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Running Head: ROUTINE DISRUPTIONS AND WORK BEHAVIORS

Stumbling out of the Gate: The Energy-Based Implications of Morning Routine Disruption

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Abstract

Despite academic and practical advice regarding the virtues of daily routines for effective work performance, such routines are vulnerable to disruption from any number of sources. To understand whether and how routine disruptions affect employees at work, we draw on cognitive energetics theory (CET) and explore the potential negative consequences of morning routine disruptions on employees' energy allocations at work. Moreover, given that CET is fundamentally a theory of goal attainment, we examine the downstream impact of routine disruptions on employees' work goal progress. Results from two daily experience-sampling studies show that when employees' morning routines were disrupted, employees experienced higher levels of depletion and reduced calmness. In turn, depletion was associated negatively, and calmness was associated positively, with daily work engagement. Finally, daily work engagement was positively related to subsequent daily goal progress. These findings have important implications for our understanding of employees' morning routines and the ways that disruptions to those routines ripple through employees' workdays.

Keywords: routine disruption; energy; experience sampling

What do Winston Churchill, Jennifer Aniston, and Ludwig van Beethoven have in common? One answer is that each began their workday with a predictable morning routine. Winston Churchill woke at 7:30 a.m. and enacted a consistent set of activities involving eating breakfast, reading the newspaper and mail, and then dictating to his secretaries—all from the comfort of his bed (Manchester, 1989). Jennifer Aniston rises at 4:30 a.m., has a cup of hot water with lemon, washes her face, meditates, drinks a protein shake, and then exercises (Lowin, 2016). Beethoven's morning routine consisted of waking up at 6:00 a.m. and brewing coffee using exactly 60 beans (Schindler, 1966). As is implicit in the above examples and explicit in popular press articles (Marcus, 2018; Spall, 2018), websites (Hoefele, 2011; Thomas, 2017), and books detailing the morning routines of accomplished individuals (e.g., Spall & Xander, 2018), routines (particularly morning routines) can provide the foundation for a productive day.

Despite the popular consensus linking routines to goal achievement, such routines have garnered relatively scant empirical attention—particularly in the organizational sciences. Given the prevalence of routines in employees' lives, this is surprising; indeed, 82% of people adhere to a specific morning routine (SWNS Digital, 2017). Further, what little research that does exist (e.g., Henderson & Jordan, 2010; Piscitello, Cummins, Kelley, & Meyer, 2019; Sytsma, Kelley, & Wymer, 2001; Zisberg, Young, & Schepp, 2009) has generally pointed to the benefits of forming routines. A limitation of this research is it implies that routines are a static characteristic (i.e., a person either follows a routine or not), even though in actuality, any number of events may happen on a given morning that may easily disrupt one's routines. This reflects a mismatch in how routines are theoretically conceptualized relative to how they unfold daily (Kozlowski & Klein, 2000). That is, extant research has applied a between-person lens (the tendency to follow a

routine) to what should be a within-person question (the consequences that accrue to individuals on days when their routine is disrupted).

The dearth of scholarly attention to this issue implies that scholars may feel there is little to learn about of routine disruption. We disagree, and argue that a better understanding of morning routine disruption would emerge from considering the consequences of such disruptions. This is of both theoretical and practical significance for at least two reasons. First, research on routines has focused largely on the benefits of routine formation (i.e., goal progress), with little mention of the consequences of routine disruption—disruptions that can ripple through the day, particularly when they occur in the morning. Second, extant writings have not identified the mechanisms linking routines and goals. This needs to be addressed, because explaining *why* is fundamental to building theory (Whetten, 1989) and can provide practitioners with actionable recommendations about how to mitigate the consequences of routine disruptions.

To build theory about disruptions to employees' morning routines, we first explore the intrapsychic processes involved with routines. Routines are beneficial because they (a) preserve energy by automating repeated activities (Ersche, Lim, Ward, Robbins, & Stochl, 2017) and (b) create an environment conducive to investing energy in goal pursuit (Hockey, 1997; Miller, 1981). As we unpack further, the disruption of routines leads what was once automated to require conscious attention (e.g., Ersche et al., 2017). We believe that this effect is particularly salient and theoretically important with regard to employees' morning routines.

Because routines allow employees to conserve and efficiently deploy energy, we draw from, and extend, cognitive energetics theory (CET; Kruglanski et al., 2012)—which views energy as the primary driver of goal attainment—to suggest that the energy-based consequences of routine disruptions affect employees' subsequent progress toward their work goals. Given the

potential for morning routine disruptions to impact employees' energy, we examine separate cognitive and affective indicators of energy availability: cognitive depletion (hereafter referred to as depletion; Christian, Eisenkraft, & Kapadia, 2015; Lanaj, Foulk, & Erez, 2019) and feelings of calmness—a deactivated form of positive affect (Wood, Quinn, & Kashy, 2002). Drawing from CET, we describe how these mechanisms indirectly link routine disruption and the energy that employees ultimately invest in their work that day, as operationalized by daily work engagement. Finally, given CET's emphasis on the consequences of this process for goal progress, we articulate how energy facilitates goal attainment, such that reductions in work engagement hinder daily work goal progress. Figure 1 displays our theoretical model.

Because routines reflect a pattern of activities enacted in a consistent manner and on a regular basis (Piscitello et al., 2019), morning routine disruption is fundamentally an episodic occurrence. We therefore align theory with method (Kozlowski & Klein, 2000) by testing our model with two daily, experience-sampling studies. In Study 1, we test our theoretical model in the context of the disruption of a specific yet common element of many individuals' morning routine—drinking coffee. In Study 2, we extend the first study's findings by operationalizing morning routines more generally in two distinct ways.

Our research contributes to both theory and practice. First, we call attention to a concept widely discussed in popular media, but largely ignored in organizational scholarship—morning routines. While routines have been considered at higher theoretical levels of conceptualization (e.g., Thompson, 1967), their relevance for daily employee behavior remains unexamined. Second, we pivot from popular writings on routine existence and instead build new theory on the consequences of routine disruption. In so doing, we elaborate the process by which morning routine disruptions affect employee goal progress by elucidating employees' use and

preservation of their energy. Third, we contribute to CET by expanding its treatment of energy to account for not only cognitive, but also affective, indicators. By simultaneously considering cognition and affect, we increase the precision with which CET can explain individual behavior. Finally, our research contributes practically by demonstrating that disrupting morning routines may significantly influence employees' ability to engage with their work and make progress toward goals. For this reason, employees should be sensitive to such disruptions of their morning routines and seek to supplement the resulting lost energy when disruptions occur. In addition, managers should be cognizant of the effects of routine disruptions on employee goal attainment and take steps to not only minimize factors that might potentially disrupt employee routines, but also appreciate that the effects of disruption may last well beyond the routine.

Theoretical Background

Routines and Routine Disruption

Routines are a set of practiced, consistent behaviors that occur in generally the same way and in the same order (Piscitello et al., 2019). Every morning, employees engage in activities such as waking, drinking coffee, having breakfast, taking children to school, or checking email. Over time, the progression and context of these activities becomes automated (Wood & Rünger, 2016); indeed, the tendency to structure repeated activities in this manner is a fundamental neurological process (Grossman, 2015). We thus conceptualize routines as a series of stimulus-response episodes where each activity in a routine automatically cues the next.

This automation allows individuals to more productively allocate their energy because, whereas focused thinking and planning are energy-intensive (Evans, 2008), each activity in a routine cues the next without requiring individuals to devote energy to planning or enacting behavior (Grossman, 2015; Schmeichel, Vohs, & Baumeister, 2003). In this way, while some

routinized activities may have different effects (e.g., employees whose morning routines involve exercise may feel physiological effects), one common effect of routines is on employees' energy availability. By eliminating the need to expend energy attending to repetitive or low-importance activities, routines allow individuals to save energy that they can later use in pursuit of important higher-order goals (Botvinick & Plaut, 2004; Cooper & Shallice, 2000). Consider an employee who begins her day by walking her dog, then drinking a cup of coffee while her partner gets the kids dressed and off to school, and finally taking the 7:45 a.m. train to work. Over time, as this set of activities becomes routinized, she no longer must dedicate attention to enacting the particular behaviors, thus allowing her to focus her effort and attention on more important factors like meeting a looming deadline at work that day. In this way, routines preserve energy which can then be devoted to other, more important activities (Neal, Wood, & Drolet, 2013).

However, life is unpredictable, and each morning myriad events may occur which make routines fragile to disruption (Jett & George, 2003; Miller, 1981). For example, factors such as poor traffic, an unexpected call from work, or hearing that one's sibling is sick can all challenge the normal morning pattern. One commonality underlying each of these examples is the deviation from a generally automated set of activities that occurs due to some antecedent factor. Thus, whereas routines are generally stable and enduring over time (Wood & Rünger, 2016), routine disruptions are episodic and discrepant events where "things do not continue the way they did" before (Morgeson, Mitchell, & Liu, 2015, p. 521). Viewed in this light, contrast the typical day described above with a day where that employee's partner has an early meeting. Now she must adjust her morning activities to include walking the dog, making lunches, getting the kids to school, and driving to work instead of taking the train (and hopefully, not forgetting her coffee in the process). Her typical routine is disrupted, which necessitates that she devote her

energy to coping with an alternate set of morning events.

Overall, while many of our arguments in this paper may generalize to routine disruptions broadly, disruptions to employees' morning routines should be of particular importance to organizational functioning. Indeed, as should be clear from above, routine disruptions are a more proximal antecedent to work-outcomes than the events that precipitated them. For this reason, we feel the consequences of morning routine disruptions are deserving of greater scholarly attention. We thus turn to an examination of their energetic consequences through a CET lens.

A Cognitive Energetics Perspective on Routine Disruption

In proposing CET, Kruglanski et al. (2012) posit that goal attainment results from a "driving force." As the strength of this driving force increases, these authors write, so does goal attainment. This driving force is itself a duality composed of a *potential driving force*, or the energy an individual has available for goal pursuit, and an *effective driving force,* which captures the actual goal-directed expenditure of that energy. Because we are interested in how morning routine disruption affects the energy that employees devote to their work, this distinction between available and in-use energy aligns well with the study of routines and their disruption, as well as with other theories of energy (e.g., Quinn, Spreitzer, & Lam, 2012). CET's focus on how energy translates into goal achievement also aligns with popular writings on the benefits of routines, making CET an ideal framework on which to build a theory of routine disruption.

Recall that routines allow employees to automate daily activities, reducing the allocation of energy towards planning and sequencing those activities (Evans & Stanovich, 2013; Neal et al., 2013). Thus, when daily routines are intact, employees can preserve their energy to devote to other non-routinized work activities and the pursuit of their goals (e.g., Bargh, Chen, & Burrows, 1996). In the parlance of CET, having routines allows employees to maximize their potential

driving force, increasing their available energy to allocate toward daily work goals (Kruglanski et al., 2012). By contrast, when morning routines are disrupted, employees must expend energy on lower-order goals (i.e., addressing and adjusting to the disruption). That is, what was once routine and automated now requires energy expenditures, leaving less available for higher-order work goals. To this point, Louro, Pieters, and Zeelenberg (2007) showed that, when events occur that hinder goal attainment, individuals respond by allocating and expending energy on more proximal, person-centric goals and away from more distant goals. The net effect of this should be a reduction in energy availability for subsequent goal pursuit. As energy availability is a key component of the potential driving force (Kruglanski et al., 2012), routine disruptions should then curtail this force, hindering the pursuit of work goals. This blended process of energy expenditure and reduced energy availability should manifest cognitively and affectively.

In line with recent work (Christian et al., 2015; Lanaj et al., 2019), one way in which this expenditure of energy and commensurate diminished energy availability should manifest is through depletion (i.e. a lack of energy necessary for self-control; Milyavskaya & Inzlicht, 2017), which scholars have conceptualized as a largely cognitive construct (e.g., Lanaj et al., 2019). A point of consensus among scholars is that employees have limited cognitive capacity that can be applied toward daily activities (Austin & Vancouver, 1996; Baumeister, Bratslavsky, Muraven, & Tice, 1998; Kanfer & Ackerman, 1989). When engaged in well-worn routines, energy can be conserved for subsequent goals related to performance (e.g., Kluger & DeNisi, 1996). In cases of disruption, however, this energy must be allocated toward coping with an unfamiliar set of activities. Employees must therefore make tradeoffs, as allocating energy to one activity precludes its use on other activities. Thus, the increased demands caused by routine disruption may diminish the amount of energy available to the employee to invest in subsequent

goal-directed activities at work (Kruglanski et al., 2012; Lanaj et al., 2019; Muraven & Baumeister, 2000). In sum, when routines are disrupted, employees shift their energy allocation towards the disruption, which should lead to higher levels of depletion that day.

Hypothesis 1: Morning routine disruption is positively associated with daily depletion.

Moreover, extant treatments of energy (e.g., Quinn & Dutton, 2005; Quinn et al., 2012) suggest that the energetic consequences of routine disruptions can manifest affectively. To this point, scholars have long viewed cognitive and affective processes as existing in parallel (e.g., Forgas, 1995; Zajonc, 1980). Indeed, as Quinn et al. (2012) posit, individuals possess a single pool of energy with cognitive and affective indicators, rather than separate pools of affective and cognitive energy. This aligns with CET, as Kruglanski et al. (2012) suggest that the potential driving force refers to employees' capability to engage in both cognitive and affective pursuits.

Although theoretical perspectives on human energy indicate that routines and their disruption likely have affective consequences, the nature of this effect is unclear. One fundamental distinction in affect research involves the level of activation associated with emotions (e.g., Barrett & Russell, 1998; Russell, 1980; Watson & Tellegen, 1985). Activated positive emotions (i.e., active, alert) reflect an energetic, in-use state (Quinn et al., 2012 label this energetic activation), whereas deactivated positive emotions reflect a low-intensity state of calmness (Cropanzano, Weiss, Hale, & Reb, 2003; Tellegen, Watson, & Clark, 1999). Because routines are enacted repeatedly over time, the particular set of activities becomes normalized and familiar. Thus, when enacted, routines maintain the status quo, and therefore should be associated with a sense of calmness (Cropanzano et al., 2003; Tong, 2015). Employees in this state should have a higher willingness to invest energy in goal-directed pursuits (Quinn et al., 2012), due to their sense of comfort and perception that the status quo is intact (Fredrickson &

Levenson, 1998). Indeed, and as Fredrickson (1998) notes, feelings of calmness emerge "in situations appraised as safe and as having a high degree of certainty and a low degree of effort" (p. 306). Viewed in this way, calmness is an ideal match for the study of routines, which are marked by a predictable and consistent set of activities that minimizes energetic demands.

In support of the link between routines and calmness, Wood et al. (2002) posit that routinized behaviors are primarily associated with low-intensity positive emotions, and Sonnentag, Binnewies, and Mojza (2008) linked reduced demands to similar affective states (e.g., calmness). Yet when morning routines are disrupted, so too is that sense of calmness. Instead, employees may need to expend energy dealing with the immediate consequences of the disruption, which should be associated with a momentary increase in activation (Quinn et al., 2012). This moves the employee to a state of reduced calmness, and thus reduces the potential driving force by limiting the maximal amount of energy an employee has available for later expenditures (Kruglanski et al., 2012). In sum, when morning routines are disrupted, the morning does not unfold as it normally does, thus reducing an employee's level of calmness.

Hypothesis 2: Routine disruption is negatively associated with daily calmness.

Work Engagement

We turn now from the potential driving force to what Kruglanski et al. (2012) refer to as the "effective driving force," or the actual investment of energy in goal pursuit. Drawing from research on energy (Christian et al., 2015; Quinn et al., 2012) as well as CET, we conceptualize this investment of energy in goal-directed tasks as work engagement, or the "employment and expression of a person's 'preferred self' in task behaviors that promote connections to work and to others, personal presence (physical, cognitive, and emotional) and active, full role performances" (Kahn, 1990, p. 700). That is, just as Quinn et al. (2012) conceptualize available

(potential) energy as that which can be transformed through its use into an activated, energetic state, Kruglanski et al. (2012) similarly see a potential driving force as a precursor to the conversion of energy into a subsequent effective driving force. Work engagement, as an investment of available energy in daily tasks (Kahn, 1990), aligns well with this perspective; indeed, meta-analyses have shown that energetic resources positively influence engagement (Crawford, LePine, & Rich, 2010). Following from CET and our focus on daily routine disruption, when morning routines are disrupted, the cognitive and affective energetic indicators should have implications for subsequent work engagement.

With regard to cognition, being engaged requires an ability to shut out the various distractions that employees face on a daily basis. This necessitates self-control, a cognitive resource that requires energy to enact (Johnson, Muraven, Donaldson, & Lin, 2018). To the extent that employees lack energy (i.e., are depleted) as a result of routine disruption, they will likely have difficulty staying focused on their work tasks and will be less engaged at work as a result (Baumeister et al., 1998; Lanaj, Johnson, & Barnes, 2014; Uy, Lin, & Ilies, 2017).

Regarding affect, when employees experience calmness and have relatively few demands on their energy (Russell, 1980; Tellegen et al., 1999; Watson & Tellegen, 1985), they are more able to invest that energy in, and fully engage with, their work. Indeed, Ballinger and Schoorman (2007) argued that feelings of calmness are positively associated with motivation. Meanwhile, experience-sampling evidence suggests that increases in such positive affect help employees become engrossed in their work activities (Bledow, Schmitt, Frese, & Kühnel, 2011).

In sum, daily depletion and reduced calmness are indicators of reduced energy availability, which is key to work engagement (Kahn, 1990; Rich, Lepine, & Crawford, 2010). Following from CET, we expect employees to be less engaged at work on days when they have

less energy available, as represented by higher depletion and lower calmness.

Hypothesis 3: Daily depletion is negatively associated with work engagement.

Hypothesis 4: Daily calmness is positively associated with work engagement.

Finally, CET suggests that the aforementioned process aids goal attainment (Kruglanski et al., 2012). Specifically, Kruglanski and colleagues posit that goal attainment increases to the extent that individuals expend energy in pursuit of that goal; as the effective driving force increases, goal attainment increases. Given its motivational nature, work engagement should thus drive work goal attainment. In the context of the present research, we expect this to take the form of daily work goal progress, or the extent to which employees perceive that they have made progress toward, or accomplished, their goals at work (Wanberg, Zhu, & Van Hooft, 2010).

As an indicator of the effective driving force, engagement represents an employee's effort invested in accomplishing work goals (Ashforth & Humphrey, 1995; Rich et al., 2010), so by being engaged, employees devote their energy toward accomplishing tasks. Given this, higher levels of work engagement should produce tangible results at work, leading employees to feel a greater sense of accomplishment. Recent research supports this contention. For example, engagement in a domain tends to be associated with progress in that same domain (Jakubiak & Feeney, 2016). In addition, the allocation of energy away from core work duties is associated with reduced work goal progress (Koopman, Lanaj, & Scott, 2016). Thus, in line with CET, engagement in work tasks should be associated with goal progress on those tasks.

Hypothesis 5: Daily work engagement is positively associated with daily work goal progress.

Together, the preceding arguments suggest that morning routine disruption should have a negative indirect effect on daily goal progress through depletion and calmness and, in turn, work engagement. That is, on days when morning routines are disrupted, individuals should

experience higher levels of depletion and, consequently, lower levels of work engagement and subsequent wok goal progress. Meanwhile, on mornings with greater routine disruption, individuals should experience lower levels of calmness and work engagement.

Hypothesis 6: Routine disruption is negatively and indirectly associated with work-goal progress through a) depletion and work engagement and b) calmness and work engagement.

Overview of Studies

Our focus is on the workplace consequences of disruptions to employees' routines. In particular, we focus on morning routines due to their prevalence in the popular literature and their proximity to the start of the traditional workday. We conducted two experience sampling studies (ESM) to test our theory on the consequences of disruptions to daily employee morning routines. As an initial test of our theoretical model, we focused on a single element of morning routines and its disruption. Although the tendency to form routines is fundamental to human functioning, the specific content of a routine, or whether a particular activity is included in a morning routine, may vary across individuals. For this reason, in Study 1, we investigate the effects of routine disruptions by examining the strength of a person's tendency to incorporate a specific activity into their morning routine: drinking caffeinated coffee.

Prior research (Knight, Knight, Mitchell, & Zepp, 2004; Somogyi, 2010) and industry reports (National Coffee Association, 2017) highlight the prevalence of coffee consumption as a common morning routine. Indeed, the proportion of American adults who drink coffee daily is higher than the proportion who eat breakfast daily (Kellogg, 2011). Because the content of individuals' morning routines may vary, we use their general tendency to consume caffeinated coffee on a given day to indicate the strength of that particular morning routine element. In this way, for those who incorporate drinking caffeinate coffee into their morning routine, the disruption of that particular activity is indicative of a disruption to the broader morning routine.

While Study 1 offers a valuable initial investigation into our proposed effects, focusing on disruptions to a single morning routine element may fail to capture the breadth of employees' morning routines. Further, by focusing on caffeinated coffee in particular, Study 1 conflates physiological effects with our proposed energetic effects. Therefore, in Study 2, we broadened our operationalization of employees' morning routines in two distinct ways. In Study 2a, we used a checklist approach to examine the extent to which disruptions occurred to a broad array of morning activities (e.g., breakfast, hygiene, and commute). In Study 2b, we operationalized morning routine disruption using items asking participants whether their morning routines had been disrupted, performed in a different order, or otherwise disturbed.

Study 1: Method

We recruited 178 staff members from a large, Southern U.S. University (Texas A&M University IRB # 2017-0666; Title: "Effects on Employee Engagement"). After completing a one-time signup survey containing demographic variables, participants received three daily surveys for a four-week period, with the opportunity to earn up to $65 of Amazon credit based on the number of surveys they completed. Study 1 was conducted over two weeks in December of 2017 and two weeks in January of 2018; no surveys were completed during the University holiday break. Following Singer and Willett (2003), we retained data from those who completed at least three full days of surveys in order to provide sufficient within-person variance for analysis (Gabriel, Koopman, Rosen, & Johnson, 2018). We further restricted our data to exclude responses if participants did not work on the day the survey was completed.

Our final sample thus consisted of 161 participants and 2,307 complete responses (65.97% response rate). Of these participants, 125 were female (77.6%), and their average age was 41.0 years. This sample included a variety of staff jobs, including graphic designers,

academic advisors, financial aid advisors, and administrative coordinators. The first daily survey was sent as participants arrived for work each morning, the second during their lunch break, and the third just before they left work for the day.

Daily Within-Person Measures[1]

Morning routine disruption. As previously noted, one of the most common components of individuals' morning routines involves the consumption of caffeinated coffee (Somogyi, 2010). To operationalize the disruption of this routine, we first had to identify whether the activity was part of participants' morning routine in the first place, and then if so, whether that routine had been disrupted. To do this, each morning we asked participants whether they had consumed coffee before completing the survey (0 = drank coffee, 1 = did not drink coffee).

We treated the employee's tendency to drink coffee in the morning as an indicator of the strength of this morning routine element. We operationalized this with a mean transformation of the daily question about morning coffee consumption. We calculated the average number of days that participants reported consuming caffeinated coffee over the course of our study, which created a between-person variable reflecting how frequently the employee drank caffeinated coffee. Because ESM captures the "lived-through experience" (Weiss & Rupp, 2011, p. 87) and because our study exceeded the minimum recommended duration of two weeks to obtain a stable and generalizable picture of employees' daily life (Wheeler & Reis, 1991), this variable should adequately capture whether an employee's morning routine includes drinking caffeinated coffee.

We positioned this between-person variable as a moderator of the effect of daily coffee deprivation predicting depletion and calmness. We treat the resulting cross-level interaction as reflecting the disruption of participants' morning routine (i.e., indicating whether an employee

[1]Appendix A contains a list of all survey items across each study.

who typically drinks coffee in the morning has not yet done so).

Depletion. We measured depletion each morning with five items validated by Johnson, Lanaj, and Barnes (2014). An example item is "Right now, my mental energy is running low" (1 = not at all, 5 = very much). The daily range of reliability was .89 to .96, with an average reliability of .92.

Calmness. We measured daily calmness each morning with four items from Tellegen et al. (1999) and Cropanzano et al. (2003). We asked participants to report the extent to which they felt each emotion "right now" (1 = to a very small extent, 5 = to a very large extent). Example items are "calm" and "relaxed." Daily reliability ranged from .93 to .97, with an average of .96.

Work engagement. During the lunchtime survey, we asked participants to report their agreement with ten items adapted from Rich et al. (2010), referenced to the time elapsed since arriving at work that day. Example items include "Since arriving at work today, my mind was focused on the job" and "Since arriving at work today, I was energetic at my job" (1 = strongly disagree, 5 = strongly agree). The daily range of reliability was .88 to .93, with an average of .90.

Work goal progress. Work goal progress was captured each evening with three items drawn from Wanberg et al. (2010). Due to the array of job responsibilities in our sample, we used a generalized version of the scale, as modified by Koopman et al. (2016). We focused participants on the time since completing the prior (time 2) survey; an example item is "Since the prior survey, I have made good progress toward my work goals" (1 = strongly disagree, 5 = strongly agree). The daily range of reliability was .88 to .98, with an average of .95.

Control Variables

Although our final model included several control variables, our conclusions are the same with or without these variables. However, we retained them to present a conservative estimate of

our results (Becker, 2005). Appendix B shows the results of our analyses without these variables.

Tension. Prior research has highlighted that depletion may be associated with increased tension (Muraven & Baumeister, 2000). Further, a reduction in calmness may occur alongside an increase in tension (i.e. activated negative affect, located on the opposite side of the affect circumplex; Cropanzano et al., 2003; Russell, 1980). Thus, to focus on the effects of morning routine disruption through both depletion and calmness, and because tension could represent an alternative path linking routine disruption to engagement, we controlled for a path through tension using four items from Watson, Clark, and Tellegen (1988). Each morning, participants rated the degree to which four adjectives represented how they felt at that moment, including "nervous" and "distressed." Daily reliabilities ranged from .71 to .94, averaging .86.

Sleep. Sleep quality has been associated with caffeine consumption (Welsh, Ellis, Christian, & Mai, 2014) and has also been shown to influence depletion and regulatory processes (Barnes, Guarana, Nauman, & Kong, 2016). Therefore, each morning we asked participants to rate the quality of their sleep the night before with a single item (1 = very bad, 2 = fairly bad, 3 = neither bad nor good, 4 = fairly good, 5 = very good). Further, we also controlled for the actual number of hours participants reported that they slept the night before (Barnes et al., 2016).

Alternative sources of caffeine. Study 1 focuses on the routine-disrupting effects of missing one's morning coffee. But when this happens, employees may seek out other sources of coffee to "re-establish" their routine. We thus controlled for two potential sources of alternative caffeine: those consumed in the morning and those consumed later in the day. First, we controlled for whether participants consumed any of a number of potential drinks that morning (i.e., decaffeinated coffee, caffeinated tea, and decaffeinated tea), rather than caffeinated coffee. Second, because employees who miss their morning coffee may compensate with coffee later

that day, each afternoon during the lunchtime survey, we asked participants whether they had consumed caffeinated coffee since the morning survey.

Artifactual controls. Beal and Ghandour (2011) noted that daily states may exhibit cyclical patterns that present alternative explanations for observed relationships, and thus recommend three control variables: the day of the week and the sine and cosine of that day. In addition to these, we also account for linear trends by controlling for the day of the study. Finally, we controlled for lagged versions of all endogenous variables in our model (e.g., Scott & Barnes, 2011) to ensure that states and behaviors experienced one day are due to our variables of interest rather than those same states and behaviors the prior day.

Analysis

Due to our design, daily observations were nested within participants. To test our model, we used multilevel path analysis with Mplus 8 (Muthén & Muthén, 2017) to account for non-independence of observations and to test all effects simultaneously. We modeled hypothesized relationships with random slopes, and modeled our Level 1 controls with fixed slopes (Wang, Liao, Zhan, & Shi, 2011). Mean coffee-drinking tendency was modeled at Level 2. We group-mean centered all Level 1 predictors, with the exception of our binary independent variable (Nezlek, 2012; Peugh, 2010; West, Ryu, Kwok, & Cham, 2011), and grand-mean centered our Level 2 variable. To test our indirect effect hypotheses, we used parametric bootstrapping (Preacher, Zyphur, & Zhang, 2010) with 20,000 replications to construct 95% bias-corrected confidence intervals around each estimate, utilizing a tool developed by Selig and Preacher (2008) and supplemented by the suggestions of Efron (1987).

Before testing our model, we conducted a multilevel confirmatory factor analysis (CFA). Our model consists of six within-person variables—coffee deprivation, depletion, calmness,

work engagement, goal progress, and tension—and one between-person variable—mean coffee-drinking tendency. However, because coffee deprivation is a single binary item and our moderator is a transformation of that item, we excluded these variables from the CFA (Anderson & Gerbing, 1984; Brown, 2015). In addition, work engagement is a multidimensional construct consisting of three facets (Rich et al., 2010), so we modeled this as a second-order factor. The results of this model demonstrated adequate fit (χ^2 =840.81, *df* = 286, CFI = .98, RMSEA = .03, $SRMR_{Within}$ = .06). Using a series of Satorra-Bentler scaled chi-squared difference tests (Satorra & Bentler, 2001), we compared this model against two others: (1) a three-factor model which corresponds to each of the three daily surveys and (2) a one-factor model to account for single-source effects (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003; Podsakoff, MacKenzie, & Podsakoff, 2012). As shown in Table 1, our model fit better than each alternative.

Study 1: Results

Routine disruption (i.e., daily coffee deprivation), depletion, calmness, work engagement, and work-goal progress show 32%, 66%, 50%, 57%, and 71% within-person variance, respectively, all of which are sufficient to support the use of multilevel modeling (Podsakoff, Spoelma, Chawla, & Gabriel, 2019). Table 2 reports the means, standard deviations, and correlations among our study variables, with path-analytic results in Table 3.

Hypothesis 1 predicted that routine disruption is positively associated with depletion, which we test in the context of the effect of daily coffee deprivation and its interaction with the employee's general tendency to consume coffee each morning. As shown in Table 3, this interaction was significant (γ = .348, *p* = .038). In Figure 2, we depict the effect of coffee deprivation predicting depletion at high and low levels of general coffee drinking tendency. For those for whom drinking coffee was a stronger element of their morning routine (i.e., higher on

mean coffee drinking tendency), the effect of coffee deprivation on depletion was positive and significant ($\gamma = .210$, $p = .007$). However, the effect was not significant at low levels ($\gamma = -.076$, $p = .401$). Thus, Hypothesis 1 was supported.

Hypothesis 2 predicted a similar effect for calmness, with a negative effect at high levels of routinized coffee drinking. This interaction was significant ($\gamma = -.569$, $p = .018$). As Figure 3 shows, when coffee drinking is a strong element of the morning routine, the effect of coffee deprivation on feelings of calmness is negative and significant ($\gamma = -.297$, $p = .007$). However, this effect did not emerge at low levels ($\gamma = .172$, $p = .216$). These results support Hypothesis 2.

Hypothesis 3 predicted that depletion would negatively affect work engagement, while Hypothesis 4 predicted that daily calmness would positively influence work engagement. Both hypotheses found support, with depletion ($\gamma = -.136$, $p < .001$) and calmness ($\gamma = .062$, $p < .001$) each significantly predicting subsequent work engagement in the predicted directions. In addition, Hypothesis 5 posited that work engagement positively predicts goal progress, and this hypothesis was supported ($\gamma = .587$, $p < .001$).

Hypotheses 6a and 6b argued that routine disruption would exert an indirect effect on work goal progress through depletion and work engagement, as well as through calmness and work engagement, respectively. Based on our operationalization of routine disruption in Study 1, these indirect effects should be conditional on the degree to which drinking coffee is part of the morning routine, with each indirect effect being negative and significant only at high levels of routinization (i.e., mean coffee-drinking tendency). We tested these hypotheses using the suggestions of Preacher and colleagues (2007), calculating the value of each indirect effect at high (+1 SD) and low (-1 SD) values of the moderator (Cohen, Cohen, West, & Aiken, 2003). We then followed the procedures outlined by Selig and Preacher (2008) to build 95% bias-

corrected confidence intervals around these indirect effect estimates.

As Table 4 shows, the indirect effect of coffee deprivation on daily work goal progress, through depletion and work engagement, was negative and significant at high levels of coffee-drinking tendency (indirect effect = -.017, 95% CI [-.0342, -.0056]), but not at low levels (indirect effect = .006, 95% CI [-.0077, .0222]). The difference between these two conditional indirect effects was also significant, as the 95% bias-corrected confidence interval excluded zero (indirect effect difference = -.023, 95% CI [-.0520, -.0034]). These results suggest that morning routine disruption was negatively associated with work goal progress later that day, as transmitted by depletion and work engagement. Thus, Hypothesis 6a was supported.

Similarly, the indirect effect of coffee deprivation on goal progress, through calmness and work engagement, was negative and significant at high levels of coffee-drinking tendency (indirect effect = -.011, 95% CI [-.0246, -.0032]). This effect was not significant at low levels, however (indirect effect = .006, 95% CI [-.0026, .0202]). Finally, the difference between these two indirect effects was significant (indirect effect difference = -.017, 95% CI [-.0415, -.0038]). Thus, morning routine disruption was associated with reduced work goal progress through calmness and work engagement, supporting Hypothesis 6b.

Study 1: Discussion

Study 1 was designed to provide an initial test of our model and the proposed routine disruption effects in the context of a single, common morning routine element. Because not all individuals may have a caffeinated-coffee routine to disrupt, we treated their tendency to drink caffeinated coffee in the morning as an indicator of the strength of this morning routine element. Thus, we operationalized morning routine disruption as missing one's morning coffee for those with this general tendency. Consistent with our theory, Study 1 showed that for those for whom

drinking coffee is part of their routine (i.e., with a stronger tendency to consume caffeinated coffee), missing coffee on a given morning is associated with higher depletion and lower calmness. In turn, we found support for our proposed effects on workplace outcomes; depletion was negatively, and calmness positively, associated with work engagement, which was positively associated with work goal progress. Together, these results provide initial support for our model, suggesting that a disruption to one's routine yields negative effects at work.

Despite these encouraging results, Study 1 is not without limitations. First, although we focused on a common component of morning routines (i.e., coffee drinking), Study 1 neglected other elements of morning routines (e.g., eating breakfast, personal hygiene). Second, focusing on coffee as part of a morning routine conflates the routine-disrupting effects of missing morning coffee with physiological symptoms that result from caffeine dependence (American Psychiatric Association, 2013; Juliano, Evatt, Richards, & Griffiths, 2012; Juliano & Griffiths, 2004). Finally, our use of a person-level mean of coffee drinking as a proxy for a routine captures one behavior, rather than the nuances of a set of activities. This person-level mean, as a function of our independent variable, may be susceptible to bias due to survey response rates.

To address these shortcomings, provide additional evidence for our model, and expand our conceptualization of routine disruptions, we conducted a second ESM study. To capture the nature of morning routine disruptions as broadly as possible, we used two operationalizations of morning routine disruption: one focused on a comprehensive array of morning routine components, and the other focused on broadly capturing morning routine disruptions.

Study 2: Method

We initially recruited 130 staff members in 2019 from a large, Southern U.S. University (Texas A&M University IRB # 2019-0232; Title: "Understanding Daily Employee Experiences

and Behaviors"), each of whom nominated one coworker to also participate in this study. From the resulting pool of 256 enrolled participants, we randomly assigned participants to one of two operationalizations of morning routine disruption. All participants completed an enrollment survey and received three daily surveys for three weeks; participants could earn up to $70 of Amazon credit for their participation, based on the number of surveys completed. We retained data from participants who completed at least three full days of surveys, resulting in final samples of 106 participants (1,158 daily observations) in Study 2a, and 115 participants (1,259 daily observations) in Study 2b. For Study 2a, 92 were female (86.8%), and participants' average age was 38.2 years. In Study 2b, 89 were female (77.4%), and the average age of participants was 40.3 years. Similar to Study 1, participants in Study 2 occupied a variety of jobs, including IT manager, business coordinator, financial aid advisor, and administrative associate.

Measures

Unless otherwise noted, all variables were identical across the two forms of the study. Further, unless noted, a five point scale was used (1 = strongly disagree, 5 = strongly agree).

Morning routine disruption (Study 2a). To measure morning routine disruption in Study 2a, we generated a list of potential morning activities in which an individual may engage on a given day. To construct this taxonomy of morning routine activities, we drew from prior research on routines (Jensen, James, Boyce, & Hartnett, 1983; Piscitello et al., 2019; Sytsma et al., 2001; Zisberg et al., 2009). The final result was a list of twelve common morning routine components: "waking up," "breakfast," "drinking coffee,"[2] "personal hygiene," "catching up on the news," "commute to work," "taking care of pets," "taking care of kids," "checking email/phone," "exercising," "Internet activity/social media," and "spiritual activity."

[2] This item was caffeine-agnostic, in response to the limitations of Study 1, in order to help account for potential physiological effects associated with caffeine dependence.

To capture our conceptualization of routines as a consistent set of activities, in the morning survey, we asked participants whether each of these items had unfolded as it normally does, including in the same place, at the same time, in the same way, and with the same people. Participants responded with three options: 0 = same as normal, 1 = different than normal, and 2 = N/A. Because the "N/A" response indicates that participants do not engage in a given routine activity, we recoded those items as missing. We then took the mean of these twelve items to create a daily measure of morning routine disruption.

Morning routine disruption (Study 2b).[3] For our operationalization of morning routine disruption in Study 2b, we shifted from specifying discrete routine components to a broader approach. That is, given that routines are defined as repetitive, predictable patterns of behavior that occur in the same way and at the same time (Jensen et al., 1983; Piscitello et al., 2019; Sytsma et al., 2001), we developed four items to capture disruptions to the content of this definition. Each morning's survey asked participants the degree to which they agree with each of the following items: "So far this morning, my morning routines have been disrupted," "So far this morning, my morning has not gone according to plan," "So far this morning, my morning routines have been out of sequence," and "So far this morning, my morning routines have been inconsistent." Across days, the range of daily reliability was .86 to .96, with an average of .93.

We conducted a multilevel CFA to examine the extent to which these four items load onto a single latent factor. Results indicate that a single-factor model underlying these four items exhibited acceptable fit (χ^2 =4.75, *df* = 2, CFI = .99, RMSEA = .033, $SRMR_{Within}$ = .012).

[3] Appendix C details the specific construct validation steps taken, including results, for the development of this scale. Briefly, we utilized the four items discussed here in our original analyses. However, one anonymous reviewer raised valid concerns with two of these items (i.e., "So far this morning, my morning has not gone according to plan" and "So far this morning, my morning routines have been inconsistent"). Thus, we developed two alternative items and validated the full six-item scale. As reported in Appendix C, the correlation between the four-item scale and the revised scale was .91 ($p < .05$), indicating that our results are likely unaffected by the items used. However, we encourage future scholars to employ the full six-item scale as space allows.

Further, all items loaded significantly onto the hypothesized factor (i.e. .863, .734, .880, and .861 for items 1, 2, 3, and 4, respectively). These findings indicate that our daily routine disruption items are reflective of a common higher-order factor.

Depletion. We measured depletion in the morning survey using the same five items from Johnson et al. (2014) employed in Study 1. This scale's reliability ranged from .91 to .97, with an average of .94, for Study 2a, and .89 to .96, with an average of .93, for Study 2b.

Calmness. As in Study 1, we measured calmness each morning with four items from Tellegen et al. (1999) and Cropanzano et al. (2003). The range of reliability of this scale was .94 to .97, with an average of .95, for both Study 2a and Study 2b.

Work engagement. Work engagement was measured in the lunchtime survey with the ten items from Rich et al. (2010) used in Study 1. The range of reliability for Study 2a was .86 to .95, with an average of .92, whereas that for Study 2b was .87 to .94, with an average of .90.

Work goal progress. Each evening, we asked participants to rate the degree of progress they had made toward their work goals that day, using the same three items from Wanberg et al. (2010) used in Study 1. For Study 2a, the range of reliability for this scale was .90 to .99 with an average of .95. For Study 2b, the range of reliability was .91 to .99 with an average of .95.

Control Variables

As in Study 1, we controlled for several factors to better isolate our proposed effects and account for potential alternative explanations. Of note, although our conclusions remain the same with or without these variables, we retained them for a conservative test of our model (Becker, 2005). Appendix B shows our results without these variables for both Studies 2a and 2b.

First, we controlled for tension using four items from Watson et al. (1988), and accounted for a path through tension similar to Study 1. Daily reliabilities for this scale ranged from .87 to

.97 (average of .93) for Study 2a and from .44 to .94 (average of .72) for Study 2b. Second, we controlled for the quality of participants' sleep the prior night with four items (Jenkins, Stanton, Niemcryk, & Rose, 1988; Scott & Judge, 2006), as well as the number of hours slept the prior night. Finally, we controlled for the same temporal and artifactual controls as in Study 1: the day of the week and the sine and cosine of that day (Beal & Ghandour, 2011), the day of the study, and lagged versions of all endogenous variables.

A sole difference between Studies 2a and 2b is that in Study 2a we controlled for the number of "not applicable" (N/A) choices participants made with regard to their morning routine checklist. Employees who endorse fewer items as part of their routine, regardless of whether they unfolded as usual, may exhibit a different effect on our hypothesized outcome variables.

Analysis

We tested our hypotheses across Studies 2a and 2b using multilevel path modeling (Preacher et al., 2010) with Mplus 8 (Muthén & Muthén, 2017). Hypothesized relationships were modeled at Level 1 with random slopes. Our Level 1 controls were modeled with fixed slopes (Wang et al., 2011). We group-mean centered all exogenous Level 1 control variables. For our conditional indirect effect hypotheses, we used parametric bootstrapping (Preacher et al., 2010) with 20,000 replications and constructed 95% bias-corrected confidence intervals around each estimate (Selig & Preacher, 2008).

We also conducted a multilevel CFA for both Studies 2a and 2b. In both, our theoretical model includes six within-person variables: morning routine disruption, depletion, calmness, work engagement, goal progress, and tension. As in Study 1, we treated work engagement as multidimensional and consisting of three facets (Rich et al., 2010). Our hypothesized model demonstrated acceptable fit for Study 2a (χ^2 = 1468.42, *df* = 684, CFI = .95, RMSEA = .03,

$SRMR_{Within}$ = .06) and Study 2b (χ^2 = 1357.28, *df* = 416, CFI = .92, RMSEA = .04, $SRMR_{Within}$ = .06). We compared these models with three others, using the same Satorra-Bentler scaled chi-squared difference test employed in Study 1 (Satorra & Bentler, 2001): 1) a four-factor model considering depletion, calmness, and NA as common indicators of energy, 2) a three-factor model for the three daily surveys, and 3) a one-factor model to account for single-source effects. In each case, our hypothesized model fit better than the alternative (see Table 1).

Study 2a: Results

Routine disruption, depletion, calmness, work engagement, and work-goal progress showed 74%, 38%, 36%, 42%, and 67% within-person variance, respectively. Table 5 displays the correlations among study variables for Study 2a, while Table 6 shows path-analytic results. Hypothesis 1 posited that routine disruption would positively associate with depletion. As shown in Table 6, this hypothesis was supported (γ = .408, p < .001). Hypothesis 2 predicted a negative effect of routine disruption on calmness. This effect was significant and also in the expected direction (γ = -.661, p < .001), supporting Hypothesis 2. Hypotheses 3 and 4, which predicted depletion would negatively, and calmness positively, associate with work engagement, was also supported. Specifically, depletion was negatively (γ = -.111, p = .002), and calmness positively (γ = .065, p = .012), associated with work engagement. Hypothesis 5, which predicted a positive relationship between work engagement and goal progress, was supported (γ = .397, p < .001).

Finally, Hypothesis 6 posited that routine disruption would negatively and indirectly associate with work goal progress through depletion and work engagement (Hypothesis 6a) and through calmness and work engagement (Hypothesis 6b). As Table 7 shows, both of these predictions were supported. The indirect effects through depletion and work engagement (indirect effect = -.018, 95% CI [-.0410, -.0053]) and calmness and work engagement (indirect

effect = -.017, 95% CI [-.0380, -.0043]) were both negative and significant.

Study 2b: Results

Table 8 shows the correlations among variables for Study 2b, and Table 9 shows path-analytic results. Routine disruption, depletion, calmness, work engagement, and work-goal progress showed 73%, 51%, 30%, 40%, and 59% within-person variance, respectively.

The negative effect of routine disruption on depletion, predicted by Hypothesis 1, was supported ($\gamma = .060$, $p = .001$), as was Hypothesis 2, which predicted a negative effect of routine disruption on calmness ($\gamma = -.169$, $p < .001$). Hypothesis 3 predicted that depletion would negatively associate with work engagement, and this effect found support ($\gamma = -.100$, $p = .012$). Hypothesis 4 posited that calmness would positively predict work engagement. As Table 9 shows, this effect was supported ($\gamma = .106$, $p < .001$). Hypothesis 5 was also supported, as work engagement was positively associated with work goal progress ($\gamma = .296$, $p < .001$).

Finally, as Table 7 shows, the indirect effect of routine disruption on work goal progress through depletion and work engagement was negative and significant (indirect effect = -.002, 95% CI [-.0049, -.0003]). In addition, the indirect effect through calmness and work engagement was negative and significant (indirect effect = -.005, 95% CI [-.0102, -.0025]). Together, these results support Hypotheses 6a and 6b.

Study 2 Discussion

Study 2 was designed to replicate and extend our findings from Study 1 by generalizing our conceptualization and measurement of daily routine disruption in two distinct ways. First, we broadened our operationalization of routines from Study 1 by expanding the focus from drinking coffee to a comprehensive taxonomy of routine activities. In line with our initial findings, disruption to this expanded array of activities in Study 2a led to increased depletion and reduced

feelings of calmness. Meanwhile, in Study 2b, we operationalized daily routine disruption more generally, developing four items to capture the extent to which daily routines are disrupted. As in both Studies 1 and 2a, routine disruption exerted a positive effect on depletion and a negative effect on calmness. Finally, across both Studies 2a and 2b, the effects of depletion and calmness on work engagement, as well as the effect of work engagement on work goal progress, supported our hypotheses and aligned with results from Study 1. Of note, in Study 1, it was possible that not all participants had a routine that included drinking caffeinated-coffee. Therefore, we used the strength of that element of their routine (their general tendency to consume caffeinated coffee) as indicative of a routine that could be disrupted. By taking a broader approach to operationalizing routines and their disruption in Studies 2a/2b, the strength of routines was less germane (though, we return to this issue of routine strength in our discussion).

General Discussion

The morning routines of many accomplished individuals are well documented, creating conventional wisdom that morning routines foster daily productivity. However, researchers have been slow to examine the everyday routines of employees and what happens when these routines are disrupted. This is somewhat surprising, given that scholars have shown that on-the-job behavior is influenced by other activities outside of work, such as evening smartphone use (Lanaj et al., 2014), sexual activity (Leavitt, Barnes, Watkins, & Wagner, 2019), and sleep (Litwiller, Snyder, Taylor, & Steele, 2017). Indeed, the routines that employees enact each morning are more proximal to work, and these studies on non-work activities often neglect the structured, routinized patterns that underlie those activities. While prior research has highlighted that routines provide benefits to employees when formed, scholarship on the benefits of routines ignores a hidden cost—that routines are vulnerable to episodic disruption. That is, myriad events

with the potential to disrupt employees' morning routines occur every day. In short, the effects of routine disruptions, and the process by which those consequences manifest, are not well understood. Our goal was to shed light on this process.

To meet this aim, we used and extended CET (Kruglanski et al., 2012) to propose that morning routine disruption restricts employees' available energy, as represented by cognitive and affective indicators, which has negative effects on employee work engagement and goal progress that day. Specifically, when morning routines are disrupted, individuals devote less of their personal energy toward work goals. Results from two ESM studies, tested with three samples and operationalizations of daily routine disruptions, supported our predictions. In this way, we built and tested theory to explain why routine disruptions have pernicious consequences. As we describe below, by extending CET and applying it to routine disruptions, our theorizing and tests contribute to our understanding of the nature and consequences of employee routines, the dynamics of employee energy allocation, and the antecedents of employee engagement.

Contributions to the Routines Literature

In explicating and testing how routine disruption affects work goal progress, this research contributes to the burgeoning literature on routines. First, in introducing the routine disruption construct to the organizational sciences, and developing and validating a measure to that effect, the present research advances the routines literature by providing both conceptual and empirical clarity. As part of this effort, we specify an appropriate level of analysis for the study of routine disruption. While extant research has emphasized the positive effects of routine formation, the prevailing level of analysis for this work has been the between-person (e.g., Jamal, 1981; Jensen et al., 1983; Sytsma et al., 2001; Zisberg et al., 2009) or between-unit (e.g., Pentland & Hærem, 2015) level of analysis. Indeed, this level of analysis makes intuitive sense, as routines reflect an

oft-repeated set of activities or behaviors. Our findings advance this literature, which has ignored the possibility that routines can be disrupted on an episodic or daily basis. We thus expand the domain of the routines literature by studying the nature and consequences of routine disruptions, as well as by explicating a new level of analysis underlying their effects.

Second, we contribute to the study of routines by theoretically identifying the mechanisms underlying their effect—a key element of theory building (Whetten, 1989). That is, our examination of routine disruptions through the lens of CET indicates two mechanisms by which routine disruptions affect daily outcomes. Importantly, our results support our theorizing and provide evidence that routine disruptions reduce employee goal progress by way of cognitive and affective energy indicators (i.e., depletion and calmness), which each act on goal progress through work engagement. In identifying these mechanisms, we move beyond related research (Neal et al., 2013) by focusing on routine disruptions and their energetic implications.

Contributions to the Employee Engagement and Energy Literatures

This study also expands CET (Kruglanski et al., 2012) by clarifying how the potential driving force has both cognitive and affective indicators. CET's sole focus on cognitive energy underspecifies the nature of employee energy; indeed, management scholarship has used depletion as a sole indicator of the potential driving force (see Lanaj et al., 2019). In examining routines through CET, both cognitive and affective manifestations of the potential driving force emerge. In doing so, we build a stronger bridge between CET and other theories of energy that invoke affect (e.g., Quinn et al., 2012). In addition, these efforts also make CET better able to examine the energy-based predictors of employee engagement (Christian et al., 2015; Lanaj et al., 2019)—a multidimensional construct with an affective component.

We also contribute to the engagement literature by suggesting a new theoretical

antecedent—namely, morning routines. Most research on engagement focuses on the presence of work events and stimuli that reduce engagement (e.g., Christian, Garza, & Slaughter, 2011; Crawford et al., 2010; Lanaj et al., 2014; Sonnentag, Mojza, Demerouti, & Bakker, 2012). Here, we theoretically position routine disruptions as a factor that should impede work engagement, before providing evidence to that effect. Thus, whereas prior work has suggested avoiding specific negative stimuli to encourage work engagement (e.g., Lanaj et al., 2014), our results indicate that engagement may be affected not only by the stimuli and activities employees face, but also by the order and timing of those events. When the order and timing of the activities in employees' lives departs from their normal routines, engagement may suffer.

Post-hoc Theorizing Regarding Tension

Our theory building (drawn from CET) positions calmness as an energetic mechanism linking morning routine disruptions to subsequent engagement and goal progress at work—positing specifically that disruptions to routines should be associated with disruptions to feelings of calmness. Because disruptions to calmness might occur alongside increases in an activated negative state, we controlled for a variable that reflects this (i.e., tension) as a means of more precisely isolating our proposed effects. However, a reviewer compellingly suggested that tension is a potentially valid mechanism in its own right. Because we did not set out *a priori* to build this theory, in the spirit of transparently hypothesizing after results are known (Hollenbeck & Wright, 2017) and abductive theorizing (Mathieu, 2016), we develop *post-hoc* logic for this relationship, describe the empirical results, and discuss implications for future theory building.

We define tension as a form of high activation negative affect, existing at the opposite pole of the affect circumplex to calmness (Russell, 2003). The high level of activation associated with tension aligns with our theorizing via CET (Kruglanski et al., 2012); as an activated state,

tension may more directly capture the blended process of energy expenditure and reduced energy availability. In contrast, calmness may more indirectly reflect (the lack of) activation. That is, as a low activation state, calmness may indicate a situation in which there is no pressing need to otherwise expend energy. By inference, this suggests then that energy may be available for goal pursuit in the form of the potential driving force (Kruglanski et al., 2012).

However, the downstream link between tension and our operationalization for the effective driving force (work engagement) is more tenuous. Although CET may view tension as indicative of the potential driving force, and thus positively associated with work engagement (i.e. the effective driving force), extant empirical findings in this regard are somewhat mixed. For example, Bledow et al. (2011) and (Uy et al., 2017) found no support for the relationship between negative affective states such as tension and subsequent work engagement. In contrast, Parke, Weinhardt, Brodsky, Tangirala, and DeVoe (2018) did find a negative relationship between negative affective states and work engagement. Thus, the findings of research linking tension to work engagement are mixed.

As it pertains to Study 1, we found no effect of missing caffeinated-coffee on tension for those with a strong tendency to consume this beverage in the morning ($\gamma = .013$, $p = .910$). Likewise, the relationship between tension and subsequent work engagement was not significant in Study 1 ($\gamma = -.055$, $p = .109$). However, for Study 2a ($\gamma = .148$, $p = .034$) and 2b ($\gamma = .056$, $p < .001$), morning routine disruptions did significantly and positively influence tension. Yet, in line with results from Study 1 and some extant research, tension failed to relate to work engagement in either Study 2a ($\gamma = -.020$, $p = .686$) or Study 2b ($\gamma = -.061$, $p = .448$).

In sum, our findings paint a mixed picture regarding the effect of morning routine disruptions on tension. While Studies 2a and 2b provide evidence that morning routine

disruptions relate to tension, Study 1 failed to provide such support. Importantly, the operationalizations for Studies 2a and 2b are more comprehensive than that of Study 1, and so we are inclined to interpret this as generally supportive of our post-hoc theorizing. However, we found no support for a link between tension and daily work engagement. Thus, it is difficult to fully view tension through the lens of CET, at least as it regards our specific model. It could be, however, that tension may better serve as a mechanism linking morning routine disruptions with other, more negative, workplace outcomes due to tension's negative valence (Russell, 2003). For instance, increased tension as a result of a morning routine disruption may lead employees to engage in withdrawal behaviors rather than increased work engagement; indeed, Bruning and Campion (2018) distinguished low engagement and withdrawal, with the latter involving "distancing oneself from the work or an element of the work" "as individuals avoid undesirable aspects of the job" (p. 503). Viewed in this light, morning routine disruptions may lead to an increased expenditure of energy (i.e., tension) that leads employees to avoid undesirable, energetically-taxing elements of their job later that day. Alternatively, tension, as an activated negative affective state, may relate to negative, counterproductive workplace behaviors. We encourage future research to continue to extend this reasoning.

Practical Implications

Our theorizing and the findings of the three tests of our model have multiple implications for employees and managers. First, our paper indicates that maintaining employee routines is critical. Thus, it is in the best interests of organizations to avoid disrupting those routines. As our research suggests, the result may be employees who are less energetic, less engaged, and make less progress toward their goals at work. To that end, while managers may help or encourage employees to form routines, they should be aware that those routines are subject to disruption

and should therefore take steps to maintain those routines where possible.

Second, although employees' pre-work routines are largely out of managers' control, it is not uncommon for managers or coworkers to electronically communicate with employees during non-work hours (Stokel-Walker, 2018; Thomas, 2015). Our findings suggest that if this contact disrupts their employees' routines, it could have deleterious consequences for engagement and goal progress back in the office. Managers should be mindful, then, that such contact could do more damage than good if it disrupts employees' routines. That is, any benefit associated with contacting employees during non-work hours may be negated if it disrupts employees' non-work routines or prevents them from forming routines in the first place. Our results also suggest that employees should either build time into their morning routine for work-related matters, or avoid looking at unexpected emails and other work-related communication until they arrive at work.

Finally, our results indicate that the ramifications of morning routine disruptions ripple through the rest of the workday. However, our research identifies a pair of levers that managers can pull to mitigate this effect. Specifically, managers may find value in taking actions to either reduce depletion or restore calmness following potential routine disruptions; indeed, recent work indicates that workplace breaks (Trougakos, Hideg, Cheng, & Beal, 2014) and self-reflection (Lanaj et al., 2019) can reduce depletion and improve calmness (Bono, Glomb, Shen, Kim, & Koch, 2013). For this reason, if managers become aware of an employee whose morning has been disrupted by factors such as a sick child or missed coffee, they may want to employ remedies noted above to supplement the energy lost from the disrupted routine (e.g., Klotz & Bolino, in press). Alternatively, managers could establish some morning workplace routine, such as a morning breakfast meeting, as a way of (re)establishing some degree of routinization to their employees' day.

Limitations and Future Directions

Although our work has several strengths, including our theoretical grounding in CET, use of multiple studies, large sample sizes, and multiple operationalizations of daily routines, it is not without limitations. First, within each study, all data were collected from a single source, which creates a potential common source threat (Podsakoff et al., 2012). Although we believe that each construct in our model can be assessed in a valid manner by the focal employee, we nonetheless took steps to minimize this issue further, including controls for lagged versions of all endogenous variables, group-mean centering predictor variables, and temporally separating stages of our model. Regarding temporal separation, we measured daily routine disruption, calmness, and depletion at the same time each day across both studies. This was a theoretical decision, as our interest was in experiences and feelings at the beginning of each workday. However, we did take care to specify appropriate periods for each measure. For routine disruption, our measures were keyed to experiences prior to that survey, whereas the depletion and calmness measures asked how participants felt "right now." Future research may benefit from examining the temporal effects of routine disruption, including the time over which it exerts its effects (McClean, Barnes, Courtright, & Johnson, 2019).

Second, our study participants were all university employees, albeit with a variety of occupations with different job requirements. Other contexts may amplify or mitigate the effects of routine disruption. For example, a technology firm with flexible work schedules may foster less rigid morning routines that are, in turn, more resistant to disruption. Moreover, the variety of occupations in our sample precluded us from focusing on job-specific effects; for example, supervisors may be more or less susceptible to routine disruptions, given their higher levels of challenging job requirements and stressors (e.g., Courtright, Colbert, & Choi, 2014). Future

research may thus benefit from teasing apart the effects of job-specific routine disruptions.

Third, our measure of routine disruption in Study 2a, as a checklist of common morning activities, may be incomplete. While this measure covers a broad array of common morning routine elements, we recommend future research consider other morning activities that may serve as components of employees' morning routines. Similarly, this measure was unable to fully capture the sequential nature of morning routines. While we did ask participants to reflect on the timing of their activities, and items in our Study 2b scale did broach the topic of sequence, future research should more carefully consider the sequence in which morning activities occur.

A fourth limitation of our research pertains to our energetic indicators. While depletion a directly reflects energy expenditure and availability for deployment (Baumeister et al., 1998; Muraven, Tice, & Baumeister, 1998), calmness is a more indirect reflection of the same. Thus, reduced calmness may reflect increased activation and corresponding deployments of energy to address the disruption. While we believe that calmness provides important information about energy availability, our abductive discussion hints at a more direct affective reflection of energy availability—tension. We suggest future scholars examine different measures of affect in order to capture a more nuanced view of affect and energy. For example, Gee, Ballard, Yeo, and Neal (2012) developed a measure of momentary affect that separately measures energetic and tense arousal; adopting this measure may be a fruitful way for researchers to more directly capture our proposed energetic effects and affective activation, while more clearly delineating between calmness and tension.

Finally, our initial investigation of routines left open the possibility that routine disruptions may differentially impact employees with stronger morning routines. However, while Study 1 did account for the extent to which a single activity was incorporated into employees'

morning routines (i.e., the strength of incorporation into their routine), we did not explicitly consider that some employees have stronger or weaker morning routines in general. Indeed, while Study 2a did consider the number of checklist items not included in participants' routines (i.e., "N/A" choices), this may best represent routine variety rather than routine strength. Further pursuant to this point, our measure of routine disruption in Study 2b may potentially conflate routine strength and disruption severity. Given that questions remain regarding routine strength, we encourage future research to more directly its effects.

Our findings also point to several other potentially fruitful inquiries into the nature and consequences of employee routine disruptions. First, some individuals may be more affected by routine disruptions than others. For example, conscientious or neurotic individuals, or those with a high need for structure, may be more strongly influenced by daily routine disruption than those who are emotionally stable or do not value structure. Examining such moderators would be a meaningful extension to the theory we build here. Second, the type of disruption may influence the effects of disruption on employees. For example, waking up late, which introduces a serious time constraint, may have more deleterious effects on the workday than skipping a less important component of a morning routine, such as checking social media. Future research may find value in examining different routinized activities and how they influence work outcomes.

In addition, while we delineated between the existence and disruption of routines, we urge scholars to examine whether it is more beneficial to have or form a routine—thus realizing the energy-saving implications of such a routine—and have it occasionally disrupted, or whether it is more beneficial to not have a routine and not suffer the consequences of its disruption. Indeed, our Study 1 offers some initial insight into this question; supplemental tests of our data indicate that there is no statistical difference between these two options with regard to either

depletion (effect difference = -.038, p = .744) or calmness (effect difference = .197, p = .288). This suggests no advantage to avoid forming routines, relative to forming routines and having them disrupted. However, we urge scholars to investigate this potential effect in greater detail.

Further, we recommend future scholars consider the antecedents of morning routine disruptions. Although we discussed a number of reasons why a routine may be disrupted on a given morning, a deeper understanding of these antecedent factors—and the strength of their effect—may be a valuable extension of the our research. Finally, although we emphasized the negative implications of routine disruptions, such disruptions may have positive effects as well. For example, some employees' morning routines involve harmful activities, such as smoking or scrolling through social media, and the benefit associated with skipping them may outweigh the downsides of routine disruption. Examining more deeply the valence of the activities within routines, and the effects of their disruption, is an important next step in this line of inquiry.

Conclusion

Practical advice has long highlighted the virtues of starting the day with a morning routine. However, such common wisdom, as well as research on personal routines, has neglected routines' susceptibility to disruption; this paper offers an initial glimpse into such disruptions. By drawing upon and testing a theory of human energy at work in the context of routine disruption, our results suggest that daily routine disruption impedes work engagement and goal progress. Based on these findings, organizations aiming to influence employee engagement and goal progress may do well to help employees develop, maintain, and protect their individual routines, both prior to entering the workplace for the day as well as in the workplace itself.

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Table 1

Multilevel Confirmatory Factor Analyses

	$\chi 2$	df	CFI	RMSEA	SRMR	$\Delta \chi 2$	Scaling Correction Factor
Study 1 (Level 1, N=2,307; Level 2, N=161)							
Five Factor Model [a]	840.81	286	0.98	0.03	0.06		1.5280
Three Factor Model [b]	7570.53	293	0.69	0.10	0.12	6729.72*	1.6683
One Factor Model [c]	19972.28	299	0.17	0.17	0.22	19131.47*	1.6810
Study 2a (Level 1, N=1,158; Level 2, N=106)							
Six Factor Model [d]	1468.42	684	0.95	0.03	0.06		1.3148
Four Factor Model [e]	6034.81	693	0.64	0.08	0.09	4566.39*	1.3312
Three Factor Model [f]	6406.28	696	0.62	0.08	0.10	4937.86*	1.3499
One Factor Model [g]	13123.35	702	0.17	0.12	0.16	11654.93*	1.4210
Study 2b (Level 1, N=1,259; Level 2, N=115)							
Six Factor Model [d]	1357.28	416	0.92	0.04	0.06		1.5012
Four Factor Model [e]	4645.45	425	0.66	0.09	0.12	3288.18*	1.7206
Three Factor Model [f]	6191.04	428	0.54	0.10	0.13	4833.77*	1.8198
One Factor Model [g]	10688.57	434	0.18	0.14	0.19	9331.29*	2.0057

[a] (1) Depletion, (2) Calmness, (3) Tension, (4) Engagement, (5) Goal Progress

[b] (1) Depletion, Calmness, Tension, (2) Engagement, (3) Goal Progress

[c] (1) Depletion, Calmness, Tension, Engagement, Goal Progress

[d] (1) Routine Disruption, (2) Depletion, (3) Calmness, (4) Tension, (5) Engagement, (6) Goal Progress

[e] (1) Routine Disruption, (2) Depletion, Calmness, Tension, (3) Engagement, (4) Goal Progress

[f] (1) Routine Disruption, Depletion, Calmness, Tension, (2) Engagement, (3) Goal Progress

[g] (1) Routine Disruption, Depletion, Calmness, Tension, Daily Engagement, Goal Progress

Table 2

Descriptive Statistics and Correlations among Study Variables (Study 1)

Variable	Mean	SD	1	2	3	4	5	6
Level 1								
1. Coffee Routine Disruption	0.57	.49						
2. Depletion	1.63	.79	.05*					
3. Calmness	3.27	1.15	-.05*	-.37*				
4. Tension	1.26	.55	.02	.32*	-.33*			
5. Work Engagement	3.86	.74	-.03	-.21*	.15*	-.14*		
6. Goal Progress	4.11	.86	-.01	-.09*	.04	-.09*	.33*	
Level 2								
7. Coffee Routine Strength	0.44	.41	-	-.12	-.04	-.01	-.04	.08

Note: Level 1 variables are aggregated when showing estimates with between-person Level 2 variables. For this reason, the correlation between mean coffee consumption and daily coffee deprivation is not reported, as the Level 2 version is a transformation of the Level 1 variable.

* $p < .05$

Table 3
Daily Path Analytic Results (Study 1)

	Daily Outcome Variable									
	Depletion		Calmness		Tension		Work Engagement		Goal Progress	
Predictor	*γ*	*SE*	*γ*	*SE*	*γ*	*SE*	*γ*	*SE*	*γ*	*SE*
Control Variables										
Study Day	-.001	(.001)	.000	(.002)	.001	(.001)	.005*	(.001)	.001	(.002)
Weekday	-.037*	(.018)	.036	(.025)	-.048*	(.015)	.003	(.018)	-.066*	(.026)
Weekday (sine)	-.024	(.026)	.059	(.031)	-.036*	(.018)	.010	(.025)	-.049	(.036)
Weekday (cosine)	.048*	(.024)	-.060	(.031)	.047*	(.020)	-.004	(.022)	.066*	(.029)
Sleep Quality	-.301*	(.024)	.271*	(.027)	-.089*	(.016)	-.017	(.015)	.000	(.024)
Sleep Quantity (hours)	-.053*	(.017)	.012	(.019)	.014	(.012)	.020	(.014)	-.014	(.019)
Decaffeinated Coffee	-.243	(.250)	.214	(.300)	.441	(.338)	.024	(.101)	.027	(.149)
Caffeinated Tea	.169	(.097)	-.184	(.131)	.017	(.046)	-.113	(.073)	.075	(.114)
Decaffeinated Tea	.119	(.230)	.239*	(.119)	-.159*	(.075)	.028	(.150)	-.236	(.184)
Afternoon Coffee Consumption							.003	(.036)	-.027	(.041)
Lagged Depletion	.118*	(.036)								
Lagged Calmness			.131*	(.029)						
Lagged Tension					.142*	(.032)				
Lagged Work Engagement							.158*	(.036)		
Lagged Goal Progress									.035	(.045)
Study Variables										
Coffee Routine Disruption	.067	(.049)	-.062	(.077)	.018	(.041)	-.018	(.038)	-.046	(.048)
Routine Strength	-.209	(.134)	.122	(.214)	.002	(.088)				
Disruption x Strength	.348*	(.167)	-.569*	(.242)	.013	(.119)				
Depletion							-.136*	(.026)	-.009	(.033)
Calmness							.062*	(.018)	-.033	(.022)
Tension							-.055	(.034)	-.082*	(.038)
Work Engagement									.587*	(.078)
Intercept	1.654*	(.058)	3.244*	(.091)	1.228*	(.040)	3.876*	(.105)	2.096*	(.308)
Pseudo R^2 (interaction term)	.09		.39		.36					
Pseudo R^2 (overall)	.25		.13		.07		.12		.12	

*$p < .05$
Notes: Pseudo R^2 for the interaction term reflects variance explained on the random slope, beyond a model excluding the interaction term.

Table 4
Summary of Hypothesized Indirect Effects (Study 1)

Hypothesized Conditional Indirect Effect Path	Indirect Effect
1. Coffee Routine Disruption → Depletion → Work Engagement → Goal Progress	
Routine Strength	
High (+1 SD)	**-.017 [-.0342, -.0056]**
Low (-1 SD)	.006 [-.0077, .0222]
Difference	**-.023 [-.0520, -.0034]**
2. Coffee Routine Disruption → Calmness → Work Engagement → Goal Progress	
Routine Strength	
High (+1 SD)	**-.011 [-.0246, -.0032]**
Low (-1 SD)	.006 [-.0026, .0202]
Difference	**-.017 [-.0415, -.0038]**

Notes: Unstandardized coefficients are reported. Moderated mediation is supported when the confidence interval (CI) of the difference between two indirect effects for a given moderator excludes zero (Preacher et al., 2007). Indirect effects in boldface indicate effects significant at the 95% level (95% bias-corrected CI shown).

Table 5

Descriptive Statistics and Correlations among Study Variables (Study 2a)

Variable	Mean	SD	1	2	3	4	5
Level 1							
1. Morning Routine Disruption	0.13	.18					
2. Depletion	1.64	.89	.15*				
3. Calmness	3.11	1.24	-.16*	-.34*			
4. Tension	1.23	.64	.10*	.39*	-.25*		
5. Work Engagement	3.59	.84	-.05	-.12*	.08*	-.06*	
6. Goal Progress	4.07	.91	-.02	-.07*	.03	-.04	.26*

* $p < .05$

Table 6

Daily Path Analytic Results (Study 2a)

	Daily Outcome Variable									
	Depletion		Calmness		Tension		Work Engagement		Goal Progress	
Predictor	*γ*	*SE*	*γ*	*SE*	*γ*	*SE*	*γ*	*SE*	*γ*	*SE*
Control Variables										
Study Day	-.008*	(.003)	-.005	(.005)	-.003	(.003)	.001	(.003)	-.007	(.005)
Weekday	-.005	(.019)	.002	(.027)	.012	(.016)	.006	(.021)	-.082*	(.031)
Weekday (sine)	.001	(.031)	.026	(.044)	.023	(.026)	-.011	(.036)	-.102*	(.048)
Weekday (cosine)	-.009	(.028)	.105*	(.036)	-.046*	(.022)	-.062*	(.029)	.013	(.038)
Sleep Quality	-.227*	(.035)	.206*	(.051)	-.082*	(.030)	-.035	(.031)	-.025	(.035)
Sleep Quantity (hours)	-.048*	(.024)	.037	(.026)	.001	(.015)	.009	(.015)	-.024	(.031)
N/A Checklist Choices (count)	-.758*	(.307)	-.256	(.376)	-.620*	(.315)	.308	(.309)	-.107	(.383)
Lagged Depletion	.002	(.037)								
Lagged Calmness			.083	(.046)						
Lagged Tension					.137	(.108)				
Lagged Work Engagement							.115*	(.046)		
Lagged Goal Progress									.025	(.044)
Study Variables										
Routine Disruption	.408*	(.113)	-.661*	(.148)	.148*	(.070)	-.087	(.132)	.017	(.188)
Depletion							-.111*	(.035)	-.060	(.044)
Calmness							.065*	(.026)	.012	(.029)
Tension							-.020	(.049)	-.008	(.091)
Work Engagement									.397*	(.047)
Intercept	1.730*	(.092)	3.136*	(.123)	1.218*	(.063)	3.572*	(.135)	3.031*	(.274)
Pseudo R^2	.17		.10		.09		.07		.10	

*$p < .05$

Table 7
Summary of Hypothesized Indirect Effects (Studies 2a & 2b)

Hypothesized Conditional Indirect Effect Path	Indirect Effect
Study 2a	
1. Routine Disruption → Depletion → Work Engagement → Goal Progress	**-.018 [-.0410, -.0053]**
2. Routine Disruption → Calmness → Work Engagement → Goal Progress	**-.017 [-.0380, -.0043]**
Study 2b	
1. Routine Disruption → Depletion → Work Engagement → Goal Progress	**-.002 [-.0049, -.0003]**
2. Routine Disruption → Calmness → Work Engagement → Goal Progress	**-.005 [-.0102, -.0025]**

Notes: Unstandardized coefficients are reported. Moderated mediation is supported when the confidence interval (CI) of the difference between two indirect effects for a given moderator excludes zero (Preacher et al., 2007). Indirect effects in boldface indicate effects significant at the 95% level (95% bias-corrected CI shown).

Table 8
Descriptive Statistics and Correlations among Study Variables (Study 2b)

Variable	Mean	SD	1	2	3	4	5
Level 1							
1. Routine Disruption	1.66	.97					
2. Depletion	1.46	.74	.14*				
3. Calmness	3.28	1.27	-.22*	-.32*			
4. Tension	1.10	.29	.19*	.25*	-.18*		
5. Work Engagement	3.66	.80	-.05*	-.16*	.15*	-.08*	
6. Goal Progress	4.12	.85	-.06*	-.06*	.04	.03	.17*

* $p < .05$

Table 9
Daily Path Analytic Results (Study 2b)

	Daily Outcome Variable									
	Depletion		Calmness		Tension		Work Engagement		Goal Progress	
Predictor	*γ*	*SE*	*γ*	*SE*	*γ*	*SE*	*γ*	*SE*	*γ*	*SE*
Control Variables										
Study Day	-.006*	(.003)	.002	(.004)	-.001	(.001)	-.004	(.003)	-.005	(.004)
Weekday	-.022	(.019)	.025	(.028)	-.010	(.007)	-.012	(.020)	-.079*	(.030)
Weekday (sine)	-.049	(.030)	.043	(.047)	-.020	(.012)	-.017	(.030)	-.125*	(.051)
Weekday (cosine)	.047	(.027)	-.045	(.035)	.011	(.012)	-.002	(.025)	-.024	(.029)
Sleep Quality	-.247*	(.030)	.174*	(.038)	-.041*	(.013)	.020	(.031)	.015	(.034)
Sleep Quantity (hours)	-.050*	(.024)	.065*	(.026)	.009	(.009)	-.006	(.019)	-.007	(.030)
Lagged Depletion	.053	(.044)								
Lagged Calmness			.141*	(.051)						
Lagged Tension					-.009	(.086)				
Lagged Work Engagement							.140*	(.040)		
Lagged Goal Progress									.042	(.053)
Study Variables										
Routine Disruption	.060*	(.018)	-.169*	(.027)	.056*	(.013)	.010	(.018)	.027	(.026)
Depletion							-.100*	(.040)	-.062	(.058)
Calmness							.106*	(.026)	.061	(.040)
Tension							-.061	(.080)	.154	(.089)
Work Engagement									.296*	(.053)
Intercept	1.595*	(.085)	3.164*	(.127)	1.139*	(.033)	3.597*	(.168)	2.994*	(.302)
Pseudo R^2	.15		.14		.11		.11		.08	

*$p < .05$

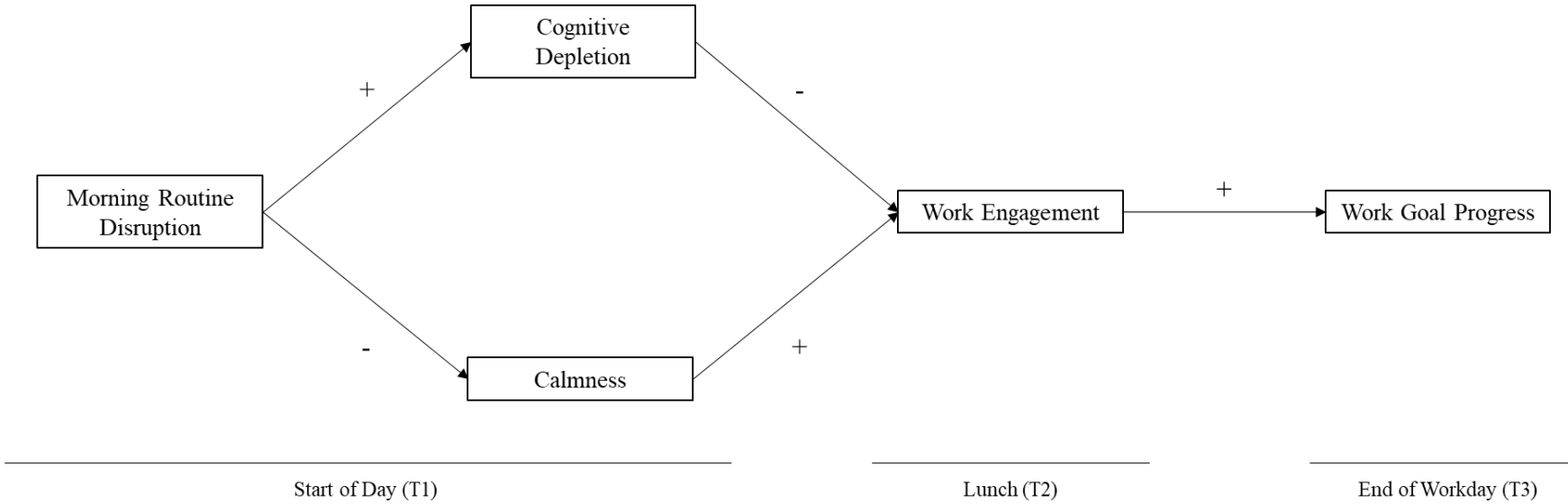

Figure 1. Conceptual model.

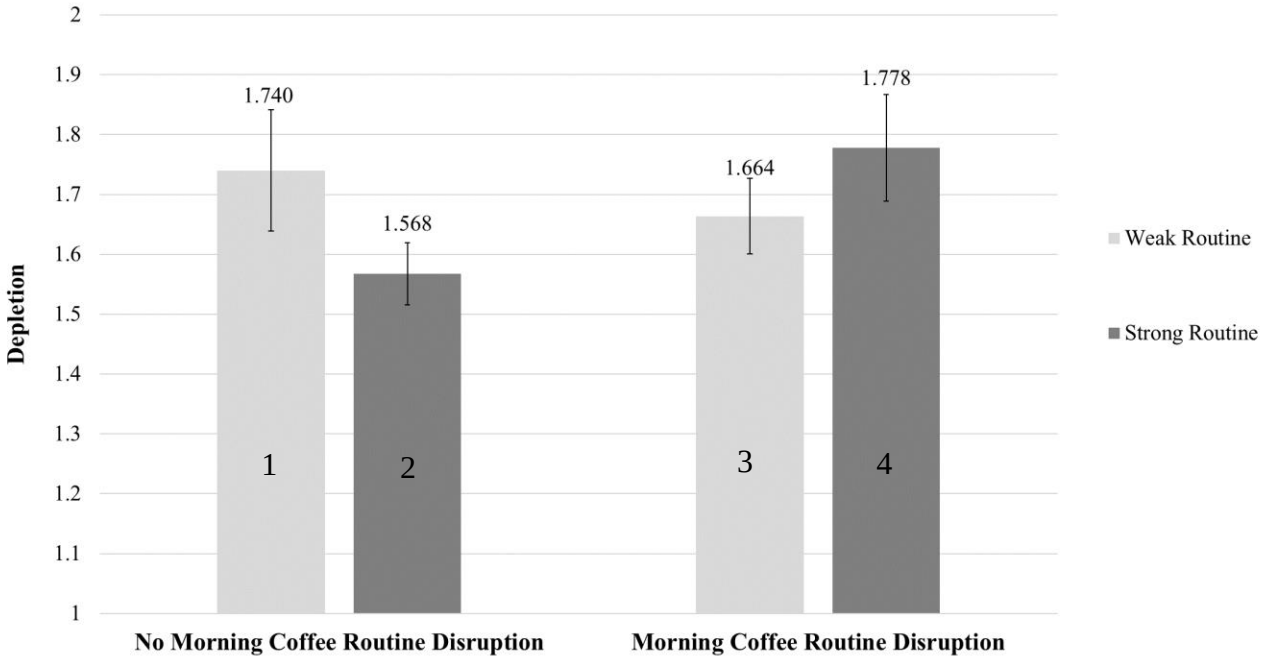

Figure 2. Moderating effect of routine strength on the relationship between morning coffee routine disruption and depletion (Study 1).

Effect of morning coffee routine disruption on depletion for weak routine (difference between bars 1 and 3): $\gamma = -.076$, $p = .40$.
Effect of morning coffee routine disruption on depletion for strong routine (difference between bars 2 and 4): $\gamma = .210$, $p < .05$.

Effect of routine strength on depletion for no morning coffee routine disruption (difference between bars 1 and 2): $\gamma = .172$, $p = .12$.
Effect of routine strength on depletion for morning coffee routine disruption (difference between bars 3 and 4): $\gamma = -.115$ $p = .30$.

Comparison between routine disruption versus non-disrupted lack of routine (difference between bars 1 and 4): $\gamma = -.038$, $p = .74$.

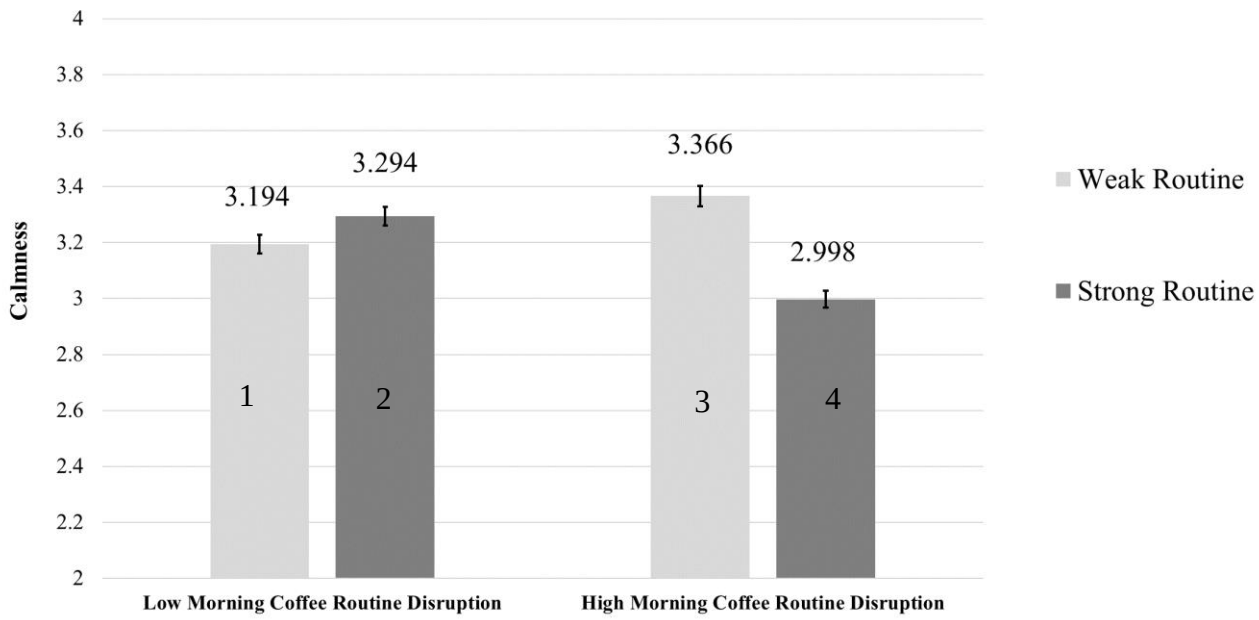

Figure 3. Moderating effect of routine strength on the relationship between morning coffee routine disruption and calmness (Study 1).

Effect of morning coffee routine disruption on calmness for weak routine (difference between bars 1 and 3): $\gamma = .172$, $p = .22$.
Effect of morning coffee routine disruption on calmness for strong routine (difference between bars 2 and 4): $\gamma = -.297$, $p < .05$.

Effect of routine strength on calmness for no morning coffee routine disruption (difference between bars 1 and 2): $\gamma = -.100$, $p = .57$.
Effect of routine strength on calmness for morning coffee routine disruption (difference between bars 3 and 4): $\gamma = .369$ $p < .05$.

Comparison between routine disruption versus non-disrupted lack of routine (difference between bars 1 and 4): $\gamma = .197$, $p = .29$.

Appendix A: Survey Items for Included Studies

Study 1

Daily Coffee Deprivation (morning survey)

"Have you had any of the following to drink so far today?"

1. Coffee – caffeinated
2. Coffee – decaffeinated
3. Tea – caffeinated
4. Tea – decaffeinated

Daily Depletion (morning survey) (adapted from Twenge, Muraven, & Tice, 2004)

"Please indicate how well the following statements capture how you feel right now:"

1. I feel drained right now
2. My mind feels unfocused right now
3. My mental energy is running low
4. I feel like my willpower is gone
5. It would take a lot of effort for me to concentrate on something

Daily Calmness (morning survey) (adapted from Cropanzano et al., 2003; Tellegen et al., 1999)

"Below are words that describe different feelings and emotions. Please indicate the extent to which you feel each of the following right now:"

1. At ease
2. Calm
3. Relaxed
4. Serene

Daily Tension (morning survey – control variable) (adapted from Watson et al., 1988)

"Below are words that describe different feelings and emotions. Please indicate the extent to which you feel each of the following right now:"

1. Afraid
2. Upset
3. Nervous
4. Distressed

Daily Work Engagement (lunchtime survey) (adapted from Rich et al., 2010)

"Please indicate your agreement with each of the following statements. Since arriving at work today…"

1. I concentrated completely on my job (cognitive)
2. My mind was focused on the job (cognitive)
3. I focused a great deal of attention on my job (cognitive)
4. I felt absorbed by my job (cognitive)
5. I was enthusiastic in my job (affective)
6. I felt energetic at my job (affective)
7. I was excited about my job (affective)

8. I felt positive about my job (affective)
9. I strived as hard as I could to complete my job (physical)
10. I exerted a lot of energy on my job (physical)

Daily Goal Progress (evening survey) (adapted from Wanberg et al., 2010)
"Please indicate your agreement with each of the following statements. Since the prior survey…"

1. I have been productive
2. I have made good progress on my work goals
3. I have moved forward on my work goals

Study 2 (only scales that differ from Study 1 are included below)
Morning Routine (morning survey) (Study 2a)
"Below are a number of activities that you may or may not do in the morning. For each, please think about this morning so far, and then indicate whether or not each has unfolded (e.g., happened in the same physical location, at the same time, in the same way, with the same people, etc.) as they normally do."

1. Waking up
2. Breakfast
3. Drinking coffee
4. Personal hygiene
5. Catching up on the news
6. Commute to work
7. Taking care of pets
8. Taking care of kids
9. Checking email/phone
10. Exercising
11. Internet activity/social media
12. Spiritual activity

Morning Routine (morning survey) (Study 2b)
"Using the response scale below, indicate your agreement or disagreement with each item. So far this morning…"

1. My morning routines have been disrupted.
2. My morning has not gone according to plan.
3. My morning routines have been out of sequence.
4. My morning routines have been inconsistent.

Appendix B: Daily Path Analytic Results without Control Variables (all studies)

	Daily Outcome Variable							
	Depletion		Calmness		Work Engagement		Goal Progress	
Predictor	*γ*	*SE*	*γ*	*SE*	*γ*	*SE*	*γ*	*SE*
Study 1								
Coffee Deprivation	.09	(.06)	-.06	(.08)	-.02	(.04)	-.05	(.05)
Coffee-Drinking Tendency	-.27	(.15)	.21	(.22)				
Deprivation x Tendency	.48*	(.20)	-.70*	(.25)				
Depletion					-.15*	(.03)	-.03	(.03)
Calmness					.07*	(.02)	-.01	(.02)
Work Engagement							.46*	(.04)
Intercept	1.66*	(.06)	3.21*	(.09)	3.87*	(.09)	2.47*	(.19)
Pseudo R^2 (interaction term)	.21		.25					
Pseudo R^2	.01		.02		.09		.12	
Study 2a								
Routine Disruption	.55*	(.12)	-.78*	(.17)	-.09	(.14)	.00	(.19)
Depletion					-.12*	(.03)	-.03	(.04)
Calmness					.06*	(.03)	.01	(.03)
Work Engagement							.40*	(.05)
Intercept	1.64*	(.07)	3.09*	(.10)	3.60*	(.14)	2.69*	(.22)
Pseudo R^2	.02		.03		.05		.08	
Study 2b								
Routine Disruption	.09*	(.02)	-.20*	(.03)	.01	(.02)	-.02	(.03)
Depletion					-.11*	(.04)	-.04	(.06)
Calmness					.12*	(.03)	.06	(.04)
Work Engagement							.31*	(.06)
Intercept	1.47*	(.05)	3.25*	(.10)	3.42*	(.13)	2.82*	(.25)
Pseudo R^2	.04		.09		.07		.05	

*$p < .05$

Notes: Pseudo R^2 for the interaction term reflects variance explained on the random slope, beyond a model excluding the interaction term.

Appendix C: Construct Validation for Study 2b

To provide evidence for construct validity for the four-item scale used to measure morning routine disruption in Study 2b, we followed a number of steps, as outlined by Djurdjevic et al. (2017). Specifically, we first generated a list of items that aligned with our definition of a morning routine disruption as a deviation from an automated, familiar sequence of morning activities. Using the resulting six items, we then conducted three construct validation studies: a content validation study (Hinkin & Tracey, 1999), and two additional studies to examine discriminant validity (Hinkin, 1998) and scale reduction. All validation studies were conducted in 2019. We detail each below.

Item Generation

We initially generated four items designed to capture the definition of morning routine disruption discussed above. However, and following valid concerns with two items (items 2 and 4 below) raised by one anonymous reviewer, we generated two additional, replacement items. Specifically, the resulting six items were:

1. Today, my morning routines were disrupted.
2. Today, my morning did not go according to plan.
3. Today, my morning routines were out of sequence.
4. Today, my morning routines were inconsistent.
5. Today, my morning routines were different from usual.
6. Today, my morning routines did not follow their usual pattern.

Evidence for Content Validity

We recruited 130 participants from Prolific, an online data service, in order to evaluate the extent to which each of our six routine disruption items matched the above definition. All participants were employed at least 30 hours per week (M = 40.69, SD = 6.02). Of these 130 participants, we retained responses from those who passed an attention check item, resulting in a final sample of 119 participants. Of these, 60 were male, with an average age of 34.07 years (SD = 9.30). Each participant was provided with the aforementioned definition of morning routine disruption and then asked the extent to which each of these items matched that definition (1 = "not at all", 5 = "a great deal"). Participants were paid $1.00 for their participation. This study was approved by the Texas A&M University IRB (IRB# 2019-0232D; Title: "Understanding Daily Employee Experiences and Behaviors").

We provided participants with two other related constructs, adapted from existing scales to better match our morning context: morning strain (8 items; Stanton, Balzer, Smith, Parra, & Ironson, 2001; Zhou et al., 2017) and morning interruptions (5 items; Parke et al., 2018). Example items from these scales were "Today, my morning was nerve-wracking" and "Today, my morning was interrupted by people seeking my help," for morning strain and interruptions, respectively. Following Hinkin and Tracey (1999) and Djurdjevic et al. (2017), results showed that our six-item measure was rated a significantly better match of the morning routine disruption definition than the morning strain scale (M = 3.66 vs. 1.99, $t(118) = 17.29$, $p < .001$). Similarly, our six-item measure matched the definition significantly better than the morning interruption scale (M = 3.66 vs. 2.64, $t(118) = 10.05$, $p < .001$).

To elaborate on the degree to which our proposed items captured our construct definition, we examined the definitional correspondence of each of our six items. On a five-point scale, participants rated these items as 4.21 (item 1), 3.64 (item 2), 3.41 (item 3), 3.13 (item 4), 3.64

(item 5), and 3.90 (item 6). Of note, all items significantly matched our definition of morning routine disruptions better than items from the two alternative scales. Second, we examined how well our items performed relative to each other, with particular attention paid to items 2 and 4 relative to their respective replacement items. Focusing first on item 2, the new item 5 did not significantly differ from item 2 (difference = .00, $t(118) = 0.00$, $p = 1.00$), suggesting that the two items similarly tapped our construct definition. Item 6, however, was superior (difference = -.26, $t(118) = -2.31$, $p = .023$). Regarding item 4, both item 5 (difference = -.50, $t(118) = -4.27$, $p < .001$) and item 6 (difference = -.76, $t(118) = -7.09$, $p < .001$) performed better. Taken together, these tests generally provide evidence in favor of all six of our items, as each reflects our intended construct to varying degrees, and to a greater extent than similar constructs. However they do reveal potential challenges with item 4 that the new items (5 and 6) somewhat alleviate.

Together, these results suggest that our scale more closely matched the definition of morning routine disruption than either of the potentially related measures, suggesting greater content validity.

Evidence for Discriminant Validity

To examine the factor structure of the morning routine disruption scale, and determine its distinction from similar constructs, we recruited 151 participants from Prolific, each of whom was employed at least 30 hours per week (M = 40.28, SD = 5.93). Of the final 148 participants who passed both attention check items, 67 were male, with an average age of 34.55 (SD = 9.38). Participants were paid $2.00 for their participation. This study was approved by the Texas A&M University IRB (IRB# 2019-0232D; Title: "Understanding Daily Employee Experiences and Behaviors").

Participants reported the extent to which they had experienced a disruption to their morning routine that day, using the six items discussed above (1 = "not at all", 5 = "a great deal") ($\alpha = .94$). Further, we asked participants the extent to which they had experienced strain that morning using the same eight items from Stanton et al. (2001) (see also; Zhou et al., 2017) ($\alpha = .94$), as well as the extent to which they had experienced interruptions to their morning with five items from Parke et al. (2018) ($\alpha = .86$).

We first conducted a confirmatory factor analysis (CFA) using Mplus 8 to determine the extent to which the six morning routine disruption items were reflective of a common underlying factor. Results suggest that this model demonstrates adequate fit with the data ($\chi^2 = 22.349$, $df = 9$, CFI = .983, RMSEA = .100, SRMR = .022). Next, we conducted a CFA, entering the items for morning strain and interruptions noted above. The hypothesized three-factor model (i.e. morning routine disruption, morning strain, morning interruptions) demonstrated adequate fit to the data ($\chi^2 = 262.288$, $df = 136$, CFI = .947, RMSEA = .079, SRMR = .060), suggesting that the three measures were distinct. Further, the morning routine disruption scale was positively and significantly correlated with both morning strain ($r = .34$, $p < .05$) and morning interruptions ($r = .43$, $p < .05$).

Evidence for Scale Reduction

As discussed above, in Study 2b, we utilized a four-item version of our morning routine disruption scale. This is consistent with the broader ESM literature, which necessitates the shortest possible scales (Gabriel et al., 2019). While we urge scholars to utilize the full six-item scale presented above, we also acknowledge that situations may arise where a shorter version of this scale may be helpful. We thus sought to investigate the isomorphism of our scale across

different item configurations. To that end, we recruited 232 undergraduate business students from a large research university in the Southern United States, each of whom reported their routine disruption that morning. Of these participants, 143 were male, with an average age of 20.79 years (SD = 2.15). Participants were compensated with extra course credit in exchange for their participation. This study was approved by the Texas A&M University IRB (IRB# 2019-0509M; Title: "Leader Construal").

To demonstrate the extent to which the shortened four-item morning routine disruption scale was representative of the full six-item scale, we retained the four items used in Study 2b above (i.e. items 1 through 4). We then examined the extent to which these four items correlated with the full scale; results showed a high degree of intercorrelation between the two ($r = .96$, $p < .001$). This suggests that the four items employed in Study 2b are sufficiently representative of the full morning routine disruption scale.

However, one anonymous reviewer helpfully expressed concern with two of the items retained in the shortened scale above (i.e., items 2 and 4). Thus, we also examined the extent to which a corrected version of this scale (comprised of items 1, 3, 5, and 6) correlates with both the four-item version used in Study 2b as well as the overall scale. Results showed that the scale used in Study 2b highly correlated with the alternative four-item scale ($r = .91$, $p < .001$). Further, the alternative four-item scale highly correlated with the full six-item scale ($r = .98$, $p < .001$). Taken together, these results suggest that a shortened, four-item version of the full morning routine disruption scale is sufficiently representative of the underlying construct.