; (4) job control is positively associated with the change in emotional exhaustion; (5) job control buffers the adverse effect of quantitative workload; and, finally, (6) job control reinforces the adverse effect of emotional dissonance on emotional exhaustion. Thus, the results provide strong support for Hypothesis 2, 4, and 5, while Hypothesis 1 and 3 did not receive support. Therefore, the non-significant effect of quantitative workload and the positive effect of job control require closer examination. Given the fact that the direction of the effect of quantitative workload is consistent with Hypothesis 1, the non-significant findings might be attributable to the relatively small sample size of our study (as discussed in the limitations section). While this methodological shortcoming might have affected the results, a further explanation can be derived by integrating all findings into a common framework. When investigating the pattern of results in more depth, our findings indicate that when examined concurrently at T1, high levels of quantitative workload are positively related to emotional exhaustion (as indicated by the additional analyses). But, this level remains stable (and will not increase further over time), as long as the employee has sufficient job control to deal with his or her workload. Thus, in line with the buffer hypothesis, only employees with low levels of job control report a positive impact of quantitative workload on the increase in emotional exhaustion. However, over all, this direct effect of quantitative workload is non-significant. Furthermore, in light of the differential moderating effects of job control, an explanation for the positive direct effect of job control on emotional exhaustion can be derived. In particular, with regard to emotional dissonance, the results reveal that coping with emotional dissonance renders psychological costs that become manifest in higher mean levels of emotional exhaustion, as well as in an increase in emotional exhaustion over time. Furthermore, when simultaneously dealing with high levels of job control, the adverse effect of emotional dissonance on the increase in emotional exhaustion is even amplified. These findings seem to support the notion that coping with emotional dissonance and job control both draw on and deplete a common regulatory resource (Schmidt & Diestel, 2011). Accordingly, it can be concluded that whether job control is beneficial or harmful for an employee in the longer run depends on the type of job demand, the employee faces. Overall, the differential interaction patterns between job demands and job control and the unexpected positive direct effect of job control confirm the assumption that job control can exert beneficial, as well as detrimental effects on employees' psychological well-being.

Theoretical Contributions

Our research offers at least two important theoretical contributions to existing knowledge on the JD-C model and contributes to our understanding regarding the process of how emotional exhaustion as the core dimension of burnout evolves over time. First, the present study sheds light on the underlying causal

relations of job characteristics and emotional exhaustion by demonstrating that the causal model provides the best data fit. Therefore, given the fact that only few JD-C studies have applied longitudinal study designs (de Lange et al., 2003; Häusser et al., 2010; Tanner et al., 2017; Van der Doef & Maes, 1999), this research extents prior knowledge on the temporal order of variables by applying a longitudinal study design. In particular, low support rates in those few studies that were conducted longitudinally have evoked the proposition that unknown reciprocal or reversed causations might account for part of the associations between job characteristics and psychological well-being, thereby potentially distorting prior findings (Zapf et al., 1996). Accordingly, the results of the present study are in line with this rather complex picture. While for quantitative demands the relations seem to be non-significant in both directions our data suggests a reciprocal relation between emotional dissonance and emotional exhaustion. Finally, job control has a counterintuitive positive causal effect on emotional exhaustion. Accordingly, our results suggest that the direction of the relation between job characteristics and emotional exhaustion may not be universal for all but unique for individual job characteristics.

Second, given that previous research has provided somewhat inconclusive results on the buffering effect of job control and in light of the ongoing debate on the buffer hypothesis (e.g., Bandalos & Finney, 2001; Tanner et al., 2017), our study offers an explanation for the mixed findings. By theoretically integrating notions based on the JD-C model (Karasek, 1979), propositions derived from the strength model of self-control (Muraven & Baumeister, 2000), and the matching principle (de Jonge & Dormann, 2006), our results suggest that job control can be a double-edged sword. On the one hand, the results reveal that job control (as timing and method control) attenuates the adverse effect of workload, thus supporting the idea that job control buffers the adverse consequences of job demands when the type of control is applicable to the type of demand. On the other hand, the results demonstrate that job control intensifies the adverse consequence of emotional dissonance, thereby supporting the proposition that simultaneous coping with high job control and high emotional dissonance is likely to draw on and deplete the same limited regulatory resource. While this result is in line with prior empirical findings indicating (a) that decision-making (i.e., choosing between different strategies to accomplish a work task) involves the self's executive function and requires expenditure of regulatory resources (Baumeister et al., 2008; Vohs et al., 2014), and (b) that resources are most helpful if they match the specific type of job demand (de Jonge & Dormann, 2006), it further points out that previous research on job control has largely adopted a one-sided point of view by overlooking the fact that coping with job control can also be effortful. Furthermore, our theoretical proposition may also account for the reinforcing effect of job control in the relation between the misfit of personal and organizational standards and depressive symptoms (Tanner et al., 2017). Drawing on previous findings that goal incongruence constitutes an organizational boundary condition, which necessitates the exertion of self-control and therefore reinforces the adverse effects of self-control demands on well-being (Schmidt, 2010), one can assume that misfit between personal and organizational standards may reflect a form of goal incongruence and therefore also require the exertion of self-control. Accordingly, the reinforcing effect of job control on the adverse

relations between misfit of organizational and personal standards and depressive symptoms, may substantiate the proposition that self-control and associated depletion of the limited regulatory resource may be an underlying mechanism for the adverse effects of job control. Accordingly, these differential findings on job control contribute to the ongoing debate on the buffer hypothesis by providing evidence for the proposition that whether job control is beneficial or harmful for an employee depends on the type of job demand the employee faces. Therefore, the present study advances our understanding of the JD-C model by identifying a new boundary condition (high emotional dissonance) that has not been addressed in the initial conceptualization of the model. Thus, we contribute to a line of research that has uncovered distinct boundary conditions that need to be considered with regard to the JD-C model, such as personal factors (e.g., self-determination, Parker, Jimmieson, & Amiot, 2010; intrinsic work motivation, van Yperen & Hagedoorn, 2003), cultural aspects (e.g., emotional culture; Grandey et al., 2005), the optimal level of job control (e.g., curvilinear effects, Kubicek, Korunka, & Tement, 2014), and the employee's perception of demands (e.g., hindrance vs. challenge, Dawson, O'Brien, & Beehr, 2016). Supplementing these findings, we add an additional perspective by integrating the JD-C model and the limited strength model of self-control and by stressing the importance of considering whether the employee faces job demands that necessitate considerable self-control efforts.

Taken together, the current study demonstrates that job control is simultaneously associated with beneficial and harmful consequences for employees' psychological well-being. More specifically, we point out that the direction of the moderating effect of job control depends on the type of demand an employee has to cope with. In line with Schwartz' (2000) argument, our findings support the idea that "there is a dark side to all this freedom from constraint, to all this emphasis on individuals as the makers of their own world" (p. 87). Job control is a double-edged sword: Deciding on the right amount of job control in a specific job requires weighing the advantages of creating feelings of self-determination and self-efficacy against the disadvantages of creating feelings of indecisiveness by the amount of choices.

Limitations and Suggestions for Further Research

Despite its contributions, the present study has also some limitations that need to be discussed and that should be addressed in further research. First, all study variables were assessed by self-reports, thereby increasing the risk that common method variance might have contaminated the observed relations (Podsakoff, MacKenzie, & Podsakoff, 2003). However, the differential moderation effects of job control are unlikely to be attributable to common method variance and the longitudinal design chosen in the current study further diminishes this risk. Thus, the effects of the current study can claim to reflect valid relations rather than common method artifacts (Spector, 1994). Nevertheless, future research could enhance the explanatory power of the findings by including more objective measures, such as absenteeism.

Second, our data was collected with a discrete time lag of six month. However, as we expect that the development of emotional exhaustion is a continuous process that evolves over time, we cannot be

sure that the chosen time lag matches the pivotal period within emotional exhaustion evolves. Consequently, there is a chance that the chosen time lag might not have matched the causal lag (Zapf et al., 1996), which in turn might have distorted our findings. Accordingly, a recommendation for future research is to conduct more longitudinal multi-wave studies with different time lags (De Jonge et al., 2010; Zapf et al., 1996).

Third, while the present study provides first evidence for the notion that job control, commonly operationalized as timing and method control, intensifies the adverse consequences of coping with emotional dissonance, further research should uncover whether other types of job control might help employees to cope with emotional dissonance. For this purpose, job control should also be studied in terms of autonomy to determine how, when, and which emotions need to be displayed in the organizational context. In line with the suggestions that job control buffers the impact of job demands only when the type of control is applicable to the type of demand (Van der Doef & Maes, 1999), we suggest that control over types of emotions might prevent the adverse effects of emotional dissonance. Thus, research on the interplay between emotional dissonance and control over required emotions could provide new insights that could be used for the development of more specific field interventions.

Fourth, several methodical shortcomings may limit the generalizability of the present results. The sample size was relatively small, thereby reducing the chance to detect significant relations. For example, the effect of quantitative workload on emotional exhaustion over time might be significant in a larger sample. Furthermore, the sample comprised of employees from a single company with some demographical particularities (i.e., relatively high mean age and long tenure). Therefore, further studies in differential occupational settings are needed to increase the generalizability of the arguments provided in the current study.

Fifth, even though the limited strength model of self-control constitutes a dominant theoretical underpinning of our study, we did not measure depletion of the regulatory resource associated with the exertion of self-control. While previous research strongly suggest that the chronic depletion of the limited regulatory resource constitutes an underlying mechanism of the relation between emotional dissonance and emotional exhaustion (Schmidt & Diestel, 2015), further research could benefit by examining state self-control as an underlying mechanism of the differential moderating effects of job control in the relation between workload and emotional dissonance to emotional exhaustion.

Finally, yet importantly, we would like to encourage researchers to re-analyse past meta-analytic findings on the JD-C model on the basis of the propositions derived in the current study. More specifically, we suggest that the distinction between demands that necessitate self-control (e.g., emotional dissonance, impulse control, resisting temptations, overcoming inner resistances) and those demands that do not primarily incorporate self-control (e.g., quantitative workload, work overload, time pressure) might account for some of the inconsistent findings on the buffer hypothesis. We believe that researchers and managers alike would benefit from a more refined comprehension of the moderating effect of job

control. While the present study might be considered as a first step toward a deeper understanding, taking up past meta-analyses to incorporate self-control as a boundary condition could provide further insights for occupational health research and management.

Practical Implications

Due to the increasing competitive pressure in industrialized countries and the growth of the service sector, quantitative workload and emotional dissonance are expected to increase in the future (Grandey, 2000; Sonnentag & Frese, 2003). Thus, the current study offers several important implications for managers and organizations on how to improve employees' psychological well-being at times that are characterized by increasing amounts of mentally stressful job demands. First and foremost, findings of this study substantiate the importance of conducting job analyses in order to identify the most salient job demand of each employee. Only if the predominant job demand has been classified (i.e., as quantitative demand or as emotional demand), managers should decide on the level of job control. That is, on the one hand, it is beneficial to enhance employees' job control in jobs with high levels of quantitative workload. In other words, when being confronted with tight deadlines and a huge amount of workload, employees will benefit from the opportunity to decide on the scheduling and pacing of their work. Moreover, the possibility to decide how to accomplish the work task in the face of output pressure will enhance feelings of self-determination and will lead to reduced levels of emotional exhaustion.

On the other hand, job control, as timing and method control, will not prevent impairments of employees' well-being when coping with emotional dissonance. On the contrary, the current study points out that enhancing job control can even harm employees' psychological well-being when their jobs are characterized by high levels of emotional dissonance. Furthermore, it is suggested that the adverse effect of high levels of job control may not only manifest in occupations with high emotional dissonance, but also in occupations with other demands on self-control (e.g., resisting distractions, overcoming inner resistances, and impulse control, Schmidt & Neubach, 2007). In these jobs, implementing specific routines and habitual strategies might contribute to employees' psychological well-being by reducing the amount of effortful choices. For example, by providing precise recommendations on how to structure and schedule a workday, and by recommending some specific methods to accomplish work tasks, the amount of necessary decisions an employee has to make can be reduced. In service occupations, for instance, a standardized complaint management could contribute to reducing job control by providing routine implementations of handling deviant customers. Instead of necessitating ad-hoc decisions on the right strategy to appease an indignant customer, employees can proceed according to an organizationally defined pattern, which necessitates lower amounts of self-control.

Finally, in addition to implementing strategies for managing job control, the well-being of employees could also be improved by addressing quantitative workload and emotional dissonance directly. Nevertheless, changes in the administrative structure that aim to reduce quantitative workload are expected to sacrifice organizational outputs and harm productivity (Van der Doef & Maes, 1999). Similarly, abolishing emotional display rules in service occupations is associated with reduced customer

satisfaction (Brown & Sulzer-Azaroff, 1994). Therefore, the possibilities to reduce these job demands without adversely affecting important organizational outputs are highly limited. Instead, we suggest implementing intervention programs that help employees to deal with job demands. In this context, several promising intervention programs have been shown to be effective. For instance, cognitive-behavioral interventions that train employees in regulating thoughts and emotions have been demonstrated to be more effective with regard to stress reduction than other intervention programs (Bond & Bunce, 2000; Richardson & Rothsein, 2008). Additionally, prior research has revealed that self-regulation training programs can enhance the ability to execute self-control through repeated self-control exertion (Baumeister, Gailliot, DeWall, & Oaten, 2006) and that time management trainings can support employees when facing challenging deadlines (van Eerde, 2003). Thus, training programs that are targeted at enhancing the ability to deal with quantitative workload and emotional dissonance might prevent employees to suffer from impaired psychological well-being.

In conclusion, managers and organizations need to consider the advantages and disadvantages of job control and need to understand that identifying the predominant job demand is a prerequisite for deciding on the optimal level of job control. There are specific instances when enhancing job control provides possibilities to cope with job demands, and there are other instances when alternative strategies provide more promising opportunities to enhance employees' psychological well-being.

Conclusions

Is Job Control a Double-Edged Sword?

The present study tested direct relationships and interactions of job demands and job control in a two-wave panel design. By integrating notions of the JD-C model and the strength model of self-control, we shed new light on the ambiguous role of job control. The major contribution of this research is the finding that job control can be a double-edged sword. This result provides useful information to organizations, as well as to researchers, because the adverse consequences of job control have been overlooked in research and practice so far. Understanding the complexities of job control and the circumstances, which jeopardize the employees' psychological well-being, is a first step in attempting to reduce the potential adverse effects of job control.

KAPITEL 3

Implizite Vorstellung über Willensstärke als Moderator, der kurzfristige Erschöpfungszustände beeinflusst

STUDIE 2

Konze, A.-K., Rivkin, W., & Schmidt, K.-H. (2018). Implicit Theories about Willpower as a Moderator of the Adverse Effect of Daily Self-Control Demands on Need for Recovery. *Zeitschrift für Arbeitswissenschaft, 72*(1), 61-70. https://doi.org/10.1007/s41449-017-0062-y

STUDIE 3

Konze, A.-K., Rivkin, W., & Schmidt, K.-H. (2019). Can Faith Move Mountains? How Implicit Theories about Willpower Moderate the Adverse Effect of Daily Emotional Dissonance on Ego-Depletion at Work and Its Spillover to the Home-Domain. *European Journal of Work and Organisational Psychology, 28*(2), 137-149. https://doi.org/10.1080/1359432X.2018.1560269

Implicit Theories about Willpower as a Moderator of the Adverse Effect of Daily Self-Control Demands on Need for Recovery.

Abstract

Recent research has demonstrated that peoples' implicit theories about willpower (whether willpower is seen as a limited vs. nonlimited resource) influence the adverse effects of self-control demands (SCDs) on psychological strain. However, these findings have not yet been transferred to occupational settings where employees are increasingly facing high SCDs in their everyday work. Integrating recent findings on implicit theories about willpower and arguments brought up by the strength model of self-control, we propose that employees who believe that willpower is a limited resource have a stronger need for recovery after a demanding workday than employees who believe that willpower is a nonlimited 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 SCDs on need for recovery. Our results provide support for our hypothesis. In particular, on days with high levels of SCDs, believing in willpower as a limited resource enhances the need for recovery. We then discuss these findings in light of the strength model of self-control.

Practical Relevance

Coping with self-control constitutes a major stressor at work and is related to high psychological strain. Therefore, identifying and understanding boundary conditions that can reduce the adverse consequences from exerting self-control at work is an important step towards creating healthy working environments.

Keywords: implicit theories about willpower, need for recovery, self-control demands, daily diary study

Implizite Vorstellungen über Willenskraft als Moderator der adversen Effekte von täglichen Selbstkontrollanforderungen auf das Bedürfnis nach Erholung

Zusammenfassung

Verschiedene Studien konnten belegen, dass die implizite Vorstellung über die eigene Willenskraft (ob Willenskraft als begrenzte oder unbegrenzte Ressource verstanden wird) die negativen Konsequenzen von Selbstkontrollanforderungen (SKA) auf psychisches Wohlbefinden beeinflusst. Diese Befunde wurden bislang noch nicht in den Berufsalltag von Arbeitnehmern übertragen, in dem die Bedeutung von SKA zunehmend steigt. In der vorliegenden Studie werden neue Erkenntnisse über implizite Vorstellungen über Willenskraft und Argumente aus der Selbstkontrollforschung zusammengeführt. Es wird der Frage nachgegangen, ob Personen, die glauben, dass Willenskraft eine begrenzte Ressource darstellt, nach einem anforderungsreichen Arbeitstag ein höheres Bedürfnis nach Erholung erleben als Personen, die glauben, dass Willenskraft eine unbegrenzte Ressource ist. In einer zehntägigen Tagebuchstudie (N=71) wird die implizite Vorstellung über Willenskraft als Moderator des tagesspezifischen Zusammenhangs zwischen SKA und dem Bedürfnis nach Erholung überprüft. Die Ergebnisse stützen die Hypothese, dass an Tagen mit hohen SKA die Vorstellung von Willenskraft als eine begrenzte Ressource das Bedürfnis nach Erholung verstärkt. Vor dem Hintergrund dieses Befundes werden bisherige Erkenntnisse aus der Selbstkontrollforschung diskutiert.

Praktische Relevanz

Das Ausüben von Selbstkontrolle ist einer der stärksten Stressoren bei der Arbeit. Vor diesem Hintergrund ist die Identifikation von Einflussfaktoren, die die negativen Folgen von SKA abmildern können, wichtig, um gesundheitsförderliche Arbeitsbedingungen zu schaffen.

Schlüsselwörter: Implizite Vorstellungen über Willenskraft, Bedürfnis nach Erholung, Selbstkontrollanforderungen, Tagebuchstudie

Introduction

Today's working environment is characterized by highly dynamic structures, an increasing complexity of communication and information technologies, and a rising significance of the service sector. As a result, employees increasingly face demands to control themselves by bringing their attention, emotions, and behaviour in line with organizational rules or expectations. These processes involve volitionally inhibiting, altering, and overriding automatic or habitual responses (e.g., Gailliot & Baumeister, 2007) and are referred to as self-control. However, exerting self-control comes at a cost. A burgeoning body of research has repeatedly demonstrated that different acts of self-control draw on a common regulatory resource capacity that becomes depleted after exertion, so that subsequent attempts at self-control are impaired (Muraven & Baumeister, 2000). In line with these propositions, research in the occupational context has revealed that self-control demands (SCDs) at work result in strain, impaired well-being, and absenteeism (Diestel & Schmidt, 2011b). In addition, sustained periods of high SCDs predict burnout symptoms over longer time intervals (Schmidt & Diestel, 2015). Hence, to protect employees and companies from the adverse consequences of SCDs, studies have identified moderators such as job control (Neubach & Schmidt, 2006), self-control capacity (Schmidt, Hupke, & Diestel, 2012), organizational commitment (Schmidt & Diestel, 2012), psychological detachment (Rivkin, Diestel, & Schmidt, 2015b), physical fitness (Schmidt, Beck, Rivkin, & Diestel, 2016), and flow experiences (Rivkin, Diestel & Schmidt, 2018), which attenuate the relation between SCDs at work and indicators of psychological strain.

Another moderator that has been shown to influence the consequences of self-control and that has obtained increasing attention over the last years is implicit theories about willpower. According to a series of studies, people differ in their implicit theory 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 fuelled by the exertion of self-control (nonlimited resource theory; Job et al., 2010; Job, Walton et al., 2015). In a variety of studies, implicit theories about willpower have been shown to moderate the extent to which self-control decreases following previous acts of self-control (Job et al., 2010), influences the acquisition of a cognitive skill (Miller, Walton, Dweck, Trzesniewski, & McClure, 2012) and predicts effective goal striving of students (Bernecker & Job, 2015). These studies 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 and supports people to sustain self-control, whereas believing in a limited resource theory leads to reversed effects.

However, in reference to at least three issues, scholarly knowledge regarding implicit theories about willpower is limited: First, a vast majority of research on implicit theories about willpower so far

has examined these effects in laboratory settings. Second, those studies on implicit theories about willpower that where conducted in everyday life settings relied on student samples, what might impede generalizability (Bernecker, Herrmann, Brandstätter, & Job, 2015, Study 3; Bernecker & Job, 2015; Job et al., 2010, Study 4; Job, Walton et al., 2015). Third, most of the studies on implicit theories about willpower measured SCDs only on the between-subjects level (exceptions being Bernecker & Job, 2015 and Bernecker et al., 2015, Study 3; both studies draw from the same data collection). As implicit theories about willpower has been repeatedly proposed to interact with SCDs, and as SCDs at work is known to fluctuate daily (e.g., Rivkin et al., 2015a), examining these within-subject processes on a daily level becomes essential to fully understand the effects of implicit theories of willpower on psychological strain. Hence, what might contribute to research on implicit theories about willpower is a thorough daily diary field-study on the interplay between everyday SCDs at work and implicit theories about willpower.

The main aim of this study is to address these drawbacks via an examination of the impact of day-specific SCDs on need for recovery as an indicator of psychological strain. By conducting a daily diary study in everyday life working environments, we test our hypothesis whether holding a nonlimited resource theory about willpower works as a protective buffer of the proposed day-specific relationship between SCDs and need for recovery. This hypothesis 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.

In the following, we first review research on the adverse effects of SCDs on psychological strain in general and on need for recovery as an important indicator of psychological strain. In particular, we elaborate on recent studies on implicit theories about willpower to derive arguments for the moderating effect of implicit theories about willpower on the adverse relation between day-specific SCDs and need for recovery. Finally, we test our predictions in a diary study.

The Adverse Effects of SCDs on Need for Recovery

A crucial finding in the field of self-control is that the exertion of self-control is associated with psychological costs that become manifest in impairments in cognitive and behavioral control and associated psychological strain (Muraven, Tice, & Baumeister, 1998; Schmeichel et al., 2003). In a series of experimental studies, it has been repeatedly demonstrated that engaging in a single act of self-control is sufficient to impair subsequent attempts at self-control (e.g., Baumeister, Muraven, & Tice, 2000; Gailliot et al., 2007). These observations can be accounted for by the Strength Model of Self-Control (Muraven & Baumeister, 2000). Currently, more than 200 studies have supported the notion that self-control relies on a regulatory energy resource that gets depleted with use (for a meta-analysis, see Hagger et al., 2010). Moreover, Muraven and Baumeister's (2000) strength model of self-control predicts that recurrent requirements to exert self-control lead to chronic deficits if the regulatory resource cannot recover.

Over the last years, research on occupational stress and health has applied findings from this model in the working environment and has identified SCDs as a major and unique stressor at work (cf. Rivkin et al., 2018). According to Schmidt and Neubach (2007), SCDs involve a set of three work related requirements: First, *impulse control* refers to the demand to inhibit spontaneous, impulsive response tendencies and associated affective states. Second, *resisting distractions* involves the requirement to ignore and resist distractions evoked by task irrelevant stimuli, which would otherwise interfere with a successful accomplishment of tasks. Third, *overcoming inner resistances* refers to the requirement to overcome motivational deficits that result from unattractive tasks, which cannot be postponed and evaded. A number of cross-sectional and longitudinal studies with samples from different occupational fields demonstrated that SCDs at work are related to an increase in different indicators of strain (e.g., need for recovery), which in turn manifest in decreased productivity (e.g., Diestel & Schmidt, 2012).

Based on the assumption that the three forms of SCDs are relatively stable over time (12 to 24 months; Schmidt & Neubach, 2010), early studies examined SCDs on the between-subjects level thereby analysing interindividual variations in SCDs and psychological strain. However, these studies have neglected day-specific (intraindividual) variations of SCDs at work, as occasions that require self-control may occur more frequently on some days than on others (Muraven, Collins, Shiffman, & Paty, 2005). Building on this assumption, a series of daily diary studies have been conducted to shed light on the relation between day-specific SCDs and psychological strain (e.g., Rivkin et al., 2015b; Rivkin et al., 2018).

In this context, need for recovery, the extent that work induces a need to recuperate (Van Veldhoven & Broersen, 2003) has repeatedly been proposed as one important facet of psychological strain (e.g., Diestel et al., 2015). As an early symptom of job strain, need for recovery has been demonstrated to predict productivity loss and sickness absence (Geurts, Kompier, & Gründemann, 2000). Thereby, daily diary studies have gained significance for studying need for recovery as outcome, because need for recovery has been shown to exhibit substantial within-day fluctuations (Van Veldhoven & Broersen, 2003). Consistent with these findings and the arguments derived from the strength model of self-control, we propose:

Hypothesis 1: *Day-level SCDs are positively related to day-level need for recovery.*

Implicit Theories about Willpower as a Buffering Moderator of the Adverse Effect of SCDs on Need for Recovery

Implicit theories about willpower refer to the individual belief whether willpower is not easily used up and can even be fueled by the exertion of self-control (nonlimited resource theory) or whether willpower is highly constrained and gets easily depleted by acts of self-control (limited resource theory; Job, Walton et al., 2015). Although early studies have conceptualized the nonlimited resource theory as the belief

that willpower is limitless, recent research has acknowledged that it rather reflects the belief of having sufficient resources that do not become depleted easily (Bernecker & Job, 2015).

Previous research provides evidence for the buffering effects of a nonlimited resource theory on the adverse effects of self-control exertion. First evidence for the benefits of believing in a nonlimited resource theory was provided by Martijn, Tenbült, Merckelbach, Dreezens, and de Vries (2002), who demonstrated that people's theory of the consequences of self-control moderated performance reduction after self-control attempts in a laboratory setting. In particular, participants who were told that performing an effortful task (controlling their emotions) would improve performance on a subsequent task showed no decrease in subsequent self-control performance. Accordingly, Job and colleagues (2010) introduced the concept of implicit theories about willpower to account for these observations. In a series of laboratory studies, the authors demonstrated that only participants who held a limited resource theory showed worse response inhibition and performance following strong self-control demands. In contrast, holding a nonlimited resource theory reduced these deficits. Only recently, a field study examining students' self-control performance revealed that students who held a nonlimited resource theory were better able to exert self-control in phases of high self-regulatory demands than students who held a limited resource theory (Job, Walton et al., 2015). Taken together, initial empirical evidence suggests that holding a nonlimited resource theory is associated with a variety of beneficial outcomes, such as effective goal striving, expectations of exhaustion, and subjective well-being particularly when SCDs are high (Bernecker et al., 2015; Bernecker & Job, 2015).

From a theoretical perspective, we propose that the beneficial effects of believing in a nonlimited resource theory can be explained via the integration of arguments derived from the strength model of self-control and recent findings about implicit theories about willpower. On the one hand, initial research on the strength model of self-control brought up the idea that reduced self-control performance after an initial exertion of self-control reflects the need to conserve regulatory resources (Baumeister et al., 2000; Muraven & Slessareva, 2003). Thus, high SCDs cause shifts of motivation: Once the individual has exerted self-control, it recognizes that the regulatory resource is somewhat diminished and seeks to conserve the remaining resource (Baumeister et al., 2000). On the other hand, Job and colleagues (2013) suggested that holding a limited resource theory makes people more sensitive towards cues that signal the availability of mental resources. Integrating these arguments, we suggest that people holding a limited resource theory monitor possible signs of depletion more intensively, recognize early signs of depletion faster and therefore develop a stronger need to conserve and restore their resources. We argue that this process becomes manifest in a higher need for recovery. This proposition is backed up by first laboratory findings, which show that the exertion of self-control activates the goal to preserve and replenish mental resources *especially* in people with a limited resource theory (Job, Bernecker, Miketta, & Friese, 2015). However, until now, these propositions have not been examined in occupational contexts.

Put differently, our proposition implies that individuals believing that willpower relies on a limited resource have a higher need for recovery after the exertion of self-control at work than individuals who believe in willpower as a nonlimited resource. We argue that this effect results from heightened sensitivity towards first signs of depletion for individuals holding a limited resource theory and the motivation to conserve regulatory resources. Hence, we propose:

Hypothesis 2: *Person-level implicit theories about willpower moderate the positive relation between day-specific SCDs and day-specific need for recovery: The relationship is strongest when people believe that willpower relies on a limited resource.*

Method

Participants

We conducted a diary study with German employees to test our hypotheses. Our data collection focused on employees from the services sector who had regular contact with clients, patients, customers, or other individuals. Overall, participants held different service occupations, ranging from consultants, to salespersons or kindergarten teachers. For these participants, SCDs constitute a predominant stressor at work.

We recruited participants by announcements via e-mail. Therefore, over the course of the last years, we collected contact information from individuals who expressed their willingness to participate in a scientific study. Individuals did not receive any compensation for participating in our sample. A final sample of 71 employees was included in our study. Of the participants, 60% were female and the mean age was 40 (SD = 14) years. In advance of the day-specific measurements, the participants responded to a general questionnaire that assessed demographic variables and person-level constructs (e.g., implicit theories about willpower). Over 10 consecutive workdays, two times per day, participants received emails reminding them to complete day-specific questionnaires: They rated SCDs at noon and need for recovery in the evening, after work. On weekends or public holidays, the diary study was suspended and continued on the next regular workday.

Measures and control variables

The general questionnaire included age, gender, self-control capacity (as control variables) and implicit theories about willpower. In the day-specific questionnaires, we explained that the items of SCDs and need for recovery refer to momentary experience.

Self-control capacity. To control for the possibility that self-control capacity as an individual trait might lead to distorted relationships, we assessed self-control capacity with a 17-item version of Tangney, Baumeister, and Boone's (2004) self-control scale (e.g., "People would say that I have iron self-discipline."). All items were scored using a 5-point intensity-rating format (1 = not at all; 5 = very much).

Implicit theories about willpower. To measure person-specific implicit theories about willpower, we used Job and colleagues' (2010) strenuous mental activity scale. Participants responded using a six-point intensity-rating format (1 = strongly disagree; 6 = strongly agree), whereas 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."

SCDs. We assessed day-specific SCDs with the 15-item scale developed by Neubach and Schmidt (2007) that covers three facets of SCDs: impulse control (e.g., "My job requires me never to lose my temper"), resisting distractions (e.g., "In order to achieve my performance goals, I must not let myself be distracted"), and overcoming inner resistances (e.g., "Some of my tasks are such that I really need to force myself to get them done"). On a five-point intensity-rating scale (1 = not at all; 5 = a great deal), the participants rated the degree to which they had to control themselves in "the last hours" of work. The item scores were averaged to form an overall measure of job-related SCDs that reflects the cumulative extent to which the job causes the participants to engage in self-control (Diestel & Schmidt, 2011b). This procedure was guided by the argument that, although SCDs constitute a multidimensional construct, different forms of SCDs are theoretically thought to draw on and deplete a common regulatory resource (Baumeister, Vohs, & Tice, 2007).

Need for recovery. Day-specific need for recovery was assessed using five items from Van Veldhoven and Broersen's (2003) scale (e.g., "Today, I cannot really show any interest in other people when I have just come home myself."). In essence, this scale indicates the extent to which employees are incapable of expressing interest in non-work related matters and perceive a strong need for a rest period to recover from straining activities. All items were scored using a four-point intensity-rating format (1 = not at all; 4 = a great deal).

Analytical procedure

To test our hypotheses, we used stepwise multi-level modelling with random intercepts and random slopes, because this procedure takes the interdependence of the day-level and person-level into account (Hox, 2002). All parameter specifications and estimates were conducted with MLwiN (Rasbash, Steele, Browne, & Goldstein, 2014). The null model included the intercept. In Model 1, we added the person-level variables gender, age, and self-control capacity. Model 2 included day-level SCDs and person-level implicit theories about willpower. In Model 3, we tested the proposed interaction of the main predictors. When the parameters were included in MLwiN, SCDs were centred around the person mean (group-mean centring; Enders & Tofighi, 2007) because we wanted to exclusively examine the day-specific effects of SCDs, whereas the person-level variables (age, self-control capacity, and implicit theories about willpower) were centred around the grand mean (Enders & Tofighi, 2007) to reduce the risk of multicollinearity. We examined our moderator hypothesis by testing a cross-level interaction

with implicit theories about willpower (person-level) moderating the effect of SCDs (day-level) on need for recovery (day-level).

Results

Table 3.1 displays the descriptive statistics, internal consistencies (Cronbach's alpha), and correlations among the study variables. As to be seen, all measures revealed satisfactory consistencies. Before testing our hypotheses, we examined the within-person variance of need for recovery. The proportion of within-person variation was 55.4%, indicating that due to day-specific fluctuations, the application of multi-level modeling is necessary.

Table 3.1. Means, standard deviations, internal consistencies (Cronbach's Alpha) and intercorrelations

	Variable	1	2	3	4	5	6
1.	Need for recovery	*(0.87)*	**0.39**				
2.	SCDs	**0.53**	*(0.91)*				
3.	Theories about willpower[a]	0.07	-0.02	*(0.77)*			
4.	Self-control capacity	-0.22	-0.22	0.01	*(0.80)*		
5.	Age	**-0.34**	-0.19	0.17	**0.37**	-	
6.	Gender[b]	0.21	0.07	**-0.27**	0.16	0.04	-
	M	1.96	2.67	3.96	3.13	40.23	1.41
	SD	0.53	0.78	1.05	0.50	13.51	0.50

Note: Cronbach's alpha for day-level variables is mean internal consistencies averaged over all measurement days. Correlations below the diagonal are person-level correlations. Correlations above the diagonal are day-level correlations.
[a]Theories about willpower (high values represent agreement with a limited resource theory).
[b]Gender (1 = *female*, 2 = *male*).
Numbers in bold $p < .05$.

Test of Hypotheses

Hypothesis 1 proposed that day-specific SCDs are positively related to need for recovery. Results are depicted in Table 3.2. Consistent with this proposition, the multi-level estimates indicate that after controlling for demographic variables and self-control capacity, SCDs are positively related to need for recovery ($\beta = 0.21$, $p < .01$). Moreover, Model 2 exhibits an improvement of fit compared with Model 1, as indicated by the difference in log likelihood ratio. Thus, Hypothesis 1 is fully confirmed.

Hypotheses 2 proposed that implicit theories about willpower moderate the day specific relationship between SCDs and need for recovery. Table 3.2 demonstrates that the cross-level interaction of SCDs and implicit theories about willpower on need for recovery is significant. Furthermore, Model 3 provides a better data fit compared to Model 2 as indicated by the significant log likelihood differences.

Table 3.2. Multilevel estimates for predicting need for recovery

	Need for recovery							
	Null model		Model 1		Model 2		Model 3	
Parameter	β	SE	β	SE	β	SE	β	SE
Fixed effects								
γ_{00} = Intercept	1.96**	(0.06)	2.24**	(0.18)	2.21**	(0.19)	2.21**	(0.19)
γ_{01} = Age			-0.16*	(0.06)	-0.17**	(0.06)	-0.17**	(0.06)
γ_{02} = Gender[a]			-0.20	(0.12)	-0.18	(0.13)	-0.18	(0.13)
γ_{03} = Self-control capacity			-0.04	(0.06)	-0.04	(0.06)	-0.04	(0.06)
γ_{04} = Theories about willpower (TW)[b]					0.04	(0.06)	0.04	(0.06)
γ_{10} = SCDs					0.21**	(0.05)	0.19**	(0.05)
γ_{11} = SCDs x TW							0.05*	(0.03)
Random effects								
Level 1 intercept variance	0.31		0.31		0.29		0.29	
Level 2 intercept variance	0.25		0.21		0.22		0.22	
- 2*log (lh)	1248.8		1236.4		1201.2		1196.5	
Δ - 2*log (lh)			12.4**		35.2**		4.7*	
df			3		2		1	

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

[a]Gender (1 = female, 2 = male).

[b]Theories about willpower (high values represent agreement with a limited resource theory).

* $p < .05$ ** $p < .01$.

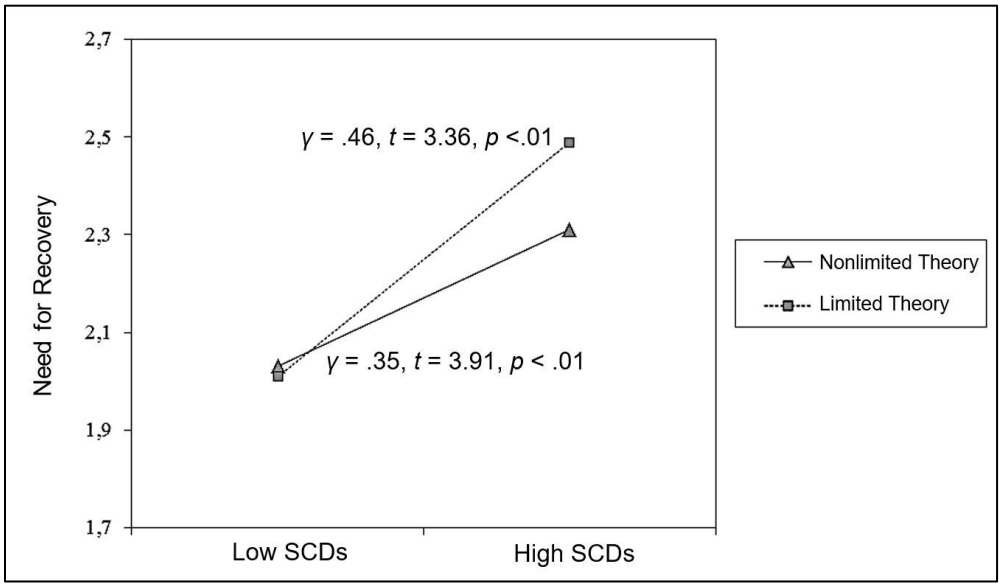

Figure 3.1. Interaction effect of SCDs and theories about willpower (limited vs. nonlimited theory) on need for recovery

To facilitate the interpretation of the interaction effects, we depicted the interaction effect and performed simple slope tests, as recommended by Preacher and colleagues (2006). As shown in Figure 3.1, the interaction is consistent with Hypothesis 2. In particular, individuals who believe that willpower relies on a limited resource reported stronger increases in day-specific need for recovery as a result of an increase in day-specific SCDs ($\gamma = .46$, $p < .01$) than individuals who believe that willpower relies on a nonlimited resource ($\gamma = .35$, $p < .01$). Nevertheless, it should be noticed that individuals holding a

nonlimited-resource theory also reported a significant increase in need for recovery as a result of increasing SCDs.

Overall, believing that willpower relies on a limited resource attenuates the day-specific adverse relationship between SCDs and need for recovery, thereby providing support for Hypothesis 2.

Discussion

A growing body of empirical evidence substantiates the theoretical proposition that implicit theories about willpower have the potential to attenuate the adverse relation of self-control processes and psychological strain. Based on these findings and in light of the prevalence of SCDs in many jobs, we sought to integrate the insights from laboratory studies into occupational settings.

Research on self-control and implicit theories about willpower suggest that people with a limited resource theory are more sensitive towards early signs of depletion and more guided by the motive to conserve resources. Consequently, we hypothesized that the belief in a nonlimited resource theory would attenuate the adverse consequences of work-related self-control. In support of our predictions, data from a diary study showed a main effect of SCDs on need for recovery and furthermore indicated that the day-specific relation between SCDs and need for recovery was strongest when people held a limited resource theory.

Theoretical implications

The present study contributes to the literature on self-control and implicit theories about willpower in several ways. First, we empirically replicated the effect of SCDs on psychological strain. Just like research on self-control has repeatedly found, exerting self-control at work results in psychological strain (e.g., Diestel et al., 2015; Diestel & Schmidt, 2010; Rivkin et al., 2015a; Rivkin et al., 2015b; Rivkin et al., 2018). While most studies in this context have used cross-sectional data samples, our analyses are based on data from a diary study. In line with the strength model of self-control, we demonstrate that daily SCDs at work have an adverse effect on need for recovery in the evening.

Second, as we conducted our research in an occupational setting, we integrated laboratory findings on implicit theories about willpower and self-control processes into a real-life context. Our results provide support that the moderating role of implicit theories about willpower is not only valid under laboratory conditions, but also relevant in the applied field.

Third, we theoretically and empirically integrated two issues of research that have recently been discussed in the literature: adverse effects of self-control and beneficial effects of believing in a nonlimited resource theory. Thereby, the findings of the present study add to our understanding of the relationships between self-control processes, implicit theories about willpower and need for recovery. In line

with several laboratory findings, we replicated the attenuating effects of believing in a nonlimited resource theory. However, in contrast to findings by Job and colleagues (2010), believing that willpower relies on a nonlimited resource did not fully eliminate the effects of exerting self-control on need for recovery, as indicated by the pattern of the interaction (Figure 3.1): Although people holding a nonlimited resource theory show a lower increase in need for recovery with increasing SCDs, they still report a significant increase. This result contradicts the assumption that reduced psychological well-being after self-control exertion *solely* results from people's implicit theories about willpower (e.g., Job et al., 2010). Rather, our findings propose that the costs of exerting self-control might be reduced, but cannot be eliminated by believing in a nonlimited resource theory. Moreover, the pattern of interaction reveals that people who hold a nonlimited resource theory (as compared to people holding a limited resource theory) report lower levels of need for recovery when SCDs are high, but do not feel better when SCDs are low. This finding ties in with several studies, which demonstrate that implicit theories about willpower attenuates the adverse consequences of repeated self-control exertion *especially* when demands on self-control are high (Miller et al., 2012; Job, Walton et al., 2015).

Overall, our findings support the view that self-control relies on a limited resource that gets depleted through exertion, just like a muscle. However, believing in a nonlimited resource theory reduces the costs that are associated with the exertion self-control.

Limitations and suggestions for further research

Despite the contributions, our study is subject to several limitations, which need to be discussed. First, we base our analysis and argumentation on the assumption that implicit theories about willpower reflect a stable individual trait. Although this is in line with previous research in this field, theoretical foundation for its long-term stability is weak. To our knowledge, there is only one study that measured the middle-term stability of implicit theories about willpower over two months (r = .77; Job et al., 2010, Study 4). Therefore, future research should examine the long-term stability of implicit theories about willpower to provide evidence for the assumption that implicit theories about willpower as a stable characteristic does not vary over time.

Second, our theoretical argumentation involved that people who hold a limited resource theory monitor first sings of depletion more intensively and develop a stronger need to rest. Future research should consider these possible mechanisms and analyze potential mediators to shed light on the underlying processes through which implicit theories about willpower moderate the adverse consequences of self-control exertion.

Third, our arguments may raise the question which psychological long-term consequences could be associated with believing in a nonlimited resource theory: If people who believe in a nonlimited resource theory constantly ignore first signs of depletion and spend less time for rest, the risk for suffering from psychological strain (e.g., burnout) when experiencing high demands on self-control might

increase. To our knowledge, only one longitudinal study has examined long-term consequences of implicit theories about willpower. In a student sample, Bernecker and colleagues (2015, Study 3) demonstrated that believing in a nonlimited resource theory buffered the adverse consequences of going through a stressful period (final exam period) on subjective well-being. Although this study showed beneficial long-term effects of believing in a nonlimited resource theory on subjective well-being, it remains unclear whether these findings are applicable to the occupational context where employees constantly experience high SCDs (in contrast to seasonal fluctuations of self-control demands for students). Therefore, more research in the occupational context is needed to shed light on the long-term effects of implicit theories about willpower and its moderating effect on the relation between self-control processes and psychological well-being.

Practical implications

Because of the increasing significance of the services sector, self-control at work has become an important topic in many occupational fields. Nowadays, coping with self-control constitutes a major stressor at work and has been found to be related to increased psychological job strain and impaired well-being. An important practical implication of the present study is that at days with high levels of SCDs, employees experience a stronger need for recovery. As the need for recovery has been found to be related to a variety of adverse health and performance outcomes, managers need to acknowledge the adverse consequences of experiencing SCDs and need to implement strategies at the job that can counteract these adverse effects. In this context, studies have identified several boundary conditions that can help employees to cope with SCDs. Those identified boundary conditions should become integral components for intervention programs.

In particular, self-control capacity as an individual trait has been found to buffer the adverse consequences of exerting self-control at work (Schmidt et al., 2012). Although self-control capacity is thought to reflect a relative stable personal characteristic, training programs targeted at the enhancement of self-control capacity were found to be effective (e.g., Baumeister et al., 2006; Job, Friese, & Bernecker, 2015; Muraven, Baumeister, & Tice, 1999). In these studies, participants entered training programs that were based on the assumption that repeated self-control exertion in some domains can improve performance in other domains of self-control. Participants in these programs showed significant improvements in the capacity to exert self-control and felt less depleted after exerting self-control. Moreover, on the organizational level, emotional job resources (e.g., emotional support; de Jonge, Le Blanc, Peeters, & Noordam, 2008), and job control (e.g., decision latitude; Neubach & Schmidt, 2006) were identified as boundary conditions that have the potential to reduce the adverse consequences of exerting self-control at work.

Furthermore, the present study raises the question whether implicit theories about willpower should be made a subject in an intervention program. While there is consensus about the short-term

beneficial effects of believing in a nonlimited resource theory, there is only little knowledge about possible long-term consequences on psychological well-being. Therefore, we cannot recommend addressing implicit theories about willpower in an organizational intervention at this point in time.

In our perspective, the main issues to be addressed in an intervention program are those that have been shown to have lasting beneficial effects for employees (e.g., enhancing self-control capacity, providing emotional support, and reinforcing job control). As a result of these efforts, employees can feel less depleted at the end of a demanding working day and can work more efficiently.

Can Faith Move Mountains? How Implicit Theories about Willpower Moderate the Adverse Effect of Daily Emotional Dissonance on Ego-Depletion at Work and Its Spillover to the Home-Domain.

Abstract

Recent findings have demonstrated that implicit theories about willpower (the belief whether willpower relies on a limited vs. nonlimited resource) moderate the ego-depletion-effect. This study examines this moderating mechanism in occupational settings where employees increasingly have to deal with the unpleasant state of emotional dissonance, which requires the exertion of volitional self-control. By integrating findings on implicit theories about willpower, arguments brought up by the strength model of self-control, and notions from the spillover literature, we propose that believing in a nonlimited resource theory of willpower buffers the effect of emotional dissonance on ego-depletion at work and diminishes the spillover of ego-depletion from the work- to the home-domain. In a diary study covering ten working days (N=71), we examine a moderated mediation model in which ego-depletion at work mediates the relation between emotional dissonance and ego-depletion at home and analyse whether implicit theories about willpower moderate both paths (*a* and *b*) of the proposed mediation model. Our results provide support for the mediation hypothesis and show that endorsing a nonlimited resource theory buffers the effect of emotional dissonance on ego-depletion at work, thereby disrupting the indirect effect of emotional dissonance on ego-depletion at home. Subsequently, we discuss implications of holding a nonlimited resource theory.

Keywords: diary study, ego-depletion, emotional dissonance, implicit theories about willpower, strength model of self-control, work-to-home spillover

Introduction

Consistent with the rising importance of customer satisfaction through service, actively managing one's emotions to improve work outcomes is widely regarded as essential for effective workplace interactions (e.g., interacting with customers by showing smiles and good humour; Grandey, 2000). However, the common mantra of providing "service with a smile" routinely exposes employees to situations in which their true affective states may be incongruent with the organizationally desired expressions (Grandey, 2003). The discrepancy that occurs when an employee is required to express emotions which are not genuinely felt in the particular situation is commonly referred to as emotional dissonance (Zapf, 2002), a state that has been shown to predict a number of adverse outcomes, such as absenteeism (Hülsheger & Schewe, 2011), reduced work performance (Grandey, 2003), and psychological strain (Cheung & Tang, 2007).

The adverse effects of coping with emotional dissonance on employees' well-being and performance can be explained by research on volitional self-control (e.g., Diestel & Schmidt, 2011a; Diestel et al., 2015). This line of research suggests that dealing with emotional dissonance necessitates suppressing genuine feelings in order to express organisationally desired emotions. Therefore, when experiencing emotional dissonance, employees need to exert volitional self-control, which involves inhibiting, altering, and overriding automatic or habitual responses (e.g., Gailliot & Baumeister, 2007). According to the strength model of self-control, these processes can be thought of as effortful internal acts, which deplete a common regulatory resource capacity and thereby leave it less available for further volitional self-control (e.g., Gailliot & Baumeister, 2007; Muraven & Baumeister, 2000). Thus, coping with emotional dissonance (i.e., suppression of genuine- and expression of organisationally desired emotions) on a regular basis necessitates prolonged exertion of volitional self-control, which reduces the capacity for further self-control – a state referred to as *ego-depletion* (Baumeister et al., 1998).

In awareness of these findings and their relevance for organisations, many scholars have analysed emotional dissonance and associated ego-depletion effects directly at the workplace. While initial studies on emotional dissonance have adopted a between-person approach to explain why some employees (e.g., frontline employees, Rafaeli & Sutton, 1987; nurses, Schmidt & Diestel, 2014) experience higher levels of emotional dissonance than others, recent studies have revealed that emotional dissonance also varies between workdays (within-person). For instance, a daily diary study conducted by Diestel and colleagues (2015) revealed that on workdays characterized by higher emotional dissonance than usual (e.g., more frequent customer interactions), employees report increased ego-depletion in comparison to days with lower levels of emotional dissonance. Only recently, this notion has been further expanded by Germeys and de Gieter (2018), who demonstrated that exerting volitional self-control on a specific workday does not only manifest in day-specific ego-depletion at work, but also affects employees' experiences of ego-depletion later at home. In other words, it has been shown that adverse consequences

of exerting volitional self-control at work spill over to the home-domain, thereby influencing employees' levels of ego-depletion after work.

Another line of research extends knowledge on ego-depletion by focusing on *implicit theories about willpower*. According to a series of studies, people differ in their implicit theories whether willpower – the capacity to exert volitional 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 strenuous mental activity (i.e., limited resource theory; Job et al., 2010), others believe that willpower is nonlimited, implying that it is not easily used up and can even be fuelled by exerting volitional self-control (i.e., nonlimited resource theory; Job et al., 2010). In a variety of studies, implicit theories about willpower have been shown to moderate the extent to which self-control performance decreases after previous acts of self-control (Job et al., 2010), influences the acquisition of cognitive skills (Miller et al., 2012), and predicts effective goal striving of students (Bernecker & Job, 2015). These studies have come to the conclusion that believing in a nonlimited resource theory of willpower prevents (at least to some degree) the ego-depletion effect after exerting volitional self-control and supports people to sustain self-control, whereas believing in a limited resource theory leads to reversed effects.

The basic tenor of this research is that a person's implicit theory about willpower reflects a relatively stable individual trait, which is supported by two field studies that validated its middle-term stability over a time period of two months (Job et al., 2010, Study 4) and its long-term stability over a time period of six months (Bernecker et al., 2015 Study 2). On the other hand, laboratory studies have shown that this implicit theory might also be shaped (at least partially) by external information (such as experimental manipulation; e.g., Job et al., 2010), but this variability has not been replicated in settings outside the laboratory. Thus, in the study at hand, we define implicit theories about willpower as a stable individual characteristic and examine how this trait-like belief affects everyday self-control processes at work. Therefore, the current study intends to broaden empirical knowledge on implicit theories about willpower (e.g., Job et al., 2010), volitional self-control (e.g., Diestel & Schmidt, 2011b), and spillover (e.g., Germeys & de Gieter, 2018) by analysing the buffering role of believing in a nonlimited resource theory on the relation between emotional dissonance and ego-depletion throughout a workday. For this purpose, we adopt a multilevel approach to test a moderated mediation model (see Figure 3.2): First, emotional dissonance is proposed to adversely affect ego-depletion at work and at home. Second, the adverse effect of emotional dissonance on ego-depletion at home is suggested to be mediated by ego-depletion at work. Third, believing in willpower as a nonlimited resource is predicted to buffer the day-specific effect of emotional dissonance on ego-depletion at work and (fourth) to further buffer the day-specific spillover of ego-depletion from work to home. Fifth, it is hypothesized that the positive indirect relation between emotional dissonance and ego-depletion at home via ego-depletion at work is moderated (attenuated) for those employees who believe in a nonlimited resource theory.

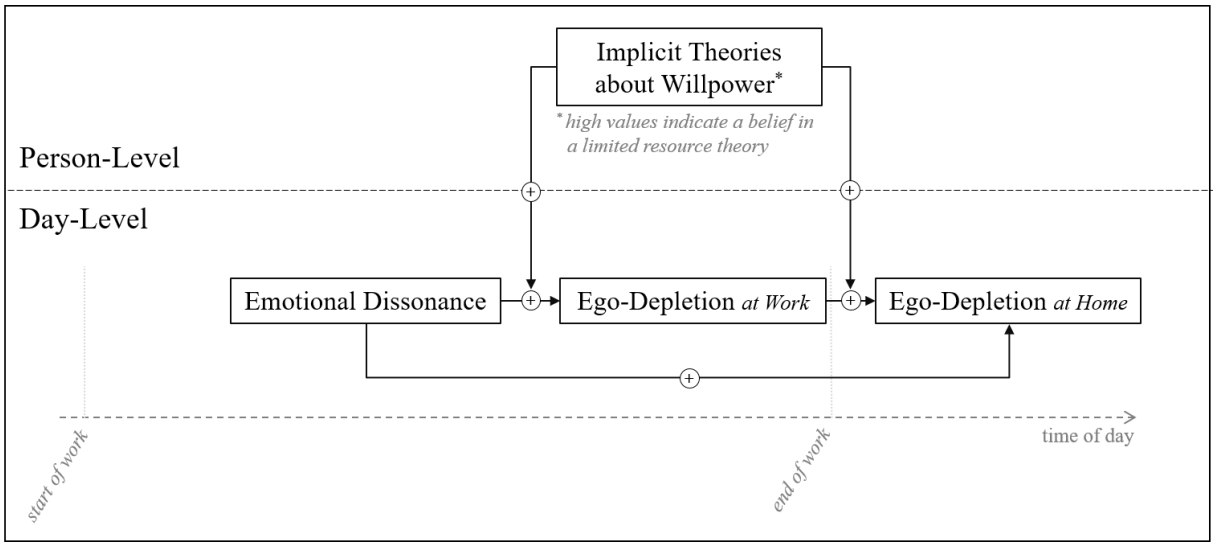

Figure 3.2. Research model

By examining this model, we aim to contribute to theory and practice in at least three ways. First, past research has only paid little attention to the underlying mechanisms that explain how adverse consequences from experiencing emotional dissonance at work spill over to employees' states in the evening at home, when emotional dissonance is no longer present (Zhang, Zhang, Lei, Yue, & Zhu, 2016). Therefore, we intend to broaden empirical knowledge on spillover effects (e.g., Bakker & Geurts, 2004; Germeys & de Gieter, 2018; Ilies et al., 2007) by proposing and testing a potential underlying psychological mechanism that links emotional dissonance at work to experiences of ego-depletion at home. We believe that analysing how consequences of coping with emotional dissonance transcend the work-boundary and affect ego-depletion at home is an important step towards understanding the daily depletion process and fostering replenishment of the regulatory resource for employees working in customer-oriented occupations.

Second, studies on implicit theories about willpower predominantly measured self-control processes at the between-person level in laboratory settings (exceptions being Bernecker & Job, 2015; Bernecker et al., 2015, Study 3). While this research expanded our understanding of the basic mechanisms of implicit theories about willpower, we believe that transferring these insights into the occupational field and analysing them from a daily perspective could enhance the external validity of previous findings. By adopting a daily diary approach, we intend to examine state levels and changes in ego-depletion during the day, thereby capturing the dynamic aspects of employees' ego-depletion levels from a within-person perspective. In line with Hamaker's suggestion (2012; see also Fisher & To, 2012) that relations on the between- and within-person level may significantly vary in size and even direction, utilizing a diary approach for studying the interplay of coping with emotional dissonance, state levels of ego-depletion, and implicit theories about willpower (as a trait-like individual characteristic) could allow identifying more fine grained differences in resource allocation that occur on the within-level and could further contribute to a better understanding of the causality of these effects (Xanthopoulou, Bakker, &

Ilies, 2012). Since implicit theories have been shown to be sensitive to the influence of external information and have been proposed to be shaped by organisational climate (Dweck, 2006), understanding how employees' implicit theories (i.e. believing in a limited vs. nonlimited resource theory) affect regulatory resource depletion effects (and as such, performance on further tasks that require the exertion of volitional self-control) might provide valuable implications for managerial practice.

Third, a vast majority of research has examined the moderating effect of implicit theories about willpower only on the immediate consequences of exerting volitional self-control. These studies have largely focused on analysing the performance reduction *directly* after engaging in an initial self-control task (e.g., Job et al., 2010). However, until now, it remains unclear whether implicit theories about willpower also affect enduring experiences of ego-depletion, once the regulatory resource has already been depleted. As past research indicates that implicit theories about willpower shape how individuals allocate resources and how they monitor signs of ego-depletion (Job, Bernecker et al., 2015; Job, Walton, Bernecker, & Dweck, 2013), they might also affect whether experiences of ego-depletion endure over a workday and whether these experiences spill over from the work- to the home-domain. The current study intends to shed light on this proposition, thereby examining if believing in a nonlimited resource theory facilitates coping with everyday emotional dissonance *and* if it further affects whether the depleted regulatory resource becomes replenished after work. By incorporating the spillover literature (e.g., Bakker & Geurts, 2004; Germeys & de Gieter, 2018) and findings on implicit theories about willpower (e.g., Job et al., 2010), we go beyond past research and analyse the benefits of holding a nonlimited resource theory throughout a workday.

Emotional Dissonance as a Job Stressor

Over the last decades, emotion-regulation has become one of the most widely studied antecedents of ego-depletion (Lian, Yam, Ferris, & Brown, 2017). In this field of research, emotional dissonance is what has been seen as problematic right from the beginning (Hochschild, 1983; Zapf, 2002), because it is considered as a job demand that exposes employees to situations where they experience a discrepancy between felt emotions and desired expressions of emotions (Zapf, 2002; Zapf et al., 1999). For instance, when an eliciting event (e.g., rudeness of a customer) has already triggered an undesirable emotional response (e.g., anger), this affective state is in contrast to the required emotional display (e.g., being friendly and supportive).

When dealing with emotional dissonance, employees are required to continuously monitor felt and required emotions, to inhibit or suppress experienced emotions, and to continuously alter the emotional expression (Konze, Rivkin, & Schmidt, 2017; Schmidt & Diestel, 2014). Consequently, several scholars have considered these processes from a self-control perspective and have described them as effortful internal acts of response-focused emotion-regulation, which involve the exertion of volitional self-control (Diestel & Schmidt, 2011a; Diestel & Schmidt, 2011b; Zapf & Holz, 2006). This line of

research has adopted the theoretical framework of the strength model of self-control (Muraven & Baumeister, 2000) to explain the underlying mechanisms through which emotional dissonance adversely affects employees' psychological well-being. Accordingly, in order to bring expressed emotions in line with organizationally required emotions, employees need to override automatic responses and are required to act out of sync with their natural tendencies, thereby taxing the regulatory resource and manifesting in heightened levels of ego-depletion. And indeed, several studies have revealed that exaggerating a required emotional display and suppressing true feelings cause ego-depletion and impair subsequent self-control processes (Schmeichel et al., 2003; Schmeichel, 2007). Thus, being confronted with emotional dissonance is associated with psychological costs that manifest in short-term consequences, such as ego-depletion, and in long-term consequences, such as impaired psychological well-being (e.g., burnout symptoms, Konze et al., 2017) and absenteeism from the workplace (Diestel & Schmidt, 2011a).

Thus, there is broad evidence that coping with emotional dissonance at work immediately leads to ego-depletion effects and also relates to heightened values of ego-depletion after work (Diestel et al., 2015). In line with these findings, we predict that dealing with emotional dissonance involves the exertion of volitional self-control, thereby taxing a regulatory resource, which directly manifests in ego-depletion (at work and at home) as decrements of this resource. By adopting a diary study approach, we examine these predictions from a within-person perspective and analyse how fluctuations in day-to-day emotional dissonance relate to day-to-day fluctuations in ego-depletion.

Hypothesis 1: *Day-specific emotional dissonance is positively related to day-specific ego-depletion (a) at work and (b) at home.*

While the relationship between emotional dissonance and ego-depletion has already received some empirical attention, less attention has been paid to *how* the adverse consequences of emotional dissonance spill over from the work- to the home-domain (Zhang et al., 2016). In the context of the current study, we define daily spillover as the within-person mechanism that links these two domains of everyday life in a way that psychological states transfer from the work- to the home-domain (Lambert, 1990). More specifically, in line with Edwards and Rothbard's (2000) conceptualisation of spillover effects, the current study focuses on examining the *resource drain* effect. This specific effect is characterized by an adverse, direct relationship between the work- and the home-domain, so that drawing from a finite resource in one domain reduces the availability of this resource in the other domain (Edwards & Rothbard, 2000). This theoretical proposition ties in with notions from the strength model of self-control (Muraven & Baumeister, 2000), suggesting that once the regulatory resource has been depleted, the resource takes time to replenish, so that the experience of ego-depletion will linger (Baumeister & Vohs, 2016). In support of this prediction, a recent study conducted by Germeys and de Gieter (2018) has demonstrated that the adverse effect of having exerted volitional self-control previously at work endures over some time and transcends the work-domain, leading to heightened levels of ego-depletion at work and at home. The strength model of self-control (Muraven & Baumeister, 2000) further predicts that the

state of ego-depletion endures until replenishment of the depleted regulatory resource is possible. However, research on recovery indicates that experiencing emotional dissonance at work impedes recovery possibilities after work (Sonnentag et al., 2010; Volmer, Binnewies, Sonnentag, & Niessen, 2012; Xanthopoulou et al., 2018). Consequently, we propose that after experiencing a workday with high emotional dissonance, the process of replenishing the depleted regulatory resource after work is protracted, so that experiences of ego-depletion endure after work and spill over to the home-domain.

By incorporating notions from the strength model of self-control (Muraven & Baumeister, 2000), propositions from the spillover literature (Edwards & Rothbard, 2000), and recent findings on recovery after work (e.g., Sonnentag et al., 2010; Xanthopoulou et al., 2018), we propose ego-depletion at work as a mediator that links emotional dissonance at work to ego-depletion at home. Thus, we predict that once the regulatory resource has been depleted, this state of ego-depletion persists over some time until replenishment of the resource is possible, thereby causing a spillover of ego-depletion to the home-domain.

Hypothesis 2: *The day-specific positive relationship between emotional dissonance and ego-depletion at home is mediated by ego-depletion at work.*

Implicit Theories about Willpower as a Moderator of the Ego-Depletion Effect

Previous research indicates that implicit theories about willpower influence how people react to demands on volitional self-control and affect the ego-depletion effect. This stream of research suggests that endorsing a nonlimited resource theory (i.e., the belief that the regulatory resource is not easily depleted and refuels itself) is associated with a variety of beneficial outcomes, whereas holding a limited resource theory (i.e., the belief that the regulatory resource is easily depleted and needs rest to recover) is detrimental to subsequent self-control performance and subjective well-being (Bernecker et al., 2015; Job et al., 2010). First evidence for the benefits of believing in a nonlimited resource theory was provided by Martijn and colleagues (2002), who found that peoples' theory of the consequences of self-control moderated performance reduction after self-control exertion. That is, participants who were told that performing an effortful task (controlling their emotions) would improve performance on a subsequent task, did not show decreases in subsequent self-control performance. Drawing on this evidence, Job et al. (2010) introduced the concept of implicit theories about willpower to account for these findings. In a series of laboratory studies, the authors demonstrated that only participants who held or who were led to hold a limited resource theory showed ego-depletion effects after exerting self-control, whereas endorsing a nonlimited resource theory diminished the ego-depletion effect. Moreover, a field study that examined students' self-control performance revealed that students who held a nonlimited resource theory were better able to exert self-control in phases of high demands on self-control than students who held a limited resource theory (Job, Walton et al., 2015).

In an attempt to uncover the underlying psychological process that might account for these empirical findings, scholars have discussed the role of implicit theories about willpower in monitoring and conserving regulatory resources (e.g., Baumeister & Vohs, 2016; Job et al., 2013). They have drawn from theoretical extensions of the strength model of self-control, suggesting that the tendency to conserve some of the regulatory resource is involved in the ego-depletion effect (Baumeister et al., 2000). More specifically, Baumeister and Vohs (2016) argue that there are psychological systems that monitor consumption of the regulatory resource and inhibit further allocation of depleted resources when current allocations occur at an unsustainable rate. By integrating these theoretical notions from the strength model of self-control (Muraven & Baumeister, 2000) and empirical findings on implicit theories about willpower (Job et al., 2010), it has been suggested that people endorsing a limited vs. nonlimited resource theory primarily differ from each other in how intensively they monitor consumption of their regulatory resource and to what extent they aim to conserve what remains of the regulatory resource (e.g., Baumeister & Vohs, 2016; Job et al., 2013).

In line with these propositions, we assume that when people believe that willpower relies on a highly limited resource that becomes easily depleted and is already impaired even after one strenuous mental activity, they will monitor the availability of the regulatory resource more intensively, because they expect decrements in this resource. Consequently, we expect them to be more sensitive to cues for ego-depletion and to realize sooner that they are getting ego-depleted. On the other hand, we assume that when people believe that willpower relies on a nonlimited resource, they do not have the urge to monitor levels of ego-depletion, because they do not expect that exerting volitional self-control on a strenuous mental activity diminishes any resource.

Applying these proposed underlying psychological mechanisms to the current study, we argue that employees holding a nonlimited resource theory will not expect to become ego-depleted, even when daily demands on emotional dissonance exceed their personal average. Coping with emotional dissonance is thus hypothesized to manifest in smaller decrements of the regulatory resource, because employees believing in a nonlimited resource theory perceive themselves as having sufficient resources to deal with accumulating daily emotional dissonance (i.e., plenty customer complaints). On the contrary, we suggest that employees holding a limited resource theory expect to become ego-depleted after exerting even a slight amount of mental effort, such as dealing with a single customer complaint. Thus, on days when emotional dissonance occurs more often than usual, employees holding a limited resource theory should be more vigilant for cues of ego-depletion, and consequently, will act as though their regulatory resource is depleted long before it reaches an actual limit. Therefore, we predict:

Hypothesis 3*: Person-level implicit theories about willpower moderate the day-specific positive relationship between emotional dissonance and ego-depletion at work: The intraindividual relationship is amplified the more people believe that willpower relies on a limited resource.*

In line with the assumption that people holding a limited vs. a nonlimited resource theory differ from each other in how intensively they aim to conserve what remains of the diminished resource after exerting self-control, first laboratory findings show that the exertion of volitional self-control activates the goal to conserve the remaining resource and promotes the orientation towards rest especially in people with a limited resource theory (Job, Bernecker et al., 2015). Thus, there is initial evidence indicating that people believing in willpower as relying on a limited resource turn towards rest or inactivity after exerting volitional self-control. However, research on recovery suggests that inactivity or low-effort activities (such as relaxing on the sofa or doing nothing) may be considered as dysfunctional recovery strategies, as these activities have little or no effect on the replenishment of a depleted resource (Rook & Zijlstra, 2006; Sonnentag & Natter, 2004). Active leisure activities (physical activities, creative activities, and social activities; Sonnentag, 2001), on the other hand, have repeatedly been shown to exert a stronger effect on the replenishment of a depleted resource (e.g., Oerlemans, Bakker, & Demerouti, 2014; Sonnentag & Natter, 2004; van Hooff, Geurts, Beckers, & Kompier, 2011) and thus, could be considered a more functional recovery strategy.

Therefore, we propose that people endorsing a limited resource theory develop a stronger need to conserve their resource once this resource has been diminished previously. Building on empirical evidence (Job, Bernecker et al., 2015), we predict that people endorsing a limited resource theory turn towards rest and inactivity (long before it might be necessary) in order to conserve what remains of this diminished resource. However, as we presume that this recovery strategy is less effective for replenishing the depleted resource (e.g., Rook & Zijlstra, 2006; Sonnentag & Natter, 2004), the state of feeling depleted might even be prolonged for people holding a limited resource theory. On the contrary, we suggest that believing in a nonlimited resource theory removes the perceived need to conserve a depleted resource (why conserving something that is nonlimited?), thereby breaking a process that undermines self-control performance and encouraging people to continue to allocate resources (Baumeister & Vohs, 2016; Job, Bernecker et al., 2015). Consequently, believing in a nonlimited resource theory and as such, a belief of having sufficient resources, is proposed to remove the orientation towards rest and inactivity, in that way enabling individuals to replenish their depleted resource in a more functional manner by conducting active leisure activities.

Applying this proposed underlying framework to the current study, we suggest that employees endorsing a nonlimited resource theory adopt a more functional recovery strategy in order to replenish the depleted regulatory resource, thereby reducing the spillover of ego-depletion from the work- to the home-domain. On the other hand, we predict that employees endorsing a limited resource theory are more likely to adopt dysfunctional recovery strategies (i.e., by turning towards inactivity), thereby prolonging the state of feeling depleted instead of actively replenishing the depleted regulatory resource. For these employees, ego-depletion is proposed to linger and to spill over from the work- to the home-domain. Thus, it is hypothesized:

Hypothesis 4: *Person-level implicit theories about willpower moderate the day-specific positive relationship between ego-depletion at work and ego-depletion at home: The intraindividual spillover from work to home is amplified the more people believe that willpower relies on a limited resource.*

Building on the assumptions that holding a nonlimited resource theory (a) attenuates the relation between emotional dissonance and ego-depletion at home and (b) diminishes the spillover of ego-depletion from the work- to the home-domain, we predict that the positive indirect effect of emotional dissonance on ego-depletion at home will be reduced for employees endorsing a nonlimited resource theory. Hence, we hypothesize:

Hypothesis 5: *Person-level implicit theories about willpower moderate the day-specific mediated (indirect) relationship between emotional dissonance and ego-depletion at home: The positive mediated relationship is attenuated the more people believe that willpower relies on a nonlimited resource.*

Method

Research design and participants

Over the course of some years, contact information of service employees who had expressed their willingness to take part in a scientific study were collected (via social networks, personal contacts, and public advertisements). For the purpose of this study, these employees were approached and asked to participate in this diary study. As a result, 71 employees from various organisations in Germany with regular contact to customers, clients, or patients at work registered for the study (occupations ranged from salespersons and consultants to kindergarten teachers and care institutions). Among these participants, 59% were female, 18% worked part-time (part-time employees in this study worked less days per week, but only had full working days, which were included in the analyses), and the mean age of the participants was 40.23 (SD = 13.51) years. The whole process of data collection was conducted electronically via an online survey platform that allowed participants to fill out the surveys on smartphones, tablets, or personal computers. In advance of the day-specific measurements, participants responded to a general questionnaire that assessed biographical variables and person-level constructs (e.g., implicit theories about willpower). After that, over a period of 10 consecutive working days, participants received e-mails two times per day (in the afternoon at work and in the evening at home) in order to answer day-specific questionnaires. In the afternoon at work (1:00 p.m.), participants received an e-mail asking them to report emotional dissonance and ego-depletion. In the evening at home (7:00 p.m.), another email with an invitation to rate ego-depletion was sent. After receiving the e-mails, the surveys were accessible for six hours. If participants did not react to the survey within the first two hours, a reminder for participation was sent. On average, the surveys were completed at 2:47 p.m. at work and at 8:35 p.m. at home. On weekends or public holidays, the diary study was suspended and continued the next regular

working day. Participation was voluntary as well as anonymous and data across measurements were matched via anonymous, randomized codes. The completion of the diary study was compensated for by 50 Euro (information about completion of surveys and final data set were gathered separately). Overall, response rate to our daily questionnaires was 93.7%, resulting in 665 (out of 710) day-specific measurements.

Measures and control variables

The general questionnaire included implicit theories about willpower as study variable and age, gender, and self-control capacity as control variables. Age and gender were assessed and included in the analyses to control for their potential confounding influence. Moreover, 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). In the day-specific questionnaires, we explained that the items of emotional dissonance refer to situations within the last hours of work, while the items of ego-depletion refer to momentary experiences.

Self-control capacity. We assessed self-control capacity as an individual trait with a 17-item version of Tangney and colleagues' (2004) self-control capacity scale (e.g., "People would say that I have iron self-discipline."). All items were scored using a 5-point intensity-rating format (1 = *not at all*; 5 = *very much*).

Implicit theories about willpower. To measure person-specific implicit theories about willpower, we used Job et al.'s (2010) strenuous mental activity scale. 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." Participants responded using a six-point intensity-rating format (1 = *strongly disagree*; 6 = *strongly* agree), whereas higher values represent greater agreement with a limited resource theory.

Emotional dissonance (at work). 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 within the last hours of work (e.g., "Within the last hours at work, how often did you have to show feelings that you did not really feel?"). The items were adapted from the Frankfurt Emotion Work Scales (Zapf et al., 1999). Some questions were slightly modified by asking specifically about interactions with colleagues, patients, and customers. Participants responded using a five-point intensity-rating format (1 = never; 5 = very often).

Ego-depletion (at work and at home). We assessed day-specific ego-depletion using five items related to the participant's *current* experiences with resource depletion (e.g. "At the moment, I feel increasingly less able to focus on anything."). The scale was developed and validated by Bertrams, Unger, and Dickhäuser (2011), who intended to assess the temporary affective state of ego-depletion proposed by Muraven and Baumeister (2000). All items were scored using a four-point intensity-rating format (1 = *not at all*; 4 = *a great deal*).

Construct Validity of Day-Level Variables

We conducted multilevel confirmatory factor analyses (MCFAs) to test the psychometrical distinctiveness of our day-level variables. We tested a three-factor measurement model including all three day-level variables of the present study as distinct factors (emotional dissonance, ego-depletion at work, and ego-depletion at home). Fit indices for this model showed a satisfactory fit (χ^2 (174) = 620.74, $p < .01$; root mean square error of approximation (RMSEA) = .061; comparative fit index (CFI) = .934; standardized root mean square residual within-person/between-person (SRMRw/SRMRb) = .030/.059).

Analytical procedure

We used multilevel structural equation modelling in Mplus 7 (Muthén & Muthén, 1998-2017), because the day-level data (level 1) were nested within the person-level data (level 2), and this procedure takes the interdependence of both levels into account (Hox, 2002). In a first step (in order to test Hypotheses 1 and 2), we specified a 1-1-1 mediation model (Preacher, Zyphur, & Zhang, 2010), in which ego-depletion at work mediates the adverse effects of emotional dissonance on ego-depletion at home. To test this multilevel mediation with all study variables assessed at the day-level, we followed Preacher and colleagues' procedure and tested a random-intercept fixed-slope model (Preacher et al., 2010; Preacher, Zhang, & Zyphur, 2011). In line with the analysis approach described by Hülsheger and colleagues (Hülsheger, Lang, Depenbrock, Fehrmann, Zijlstra, & Alberts, 2014), within-person and between-person relations were analysed simultaneously, whereas coefficients at level 1 indicate pure within-person relationships and coefficients at level 2 indicate pure between-person relationships. Thus, the decomposition into within-person and between-person relations is such that it "can be viewed as an implicit, latent group-mean centring of the latent within-level covariate" (Muthén & Muthén, 1998 – 2017; p. 243).

In a second step, we specified a moderated mediation model to examine the moderating effect of implicit theories about willpower on the day-level relation between emotional dissonance and ego-depletion (Hypotheses 3, 4, and 5). In this model, we defined the slope of emotional dissonance on ego-depletion at work (path a) and the slope of ego-depletion at work on ego-depletion at home (path b) as random, as these relations were hypothesized to vary as a function of implicit theories about willpower. Subsequently, we added implicit theories about willpower as a predictor of the random slopes. Since the focus of this analysis was to examine day-specific effects, we centred emotional dissonance around the person mean (group-mean centring; Enders & Tofighi, 2007), whereas implicit theories about willpower and ego-depletion at work were centred around the grand mean (grand-mean centring). This procedure allows to exclusively test the moderating effect on the within-person-/day-level (Ohly et al., 2010; van de Pol & Wright, 2009). All paths between the study variables were modelled using robust maximum likelihood method of estimation.

Results

Table 3.3 displays the descriptive statistics, internal consistencies (Cronbach's alpha), and correlations among the study variables. The proportion of within-person variation in ego-depletion was 54.8% at work and 52.2% at home, indicating that due to high levels of day-specific fluctuations, the application of multi-level modelling is necessary.

Table 3.3. Means, standard deviations, internal consistencies (*Cronbach's Alpha*) and intercorrelations of study variables

Variable	1	2	3	4	5	6	7
1. Ego-depletion *at work*	*(0.91-0.95)*	**0.60**	**0.40**				
2. Ego-depletion *at home*	**0.79**	*(0.91-0.94)*	**0.24**				
3. Emotional dissonance	**0.54**	**0.34**	*(0.94-0.98)*				
4. Theories about willpower [a]	0.20	0.19	0.06	*(0.69)*			
5. Self-control capacity	**-0.43**	**-0.34**	-0.22	-0.03	*(0.80)*		
6. Age	**-0.43**	**-0.40**	-0.23	0.04	**0.34**	-	
7. Gender [b]	-0.14	**-0.27**	0.12	**-0.32**	0.20	0.04	-
M	1.82	1.98	2.24	4.27	3.13	39.72	1.41
SD	0.61	0.60	0.74	0.80	0.50	14.18	0.50

Note: Cronbach's alpha for day-level variables are indicated as range of alpha values across all measurement days. Correlations below the diagonal are person-level correlations ($N_{between}$ = 71). Correlations above the diagonal are day-level correlations (N_{within} = 665-677).
[a] Theories about willpower (high values indicate agreement with a limited resource theory).
[b] Gender (1 = female, 2 = male).
Numbers in bold $p < .05$.

Mediating effect of ego-depletion at work

Hypothesis 1 proposed that day-specific emotional dissonance is positively related to ego-depletion (a) at work and (b) at home. In support of Hypothesis 1, the results indicate that emotional dissonance is positively related to (a) ego-depletion at work (between-level: $\beta = 0.41$, $p < .01$; within-level: $\beta = 0.15$, $p < .01$; cf. Table 3.4), as well as to (b) ego-depletion at home (between-level: $\beta = 0.26$, $p < .01$; within-level: $\beta = 0.08$, $p < .05$). In a next step, we included ego-depletion at work to predict ego-depletion at home, thereby testing the proposed mediating mechanism. In line with Hypothesis 2, the results show that ego-depletion at work is positively related to ego-depletion at home (between-level: $\beta = 0.82$, $p < .01$; within-level: $\beta = 0.39$, $p < .01$), while emotional dissonance is no longer related to ego-depletion at home (between-level: $\beta = -0.08$, *n.s.*; within-level: $\beta = 0.02$, *n.s.*). Moreover, this mediation model provided a good model fit (χ^2 (3) = 5.81, *n.s.*, RMSEA = .037, CFI = .983, SRMRw/b = .000/.086). In addition, pseudo-R^2 statistics (Raudenbush & Bryk, 2002) were calculated to obtain an indication of the portion of explained variance (cf. Table 3.4.).

For analysing the indirect (mediating) effect of ego-depletion at work, as proposed by Hypothesis 2, we utilized the Monte Carlo re-sampling method to estimate the appropriate confidence intervals for the indirect effect, because bootstrapping cannot be applied to multilevel analyses (Preacher & Selig, 2012; van der Leeden, Meijer, & Busing, 2008). More specifically, we computed bias-corrected 95% confidence intervals (CIs) for the indirect effect based on 20,000 re-samples using the software provided by Selig and Preacher (2008). In support of Hypothesis 2, the CI for the indirect effect of ego-depletion at work in the relation of emotional dissonance and ego-depletion at home did not include zero for the within-person part of our model (β = 0.06 [CI: 0.03:0.08]). Thus, ego-depletion at work *fully* mediates the day-specific relation of emotional dissonance and ego-depletion at home. Moreover, Table 3.4 also indicates a significant indirect effect for the between-person part of our model (β = 0.34 [CI: 0.16:0.55]). This result implies that the mediating effect of ego-depletion at work is also present in the relation between cumulative emotional dissonance and ego-depletion at home aggregated across ten days.

Taken together, results of the mediation analysis demonstrate that day-specific emotional dissonance increases day-specific ego-depletion at work, which in turn spills over and manifests in ego-depletion at home. Furthermore, the adverse effect of emotional dissonance on ego-depletion at home is fully mediated by ego-depletion at work.

Table 3.4. Results of the mediation analysis

	Ego-depletion *at work*		Ego-depletion *at home*			
Between-person direct effects	Estimate (*SE*)	*p*	Estimate (*SE*)	*p*	Estimate (*SE*)	*p*
Gender	-.20 (.10)	.049	-.36 (.12)	.002	-.19 (.08)	.017
Age	-.01 (.00)	.005	-.02 (.01)	.006	-.00 (.00)	.304
Self-control capacity	-.22 (.10)	.022	-.09 (.13)	.463	.09 (.10)	.376
Emotional dissonance	.41 (.09)	.000	.26 (.09)	.003	-.08 (.10)	.426
Ego-depletion at work					.82 (.15)	.000
R^2	.538				.740	

Between-person indirect effects	Estimate (*SE*)	LLCI	ULCI
Emotional dissonance → Ego-depletion at work → Ego-depletion at home	.34 (.09)	.16	.55

	Ego-depletion *at work*		Ego-depletion *at home*			
Within-person direct effects	Estimate (*SE*)	*p*	Estimate (*SE*)	*p*	Estimate (*SE*)	*p*
Emotional dissonance	.15 (.03)	.000	.08 (.03)	.019	.02 (.03)	.520
Ego-depletion at work					.39 (.07)	.000
R^2	.046				.125	

Within-person indirect effects	Estimate (*SE*)	LLCI	ULCI
Emotional dissonance → Ego-depletion at work → Ego-depletion at home	.06 (.01)	.03	.08

Note: 1-1-1 mediation model with random intercepts and fixed slopes;
SE=standard error; *LLCI*=lower level confidence interval (95%), *ULCI*= upper level confidence interval (95%); $N_{between}$ = 71; N_{within} = 665.

Moderating effect of implicit theories about willpower

To further test whether implicit theories about willpower moderate the day-specific relation between emotional dissonance and ego-depletion at work (Hypothesis 3) and the day-specific spillover of ego-depletion from work to home (Hypothesis 4), we specified the slope of emotional dissonance on ego-depletion at work (path a) and the slope of ego-depletion at work on ego-depletion at home (path b) as random. Subsequently, we added implicit theories about willpower as a predictor of these random slopes. Because traditional fit indices are not applicable to random slope models, we tested whether the model fit was improved by conducting a Log-likelihood ratio test, as suggested by Muthén and Muthén (1998-2017). The results of this test show that compared to the mediation model, the moderated mediation model yields an improved data fit (Δlog-likelihood(df) = 98.78 (6); $p < .01$).

Table 3.5. Results of the moderated mediation analysis

Within-person direct effects	Estimate (*SE*)	*p*	
Path a_w: emotional dissonance → ego-depletion at work	.13 (.03)	.000	
Path b_w: ego-depletion at work → ego-depletion at home	.36 (.06)	.000	
Path c_w: emotional dissonance → ego-depletion at home	.03 (.03)	.353	
Moderation: theories about willpower (TW)[a] → path a_w	.07 (.02)	.003	
Moderation: theories about willpower (TW) → path b_w	.03 (.04)	.553	
Within-person conditional indirect effects	Estimate (*SE*)	LLCI	ULCI
Emotional dissonance → Ego-depletion at work → Ego-depletion at home			
➢ Nonlimited resource theory *(low TW)*	.02 (.02)	-.01	.05
➢ Indecisive resource theory *(mean TW)*	.05 (.01)	.02	.08
➢ Limited resource theory *(high TW)*	.08 (.02)	.04	.12

Note: moderated mediation model with random intercepts and random slopes;
SE=standard error; *LLCI*=lower level confidence interval (95%), *ULCI*= upper level confidence interval (95%); N_{within} = 665;
R^2 ego-depletion at work = .085, R^2 ego-depletion at home = .182;
[a] *TW* = Theories about willpower (high values indicate agreement with a limited resource theory)

Results indicate a positive effect of implicit theories about willpower on the slope between emotional dissonance and ego-depletion at work (within-level: $\beta = 0.07$, $p < .01$; cf. Table 3.5), thereby providing support for Hypothesis 3. To facilitate the interpretation of the interaction effect, we depicted the interaction effect and performed simple slope tests, as recommended by Preacher and colleagues (2006). Figure 3.3 suggests that emotional dissonance relates positively to ego-depletion at work only for those who believe that willpower relies on a limited resource ($\gamma = .20$, $p < .01$), while the relationship is non-significant for those who believe that willpower relies on a nonlimited resource ($\gamma = .06$, *n.s.*). Thus, results provide support for Hypothesis 3.

Hypothesis 4 proposed that implicit theories about willpower moderate the day-specific spillover of ego-depletion from home to work. However, as presented in Table 3.5, our results reveal that there is

no significant effect of implicit theories about willpower on the slope between ego-depletion at home and ego-depletion at work (within-level: $\beta = 0.03$, *n.s.*). This finding is inconsistent with Hypothesis 4.[5]

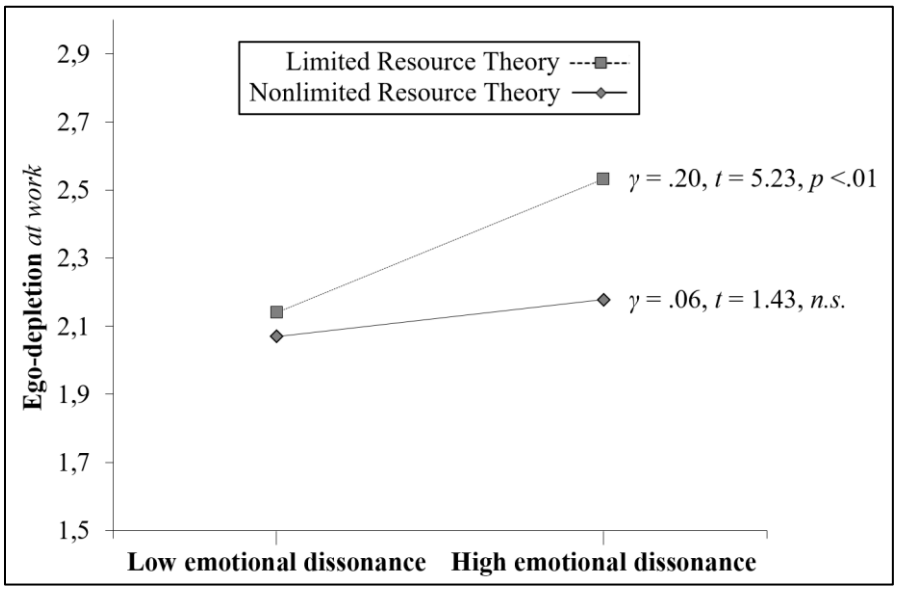

Figure 3.3. Interaction effect of emotional dissonance and implicit theories about willpower (limited vs. nonlimited resource theory) on ego-depletion at work
Note: "Limited Resource Theory" was operationalized by one standard deviation above the mean of implicit theories about willpower; "Nonlimited Resource Theory" was operationalized by one standard deviation below the mean.

Finally, we tested whether our results provide evidence for the proposed moderated mediation model (Hypothesis 5) by analysing whether the mediating (indirect) effect of ego-depletion at work varies as a function of implicit theories about willpower. Thus, we examined conditional indirect effects of emotional dissonance on ego-depletion at home (via ego-depletion at work) at three values for implicit theories about willpower. More specifically, we computed 95% CIs of the indirect effect for people holding a nonlimited resource theory (one standard deviation below the mean of implicit theories about willpower), for people holding a limited resource theory (one standard deviation above the mean of implicit theories about willpower), and for people with an indecisive resource theory (mean level of implicit theory about willpower). For people holding an indecisive or a limited resource theory, the indirect effect of emotional dissonance on ego-depletion at home via ego-depletion at work was significant (indecisive resource theory: $\beta = 0.05$ [CI: 0.02:0.08]; limited resource theory: $\beta = 0.08$ [CI: 0.04:0.12]; cf. Table 3.5). In contrast, for people with a nonlimited resource theory, this indirect effect was not significant ($\beta = 0.03$ [CI: -0.01:0.05]). Thus, results support Hypothesis 5 and indicate that

[5] In order to account for potential day effects in the analyses, we re-ran our analyses by including day-of-week dummy coded variables. Including these control variables did not change the pattern of results.

believing in willpower as relying on a nonlimited resource buffers the adverse effect of coping with high levels of emotional dissonance, thereby disrupting the indirect effect on ego-depletion at home via ego-depletion at work. [6]

Discussion

Due to the prevalence of emotional dissonance in many occupational fields, the present diary study examined consequences of coping with emotional dissonance and tested whether the spillover of emotional dissonance on ego-depletion at home operates through ego-depletion at work. In line with a growing body of empirical evidence suggesting that implicit theories about willpower have the potential to moderate adverse effects of exerting volitional self-control, we further analysed whether believing in a nonlimited resource theory buffers these day-specific (direct and indirect) relations. Thus, the aim of this study was threefold. First, we intended to broaden our understanding on the prolonged effects of emotional dissonance by examining how consequences from coping with emotional dissonance at work affect employees' experiences of ego-depletion throughout the day (that is, at work and in the evening at home). Second, we aimed at advancing knowledge on emotional dissonance at the workplace and implicit theories about willpower by adopting a daily diary design to study within-person differences in an occupational context. Third, we set out to investigate whether endorsing a nonlimited resource theory buffers against the adverse effects of emotional dissonance.

Results supported most of the hypothesized relationships. In particular, in terms of the examined mediation effect, our findings show a direct effect of emotional dissonance on ego-depletion at work and further indicate that the positive relation between emotional dissonance and ego-depletion at home is *fully* mediated by ego-depletion at work. In terms of the proposed moderating mechanisms, our results indicate that the intraindividual relationship between emotional dissonance and ego-depletion at work holds only for those employees, who believe that willpower relies on a limited resource. Thus, believing that willpower relies on a nonlimited resource attenuates the day-specific adverse relation between emotional dissonance and ego-depletion at work. However, implicit theories about willpower do not seem to affect the intraindividual spillover of ego-depletion from work to home. Nevertheless, in line with the proposed moderated mediation model, the current study suggests that a nonlimited resource theory prevents that daily emotional dissonance manifests in states of ego-depletion at work and therefore disrupts the adverse indirect effect of emotional dissonance on ego-depletion at home via ego-depletion at work.

[6] Following recommendations by Spector and Brannick (2011), we re-ran our analyses without the inclusion of biographical characteristics (age and gender) and self-control capacity as control variables. Excluding these control variables did not change the pattern of results. Thus, the possibility that the findings might be attributed to any of the control variables can be ruled out.

Thus, our findings lend credence to the notion that believing in a nonlimited resource theory facilitates coping with daily emotional dissonance.

Theoretical implications

The present study may offer several contributions to the literature on emotional dissonance and its spillover to the home-domain and may extend our knowledge on the interplay between exerting volitional self-control and endorsing a nonlimited resource theory of willpower in several ways. First, we empirically replicate the adverse effect of emotional dissonance and provide additional support for the notion that coping with emotional dissonance involves exerting volitional self-control. Just like research on emotional dissonance has repeatedly found, portraying emotions inconsistent with one's genuinely felt emotions depletes the regulatory resource (Diestel & Schmidt, 2010; Grandey, 2003; Zapf & Holz, 2006). Furthermore, in line with recent diary studies on emotional dissonance (e.g., Diestel et al., 2015) our results demonstrate that on days with higher levels of emotional dissonance (compared to an employee's average level of emotional dissonance), employees report higher levels of ego-depletion. Results of the multilevel mediation analysis further indicate that the day-specific effect of emotional dissonance on ego-depletion at home is fully mediated by ego-depletion at work. This finding ties in with theoretical notions from the strength model of self-control (Baumeister & Vohs, 2016), propositions from the spillover literature (Edwards & Rothbard, 2000), and recent evidence on the spillover of ego-depletion (Germeys & de Gieter, 2018). Furthermore, although the focus of the current paper was to examine within-person effects, findings of the multilevel mediation analysis further show that the pattern of results is similar at the within- and the between-person level. Accordingly, this result suggests that employees experiencing greater levels of emotional dissonance than others report higher values for ego-depletion at work, which spill over and affect ego-depletion at home (again, a full mediation via ego-depletion at work). Taken together, the present findings contribute to a better understanding of how emotional dissonance affects employees' states at home and emphasize the importance of identifying boundary conditions that directly buffer the adverse effect of coping with emotional dissonance at work, so that experiences of ego-depletion are diminished directly at work and do not spill over to the home-domain.

Second, while previous studies on implicit theories about willpower have mainly relied on laboratory research and focused on between-person effects, we conducted a diary study in an applied occupational setting to examine the external validity of the buffering effect of believing in a nonlimited resource theory. The sample we chose (employees from different service-oriented occupations) is particularly relevant, because for these employees, continuously coping with emotional dissonance constitutes a core characteristic of their work-role. In this occupational setting, our results provide support for the buffering effect of believing in a nonlimited resource theory on the direct consequences of coping with emotional dissonance. In particular, we demonstrate that on days when employees experience higher levels of emotional dissonance than usual, only those believing in willpower as a limited resource

report an increase of ego-depletion at work. While this research ties in with previous studies on implicit theories about willpower (Bernecker et al., 2015; Bernecker & Job, 2015; Job et al., 2010; Job et al., 2013; Job, Walton et al., 2015), it further extends existing knowledge by transferring these insights to an occupational setting and by validating them on a within-person level. Further supplementing recent research, the current study demonstrates that holding a nonlimited resource theory eliminates the indirect effect of emotional dissonance on ego-depletion at home (as indicated by the insignificant indirect effect for people holding a nonlimited resource theory). Thus, only for people holding a limited resource theory, the adverse consequences of coping with emotional dissonance at work spill over to the home-domain and affect employees' levels of ego-depletion in the evening. Taken together, the current study demonstrates that believing in a nonlimited resource theory does not only provide benefits in laboratory settings or in student samples, but might as well have practical implications for employees facing high levels of emotional dissonance on a daily basis.

Finally, results of the current study might open up a new discussion on implicit theories about willpower by identifying a potential limit of its moderating effect. While previous research has exclusively analysed the moderating role of implicit theories about willpower on immediate decrements in self-control resources, we also examined whether holding a nonlimited resource theory buffers the spillover of ego-depletion from the work- to the home-domain. By integrating empirical findings from research on recovery after work (e.g., Oerlemans et al., 2014; Sonnentag & Natter, 2004; van Hooff et al., 2011), we argued that people endorsing a limited resource theory turn towards inactivity once they feel that their resource is depleted to some degree, thereby adopting a dysfunctional recovery strategy that prolongs the state of feeling depleted. Simultaneously, we proposed that people holding a nonlimited resource theory adopt a more functional recovery strategy by conducting active leisure activities that facilitate recovery. However, our findings did not support such a moderating effect, indicating that believing in a nonlimited resource theory might not facilitate (or that believing in a limited resource theory might not impede) the replenishment of a depleted regulatory resource. This result may extend our knowledge on implicit theories about willpower by suggesting that although endorsing a nonlimited resource theory might encourage individuals to sustain prolonged exertion of volitional self-control; this implicit theory does not seem to be capable of attenuating depletion effects once they have come to pass.

Limitations and Suggestions for Future Research

Despite several contributions, our study is also subject to some limitations, which need to be discussed. First, although collecting data at two measurement points per day over 10 consecutive workdays is an advantage of the current study, employees rated emotional dissonance and ego-depletion at work at the same time point. In order to examine the proposed sequence of our model, we chose different time periods as reference points (emotional dissonance referred to the last hours and ego-depletion to momentary experiences). Nevertheless, in accordance with Roe (2008), larger numbers of time points,

shorter intervals, and more specific methods of analysis are needed to study temporal aspects of behaviour adequately. Therefore, future research should assess ego-depletion effects more fine-grained by implementing more measurement points per day.

Second, it would be important for further studies to consider more objective measures of ego-depletion. The fact that we set out to investigate depletion effects of the regulatory resource, but only assessed *perceived* ego-depletion is a shortcoming of the current study. Future research could benefit from integrating more objective or behavioural measures of ego-depletion in diary studies, such as smartphone applications that include short self-control tasks, so that intraindividual differences in self-control performance can be analysed more adequately.

Third, in our theoretical background we argued that people who hold a limited resource theory monitor first signs of depletion more intensively and might start conserving remaining resources sooner. Future research should consider these possible mechanisms and examine potential mediators that shed light on the underlying psychological processes through which implicit theories about willpower moderate adverse consequences of volitional self-control. Furthermore, it might be argued that people who start conserving resources earlier (due to a limited resource theory) might benefit from reduced exhaustion in the long run. However, until now, it remains unclear "how far effects of theories about willpower reach when periods of self-control exertion are extended" (Job, Bernecker et al., 2015, p. 704). Thus, analysing long-term patterns of ego-depletion by looking at the moderating mechanism of implicit theories about willpower on cumulative effects of ego-depletion across several working days could provide a deeper understanding of these constructs and their interrelationships.

Fourth, we conceptualised implicit theories about willpower as a stable trait-like belief that does not change over time and that is domain-independent. In contrast to this approach, some studies managed to experimentally manipulate implicit theories about willpower by asking participants to complete biased questionnaires that fostered agreement with either a nonlimited or a limited resource theory (e.g., Job et al., 2010, Study 2). In light of these inconsistent conceptualisations, future research should shed light onto the time-dependent variability of this construct. Furthermore, recent developments in this field of research suggest that implicit theories about willpower might be domain-specific, meaning that individuals might hold different implicit theories about whether engaging in strenuous mental activities, resisting temptation, or controlling emotions depletes a limited regulatory resource (Bernecker & Job, 2017). Thus, future research needs to deepen our knowledge on the interplay between emotional dissonance and implicit theories about willpower by considering emotion-specific willpower theories (that is, the belief whether controlling emotions depletes a limited resource).

Finally, the underlying framework for our reasoning and our hypotheses is derived from the strength model of self-control (Muraven & Baumeister, 2000). However, within the last years, inconsistent results from several meta-analyses (cf. Carter, Kofler, Forster, & McCullough, 2015; Dang, 2018; Hagger et al., 2010) have challenged the conceptualisation of self-control as relying on a finite energy

resource. Therefore, future research needs to refine our understanding of self-control processes and has to advance and update the strength model of self-control (Baumeister & Vohs, 2016). While we believe that the current study contributes to a better understanding on how implicit theories about willpower affect self-control processes, incorporating empirical findings on implicit theories about willpower and resource allocation into a refined strength model of self-control remains an important challenge for future research.

Practical implications

Because of the increasing significance of the service sector, coping with emotional dissonance has become a major stressor at work (e.g., Cheung & Tang, 2007; Diestel & Schmidt, 2010; Diestel et al., 2015). The current findings underline the hazard of coping with emotional dissonance at work and indicate that on days with high levels of emotional dissonance, employees feel depleted during the workday and also in the evening at home. Because emotional dissonance has been shown to affect ego-depletion at home only indirectly via ego-depletion at work, implementing *strategies at the workplace* that counteract experiences of ego-depletion directly at work becomes most important. A first strategy could be to rethink the role of emotional display rules and to consider supporting a climate of authenticity in which customers appreciate the expression of true emotions (Grandey, Rupp, & Brice, 2015). Another promising strategy might be to strengthen protective factors that have the potential to reduce the adverse consequences of experiencing emotional dissonance at work, such as emotional support (de Jonge et al., 2008) and affective commitment (Rivkin et al., 2015a; Rivkin et al., 2018). Moreover, training programmes, which teach employees how to authentically feel emotions that need to be displayed instead of faking desired emotions, have been shown to be effective in reducing adverse consequences of emotional dissonance (e.g., Hülsheger, Lang, Schewe, & Zijstra, 2015).

Another important implication from the present study is that implicit theories about willpower have an immediate beneficial effect for employees who experience high levels of emotional dissonance. Thus, the current findings tie in with research on how implicit theories about own possibilities and resources fuel behaviour and growth (e.g., Dweck, 1986; Dweck, 1996; Dweck & Leggett, 1988). What research on implicit theories in general and on implicit theories about willpower in particular suggests is that promoting a climate in which cherished qualities (e.g., intelligence or willpower) are not carved in stone, but can be cultivated through effort, supports employees to develop and to grow (Dweck, 2006). Thus, managers and leaders should refrain from emphasizing limits of willpower, as this might unintentionally cultivate beliefs in a limited resource theory, which cause employees to habitually energize below their optimum. Instead, fostering an organisational climate that values employees' potentials and focuses on employees' abilities to improve self-control performance can be considered a promising strategy to support them when coping with emotional dissonance.

Conclusion

Can faith move mountains? In the current study, we set out to investigate whether believing in a non-limited resource theory prevents employees from adverse consequences of emotional dissonance. Our results indicate that when employees are required to cope with emotional dissonance at work, they benefit from believing that exerting volitional self-control is energizing rather than depleting. Although the current study did not indicate that believing in a nonlimited resource theory may help replenishing a depleted resource, the findings underline that endorsing a nonlimited resource theory supports us to overcome first signs of depletion und to sustain self-control when others already feel depleted and turn towards inactivity.

KAPITEL 4

Dynamische Wechselwirkungen zwischen lang- und kurzfristiger Erschöpfung im Verlauf von Arbeitstagen

STUDIE 4

Konze, A.-K. (under Review). The Dynamic Interplay between Emotional Dissonance, Emotional Exhaustion, and Daily Trajectories of Ego-Depletion: A Latent Growth Modelling Approach Applied to Three-Level Daily Diary Data. *Journal of Applied Psychology*.

The Dynamic Interplay between Emotional Dissonance, Emotional Exhaustion, and Daily Trajectories of Ego-Depletion: A Latent Growth Modelling Approach Applied to Three-Level Daily Diary Data

Abstract

Given the importance of successfully exerting volitional self-control in today's fast-changing working environments, the current study intends to broaden empirical knowledge on the depletion of the regulatory resource capacity by adopting a process perspective and investigating how ego-depletion unfolds dynamically throughout a workday. Because levels of ego-depletion have rarely been studied with reference to time, there is no underlying theoretical framework on how levels of ego-depletion evolve within episodes of prolonged exertion of volitional self-control. Thus, by explicitly integrating the role of time into the strength model of self-control, dynamic relations between ego-depletion, emotional dissonance, and emotional exhaustion are hypothesized and examined on multiple levels of analysis. A multilevel latent growth analysis conducted with data from a daily diary study (N = 64; 10 days; 4 measurement occasions per day) reveals that levels of ego-depletion increase linearly in the course of a workday and are adversely affected by day-specific emotional dissonance. Furthermore, emotional exhaustion, considered as an indicator for chronic regulatory resource depletion, is shown to relate to heightened values of ego-depletion in the morning, thereby broadening our understanding on the interplay between chronic exhaustion and momentary ego-depletion. In light of these findings, theoretical implications for research on self-control and practical implications on the scheduling of work tasks are derived. Finally, it is discussed how future research could benefit from acknowledging the role of time when studying psychological processes and how multilevel latent growth analyses could contribute to our understanding of dynamic within-day processes.

Keywords: ego-depletion, emotional dissonance, emotional exhaustion, latent growth modeling, daily diary study

Introduction

In today's working environments, exerting volitional self-control, defined as overriding or changing one's inner responses and interrupting undesired behavioral tendencies or impulses that would otherwise interfere with goal-directed behavior (Tangney et al., 2004), constitutes an integral part of the work role. When managing their emotions, when holding their tempers, when resisting temptations, and when concentrating on complex tasks without allowing distractions, employees are required to exert volitional self-control (Schmidt et al., 2012). Despite these organizational requirements, employees often fail in their efforts to control themselves (e.g., Baumeister & Vohs, 2016) and these self-control failures come at a tremendous cost for organizations (e.g., unethical or deviant behavior; Gino, Schweitzer, Mead, & Ariely, 2011; Yang, Bauer, Johnson, Groer, & Salomon, 2014). To account for these effects, scholars have repeatedly referred to the strength model of self-control (Baumeister et al., 1998; Baumeister et al., 2007; Muraven et al, 1998). Accordingly, every act of volitional self-control draws on and depletes a common regulatory resource capacity, thereby rendering this resource capacity temporarily less available for subsequent self-control attempts and giving potential rise to self-control failures. Once this regulatory resource capacity has been diminished to some degree, a momentary feeling of depletion arises – a state known as *ego-depletion* (Baumeister et al., 1998).

At the very heart of research on self-control, there lies the theoretical notion that levels of ego-depletion are temporarily unstable and fluctuate over time as a function of preceding self-control exertion (Muraven & Baumeister, 2000). However, depletion of the regulatory resource capacity has rarely been studied as a dynamic process that unfolds over time. Although scholars have identified substantial variation in ego-depletion between workdays (49.3%, Diestel et al., 2015), there is no empirical knowledge on systematic variation within days and no theoretical foundation to predict how ego-depletion (as a dynamic criterion) evolves within specific episodes of prolonged self-control exertion.

Therefore, in the current daily diary study ($N = 64$; 10 days), I introduce a multilevel latent growth modeling approach to investigate how levels of ego-depletion (measured at four occasions per workday) systematically change over a day and how these daily change patterns are affected by daily emotional dissonance (measured at three occasions per workday as a time-variant job demand that requires the exertion of volitional self-control) and emotional exhaustion (measured once as a time-invariant indicator for chronic resource depletion). Considering a workday as an episode of prolonged self-control exertion without the possibility to fully recover, I derive arguments for the proposition that ego-depletion increases linearly in the course of a workday. Furthermore, given the fact that job demands, especially those that require employees to display specific emotions, are known to vary from one situation to the next (Zapf, 2002), dynamic relations between emotional dissonance and ego-depletion are suggested. Finally, by integrating notions of the resource-based model (Trougakos et al., 2015), it is hypothesized that these dynamic relationships are adversely affected by chronic feelings of emotional exhaustion. Hence, I shed light on the interplay between chronic exhaustion and dynamic daily self-control processes.

From a theoretical perspective, the current study intends to contribute to literature on self-control in two ways. First, by adapting a process perspective and illuminating the dynamic nature of ego-depletion, I comply with the request to systematically investigate the role of time in psychological processes (Navarro, Roe, & Artiles, 2015; Sonnentag, 2012). Given the fact that one third of within-person hypotheses in management literature fail to incorporate the role of time and that only 0.4% of hypotheses incorporate more than one component of time, shape, or duration (McCormick, Reeves, Downes, Li, & Ilies, 2018), I intend to answer questions regarding the duration of the ego-depletion effect and changes in ego-depletion over time. In this study, it is uncovered how ego-depletion evolves over four occasions per workday as a function of a time-variant (emotional dissonance) and a time-invariant variable (emotional exhaustion). Thus, I intend to refine the strength model of self-control (Baumeister et al., 2007) by integrating a dynamic perspective on the depletion of the regulatory resource and by theorizing how daily trajectories of ego-depletion look like. Thereby, I hope to contribute to a deeper understanding of the underlying psychological processes of self-control functioning.

Second, by adopting and validating notions from the resource-based model (Trougakos et al., 2015), this study further refines the strength model of self-control (Baumeister et al., 2007) by integrating the role of chronic resource depletion. More specifically, by validating emotional exhaustion as an indicator for chronic depletion of the regulatory resource capacity, this study might broaden our understanding on volitional self-control and might open up new directions for studying the interplay between momentary depletion and chronic depletion effects. Furthermore, in light of the growing number of employees suffering from work-induced chronic emotional exhaustion (as the core characteristic of burnout; e.g., Maslach et al., 2001), uncovering how emotional exhaustion affects daily coping with emotional dissonance at work might provide valuable implications for occupational health management.

From a methodological point of view, the current study contributes to research in the field of applied psychology by showing how complex three-level daily diary data can be modeled over time and how daily change patterns can be uncovered. Initial investigations into the interplay between day-specific job demands and indicators of strain were conducted as diary studies to analyze within- and between-person effects and have, for instance, uncovered that day-specific emotional dissonance experienced at midday is positively associated with day-specific feelings of ego-depletion in the evening (e.g., Diestel et al., 2015). In a different line of research, scholars have adopted latent growth approaches to study change patterns across days, weeks, or months (e.g., Bliese & Ployhart, 2002; Chan, 1998; Ployhart & Vandenberg, 2010). Hence, organizational research has either analyzed differential effects at the within-person and between-person level, or has modeled changes via latent growth models. So far, both approaches have not been combined to study latent within-day change patterns at multiple levels of

analysis.[7] However, in order to capture the daily cycle of expending regulatory resources and to analyze how this daily cycle is affected by daily emotional dissonance and chronic emotional exhaustion, a modeling approach is needed that takes the three-level data structure (*occasions* nested within *days* nested within *persons*) into account. Thus, by conducting a multilevel latent growth analysis, I introduce an analysis approach that allows researchers to estimate daily change processes at the latent level. It is shown how variation of these latent change patterns can be interpreted simultaneously at the within-person level (i.e., at some workdays, the regulatory resource capacity might become depleted at a faster rate) and at the between-person level (i.e., some people might habitually deplete their regulatory resource capacity at a faster rate). Therefore, the homology of the proposed dynamic relations is examined across levels of analysis (Kozlowski & Klein, 2000; Xanthopoulou et al., 2012).

In the following, I will first point out why incorporating a time perspective when studying self-control processes at work is necessary and will subsequently derive arguments for a linear increase of ego-depletion throughout a workday. After that, I will introduce emotional dissonance as a job demand of interest when examining daily self-control processes and will develop a research model that considers the dynamic interplay between emotional dissonance and ego-depletion. Furthermore, I will integrate notions from the resource-based model (Trougakos et al., 2015) to conclude how emotional exhaustion as an indicator for chronic depletion affects daily self-control functioning at work.

Adding a Time Perspective to the Strength Model of Self-Control

In light of the relevance of successfully exerting self-control at work, understanding *why* and predicting *when* employees fail to control themselves is of particular interest for researchers and practitioners alike. The strength model of self-control (Baumeister et al., 2007) offers a theoretical framework for understanding *why* self-control failures might arise. According to the model, the common regulatory resource is limited and vulnerable to become depleted, just like a muscle becomes tired after a period of exertion (Baumeister et al., 1998; Hagger et al., 2010). However, although the role of time in depleting the regulatory resource is implicitly mentioned, this aspect has never been explicitly incorporated in the strength model of self-control. More specifically, the process of resource depletion has not been defined with reference to time and there is no underlying assumption how levels of ego-depletion may change. Thus, the strength model of self-control does not predict *when* depletion of the regulatory resource will be most severe.

This lack of knowledge is in contrast to the repeated request of incorporating the role of time when studying psychological processes (George & Jones, 2000; McCormick et al., 2018; Navarro et al.,

[7] I am aware of two studies that examined daily change patterns (Debus, Sonnentag, Deutsch, & Nussbeck, 2014; Hülsheger, 2016) and that deepened our understanding of dynamic within-day processes. However, in these studies, daily change patterns were not modeled at the latent level.

2015; Sonnentag, 2012). Navarro and colleagues (2015) pointed out that theories should specify when phenomena occur (their duration and speed), and should provide information about the rate and shape of change. If we are to understand self-control processes at work and to predict when self-control failures become most likely, we first need to add an explicit time perspective to our existing theoretical framework (Sonnentag, 2012).

Initial evidence for the notion that the regulatory resource capacity is consumed by a host of different self-control processes was gathered in experimental settings using the dual task paradigm (e.g., Muraven et al., 1999; Muraven & Baumeister, 2000). In these experiments, participants who engaged in a first self-control exercise (depleting-condition) *immediately* performed worse on a second self-control task compared to participants who engaged in a non-depleting first task. The diminished performance of participants in the depleting-condition was attributed to a short-term reduced regulatory resource capacity. In a first endeavor to incorporate a process perspective, the amount of the regulatory resource consumed (and as such, the level of ego-depletion) was suggested to be proportional to the time spent in the first self-control task (Hagger et al., 2010). In their meta-analysis, Hagger and colleagues found marginally support for this assumption and concluded that future research should examine the role of time spent on a prior self-control task in predicting levels of ego-depletion. Further evidence from experimental investigations shows that once the regulatory resource has been depleted to some degree, the state of ego-depletion endures until self-control processes are completely interrupted, thereby enabling replenishment of the diminished regulatory resource capacity (Muraven & Baumeister, 2000). Yet, replenishment of the depleted regulatory resource takes time. In particular, a break of ten minutes between the two consecutive self-control tasks in the dual task paradigm has been shown to enable more replenishment than a three-minute break, which again enabled more replenishment than a one-minute break (Tyler & Burns, 2008).

Taken together, there is initial evidence that levels of ego-depletion are proportional to the time spent on exerting volitional self-control and disproportional to the time spent on replenishing diminished resources. Thus, I assume that when continuously exerting volitional self-control within a specific episode without possibilities to fully replenish the regulatory resource capacity, ego-depletion increases linearly in this episode.

When examining this theoretical assumption and understanding the manner in which the process of depletion plays out over time, focusing on fluctuations in the regulatory resource capacity within a particular episode is crucial. In the working context, I consider a full workday as an episode of interest, because workdays can be described as an extended period of cumulative demands without the possibility to fully rewind. It is assumed that while at work, employees constantly invest some of their regulatory resource capacity in order to fulfill their work role and to perform their duties (e.g., when controlling impulses, when resisting distractions, when overcoming inner resistances, and when managing their

emotions; Diestel & Schmidt, 2011b). Furthermore, it is almost impossible to entirely refrain from exerting self-control and to completely replenish the depleted regulatory resource during working time (Gombert, Rivkin, & Schmidt, in press). In an experimental setting, a ten-minute break after a single self-control task was necessary to completely eliminate the ego-depletion effect (Tyler & Burns, 2008). However, taking ten-minute breaks after each act of self-control (e.g., a single customer complaint) is unmanageable in today's fast changing working environment.

Assuming that a workday is an episode in which employees constantly exert volitional self-control, without being able to fully replenish the depleted regulatory resource capacity, I hypothesize:

Hypothesis 1: *Ego-depletion follows a positive linear trajectory in the course of a workday with highest levels in the evening, after work.*

The Dynamic Interplay between Emotional Dissonance and Ego-Depletion

Shedding light on the interplay between job demands and employees' associated levels of ego-depletion is a fundamental concern of research in the occupational context. In light of the increase of service-oriented occupations, job demands that require employees to regulate their emotions have become of particular interest when predicting decrements in the regulatory resource capacity. In these occupations, actively managing feelings and emotional expressions influences the effectiveness of interactions with customers and thus plays a critical role in predicting important work outcomes (e.g., customer satisfaction and loyalty intentions, Hennig-Thurau, Groth, Paul, & Gremler, 2006). However, the common mantra of providing "service with a smile" routinely exposes employees to situations in which their true affective states are incongruent with the organizationally desired expressions (Grandey, 2003). For instance, when an eliciting event (e.g., rudeness of a customer) has already triggered an undesirable emotional response (e.g., feeling anger), this affective state is in contrast to the required emotional display (e.g., being friendly and supportive). This discrepancy between genuinely felt emotions and those required by the job role has been labelled as emotional dissonance (Grandey, 2003; Hochschild, 1983; Zapf, 2002) and has been examined as a detrimental job demand that requires employees to resolve this mismatch (Zapf et al, 1999; Zapf, 2002).

Theoretical and empirical research suggests that the process of resolving emotional dissonance necessitates the exertion of volitional self-control (e.g., Konze et al., 2017; Muraven et al., 1998; Schmidt & Diestel, 2014). Accordingly, coping with emotional dissonance involves continuously monitoring genuine feelings, inhibiting or suppressing undesirable expressions, and altering the emotional display. Thus, in order to overcome emotional dissonance and to bring the emotional expression in line with organizational requirements, the employee needs to override automatic responses and is required to act out of sync with his/her natural tendencies (Beal, Trougakos, Weiss, & Dalal, 2013). Therefore, in line with the strength model of self-control (Baumeister et al., 1998; Baumeister et al., 2007; Muraven et al., 1998), coping with emotional dissonance at work (i.e., suppression of genuine- and expression of

organisationally desired emotions) on a regular basis necessitates prolonged exertion of volitional self-control, which depletes the employee's common regulatory resource capacity.

Indeed, emotion regulation is one the most widely studied antecedents of ego-depletion (Lian et al., 2017) and research has revealed that the depleting effect of suppressing feelings and faking emotional expressions is noticeable within minutes (e.g., Muraven et al., 1998) and hours later (e.g., Beal et al., 2013). In organizational settings, two diary studies conducted by Diestel and colleagues (2015) revealed that the frequency of experienced emotional dissonance at a specific workday (measured at noontime) is positively related to the level of ego-depletion in the evening the same day.

Supplementing this empirical knowledge, in the current study, I adopt a within-day perspective to examine the day-specific relations between emotional dissonance and ego-depletion from a more fine-grained perspective. I believe that examining emotion regulation repeatedly within specific episodes is crucial, because emotions are time-bound, transient states and efforts to regulate them mirror this temporal pattern (Beal & Trougakos, 2013; Beal et al., 2013). More specifically, each interaction with customers, clients, or patients might be differently demanding and might consume varying amounts of the regulatory resource capacity (Zapf, 2002).

Hence, by assessing emotional dissonance and ego-depletion multiple times each workday, the manner in which immediate experiences unfold naturally throughout a workday is captured more adequately. By examining the effect of previous emotional dissonance on temporary ego-depletion three times per workday, I intend to determine a more reliable effect size of this relationship that is affected by neither retrospective biases in reporting transient states (e.g., Fisher & To, 2012), nor time lags that elapsed between coping with emotional dissonance and reporting ego-depletion. Thus, by adding a temporal perspective to existing empirical knowledge, it is hypothesized:

Hypothesis 2: *Emotional dissonance experienced within previous hours is positively related to momentary experiences of ego-depletion.*

While there is convincing empirical evidence that exerting volitional self-control *immediately* leads to heightened levels of ego-depletion, there is only little knowledge on how being confronted with high demands on volitional self-control at the beginning of a workday affects self-control functioning throughout the same day. More precisely, if situations in the morning have already depleted the regulatory resource capacity, how will the rate and change of ego-depletion be affected the same day?

The strength model of self-control predicts that once the regulatory resource capacity has been depleted, subsequent self-control performance will be impaired (Muraven et al., 1998). More precisely, initial evidence indicates that in the state of a depleted regulatory resource capacity, automatic responses become more dominant and more effortful to inhibit or override (Baumeister & Vohs, 2016). Consequently, people who temporarily feel ego-depleted give up more readily on difficult tasks (Baumeister

et al., 1998), are more guided by automatic attitudes rather than conscious decisions (Hofmann, Rauch, & Gawronski, 2007), and show poorer high-level intellectual performance (such as logical reasoning and extrapolation; Schmeichel et al., 2003). However, in the working environment, completing difficult tasks, making deliberate and conscious decisions, and showing good intellectual performance is required regardless of the employees' current state of ego-depletion. Nevertheless, blocking automatic responses in order to fulfill work-related duties becomes more difficult (and thus might consume even larger amounts of the regulatory resource capacity) the more this resource capacity has been depleted previously (Baumeister & Vohs, 2016). Therefore, if situations at the beginning of a workday have already depleted the regulatory resource capacity, inhibiting automatic processes will be more straining, employees will be vulnerable to become even more depleted, and thus, levels of ego-depletion will increase at a faster rate during the successive workday. Taken together, I propose that the increase in ego-depletion throughout a workday will be more pronounced the more the regulatory resource capacity has been depleted in the morning.

As emotional dissonance is considered as a job demand that requires employees to exert volitional self-control (Beal et al., 2013; Konze et al., 2017; Muraven et al., 1998; Schmidt & Diestel, 2014), I suggest that emotional dissonance experienced within the first hours of a workday depletes the regulatory resource capacity available for the subsequent workday and therefore affects self-control performance throughout the whole day. Integrating the assumptions derived above that (a) levels of ego-depletion increase linearly within a workday, (b) coping with emotional dissonance at the beginning of a workday depletes the regulatory resource capacity, and (c) once depleted, levels of ego-depletion subsequently increase at a faster rate, I propose that on days when employees experience higher emotional dissonance in the morning, ego-depletion will increase at a higher rate than on other days. Hence, I hypothesize:

Hypothesis 3: *Emotional dissonance experienced within the first hours of a workday is positively related to the increase in ego-depletion in the course of a workday.*

Emotional Exhaustion as Indicator for Chronic Resource Depletion

A growing body of evidence on volitional self-control suggests that there are interindividual differences in the ability to exert volitional self-control and attributes these variations to stable, person-specific differences in the capacity of the regulatory resource: The greater the capacity of this resource, the greater one's ability to successfully exert self-control over prolonged episodes (Baumeister et al., 2007; Trougakos et al., 2015). Support for this argument is provided by a variety of empirical studies that examined a person's capacity of the regulatory resource and its direct effect on self-control performance. For example, a person's individual regulatory resource capacity, assessed as a trait-like ability that persists over time (Tangney et al., 2004), reliably predicts self-control performance (e.g., Schmeichel & Zell, 2007) and is linked to more optimal emotional responses (Tangney et al., 2004). Furthermore, McVay

and Kane (2009) reported that individuals with a low resource capacity produce more mistakes and show more control deficits in tasks which require self-regulatory efforts as compared to persons with a higher resource capacity. Taken together, this line of research proposes that people possess an individual "baseline resource level" that predicts their relatively constant capacity to exert volitional self-control over time (Trougakos et al., 2015, p. 228). People with a higher regulatory resource capacity are suggested to be capable of successfully exerting volitional self-control over longer episodes and to be less prone to self-control failures.

Cumulative evidence further suggests that the individual regulatory resource capacity becomes diminished when people feel chronically exhausted. As the focal dimension of burnout (Cordes & Dougherty, 1993; Gaines & Jermier, 1983; Maslach et al., 2001; Wright & Bonett, 1997; Wright & Cropanzano, 1998), emotional exhaustion refers to the relatively stable degree of depletion of an individual's energetic resource and involves feelings of being emotionally overextended and exhausted by one's work (Maslach & Jackson, 1981; Schaufeli & Taris, 2005). In support for the proposition that emotional exhaustion is characterized by a reduced regulatory resource capacity, Diestel and colleagues (2013) demonstrated that when demands on executive control were high, emotional exhaustion was associated with reduced self-regulatory performance. Furthermore, laboratory findings indicate that emotional exhaustion is reflected by heightened cognitive control deficits, impaired attention regulation (van der Linden, Keijsers, Eling, & van Schaijk, 2005), and deficits in maintaining high levels of response readiness at longer foreperiods (Kleinsorge et al., 2014). In line with these findings, Trougakos and colleagues (2015) proposed that the baseline resource level (i.e., regulatory resource capacity) of an individual is reflected by his/her chronic degree of emotional exhaustion. Thus, emotional exhaustion is conceptualized as the inverse of an individual's regulatory resource capacity that represents a relatively stable and general feeling of ego-depletion.

Transferring this conceptualization to the working context, I propose that if emotionally exhausted employees generally possess a smaller regulatory resource capacity, they should only have a diminished regulatory resource available to deal with their work-related demands as compared to employees who feel less emotionally exhausted. As their regulatory resource capacity is proposed to be chronically depleted, they should start their workday with a smaller baseline resource level. Consequently, their level of ego-depletion at the beginning of their workday will be higher. Thus, integrating notions from the strength model of self-control (Baumeister et al., 2007) and its theoretical advancements (Trougakos et al., 2015), I hypothesize:

Hypothesis 4: *Person-level emotional exhaustion is positively related to the daily starting value of ego-depletion.*

Above, I have derived the theoretical notion that inhibiting automatic processes becomes increasingly effortful the more the regulatory resource capacity has been depleted previously (see Hypothesis

3). Whereas this proposition has been applied to the transient state of a depleted regulatory resource capacity that results from coping with daily emotional dissonance, the same proposition can also be applied to a chronically reduced regulatory resource capacity that is caused by enduring feelings of emotional exhaustion. Initial evidence supports this proposition, indicating that emotionally exhausted employees are less capable of handling additional or elevated work demands (Cropanzano, Rupp, & Byrne, 2003; Lee & Ashfort, 1996; Wright & Cropanzano, 1998). Thus, building on the assumption that (a) emotionally exhausted employees chronically report heightened levels of ego-depletion and (b) once depleted, levels of ego-depletion subsequently increase at a faster rate, I further propose:

Hypothesis 5: *Person-level emotional exhaustion is positively related to the increase in ego-depletion in the course of a workday.*

Research on person-specific differences in the capacity of the regulatory resource suggests that a larger self-regulatory resource capacity buffers against adverse consequences of exerting volitional self-control. For instance, Schmeichel, Volokhov, and Demaree (2008) found that the consequences of regulating emotional expressions vary as a function of the individual resource capacity. In line with this finding, a person's individual resource capacity has been shown to buffer against the adverse effects of exerting volitional self-control (Schmidt et al., 2012). Furthermore, cognitive control deficits, as an inverse operationalization for the individual regulatory resource capacity (e.g., McVay & Kane, 2009), have been demonstrated to intensify the adverse consequences of coping with emotional dissonance (Diestel & Schmidt, 2011a). Thus, drawing from this empirical evidence, I suggest that employees with a lower regulatory resource capacity are more vulnerable to the adverse effects of resolving emotional dissonance as compared to those with a higher regulatory resource capacity.

Bridging this proposition with the assumption that emotional exhaustion indicates that an employee suffers from a chronically reduced regulatory resource capacity, I suggest that emotional exhaustion makes employees more susceptible to the adverse consequences of exerting volitional self-control. Given that resolving emotional dissonance necessitates volitional self-control, thereby further expending the regulatory resource capacity, the immediate effect of coping with emotional dissonance on momentary experiences of ego-depletion should be more pronounced for employees experiencing high emotional exhaustion as compared to those who experience low emotional exhaustion. Initial evidence supports this proposition, indicating that emotional exhaustion exacerbate the depleting effect of suppressing genuine feelings and faking emotional expressions at the daily level (Trougakos et al., 2015). Thus, I propose that high emotional exhaustion, indicating a low regulatory resource capacity, increases the depleting effect of resolving emotional dissonance. By integrating a temporal perspective that captures within-day relationships fine-grained at multiple occasions per workday, I suggest:

Hypothesis 6: *Person-level emotional exhaustion moderates the within-day-specific effects of emotional dissonance experienced within the previous hours on momentary experiences of ego-depletion: The positive relation between emotional dissonance and ego-depletion is stronger the more employees are emotionally exhausted.*

Method

Research Design and Participants

Over the course of some years, contact information of employees who had expressed their willingness to take part in a scientific study were collected. For the purpose of this study, these employees were approached and asked to participate in this diary study. The entire diary study was conducted electronically with an online survey software that provided the possibilities to either fill out the surveys on a computer or on the participants' smartphones or tablets. As an incentive to participate, participants were offered a monetary compensation of 30 Euro after completion of data collection. A total of 64 participants registered for the study and immediately received the link to the general questionnaire. In this questionnaire, participants chose ten working days (out of 30) at which they worked full-time and were willing to answer daily questionnaires (part-time employees in this study worked fewer days per week, but only had full working days). Links to four daily surveys (i.e., three questionnaires during work and one after-work questionnaire) were sent at each of the chosen days. To be able to map daily measurement occasions with participants' workdays, they reported when they started and finished work in the general survey. Subsequently, emails with links to daily surveys were sent at distinct time points during the participants' workday. Most of the participants (app. 85%) received the morning questionnaire until 11.30 a.m., midday questionnaire until 2 p.m., end of work questionnaire until 5 p.m., and evening questionnaire until 7 p.m. A detailed overview of the study design and measurement points is presented in Table 4.1. In total, questionnaires of 575 days were completed, leading to a daily response rate of 89,8%.

Table 4.1. Study design

Occasion		Point of time	
T_0	morning	2 hours after start of work	M = 10.33 a.m. SD = 1:45 hours
T_1	midday	4 hours before end of work	M = 12.39 a.m. SD = 1:47 hours
T_2	end of work	1 hour before end of work	M = 3.39 p.m. SD = 1:47 hours
T_3	evening	1 hour after end of work	M = 5.39 p.m. SD = 1:47 hours

The sample comprised a broad range of professions, including salespersons, consultants, teachers and medical practitioners. Of these participants, 55% were female, 17% worked part-time, and the mean age was 40.7 (*SD* = 13.7) years. On average, participants worked 8:06 (*SD* = 1:32) hours per day.

Measures

The general questionnaire included demographic variables (age, gender, and occupation), emotional exhaustion, and times of starting and finishing work. All three daily measures at work (occasions T_0 to T_2) assessed emotional dissonance and ego-depletion. In the evening after work (occasion T_3), ego-depletion was assessed again.

Emotional exhaustion. As the focal dimension of burnout, emotional exhaustion was measured once in the general survey with eight items from the German translation (Büssing & Perrar, 1992) of the Maslach Burnout Inventory (Maslach & Jackson, 1981). This dimension of burnout refers to the chronic feeling of being emotionally overextended of emotional and physical resources by work demands (e.g., "I feel emotionally drained by my work"). Participants responded on a six-point rating format (1 = *never;* 6 = *very often*).

Ego-depletion. Each daily occasion, ego-depletion was assessed using five items related to the participant's *current* experiences with resource depletion (e.g. "At the moment, I feel increasingly less able to focus on anything."). The scale was developed and validated by Bertrams et al., (2011), who intended to assess the temporary affective state of ego-depletion as proposed by Muraven and Baumeister (2000). All items were scored using a four-point intensity-rating format (1 = *not at all*; 4 = *a great deal*).

Emotional dissonance. Three times per workday (occasions T_0 to T_2), participants rated the frequency of experienced discrepancies between felt emotions and those required by the job role (e.g., "In the last hours, how often did you have to show feelings at work that you did not really feel?"). Due to the repeated measurement design, a shortened, three-item version of the Frankfurt Emotion Work Scale was adapted (Zapf et al., 1999). The items were slightly modified by integrating a time specification ("*In the last hours")* and by asking specifically about interactions with colleagues, patients, and customers. Participants responded using a five-point rating format (1 = *never*; 5 = *very often*).

Analytical Procedure

Due to the study design, a hierarchical data structure with three levels of analysis was obtained. At Level 1 (within-day level), ego-depletion was measured on four occasions and emotional dissonance on three occasions over each workday. These daily measurements were nested within each of ten days at Level 2 (between-day level) and nested within the 64 participating employees at Level 3 (between-person

level). I specified the repeated measurements of the study variables (ego-depletion and emotional dissonance) as two parallel within-day processes in a latent growth model and analyzed a two-level (between-day, later referred to as *within-person,* and *between-person*) latent growth model, thereby considering all three levels of data.

In order to test necessary prerequisites and to examine the hypotheses step-by-step, the data analysis was conducted in a four-phase modeling procedure. *Phase One* included the analyses of two distinct measurement models for ego-depletion (T_0-T_3) and emotional dissonance (T_0-T_2). In this phase, I incorporated the items assessing ego-depletion and emotional dissonance at each occasion at the foundation of the models, thus defining the study variables as repeated latent variables in multilevel confirmatory factor analyses (four latent ego-depletion variables in the first confirmatory factor analysis and three latent emotional dissonance variables in the second confirmatory factor analysis). This procedure enabled me to account for random and systematic measurement errors (Wu, Liu, Gadermann, & Zumbo, 2010). In *Phase Two*, I defined within-day changes in ego-depletion (*slope growth factor*) and its starting values (*intercept growth factor*) as latent variables that were added to the measurement model of ego-depletion. In other words, in Phase Two, I analyzed a second-order growth model of ego-depletion, in which the first-order factors resembled the repeated measures of ego-depletion and the second-order factors resembled the corresponding slope and intercept growth factor. In this way, I was able to analyze the growth structure and to identify the best fitting growth model for ego-depletion. While this modeling procedure takes the nesting of occasions within days into account (within-day level), I furthermore had to account for the nesting of days within persons. Therefore, I analyzed all models within each phase simultaneously at a between-day (i.e. within-person) and a between-person level. This procedure allowed me to analyze whether within-day patterns of the study variables and their interrelations occurred only between persons or also between days. A representation of this latent growth model of ego-depletion is depicted in Figure 4.1.

In *Phase Three*, the repeated measures of emotional dissonance (T_0-T_2) were added to the latent growth model of ego-depletion. In this phase, I specified the relations between previously experienced emotional dissonance and momentary feelings of ego-depletion as repeated random slopes (at T_0-T_2) on the within-person-level. In *Phase Four*, a growth prediction model was formulated by including emotional dissonance in the first hours of work (T_0) as a predictor for the slope growth factor of ego-depletion on the within-person-level. Furthermore, on the between-person-level, I added emotional exhaustion as a predictor of the intercept growth factor, the slope growth factor, and the random slope.

I used Mplus 7 (Muthén & Muthén, 1998-2015) for data analyses. In Phase One and Phase Two, second-order latent growth models were estimated with a robust weighted least square estimator (due to the large number of factors, a maximum likelihood estimator was too computationally demanding). For reasons of model identification, Phase Three and Phase Four consisted of first-order latent growth models. These models were estimated using a maximum likelihood estimator, because random slopes cannot

be estimated with a robust weighted least square estimator. The Mplus syntaxes for Phase Two and Phase Four are provided as supplemental material online.

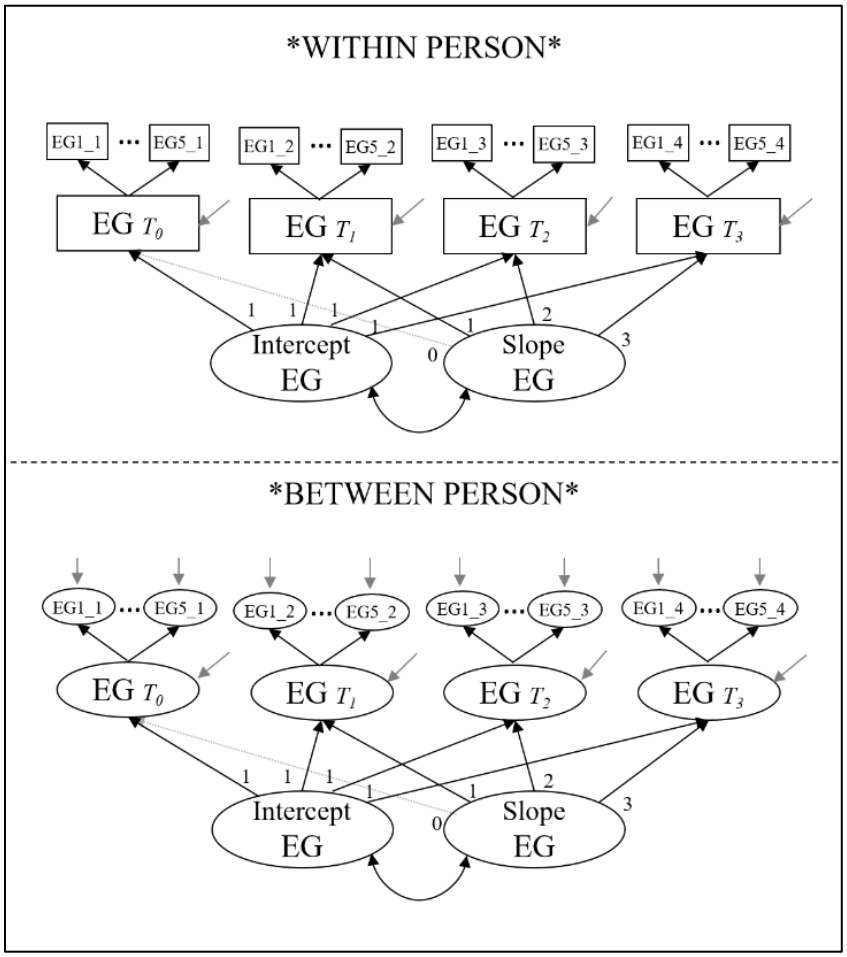

Figure 4.1. Simplified representation of the second-order latent growth model of ego-depletion with linear increase (Phase Two); "*Within Person*" is equivalent to "*Between Days*"; *EG* stands for ego-depletion; Model illustration was adapted from Muthén & Muthén (1998-2015; example 9.15).

Results

Descriptive Statistics

Table 4.2 displays descriptive statistics, internal consistencies (Cronbach's alpha), and correlations among the study variables. As to be seen, all questionnaire measures revealed satisfactory consistencies. Estimation of the null model for ego-depletion indicates that 44.4 % of variance can be attributed to between-person differences, 15.6 % to between-day differences, and 40.0 % to within-day differences. To facilitate interpretation of the following analyses, I depicted a descriptive change trajectory of ego-depletion in Figure 4.2. On a purely descriptive level, ego-depletion shows an upward trend within days.

Table 4.2. Means, standard deviations, internal consistencies (Cronbach's Alpha) and intercorrelations of study variables

Variable		*Mean*	*SD*	1	2	3	4	5	6	7	8	9	10
1. Ego-depletion	T_0 - start of work	1.64	0.52	*(0.91)*	**0.67**	**0.61**	**0.53**	**0.25**	**0.19**	**0.26**			
2. Ego-depletion	T_1 - midday	1.80	0.58	**0.89**	*(0.94)*	**0.68**	**0.58**	**0.29**	**0.34**	**0.34**			
3. Ego-depletion	T_2 - end of work	1.89	0.58	**0.83**	**0.90**	*(0.92)*	**0.69**	**0.24**	**0.28**	**0.35**			
4. Ego-depletion	T_3 - after work	2.02	0.63	**0.70**	**0.83**	**0.88**	*(0.94)*	**0.27**	**0.31**	**0.37**			
5. Emotional dissonance	T_0 - start of work	1.92	0.58	**0.53**	**0.56**	**0.50**	**0.51**	*(0.86)*	**0.61**	**0.50**			
6. Emotional dissonance	T_1 - midday	1.94	0.61	**0.36**	**0.46**	**0.41**	**0.50**	**0.86**	*(0.83)*	**0.64**			
7. Emotional dissonance	T_2- end of work	1.96	0.69	**0.44**	**0.53**	**0.51**	**0.58**	**0.79**	**0.93**	*(0.93)*			
8. Emotional exhaustion		2.78	1.07	**0.39**	**0.52**	**0.48**	**0.54**	**0.32**	**0.37**	**0.43**	*(0.89)*		
9. Age		40.66	13.69	-0.20	-0.17	-0.10	-0.13	-0.13	-0.09	-0.16	-0.10	-	
10. Gender[a]		1.45	0.50	-0.12	-0.15	-0.17	-0.20	-0.22	-0.17	-0.20	-0.16	0.11	-

Note: Cronbach's Alpha for day-level variables is mean internal consistencies averaged over all measurement days. Correlations below the diagonal are person-level correlations ($N_{between}$=63-64). Correlations above the diagonal are day-level correlations (N_{within}=524-575).
[a]Gender (1 = female, 2 = male).
Numbers in bold $p < .05$.

Figure 4.2. Descriptive ego-depletion trajectory in the course of a workday.

Phase One: Specifying Measurement Models

In this phase of analysis, I tested several measurement models within multilevel confirmatory factor analyses, thereby specifying all study variables as latent constructs represented by their respective measurement items. In a first set of analyses, I modeled ego-depletion measured by five indicators (i.e., five items) at four time points across each workday. In a second set of analyses, emotional dissonance measured by three indicators at three time points was modeled. For examining model fit, I used comparative fit index (CFI), root mean square error of approximation (RMSEA), and standardized root mean residual for within-person (i.e. between-days) and between-person (SRMRw and SRMRb, respectively). For comparing the fit of any two nested models, $\Delta\chi^2$ statistic was applied.

As a prerequisite to modeling repeated measures, this phase of analysis consisted of tests for measurement invariance by examining whether the psychometric properties of the scales measuring the study variables at multiple time points remained the same (Wu et al., 2010). When the prerequisite of measurement invariance is met, cross-time comparisons in the latent variables is warranted and the results of the latent growth model are not biased by any scaling issues (Ferrer, Balluerka, & Widaman, 2008; Wu et al., 2010). I tested strong factorial invariance in the measurement models by holding the factor loadings and intercepts of the items equal across time and across levels. Afterwards, I compared these measurement models to minimal restricted measurement models. In all models, the loadings of the first items were fixed to 1 for identification purposes and residual errors of the same items were allowed to be correlated over time (as suggested by Wu et al., 2010). As to be seen in Table 4.3, results of Phase One indicate that setting item loadings and intercepts equal across time and across levels only marginally changed model fitness. In particular, changes in χ^2 were not significant and changes in fit indices were less than the suggested cut-off values (indicators for *noninvariance* with $N > 300$: ΔCFI $\leq$ -0.010, ΔRMSEA $\geq$ 0.015, ΔSRMR $\geq$ 0.030; Chen, 2007). Most importantly, the CFI, as the suggested main criterion

Table 4.3. Fitness of first-order factor measurement models to test measurement invariance

Model	χ^2 (*df*)	CFI	RMSEA	SRMRw	SRMRb	$\Delta\chi^2$ (Δdf)	ΔCFI	ΔRMSEA	ΔSRMRw	ΔSRMRb
Ego-depletion										
Free parameters	$1477.69^{**}(268)$	0.945	0.089	0.028	0.047	-	-	-	-	-
Strong factorial invariance[a]	$1419.85^{**}(311)$	0.950	0.079	0.032	0.072	$57.84^{ns}(43)$	0.005	-0.010	0.004	0.025
Emotional dissonance										
Free parameters	$159.30^{**}(30)$	0.977	0.087	0.020	0.011	-	-	-	-	-
Strong factorial invariance[a]	$151.37^{**}(46)$	0.981	0.063	0.022	0.024	$7.93^{ns}(16)$	0.004	-0.024	0.002	0.013

Note: Phase One; N_{within}= 575.
[a] Factor loadings and intercepts of each indicator held invariant.
** $p < .01$.

(Chen, 2007), shows only slight changes (ΔCFI = 0.005 for ego-depletion and ΔCFI=0.004 for emotional dissonance). As a consequence of these efforts, the ego-depletion measurement model with invariant factor loadings and intercepts was specified at the foundation of the following latent growth model.

Phase Two: Examining Competing Latent Growth Models

In this phase of analysis, I tested Hypotheses 1 by identifying the best fitting trajectory for ego-depletion in competing latent growth models. I began by specifying a linear trend for ego-depletion. In this model, the time scores of the linear slope growth factor were fixed at 0, 1, 2, and 3 to define a linear growth model with equidistant time points. The coefficient of the intercept growth factors was fixed at one and the mean of the intercept growth factor was fixed at 0 for identification purposes. A simplified representation of this latent growth model is depicted in Figure 4.1. The results (cf. Table 4.4) show that the linear model of ego-depletion fit the data well. Moreover, when comparing the phase-one model of ego-depletion (strong factorial invariance) with the linear phase-two model of ego-depletion, results reveal a significant better data fit ($\Delta\chi^2 = 36.47$, $\Delta df = 8$, $p < 0.01$). Taken together, findings for ego-depletion indicate that adding the growth factors in order to model the change across a working day helped explain the data.

I also assessed an optimally estimated functional form by allowing the loadings of the last occasion to be estimated freely, thereby capturing possible nonlinear growths. However, the optimal models did not improve model fit (cf. Table 4.4). Therefore, the final model that most adequately depicted the change trajectory of ego-depletion was the linear growth model.[8]

Table 4.5 (upper row) represents the parameter estimates of this latent growth model. The means of the slope growth factor indicate the amount and direction of the linear change in the study variables for a time score increase of one unit (Wu et al., 2010). The within variances of the slope growth factors show the fluctuation between days; that is, how the linear increase differs on a daily basis. Similarly, the within variances of the intercept growth factors indicate the daily variability of the starting value at occasion T_0 (two hours after the start of work). On the between-level, the variances of the intercept and the slope growth factors indicate variability that occurs between persons. In addition, the covariance of the intercept and the slope growth factor represents the interrelation between the starting value at occasion T_0 and the strength of the trajectory over time; with the within covariance representing the relation on a daily basis and the between covariance representing the relation on a person-level.

[8] I also tested a latent growth model including a quadratic slope growth factor for ego-depletion. However, the quadratic slope growth factor did not reach significance. I can therefore conclude that a linear trajectory describes the data best.

Table 4.4. Second-order-factor latent growth model for ego-depletion: Tests of alternative trajectory specifications

Model	χ^2 (*df*)	CFI	RMSEA	SRMRw	SRMRb	$\Delta\chi^2$ (Δdf)	ΔCFI	ΔRMSEA	ΔSRMRw	ΔSRMRb
Ego-depletion										
Linear growth	1383.38**(*319*)	0.952	0.076	0.040	0.090					
Optimal growth	1471.34**(*317*)	0.948	0.080	0.040	0.089	87.86**(*2*)	-0.004	0.004	0.000	-0.001

Note: Phase Two; N_{within}= 575.
** $p < .01$.

Table 4.5. Parameter estimates of latent growth models

Parameter	Means			Variances *Within*			Covariance *Within*	Variances *Between*			Covariance *Between*
	Intercept (μ_i)	Slope (μ_s)	Random Slopes (*ED→EG*)	Intercept (σ_{iw}^2)	Slope (σ_{sw}^2)	Random Slopes (*ED→EG*)	Intercept-Slope	Intercept (σ_{ib}^2)	Slope (σ_{sb}^2)	Random Slopes (*ED→EG*)	Intercept-Slope
Latent growth model[a]	0.00	0.12**		0.13**	0.01**		-0.01**	0.25**	0.01**		-0.01
Latent growth model with random slopes[b]	1.52**	0.05**	0.15**	0.08°	0.01	0.02**	-0.01	0.14**	0.00	0.04**	0.01

Note: [a] Parameter estimates of Phase Two; N_{within}= 575.
[b] Parameter estimates of Phase Three; N_{within}= 524.
° p <.10 * $p < .05$ ** $p < .01$.

As to be seen in Table 4.5, all variances on both levels are significant ($p < 0.05$), suggesting the existence of differences within persons *and* between persons both in the initial status and in the change of ego-depletion over a workday. Thus, there are days, when an employee's level of ego-depletion increases at a faster rate than on other days. Similarly, there are employees who generally become depleted at a faster rate than other employees.

Phase Three: Defining a Latent Growth Model with Random Slopes of Emotional Dissonance Predicting Ego-Depletion

In this phase, I tested Hypothesis 2 by performing a multivariate latent growth model that included repeated measures of emotional dissonance. I specified the repeated day-level relations between emotional dissonance and ego-depletion as a repeated random slope. Results are presented in Table 4.5 (lower row) and indicate a positive and significant mean of the random slopes ($\mu_{rs} = 0.15$, $p < 0.01$). Thus, in support of Hypothesis 2, emotional dissonance experienced within the last hours of work is positively related to momentary experiences of ego depletion.

Phase Four: Defining a Latent Growth Prediction Model

In the previous phases, I have ascertained that ego-depletion increases linearly and that the variances of the intercept growth factor and the slope growth factor are sufficient to be accounted for by other variables that may affect the trajectory of change. Furthermore, results of Phase Three indicate that the variance of the random slopes is significant on the between-level ($\sigma_{rsb}^2 = 0.04$, $p < 0.01$), therefore allowing the possibility to test person-level variables that may explain some of this variance.

In this final phase, I tested Hypothesis 3 by specifying the level of emotional dissonance within the first hours of a workday to be associated with the slope growth factor of ego-depletion (the model and the parameter estimates are presented in Figure 4.3). With respect to this hypothesis, results suggest that the level of emotional dissonance at the beginning of a workday positively affects the extent of the increase in ego-depletion at that specific workday ($\gamma_{\text{within}} = 0.02$, $p < 0.05$). Thus, in support of Hypothesis 3, on days when employees face high emotional dissonance in the morning, the regulatory resource is depleted at a faster rate during the day.

Furthermore, in order to test Hypothesis 4 – 6, I added emotional exhaustion as a predictor on the between-level. In line with Hypothesis 4, emotional exhaustion is positively related to the intercept growth factor of ego-depletion ($\gamma_{\text{between}} = 0.20$, $p < 0.01$), indicating that employees who are chronically exhausted begin their working day with higher levels of ego-depletion. With respect to Hypothesis 5, results reveal a tendency indicating that emotional exhaustion is positively related to the slope growth factor of ego-depletion. However, this effect failed to reach significance ($\gamma_{\text{between}} = 0.03$, $p < 0.10$), thereby providing only partial support for Hypothesis 5. Hence, the proposition that chronically ex-

hausted employees report steeper increases in ego-depletion in the course of a workday could not conclusively be clarified. Hypothesis 6 could neither be confirmed, as emotional exhaustion is not related to the random slope ($\gamma_{between}$ = 0.01, *n.s.*). Thus, I did not find support for the notion that the positive relation between emotional dissonance experienced within the previous hours of work and momentary feelings of ego-depletion is stronger when employees are chronically exhausted.

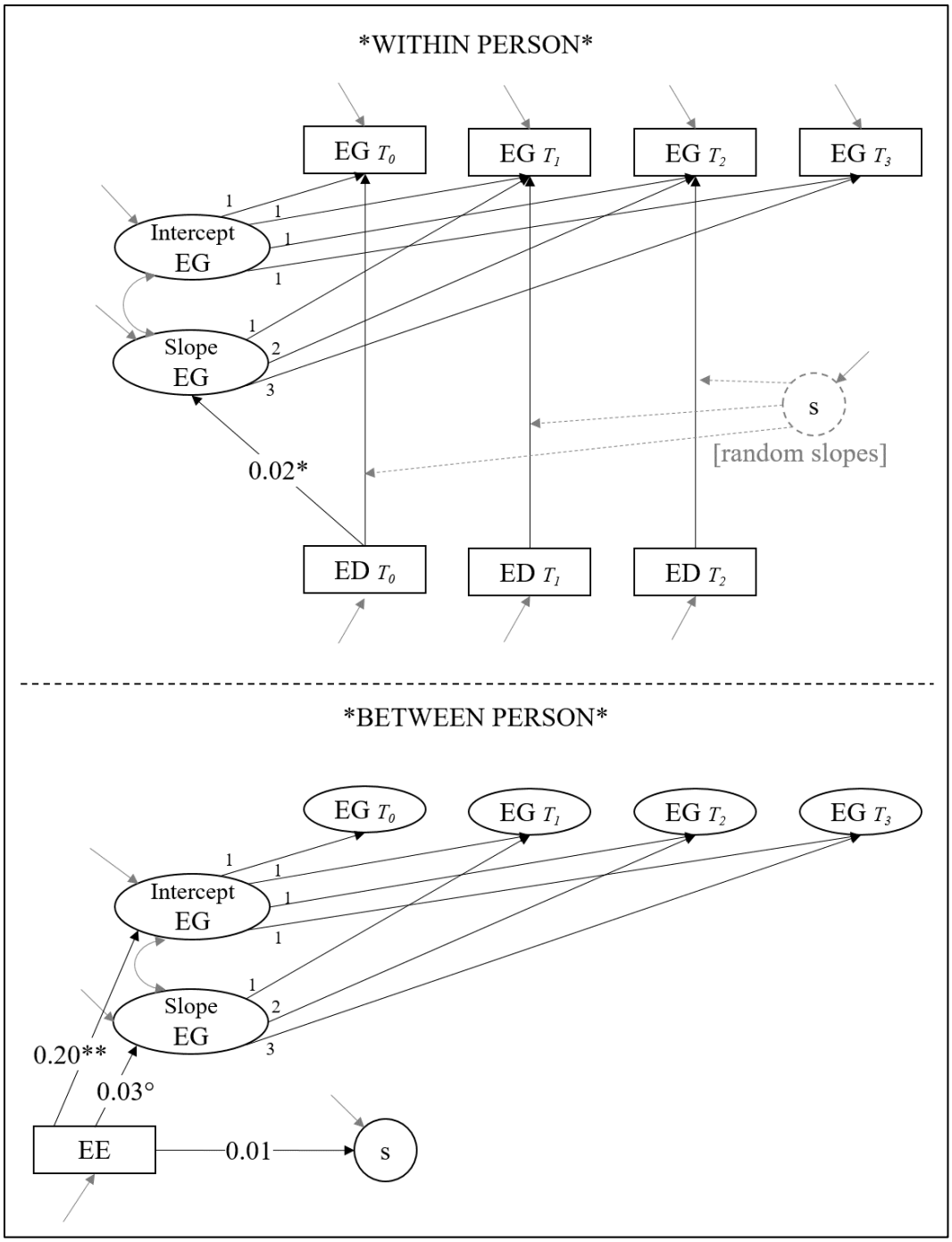

Figure 4.3: Latent growth prediction model and parameter estimates (Phase Four);
"*Within Person*" is equivalent to "*Between Days*";
EG stands for ego-depletion, *ED* for emotional dissonance, *EE* for emotional exhaustion;
s is the random slope for the relation between ED and EG;
model illustration was adapted from Muthén & Muthén (1998-2015; example 9.14);
N_{within}= 524; $N_{between}$= 64;
$^{\circ}$ p <.10 * p < .05 ** p < .01.

Discussion

A core assumption in research on volitional self-control is that levels of ego-depletion are temporarily unstable and fluctuate as a function of preceding self-control exertion (e.g., Baumeister et al., 2007). Thus, in the current study, I set out to explicitly integrate a time perspective to our understanding of self-control functioning at work and to illuminate the dynamic nature of ego-depletion. For this purpose, I developed a multilevel latent growth model that integrated day-specific trajectories of ego-depletion, day-specific emotional dissonance as a job demand, which requires the exertion of volitional self-control (e.g., Schmidt & Diestel, 2014), and person-specific emotional exhaustion as an indicator for chronic regulatory resource depletion, which habitually impairs self-control functioning (Trougakos et al., 2015). Hence, an important goal of the current study was to introduce a novel analysis approach that uncovers latent daily trajectories and deepens empirical knowledge on the interplay between chronic exhaustion and dynamic self-control processes at work.

Summary of Findings

In a first set of hypotheses, latent daily trajectories of ego-depletion were examined. Drawing on the strength model of self-control (Baumeister et al., 2007) and on empirical evidence based on the dual task paradigm (for a meta-analysis, see Hagger et al., 2010), I suggested that ego-depletion increases linearly within episodes of prolonged self-control exertion. Integrating this suggestion with the assumption that workdays represent such episodes, it was hypothesized and empirically supported that ego-depletion increases linearly in the course of a workday (*H1*). Furthermore, it was proposed that ego-depletion increases at a faster rate the more the regulatory resource capacity is diminished at the beginning of the workday. This proposition was construed in two different ways: First, drawing from broad empirical evidence indicating that resolving emotional dissonance depletes the regulatory resource capacity (e.g., Konze et al., 2017; Muraven et al., 1998; Schmidt & Diestel, 2014), emotional dissonance experienced within the first hours of work was suggested to reduce the day-specific regulatory resource available for the subsequent workday (*H3*). Results support this hypothesis, indicating that emotional dissonance experienced in the morning intensifies the day-specific linear increase of ego-depletion. Second, by integrating the resource-based model (Trougakos et al., 2015), emotional exhaustion was suggested to be characterized by a chronically reduced regulatory resource capacity, therefore leading to heightened levels of ego-depletion at the beginning of a workday (*H4*) and habitually amplifying the increase of ego-depletion throughout the day (*H5*). Although results provide support for the notion that emotional exhaustion is adversely related to ego-depletion in the morning, there was only marginal support for the proposition that emotional exhaustion intensifies the increase of ego-depletion.

In another set of hypotheses, the *immediate* effect of emotional dissonance experienced within previous hours on momentary feelings of ego-depletion was examined. In support of the prediction, coping with emotional dissonance was shown to immediately enhance levels of ego-depletion (*H2*).

However, contrary to my expectation, emotional exhaustion did not moderate (i.e., amplify) these day-specific relations (*H6*).

Theoretical Implications

The current research holds at least three important theoretical implications. First and foremost, the study at hand advances knowledge on the strength model of self-control (Baumeister et al., 2007) by adding a time perspective. Although contemporary theoretical perspectives of volitional self-control explain why ego-depletion exists at a point of time, they do not explain how ego-depletion changes over time. Thus, in the study at hand, it is theoretically argued and empirically validated that when continuously exerting volitional self-control within a specific episode without possibilities to fully replenish the regulatory resource capacity, ego-depletion increases linearly in this episode. Therefore, this study addresses the repeated call for integrating the role of time when studying psychological phenomena (McCormick et al., 2018; Navarro et al., 2015; Sonnentag, 2012). Furthermore, I provide first evidence that ego-depletion increases at a faster rate the more the regulatory resource capacity has been diminished previously. This finding ties in with the notion that blocking automatic responses becomes more effortful in the state of a depleted regulatory resource (e.g., Baumeister & Vohs, 2016) and points to the necessity of acknowledging the dynamism in ego-depletion when studying self-control processes.

Second, findings of the current study broaden existing knowledge on emotion regulation. In line with previous research (e.g., Konze et al., 2017; Muraven et al., 1998; Schmidt & Diestel, 2014), emotional dissonance is validated as a job demand that requires the exertion of volitional self-control, thereby depleting the regulatory resource capacity. Supplementing empirical evidence, this study captures the relation between emotional dissonance and ego-depletion more fine-grained, thereby uncovering the manner how experiences unfold naturally throughout a workday. Results reveal that coping with emotional dissonance does not only exhibit an immediate effect on ego-depletion, but also a lagged effect on self-control functioning throughout the whole day. More specifically, resolving emotional dissonance within the first hours of a workday accelerates the increase of ego-depletion in the course of the workday. Additionally, although not explicitly mentioned in the hypotheses, the examination of competing latent growth models for emotional dissonance indicate that emotional dissonance does not seem to exhibit any systematic changes in the course of a workday.

Third, I provide evidence for the notion that emotional exhaustion is characterized by chronic depletion of the regulatory resource capacity. Thus, chronic depletion effects do not any longer remain "purely speculative", as claimed by Baumeister and Vohs (2016, p. 116). Furthermore, the finding that emotional exhaustion is related to increased starting values of ego-depletion and therefore reflects a chronically reduced regulatory resource capacity, supports the resource-based model as suggested by Trougakos and colleagues (2015). However, in contrast to predictions derived from the resource-based model, results of the current study did not support the amplifying effect of emotional exhaustion on the

adverse consequences of resolving emotional dissonance. Hence, in light of the inconclusive evidence, further research should identify boundary conditions that predict when and why emotional exhaustion intensifies the adverse consequences of emotion regulation.

Practical Implications

Findings of the current study indicate that in the course of a workday, the regulatory resource capacity becomes more and more depleted. This knowledge holds implications for the scheduling of work tasks because self-control attempts are most likely to be successful in the morning. Furthermore, self-control failures are most likely to arise at the end of a workday, especially when emotional dissonance in the morning has been high. Therefore, tasks or duties that require successful self-control exertion should be scheduled as early as possible. To enable an autonomous scheduling of tasks that require volitional self-control, managers should ensure that employees have the freedom of choice over when to perform specific work tasks.

If, however, work tasks require successful exertion of self-control late in the afternoon or evening, other demands on volitional self-control, such as coping with emotional dissonance, should be reduced at the beginning of the workday. Yet, due to the increasing significance of the service sector, coping with emotional dissonance constitutes a major hazard for employees' well-being (e.g., Cheung & Tang, 2007; Diestel et al., 2015). Consequently, it seems almost impossible to completely eliminate display rules, such as the organizational expectation of providing "service with a smile". Nevertheless, managers should become aware of the adverse consequences of dealing with emotional dissonance and organizations should rethink the role of emotional display rules and might instead support a climate of authenticity, in which true emotions are appreciated (Grandey et al., 2015). Moreover, training programs, which teach employees how to authentically feel emotions that need to be displayed instead of faking desired emotions, have been shown to be effective in reducing adverse consequences of emotional dissonance (e.g., Hülsheger et al., 2015).

Finally, the current study demonstrates that the key component of burnout, namely emotional exhaustion, is related to a chronically reduced regulatory resource capacity. Thus, leaders should become aware of the interrelation between emotional exhaustion and self-control functioning and might interpret enduring impairments in self-control performance as a warning signal for burnout symptoms.

In order to prevent immediate and chronic depletion effects, managers should also try to seek ways to reduce depletion effects in general. Allowing more daily breaks or offering interventions to foster protective factors, such as sleep quality (improving sleep hygiene programs, e.g., Brown, 2004) might be fruitful strategies to reach this ambiguous goal.

Limitations, Strengths, and Future Directions

While providing some important theoretical and practical contributions, two aspects of my procedure and analysis demand closer attention. First, although a very good daily response rate was obtained, the sample size on the person-level might be considered relatively small ($N = 64$), which might be a possible reason for the lack of significance in testing some of the between-person hypotheses regarding the effect of emotional exhaustion. Because the directions of effects were in line with Hypothesis 5 and Hypothesis 6, but failed to reach significance, it can only be speculated whether the coefficients might have reached significance if the sample size had been larger. Thus, to conclusively test whether emotional exhaustion exacerbates the daily increase of ego-depletion and intensifies the adverse consequences of emotional dissonance, further research is needed that examines these propositions in a larger sample.

Second, the line of arguments is based on the assumption that employees do not have the possibility to fully replenish their regulatory resource capacity while at work. Although this notion ties in with arguments provided by recent research (e.g., Gombert et al., in press), there is initial evidence indicating that some lunch break activities are capable of refueling personal resources (Bosch, Sonnentag, & Pinck, 2018). However, I neither assessed when employees took their lunch break, nor what they did during their lunch breaks. Thus, further research could contribute to a better understanding of the ebb in the regulatory resource capacity throughout a workday by explicitly incorporating lunch breaks as the longest within-workday rest period (de Bloom et al., 2017), which might provide the possibility to refuel diminished resources.

On the other hand, the study design represents a particular strength of the current study. By assessing ego-depletion at four daily occasions and by adapting daily occasions to participants' individual workdays, I was able to capture a whole workday with averagely 8 hours per day. This procedure enabled me to examine the process of depletion in a more comprehensive way than any laboratory study could do (for ethical and practical reasons).

Another strength of this study is the introduction of the multilevel latent growth approach as a means for investigating dynamic within-day processes. Examination of the variances of the slope and the intercept growth factor indicate that there is variation on the within-person and between-person level that could be accounted for by further day-specific variables (e.g., sleep quality, Gombert, Konze, Rivkin, & Schmidt, 2018; psychological detachment, Gombert et al., in press) or person-specific variables (e.g., self-control capacity, Diestel et al., 2015; implicit theories about willpower, Konze, Rivkin, & Schmidt, 2018). Thus, the results lend support to the notion that although a general pattern of change in ego-depletion exists across individuals, there are also inter- and intraindividual differences in these change trajectories, thereby opening up new directions of further dynamic research on daily trajectories. Taken together, the introduced multilevel latent growth analysis approach offers new possibilities to analyze data from daily diary studies more extensively, thereby capturing the interplay between daily change patterns, day-specific job demands, and person-specific characteristics.

Conclusion

It is time to acknowledge the dynamic nature in which psychological processes unfold. The multilevel latent growth modeling approach introduced in this study is one means of uncovering daily change processes and analyzing them on multiple levels of analysis. By conducting a daily diary study and applying this analytical procedure, the study reveals that ego-depletion increases linearly in the course of a workday and that this increase is amplified as a function of experienced emotional dissonance at the beginning of a workday. Furthermore, findings provide new insights on the interplay between chronic depletion and within-day self-control functioning at work.

KAPITEL 5

Abschließende Diskussion der Dissertation

Diskussion

Im Rahmen der vorliegenden Dissertation wurden drei übergeordnete Forschungsziele verfolgt:

(1) Identifikation von Moderatoren auf organisationaler sowie persönlicher Ebene, die die Auswirkungen von Selbstkontrollausübungen bei der Arbeit auf Erschöpfung beeinflussen.

(2) Integration einer zeitlichen Perspektive des (inter- sowie intraindividuellen) Zusammenhangs zwischen Selbstkontrollausübung und (kurz- sowie langfristigen) Erschöpfungsindikatoren.

(3) Ausdifferenzierung des Stärke-Modells der Selbstkontrolle durch die Einbettung neuer empirischer Erkenntnisse.

Vier empirische Studien wurden durchgeführt, um diese Ziele zu erreichen. Nachfolgend werden zunächst die wichtigsten Ergebnisse aus den Studien zusammengefasst, bevor die Dissertation hinsichtlich ihrer Implikationen und Schwachstellen diskutiert wird.

Zusammenfassung der Erkenntnisse aus den Studien

Studie 1

Auf Grundlage des Job-Demands Control Modells (Karasek, 1979), des Stärke-Modells der Selbstkontrolle (Muraven & Baumeister, 2000) und des Matching-Prinzips (de Jonge & Dormann, 2006) wurde in dieser ersten Studie angenommen, dass Handlungs- und Kontrollspielräume zwar den Umgang mit arbeitsbezogenen Anforderungen vereinfachen können, aber zur selben Zeit die Ausübung von Selbstkontrolle erfordern und dadurch die regulatorische Ressource erschöpfen. Die Ergebnisse der Cross-Lagged Panel Analyse zeigen über einen Zeitraum von sechs Monaten eine Kombination aus kausalen und reziproken Effekten der Eigenschaften von Arbeit (Quantitative Arbeitsbelastungen, Emotionale Dissonanz, und Handlungs- und Kontrollspielräume) auf die Entstehung Emotionaler Erschöpfung. Sowohl Emotionale Dissonanz, als auch Handlungs- und Kontrollspielräume tragen zur Entstehung von Emotionaler Erschöpfung bei. Überraschenderweise zeigt die Analyse der reziproken Effekte, dass Emotionale Erschöpfung die Einschätzung der Häufigkeit von Emotionaler Dissonanz beeinflusst. Dies kann als ein erster Hinweis darauf interpretiert werden, dass Emotionale Erschöpfung einen Effekt auf die Ausübung von Selbstkontrolle hat (eine Annahme, die in Studie 4 aufgegriffen und überprüft wurde). Darüber hinaus fallen die Ergebnisse insofern hypothesenkonform aus, dass Handlungs- und Kontrollspielräume gegensätzliche moderierende Effekte auf die beiden Arbeitsanforderungen Quantitative Arbeitsbelastung

und Emotionale Dissonanz ausüben. Handlungs- und Kontrollspielräume scheinen die Auswirkungen von Quantitativer Arbeitsbelastung zu reduzieren, während sie die Auswirkungen von Emotionaler Dissonanz verstärken. Somit ist dies eine der ersten Studien, die zeigt, dass Handlungs-und Kontrollspielräume auch nachteilige Effekte haben können.

Studie 2

Die zweite Studie beschäftigte sich mit der Vorhersage des tagesspezifischen Bedürfnisses nach Erholung am Abend. Basierend auf laborexperimentellen Befunden zur impliziten Vorstellung über Willensstärke (Job et al., 2010) wurde der Frage nachgegangen, ob Arbeitnehmer, die glauben, dass Willensstärke nicht schnell erschöpft, nach der Ausübung von Selbstkontrolle ein geringeres Bedürfnis nach Erholung wahrnehmen. Die Ergebnisse der multi-level Moderationsanalyse zeigen, dass tagesspezifische Selbstkontrollanforderungen während der Arbeit (Impulskontrolle, Überwinden innerer Widerstände und Ablenkungen widerstehen) beanspruchungswirksam sind und sich in einem erhöhten Bedürfnis nach Erholung am Abend manifestieren. Dabei liegt der besondere Mehrwert der Ergebnisse in der Analyse intraindividueller Unterschiede. Aus diesen Ergebnissen geht hervor, dass ein Arbeitnehmer, der an einem Tag mit mehr Selbstkontrollanforderungen als an einem durchschnittlichen Arbeitstag konfrontiert wird, am Ende desselben Tages ein höheres Bedürfnis nach Erholung hat. Zusätzlich zeigen die Ergebnisse, dass dieser tagesspezifische Zusammenhang vermindert wird, wenn Arbeitnehmer glauben, Willensstärke beruhe auf einer unbegrenzten Ressource.

Studie 3

Im Rahmen der dritten Studie sollte untersucht werden, (i) ob und inwiefern der Umgang mit Emotionaler Dissonanz die Entstehung von Ich-Erschöpfung mittags (bei der Arbeit) und abends (nach Feierabend) erklärt und (ii) ob die implizite Vorstellung über Willensstärke diese tagesspezifischen Zusammenhänge moderiert. Auf Grundlage eines multi-level Strukturgleichungsmodells wurde eine moderierte Mediationsanalyse durchgeführt. Die Ergebnisse decken auf, dass der tagesspezifische Umgang mit Emotionaler Dissonanz bei der Arbeit einen unmittelbaren Effekt auf die wahrgenommene Ich-Erschöpfung zur Mittagszeit hat. Dieser Zustand der erschöpften regulatorischen Ressource hält eine Weile an und überträgt sich auf die Ich-Erschöpfung am Abend. Es zeigt sich, dass Emotionale Dissonanz nur indirekt die Ich-Erschöpfung am Abend beeinflusst, da dieser Zusammenhang vollständig durch die Ich-Erschöpfung zur Mittagszeit aufgeklärt wird. Die implizite Vorstellung über Willensstärke moderiert die unmittelbare Auswirkung von Emoti-

onaler Dissonanz auf die Ich-Erschöpfung zur Mittagszeit. Die Übertragung von der Ich-Erschöpfung zur Mittagszeit auf die Ich-Erschöpfung am Abend wird allerdings entgegen der ursprünglichen Annahme nicht durch die implizite Vorstellung über Willensstärke moderiert.

Studie 4

Durch die explizite Integration der Bedeutung von Zeit in das Stärke-Modell der Selbstkontrolle (Muraven & Baumeister, 2000) wurden in dieser vierten Studie Hypothesen über dynamische Beziehungen zwischen Ich-Erschöpfung, Emotionaler Dissonanz und Emotionaler Erschöpfung aufgestellt. Die Durchführung einer multi-level latenten Wachstumsanalyse, die im Rahmen dieser Dissertation entwickelt und erstmalig durchgeführt wurde, deckt auf, dass die Ich-Erschöpfung im Laufe eines Arbeitstages linear zunimmt. Außerdem deuten die Ergebnisse darauf hin, dass der Umgang mit Emotionaler Dissonanz zu Beginn eines Arbeitstages die regulatorische Ressource erschöpft, was wiederum bewirkt, dass die Ich-Erschöpfung im weiteren Verlauf des Arbeitstages umso schneller ansteigt. Darüber hinaus wird ein unmittelbarer Effekt von Emotionaler Dissonanz (innerhalb der letzten Stunden) auf die (momentan erlebte) Ich-Erschöpfung nachgewiesen. Die Annahme, dass Emotionale Erschöpfung durch eine chronisch reduzierte regulatorische Ressource gekennzeichnet ist, wird durch die Ergebnisse insofern bestätigt, dass Emotionale Erschöpfung mit erhöhten Werten von Ich-Erschöpfung direkt zu Beginn der Arbeitstage einhergeht. Entgegen der Annahmen scheint Emotionale Erschöpfung allerdings nicht einen stärkeren Anstieg der Ich-Erschöpfung im Verlauf von Arbeitstagen zu bewirken und scheint auch nicht die Auswirkungen von Emotionaler Dissonanz zu verstärken.

Zusammenfassend zeigen die vier empirischen Studien, dass die Bewältigung von arbeitsbezogenen Selbstkontrollanforderungen, Emotionaler Dissonanz sowie Handlungs- und Kontrollspielräumen die Ausübung von Selbstkontrolle erfordert und dabei eine gemeinsame regulatorische Ressource beansprucht. Die Untersuchung dieser unterschiedlichen arbeitsbezogenen Anforderungen und der Einsatz verschiedener Analysemethoden dokumentieren somit den Einfluss von Selbstkontrollausübung auf ein breites Spektrum von Erschöpfungsindikatoren. Kurzfristig manifestiert sich eine erschöpfte regulatorische Ressource in erhöhten Werten von Ich-Erschöpfung und dem Bedürfnis nach Erholung. Die adversen Wirkungen auf die Entstehung langfristiger, chronischer Emotionaler Erschöpfung lassen sich über eine häufige, andauernde Überbeanspruchung der regulatorischen Ressource erklären, wodurch die Selbstkontrollleistung langfristig beeinträchtigt werden kann.

Theoretische Implikationen

Beiträge zu Forschungsziel 1 – Identifikation von Moderatoren

Drei potentielle Moderatoren der Auswirkungen von Selbstkontrollausübung wurden überprüft. Durch die Integration von Annahmen des Job Demands-Control Modells (Karasek, 1979) und des Stärke-Modells der Selbstkontrolle (Muraven & Baumeister, 2000) konnte gezeigt werden, dass Handlungs- und Kontrollspielräume die Auswirkungen von Selbstkontrollanforderungen verstärken. Diese Erkenntnis steht im Gegensatz zur ursprünglichen Annahme des Job Demands-Control Modells (Karasek, 1979) und deckt auf, dass Autonomie im Sinne von Handlungs- und Kontrollspielräumen nicht zwingend beanspruchungsmindernd wirkt, sondern Arbeitnehmer in Kombination mit hohen Anforderungen an Selbstkontrolle überbeanspruchen kann.

Der Glaube, dass Willensstärke auf einer unbegrenzten Ressource basiert, reduziert hingegen die Auswirkungen von Selbstkontrollanforderungen sowie Emotionaler Dissonanz bei der Arbeit auf kurzfristige Erschöpfungszustände. Durch die Übertragung laborexperimenteller Befunde (Job et al., 2010) in den Arbeitskontext und durch die Validierung bisheriger personenspezifischer Befunde auf tagesspezifischer Ebene kann somit die Pufferfunktion der impliziten Vorstellung über Willensstärke bestätigt werden. Jedoch scheint die implizite Vorstellung über Willensstärke die Erholung einer bereits erschöpften regulatorischen Ressource nach der Ausübung von Selbstkontrolle nicht zu beeinflussen. Zusammenfassend zeigt sich demzufolge, dass die Vorstellung, Willensstärke beruhe auf einer unbegrenzten Ressource, zwar unmittelbare Auswirkungen von Selbstkontrolle abmildert, aber die Erholung einer erschöpften regulatorischen Ressource nicht verstärkt.

Darüber hinaus weisen die Erkenntnisse dieser Dissertation darauf hin, dass Emotionale Erschöpfung als ein Vulnerabilitätsfaktor wirken könnte, der in Verbindung mit einer chronisch reduzierten regulatorischen Ressource steht. Jedoch konnte in Studie 4 kein moderierender Einfluss von Emotionaler Erschöpfung nachgewiesen werden. Da dieses Ergebnis im Widerspruch zu vorherigen empirischen Erkenntnissen steht (Trougakos et al., 2015), bedarf es weiterer Forschung, um aufzuklären, inwiefern Emotionale Erschöpfung den alltäglichen Umgang mit Selbstkontrolle beeinflusst.

Beiträge zu Forschungsziel 2 – Integration einer zeitlichen Perspektive

Mithilfe verschiedener Analysemethoden, die jeweils unterschiedliche Zeitfenster betrachten, konnte der Entstehungsprozess psychischer Erschöpfung durch zeitliche Perspektiven ergänzt

werden. In Studie 4 wurden die Effekte von Selbstkontrollausübung aus der zeitlich detailliertesten Perspektive dieser Dissertation betrachtet (vier Messzeitpunkte pro Tag). Dadurch konnte gezeigt werden, dass sich der Umgang mit Emotionaler Dissonanz unmittelbar in erhöhten Werten von Ich-Erschöpfung niederschlägt. Zusätzlich konnte aufgedeckt werden, dass Ich-Erschöpfung im Verlauf eines Arbeitstages linear zunimmt. Bei der Zusammenführung der Erkenntnisse aus Studie 3 und 4 lässt sich ein einheitliches Muster der Entstehung von Ich-Erschöpfung durch den Umgang mit Emotionaler Dissonanz festhalten. Demzufolge bedingt der Umgang mit Emotionaler Dissonanz eine unmittelbare Erschöpfung der regulatorischen Ressource (Ich-Erschöpfung), die sich im Verlauf eines Arbeitstages nicht mehr vollständig regeneriert und dadurch andauert. Bei anhaltenden Anforderungen wird die regulatorische Ressource weiter beansprucht, wodurch die höchsten Werte der Ich-Erschöpfung nach Feierabend festgestellt werden. Studie 2 deutet darüber hinaus darauf hin, dass sich kurzfristige Erschöpfung nach der Ausübung von Selbstkontrolle auch als Bedürfnis nach Erholung am Abend manifestiert. Diese kurzfristige (das heißt tagesspezifische) Perspektive wird ergänzt durch die Erkenntnis, dass konstant hohe Anforderungen an Selbstkontrolle zur Entstehung von Emotionaler Erschöpfung über den Zeitraum von sechs Monaten beitragen (siehe Studie 1). Wird die regulatorische Ressource nicht nur tagesspezifisch, einmalig überbeansprucht (z.B. weil ein Konflikt zwischen Kollegen dazu führt, dass an einem Arbeitstag sehr viel Emotionale Dissonanz erlebt wird), sondern chronisch (z.B. weil ein Mitarbeiter einer Beschwerde-Hotline täglich aufgebrachte Kunden besänftigen soll und dabei mit Emotionaler Dissonanz umgehen muss), können daraus langfristige Erschöpfungssymptome (z.B. Emotionale Erschöpfung) resultieren. Hier schließt sich der Kreis zu Studie 4: Arbeitnehmer, die (chronisch) emotional erschöpft sind, erleben bereits zu Beginn eines Arbeitstages eine höhere Ich-Erschöpfung und haben daher eine chronisch reduzierte regulatorische Ressource zur Bewältigung tagesspezifischer Anforderungen zur Verfügung.

Beiträge zu Forschungsziel 3 – Theoretische Erweiterung des Stärke-Modells

Die vier empirischen Studien dokumentieren die adversen Auswirkungen der Selbstkontrollausübung auf ein breites Spektrum an Erschöpfungsindikatoren und bestätigen die Grundannahmen des Stärke-Modells der Selbstkontrolle (Muraven & Baumeister, 2000). In Übereinstimmung mit bisherigen Erkenntnissen aus dem Bereich der Emotionsarbeit (Zapf et al., 1999) zeigen die Ergebnisse, dass das Auflösen von Emotionaler Dissonanz die Ausübung von Selbstkontrolle erfordert. Außerdem unterstützen die Ergebnisse die Beanspruchungswirkungen von Selbstkontrollanforderungen bei der Arbeit (Impulskontrolle, Ablenkungen widerstehen und Überwinden innerer Widerstände), wie ursprünglich durch Neubach und Schmidt (2007) angenommen.

Darüber hinaus erweitern die Befunde der ersten Studie das Stärke-Modell der Selbstkontrolle (Muraven & Baumeister, 2000) durch die Erkenntnis, dass auch der Umgang mit Handlungs- und Kontrollspielräumen Selbstkontrolle erfordert. Demzufolge erschöpfen Prozesse, wie das eigenständige Planen, das Abwägen von Handlungsalternativen und das Treffen von Entscheidungen dieselbe regulatorische Ressource. Diese Erkenntnis findet weitere Bestätigung durch laborexperimentelle Befunde, welche zeigen, dass die Auswahl aus unterschiedlichen Handlungsalternativen (Vohs et al., 2014) und das Abwägen zwischen Vor- und Nachteilen verschiedener Strategien (Wang et al., 2010) Selbstkontrolle erfordern und dabei die regulatorische Ressource beanspruchen. Im Arbeitskontext ist diese Studie jedoch eine der ersten, die in Kombination mit einer weiteren Anforderung an Selbstkontrolle (Emotionale Dissonanz) überadditive Effekte von Handlungs- und Kontrollspielräumen auf Erschöpfung nachweisen kann.

Eine weitere Herausforderung in der theoretischen Erweiterung des Stärke-Modells der Selbstkontrolle (Muraven & Baumeister, 2000) stellt die provokante Behauptung durch Job und Kollegen (2000) dar, dass Ich-Erschöpfung aus Einbildung resultiere (Titel der Studie: „Ego depletion – Is it all in your head?“). Die Forscher verglichen das Stärke-Modell der Selbstkontrolle mit einer „Sich-Selbst-Erfüllenden-Prophezeiung“ und behaupteten, Ich-Erschöpfung würde nicht aus einer tatsächlich erschöpften regulatorischen Ressource resultieren, sondern aus dem Glauben darüber, dass diese Ressource erschöpfbar ist. Die laborexperimentellen Befunde, die die Grundlage dieses Ansatzes darstellen, wurden im Rahmen der vorliegenden Dissertation ins Arbeitsfeld übertragen und auf einer tagesspezifischen Ebene überprüft. Die Ergebnisse aus zwei Studien der vorliegenden Dissertation deuten zwar darauf hin, dass Personen, die an eine unbegrenzte Ressource der Willensstärke glauben, nach der Ausübung von Selbstkontrolle weniger erschöpft sind; allerdings unterscheiden sich die Befunde der Moderationsanalysen in Bezug auf einen relevanten Punkt: Studie 2 zeigt, dass auch für Arbeitnehmer, die an eine unbegrenzte Ressource der Willensstärke glauben, ein positiver Zusammenhang zwischen Selbstkontrollanforderungen und dem Bedürfnis nach Erholung nachgewiesen werden kann. Dieser Zusammenhang fällt zwar schwächer aus als bei Arbeitnehmern, die an eine begrenzte Ressource der Willensstärke glauben, ist aber dennoch signifikant. Die Ergebnisse der Studie 3 decken hingegen auf, dass der Zusammenhang zwischen Emotionaler Dissonanz und Ich-Erschöpfung für Arbeitnehmer, die an eine unbegrenzte Ressource der Willensstärke glauben, nicht signifikant ist. Als zentrale Erkenntnis dieser beiden Feldstudien lässt sich somit festhalten, dass auch Arbeitnehmer, die an eine unbegrenzte Ressource der Willensstärke glauben, nach der Ausübung von Selbstkontrolle erschöpfen können (siehe Stu-

die 2). Zwar scheinen sie widerstandsfähiger gegenüber den Auswirkungen von Selbstkontrollausübung zu sein, aber nicht vollständig von der Beanspruchungswirkung befreit. Darüber hinaus deckt Studie 3 auf, dass, sobald sich Ich-Erschöpfung manifestiert hat, die implizite Vorstellung über Willensstärke keinen Einfluss darauf zu haben scheint, ob die Ich-Erschöpfung über den Tag weiter anhält. Zusammenfassend lässt sich als eine zentrale Erkenntnis festhalten: Auch Personen, die von einer unbegrenzten Ressource ausgehen, können nach der Ausübung von Selbstkontrolle an ihre Grenzen stoßen. Allerdings scheinen diese Grenzen der regulatorischen Ressource abhängig zu sein von der impliziten Vorstellung über Willensstärke. Demzufolge könnte die Grenze der regulatorischen Ressource flexibler sein als ursprünglich angenommen. Obwohl diese empirische Erkenntnis neu ist, ist die Idee, dass unsere Grundüberzeugungen die Grenzen eigener Möglichkeiten definieren, bereits über hundert Jahre alt:

> *"We live subject to inhibition by degrees of fatigue which we have come only from habit to obey. Most of us may learn to push the barrier farther off, and to live in perfect comfort on much higher levels of power."*
>
> William James in "The Energies of Men" (1907, S. 324)

Nach James (1907) verbraucht der menschliche Organismus gewohnheitsmäßig nur geringe Mengen energetischer Ressourcen und tendiert dazu, gewohnte Grenzen einzuhalten, um Energiereserven zu sichern. Forschungserkenntnisse zur impliziten Vorstellung über Willensstärke legen nahe, dass der Glaube an eine unbegrenzte Willensstärke diese gewohnten Grenzen verschiebt und dabei einen Mechanismus aufbricht, der (Selbstkontroll-)Leistung allgemein unterschätzt. Die Erkenntnisse dieser Dissertation erweitern somit das Stärke-Modell der Selbstkontrolle (Muraven & Baumeister, 2000), indem sie nahelegen, dass die Grenze der regulatorischen Ressource durch persönliche Grundüberzeugungen beeinflusst wird. Folglich ist das Ausmaß der Erschöpfung nach der Ausübung von Selbstkontrolle abhängig davon, wie stark (implizit) davon ausgegangen wird, dass die Grenze der regulatorischen Ressource erreicht wurde.

Durch die Integration von Annahmen des Ressourcen-basierten Modells (Trougakos et al., 2015) in das Stärke-Modell der Selbstkontrolle (Muraven & Baumeister, 2000) konnte Emotionale Erschöpfung als ein Indikator für eine chronisch erschöpfte regulatorische Ressource validiert werden. Insofern kann die Annahme, dass es eine chronische Erschöpfung der regulatorischen Ressource gibt, nicht länger als rein spekulativ betrachtet werden, wie kürzlich von Baumeister und Vohs (2016) behauptet. Demzufolge kann als weitere theoretische Erweiterung des Stärke-Modells der Selbstkontrolle (Muraven & Baumeister, 2000) festgehalten werden, dass häufige Ressourcenerschöpfung die Kapazität der regulatorischen Ressource langfristig vermindern kann.

Eine weitere theoretische Erweiterung des Stärke-Modells der Selbstkontrolle (Muraven & Baumeister, 2000) liegt in der Integration der Bedeutung von Zeit. In den letzten Jahren wurde immer häufiger kritisiert, dass viele psychologische Theorien zugrundeliegende Prozesse beschreiben, ohne die Rolle der Zeit zu berücksichtigen (McCormick et al., 2018; Navarro et al., 2015; Sonnentag, 2012). In diesem Zusammenhang deckt Studie 4 auf, dass die Erschöpfung der regulatorischen Ressource proportional zur Zeitspanne ist, in der Selbstkontrolle ausgeübt wurde. Damit bieten die Erkenntnisse aus Studie 4 eine erste Grundlage, um den Prozess der Ressourcenerschöpfung im Verlauf der Zeit zu untersuchen.

Stärken und Schwächen sowie Impulse für zukünftige Forschung

Neben den in den einzelnen Studien bereits diskutierten methodischen und inhaltlichen Schwächen werden im Folgenden noch generelle Einschränkungen sowie Stärken der vorliegenden Dissertation diskutiert. Aus den Schwächen und Einschränkungen der Dissertation werden außerdem Impulse für zukünftige Untersuchungen abgeleitet.

Eine Schwachstelle der Dissertation liegt darin, dass das Stärke-Modell der Selbstkontrolle (Muraven & Baumeister, 2000) im Rahmen der Studien wenig hinterfragt oder kritisch diskutiert wird. Obwohl inzwischen über 300 unabhängige Studien die zugrundeliegenden Laborbefunde replizieren konnten (Ich-Erschöpfungs-Effekt, das heißt Leistungsreduktion bei einer zweiten Selbstkontrollaufgabe; Dang, 2018), haben verschiedene Meta-Analysen weniger eindeutige Ergebnisse der laborexperimentellen Befunde zusammengetragen (Carter et al., 2015; Dang, 2018; Hagger et al., 2010) und teilweise das Stärke-Modell der Selbstkontrolle gänzlich in Frage gestellt (Carter et al., 2015)[9]. Die Studien, die im Rahmen dieser Dissertation vorgestellt wurden, sind zum großen Teil während der Zeit entstanden, als das Stärke-Modell der Selbstkontrolle (Muraven & Baumeister, 2000) aufgrund der gemischten Befunde stark hinterfragt wurde. Die Tatsache, dass in den vier empirischen Studien die teilweise kritischen Erkenntnisse aus den Meta-Analysen ausgeklammert und nicht diskutiert wurden, kann als eine generelle Schwäche der Dissertation interpretiert werden. Vor dem Hintergrund der heftigen Kritik am Stärke-Modell der Selbstkontrolle wird es zu einer wichtigen Aufgabe für zukünftige Forschung, das Stärke-Modell weiter auszudifferenzieren und die theoretischen Grundannahmen weiterzuentwickeln. Selbst Baumeister

[9] Die erste durchgeführte Meta-Analyse (Hagger et al., 2010) konnte eine mittlere Effektstärke des Ich-Erschöpfungs-Effekts nachweisen. Diese Meta-Analyse wurde jedoch kritisiert, da sie keine unveröffentlichten Daten berücksichtigte und nicht zwischen verschiedenen Selbstkontrollaufgaben unterschied. Im Rahmen einer zweiten Meta-Analyse (Carter et al., 2015) wurden zusätzlich unveröffentlichte Daten eingeschlossen und eine Korrektur des Stichprobeneffekts kleiner Studien vorgenommen (PETPEESE-Verfahren). Die Ergebnisse dieser Meta-Analyse stellten das Stärke-Modell der Selbstkontrolle in Frage, da der Ich-Erschöpfungs-Effekt in den meisten Fällen nicht nachgewiesen werden konnte. Aber auch die Meta-Analyse von Carter und Kollegen (2015) wurde kritisiert, da keine differenzierte Testung unterschiedlicher Selbstkontrollaufgaben durchgeführt wurde, fragwürdige Selbstkontrollaufgaben eingeschlossen wurden und das analytische Verfahren zur Kontrolle des Stichprobeneffekts als umstritten gilt (siehe dazu Inzlicht & Berkman, 2015). Als Folge führte Dang (2018) eine dritte Meta-Analyse durch, um die Kritiken der vorherigen Meta-Analysen zu adressieren. Durch den Einschluss neuster Studien, die Durchführung einzelner Testungen verschiedener Selbstkontrollaufgaben und durch den Ausschluss von unangemessenen Selbstkontrollaufgaben konnte diese Meta-Analyse eine kleine bis mittlere Effektstärke ermitteln und zu einem eindeutigeren Bild des Ich-Erschöpfungs-Effekts beitragen. Somit kann abschließend festgehalten werden, dass, auch wenn die Meta-Analyse von Carter und Kollegen (2015) im Forschungsfeld zur Selbstkontrolle kurzzeitig Aufsehen erregte, sich inzwischen eine differenziertere Sichtweise durchgesetzt hat. Durch die Befunde der Meta-Analysen hat sich die Erkenntnis verbreitet, dass je nach Selbstkontrollaufgabe der Ich-Erschöpfungs-Effekt in laborexperimentellen Untersuchungen zwar unterschiedlich stark ausfällt, aber nicht gänzlich in Frage gestellt werden kann.

und Vohs (2016) betonten dieses Anliegen und räumten ein, dass die ursprüngliche Metapher zu kurz griff: „The early, simple notion that ego depletion effects indicate that the brain has run out of fuel is no longer tenable“ (S. 69). Wenngleich die Dissertation einen Beitrag zur theoretischen Erweiterung des Modells leistet, bleibt die Integration weiterer empirischer Befunde in ein weiterentwickeltes Stärke-Modell der Selbstkontrolle ein wichtiges Ziel für die Zukunft.

Eine weitere Schwachstelle aller vier empirischer Studien stellt die einheitliche Form der Datenerhebung dar. Die Datenanalysen beruhen auf Selbstberichten, die auf Grundlage von Fragebögen erhoben wurden. Somit wurden weder objektiv bewertete Arbeitsanforderungen noch objektive Leistungsparameter oder kognitive Ermüdung erfasst. Dies birgt drei zentrale Risiken:

(1) Zum einen kann die einheitliche Methode der Datenerhebung zu einer Überschätzung des Zusammenhangs zwischen Variablen führen, da eine systematische Fehlervarianz nicht ausgeschlossen werden kann (Common Method Bias, Podsakoff et al., 2003). Die Gefahr einer Überschätzung von wahren Zusammenhängen ist insbesondere dann gegeben, wenn direkte Effekte (das heißt Haupteffekte) analysiert werden, bei denen Prädiktor und Kriterium anhand derselben Methode und typischerweise zur selben Zeit erfasst wurden. Um dieses Problem in der vorliegenden Dissertation zu minimieren, wurden Variablen, sofern möglich, zu unterschiedlichen Zeitpunkten erfasst (z.B. Studie 2: implizite Vorstellung über Willenskraft in der Vorbefragung, Selbstkontrollanforderungen in der tagesspezifischen Befragung am Nachmittag und Bedürfnis nach Erholung in der tagesspezifischen Befragung am Abend). Darüber hinaus lag der Fokus der Studien nicht auf der Vorhersage von absoluten Werten von Erschöpfung, sondern auf (i) der Vorhersage von Veränderungen in Erschöpfung (z.B. Studie 1), (ii) der Aufklärung intraindividueller Unterschiede (z.B. Studien 2 und 3) sowie (iii) der Identifikation von Interaktions- statt Haupteffekten. Insofern wurden Maßnahmen ergriffen, um die Ergebnisse möglichst von dem Einfluss subjektiver Verzerrungen durch Selbstberichte zu bereinigen. Dennoch sollten die Befunde der empirischen Studien durch den Einsatz unterschiedlicher Informationsquellen validiert werden. Denkbar wäre beispielsweise die Einschätzung mancher Variablen durch außenstehende Personen. Arbeitsanforderungen könnten möglicherweise durch Kollegen und organisationale Rahmenbedingungen (z.B. Handlungs- und Kontrollspielräume) durch Führungskräfte eingeschätzt werden.

(2) Zum anderen kann das Vorgehen zur Erhebung der impliziten Vorstellung über Willensstärke in Frage gestellt werden: Ist eine Vorstellung noch implizit, wenn man sie anhand eines Fragebogeninstruments explizit messbar macht? Insbesondere vor dem Hintergrund, dass ähnliche Items wie die hier eingesetzten dazu genutzt wurden, um die implizite Vorstellung über Willensstärke

zu manipulieren (z.B. Job et al., 2010, Study 2), sollten die aktuellen Befunde anhand alternativer Messungen validiert werden. Dazu sollte sich zukünftige Forschung damit auseinandersetzen, wie sich die Vorstellung über Willensstärke impliziter abbilden lassen könnte.

(3) Des Weiteren ist die Aussagekraft der Ergebnisse dadurch limitiert, dass Erschöpfung ausschließlich auf der Basis von Fragebögen erfasst wurde. Das Stärke-Modell der Selbstkontrolle (Muraven & Baumeister, 2000) basiert jedoch auf der Annahme, dass Ich-Erschöpfung als Erschöpfung der regulatorischen Ressource zu verstehen ist, die sich in einer verminderten kognitiven Leistung manifestiert. Die Tatsache, dass in der vorliegenden Dissertation die Erschöpfung der regulatorischen Ressource eine zentrale Rolle spielt, aber diese nicht über objektive, kognitive Leistungsparameter abgebildet wurde, stellt eine Schwachstelle der Empirie dar. Zukünftige Forschung könnte davon profitieren, Felduntersuchungen mit Laborexperimenten zu kombinieren, sodass Arbeitsanforderungen in realen Situationen und gleichzeitig die zugrundeliegenden kognitiven Prozesse untersucht werden können. Ein weiterer Ansatz stellt die Entwicklung und Integration von Applikations-basierten kognitiven Aufgaben in Tagebuchstudien dar. Da der Großteil heutiger Tagebuchstudien mithilfe von Smartphones bearbeitet wird, ist die Durchführung von kognitiven Tests am eigenen Smartphone im Rahmen solcher Erhebungen ein logischer nächster Schritt.

Eine Stärke der vorliegenden Dissertation liegt hingegen in der Generalisierbarkeit der Befunde. So konnte die Beanspruchungswirkung von arbeitsbezogenen Anforderungen an Selbstkontrolle im Feld, in unterschiedlichen Stichproben, aus unterschiedlichen zeitlichen Perspektiven sowie anhand verschiedener Arbeitsanforderungen und verschiedener Erschöpfungsindikatoren nachgewiesen werden. Darüber hinaus zeigten sich die adversen Auswirkungen von Selbstkontrollausübung sowohl auf interindividueller, als auch auf intraindividueller Ebene. Insgesamt liegt ein besonderer Mehrwert dieser Dissertation in der Kombination unterschiedlicher Analysemethoden, welche einheitlich auf die gesundheitlichen Risiken verweisen, die mit der Ausübung von Selbstkontrolle einhergehen.

Die im Rahmen dieser Dissertation entwickelte und erstmalig durchgeführte Analysemethode ermöglicht außerdem die Untersuchung von dynamischen Veränderungsprozessen innerhalb von Tagen und erweitert damit das Methodenrepertoire zur Auswertung von Tagebuchstudien. Durch die Anwendung der vorgestellten multi-level latenten Wachstumsanalyse kann in zukünftigen Tagebuchstudien aufgedeckt werden, wie sich psychologische Prozesse im Verlauf von Arbeitstagen

entfalten und inwiefern diese Prozesse durch tages- sowie personenspezifische Variablen beeinflusst werden. Somit wird die Untersuchung von Fragestellungen möglich, die die zeitlichen Abfolgen innerhalb von Tagen betreffen und dadurch den Prozess-Charakter psychologischer Phänomene berücksichtigen.

Ein weiterer Impuls für zukünftige Forschung kann außerdem aus den Tagebuchstudien (Studien 2, 3 und 4) abgeleitet werden. In jeder der Studien wurden Arbeitsanforderungen während der Arbeitszeit erfasst und deren Effekt auf Erschöpfungszustände nach Feierabend ermittelt. Dabei zeigte sich ein einheitliches Muster: Anforderungen bei der Arbeit beeinflussen Arbeitnehmer auch während der Freizeit. Während traditionelle Forschungsansätze innerhalb der Arbeitspsychologie die Analyse von Belastung und Beanspruchung ausschließlich am Arbeitsplatz durchgeführt haben, fokussieren neuere Forschungsansätze die wechselseitige Beeinflussung von Arbeit und Freizeit (z.B. Bakker, & Geurts, 2004; Germeys & de Gieter, 2018; Ilies et al, 2007). Im Fokus dieser Forschungen stehen die neuen Anforderungen, die sich durch eine zunehmende Entgrenzung zwischen Arbeit und Freizeit ergeben. Die berufliche Nutzung von Smartphones nach Feierabend oder die Arbeit am Laptop im Homeoffice ermöglichen eine hohe Flexibilität sowie große Handlungs- und Kontrollspielräume. Jedoch weisen sowohl die Erkenntnisse aus Studie 1 als auch weitere empirische Befunde zur beruflichen Smartphone-Nutzung (Gombert, Konze, Rivkin, & Schmidt, 2018) darauf hin, dass diese neuen Arbeitsanforderungen mit der Ausübung von Selbstkontrolle verbunden sind und somit eine Schattenseite haben. Vor dem Hintergrund der voranschreitenden Digitalisierung und der Entgrenzung der Arbeit werden somit weitere Untersuchungen zur wechselseitigen Beeinflussung zwischen Arbeit und Freizeit notwendig.

Praktische Implikationen

Durch den rasanten Wandel der heutigen Arbeitswelt gewinnt die Ausübung von Selbstkontrolle am Arbeitsplatz zunehmend an Bedeutung. In dem Umfang, in dem Unternehmen vermehrt flexible Verhaltenssteuerung voraussetzen, müssen sich die betrieblichen Akteure dem gesundheitlichen Risiko bewusst werden, das mit hohen Anforderungen an Selbstkontrolle einhergeht. Die Befunde der vorliegenden Dissertation weisen darauf hin, dass insbesondere Strategien notwendig sind, die die unmittelbaren Auswirkungen von Selbstkontrolle am Arbeitsplatz reduzieren. Dadurch kann der Entstehung von Erschöpfung entgegengewirkt werden, bevor sich erste kurzfristige Erschöpfungszustände manifestieren. Die Umsetzung solcher Strategien sowie die Ableitung von praktisch realisierbaren sowie effektiven Maßnahmen zum Gesundheitsschutz fallen in

den Bereich der betrieblichen Gesundheitsförderung. Dabei kann zwischen drei Ansätzen unterschieden werden: Zum einen kann eine Reduktion der Anforderungen an Selbstkontrolle (auch wenn dies nur sehr begrenzt möglich ist) angestrebt werden. Zum anderen sollte die Gestaltung organisationaler sowie die Förderung persönlicher Rahmenbedingungen beachtet werden, die den Umgang mit Selbstkontrolle vereinfachen. Zusätzlich ist eine generelle Sensibilisierung für erste Anzeichen von Erschöpfungssymptomen wichtig, um nicht nur bei sich selbst, sondern auch bei Kollegen und Mitarbeitern eine Gefährdung für chronische Erschöpfungssymptome frühzeitig zu erkennen.

Reduktion der Anforderungen an Selbstkontrolle

Auch wenn eine generelle Abschaffung von Anforderungen an Selbstkontrolle unmöglich erscheint, können Unternehmen dennoch Strukturen schaffen, die es Arbeitnehmern ermöglichen, ihre Anforderungen an Selbstkontrolle (zumindest zeitweise) zu reduzieren. Beispielsweise könnten spezifische Zeitfenster eingerichtet werden, in denen keine E-Mails abgerufen und keine Telefonanrufe durchgestellt werden. Eine solche vorübergehende Reduktion von Ablenkungen könnte die Bearbeitung komplexerer Aufgaben vereinfachen.

Das Ausmaß an Emotionaler Dissonanz könnte durch die Unterstützung einer authentischen Unternehmenskultur reduziert werden, in welcher der Ausdruck wahrer Emotionen wertgeschätzt wird. Grandey und Kollegen (2015) vertreten eine sehr radikale Meinung zur Ausübung von Emotionsarbeit und schlagen die vollständige Abschaffung von organisational geforderten Emotionen vor: „The time is ripe to eradicate emotional labor requirements, and instead focus on creating climates that authentically generate employee health and happiness" (S. 781). Wenngleich diese Forderung sehr drastisch und möglicherweise unrealistisch erscheint, stellt sie die Selbstverständlichkeit in Frage, die heutzutage mit der Unterdrückung wahrer Emotionen am Arbeitsplatz verbunden ist. Betriebliche Akteure sollten die Auswirkungen von Emotionaler Dissonanz bedenken und in der Gestaltung der Unternehmenskultur berücksichtigen, anstatt den Ausdruck spezifischer Emotionen als selbstverständlich zu erachten.

Förderung organisationaler und persönlicher Rahmenbedingungen

Bisherige arbeitspsychologische Ansätze empfehlen die Erweiterung von Handlungs- und Kontrollspielräumen, um die Auswirkungen von Arbeitsanforderungen zu reduzieren (z.B. Schmidt & Diestel, 2011). Im Rahmen der vorliegenden Dissertation konnte jedoch gezeigt werden, dass

Handlungs- und Kontrollspielräume in Situationen nicht beanspruchungsmindernd wirken, in denen gleichzeitig hohe Anforderungen an Selbstkontrolle bewältigt werden müssen. Demzufolge kann das selbstständige Planen der nächsten Arbeitsschritte in Situationen, in denen eine hohe Emotionale Dissonanz zu erwarten ist (z.B. bei Kundenbeschwerden), zur Beanspruchung des Arbeitnehmers beitragen. Insbesondere an Arbeitsplätzen, an denen hohe Anforderungen an Selbstkontrolle zu erwarten sind, sollten daher Strategien implementiert werden, die eine simultane Bewältigung verschiedener Selbstkontrollanforderungen (unter anderem Handlungs-und Kontrollspielräume) vermeiden. So dürfte eine proaktive Planung von Arbeitsschritten Arbeitnehmer bei der Bewältigung von hohen Anforderungen an Selbstkontrolle unterstützen und die Beanspruchungsfolgen reduzieren (z.B. „Sobald ein Kunde aufgebracht ist, verfahre ich nach der Strategie X."). Solche Strategien können auf der einen Seite durch das Unternehmen umgesetzt werden, indem Prozessabläufe für spezifische Situationen klar definiert und vorgegeben werden. Auf der anderen Seite weisen Befunde aus der Forschung zur kognitiven Kontrolle (Gollwitz, 1993; Gollwitz, 1999) sowie zur Emotionsarbeit (Gross, 1998) darauf hin, dass Personen, die sich vorab auf eine anforderungsreiche Situation eingestellt und ihre Reaktion proaktiv geplant hatten, in der Situation weniger Selbstkontrolle aufbringen mussten. Unternehmen können diese Erkenntnis nutzen, indem sie Arbeitnehmer auf die zu erwartenden Situationen (z.B. Kundenbeschwerden) gut vorbereiten und sie bei der Entwicklung eigener Handlungspläne unterstützen.

Empirische Forschungen zu impliziten Vorstellungen (mindsets) zeigen, dass die Kultur (auch Unternehmenskultur), in der man Zeit verbringt, eigene persönliche Grundüberzeugungen beeinflussen kann (wie beispielsweise die implizite Vorstellung über Willensstärke, Dweck, 1986; Dweck, 1996; Dweck, 2006; Dweck & Leggett, 1988). Eine Kultur, in der die Grenzen von Willensstärke weniger betont werden und in der stattdessen die Einstellung gelebt wird, dass Willensstärke durch Übung, Training und harte Arbeit gestärkt werden kann, trägt demzufolge dazu bei, dass Personen eher von einer unbegrenzten regulatorischen Ressource ausgehen. Und obwohl der kontinuierlichen Ausübung von Selbstkontrolle sicherlich Grenzen gesetzt sind, scheinen diese Grenzen flexibel zu sein. Aus diesem Grund sollten sich betriebliche Akteure darüber bewusst werden, dass sie über die Gestaltung der Unternehmenskultur Einfluss nehmen auf Einstellungen und Überzeugungen ihrer Mitarbeiter und dadurch indirekt ihre Leistung sowie ihre Erschöpfungszustände beeinflussen.

Sensibilisierung für Anzeichen von Erschöpfung

Selbst eine umfassende betriebliche Gesundheitsförderung, die die Risiken von Selbstkontrollausübung sowie weiterer psychischer Arbeitsanforderungen berücksichtigt, kann nicht vollständig verhindern, dass Arbeitnehmer erschöpfen. Um dennoch chronischen Erschöpfungssymptomen wie Burnout vorzubeugen, ist eine umfassende Sensibilisierung für erste Warnhinweise notwendig. Wenn Arbeitsanforderungen dauerhaft zu einer Überbeanspruchung führen, an jedem Arbeitsabend Erschöpfung eintritt und Ressourcen sich nicht mehr vollständig regenerieren können, dann müssen diese Hinweise ernst genommen werden. Im Rahmen dieser Dissertation wurde darüber hinaus gezeigt, dass auch chronische Selbstkontrolldefizite als Indikator einer Burnout-Gefährdung betrachtet werden können. Unternehmen können dieses Wissen dazu nutzen, sowohl Führungskräfte als auch Mitarbeiter über die Warnhinweise einer Burnout-Gefährdung aufzuklären. Ein besseres Verständnis darüber, durch welche Anforderungen und in welchen zeitlichen Fenstern sich chronische Erschöpfung entwickelt, kann dazu beitragen, gefährdete Arbeitnehmer zu identifizieren. Eine gründliche Reflexion der eigenen Arbeitssituation sowie der Arbeitssituation von Mitarbeitern und Kollegen trägt darüber hinaus dazu bei, eine Burnout-Gefährdung frühzeitig zu erkennen.

Fazit

Der Wandel der Arbeitswelt erfordert ein Umdenken aller betrieblichen Akteure. Mitarbeiter, Führungskräfte und Unternehmensleitungen müssen sich den Risiken bewusst werden, die mit den psychischen Arbeitsanforderungen des 21. Jahrhunderts einhergehen. Diese Anforderungen manifestieren sich insbesondere in einer drastischen Zunahme an Fehlzeiten, die auf Erschöpfungssymptome zurückzuführen sind. Der Fehlzeiten-Report 2018 deckt diesbezüglich auf, dass sich die Arbeitsunfähigkeitstage, die auf einen diagnostizierten Burnout zurückgehen, in den letzten zehn Jahren in Deutschland verdreifacht haben (Meyer, Wenzel, Schenkel, 2018, siehe Abbildung 5.1). In diesem Zusammenhang macht die vorliegende Dissertation auf die besonderen gesundheitlichen Risiken aufmerksam, die auf der einen Seite mit kumulierenden, dauerhaft einwirkenden Anforderungen an Selbstkontrolle und auf der anderen Seite mit hohen, tagesspezifischen Anforderungen an Selbstkontrolle verbunden sind. Jedoch ist die Ausübung von Selbstkontrolle eine wesentliche Arbeitsanforderung der heutigen Zeit, deren Reduktion nur sehr begrenzt möglich ist. Die vier empirischen Studien dieser Dissertation zeigen hingegen, dass (i) die Anpassung von Handlungs- und Kontrollspielräumen, (ii) die Gestaltung einer förderlichen Unternehmenskultur sowie (iii) eine Sensibilisierung für frühe Symptome einer Burnout-Gefährdung vielversprechende Ansatzpunkte sind, um die Konsequenzen von Selbstkontrollausübung zu vermindern. Diese Erkenntnisse gilt es bei der Umsetzung von Maßnahmen der betrieblichen Gesundheitsförderung zu berücksichtigen, um der weiteren Zunahme von Burnout-Erkrankungen aktiv entgegenzuwirken.

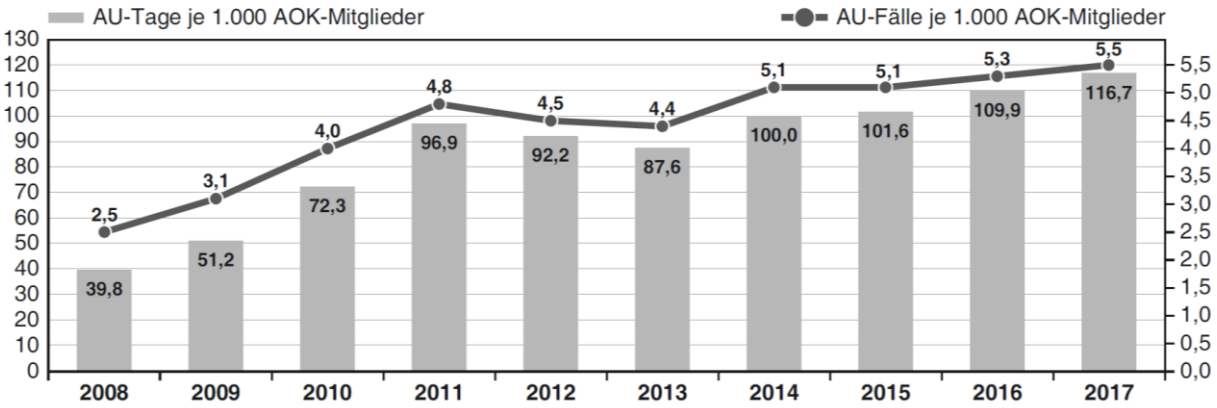

Abbildung 5.1. Arbeitsunfähigkeitstage und –fälle aufgrund eines diagnostizierten Burnouts (ICD-10: Z 73) je 1.000 AOK-Mitglieder
Quelle: Wissenschaftliches Institut der AOK, abgedruckt im Fehlzeiten-Report 2018 (Meyer et al., 2018)

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Dortmund, den 14. Mai 2019

A. Konze

Anne-Kathrin Konze