

The ripple effect: A spillover model of the detrimental impact of work–family conflict on job success

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Summary

Exploring the role of both the employee and supervisor, we tested a model of how cognition-based work-to-family conflict manifests itself in the workplace, impacting employee job success. Based on conservation of resources theory and the concept of loss spirals, we hypothesized that when an employee's work interferes with family demands, the resulting work-to-family conflict spills over to the work domain via employee emotional exhaustion. We further argued that the behavioral manifestation of employee emotional exhaustion in the workplace is low employee engagement, as assessed by the supervisor. Drawing on signaling theory, we proposed that supervisor assessments of employee engagement are related to promotability, performance ratings, and salary. Work scheduling autonomy, as a boundary condition, is examined as a resource that attenuates these relationships. Data collected from 192 employee–supervisor dyads of a Fortune 1000 company, as well as performance ratings and salary obtained from company records 9 months later, indicated support for our conceptual model. Future research examining employee work–family conflict and job outcomes is discussed.

Keywords: conservation of resources theory; work–family conflict; engagement; emotional exhaustion

Research on the interface between work and family has been dominated by studies on the conflict individuals experience because of the discordant demands from work and family domains (Casper, Eby, Bordeaux, Lockwood, & Lambert, 2007). Based on role theory, work–family conflict is “a form of interrole conflict such that the role pressures from the work and family domains are mutually incompatible in some respect” (Greenhaus & Beutell, 1985, p. 77; Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964). Studies have identified various forms of conflict, including work-to-family conflict (WFC), where the work domain makes performance of family roles more difficult, and family-to-work conflict, where the family domain impedes on work roles (Netemeyer, Boles, & McMurrin, 1996).

The focus of our study is on cognition-based WFC, described as employees' preoccupation and absorption in work during nonwork time that inhibits performance of the family role, creating conflict (Ezzedeen & Swiercz, 2007; Kahn et al., 1964). Cognition-based WFC is a growing concern due to changes in the nature of work whereby employees in many occupations are expected to be “always on,” even during what were previously considered nonwork hours (Major & Germano, 2006; Perlow, 2012). This trend suggests that the boundaries between work and nonwork have blurred, with work impinging on the nonwork domain more than ever (e.g., Butts, Becker, & Boswell, 2015), potentially manifesting in cognition-based WFC for many employees.

While work interfering with family demands has been shown to relate to home domain outcomes such as negative reactions from spouses or partners (e.g., Green, Schaefer, MacDermid, & Weiss, 2011), less attention has focused on understanding why WFC may reverberate back to the workplace, impacting work-related outcomes. A number of studies suggest that cognition-based WFC may harm work outcomes such as career progress (Amstad, Meier, Fasel, Elfering, & Semmer, 2011; Greenhaus & Beutell, 1985), but the explanation for these findings has been based more on speculation than empirical evidence.

The purpose of our study was to seek new insight into the mechanisms by which employee cognition-based WFC relates to job success. In developing our model, we draw on conservation of resources theory (COR; Hobfoll, 1988, 1989, 1998), with a focus on employee stress and resource loss, and signaling theory (Spence, 1973), which incorporates the supervisor's perspective. Specifically, based on COR's concept of loss spirals (ten Brummelhuis & Bakker, 2012), we detail how employees' emotional exhaustion due to conflict and stress in the home domain provides fewer available personal resources that may be applied in the workplace. Accordingly, while supervisors may not be aware of employees' emotional exhaustion resulting from WFC, the workplace behavioral manifestation of that exhaustion observed by the supervisor is employee engagement. Drawing on signaling theory, we hypothesize that supervisors' perceptions of employee engagement are positively associated with indicators of employees' job success (specifically, employee promotability, performance ratings, and salary). Further, while WFC is theorized as resource loss, work scheduling autonomy is positioned as a contextual resource gain, moderating the relation between WFC and emotional exhaustion (Halbesleben, Neveu, Paustain-Underdahl, & Westman, 2014; ten Brummelhuis & Bakker, 2012). Our hypothesized model is provided in Figure 1.

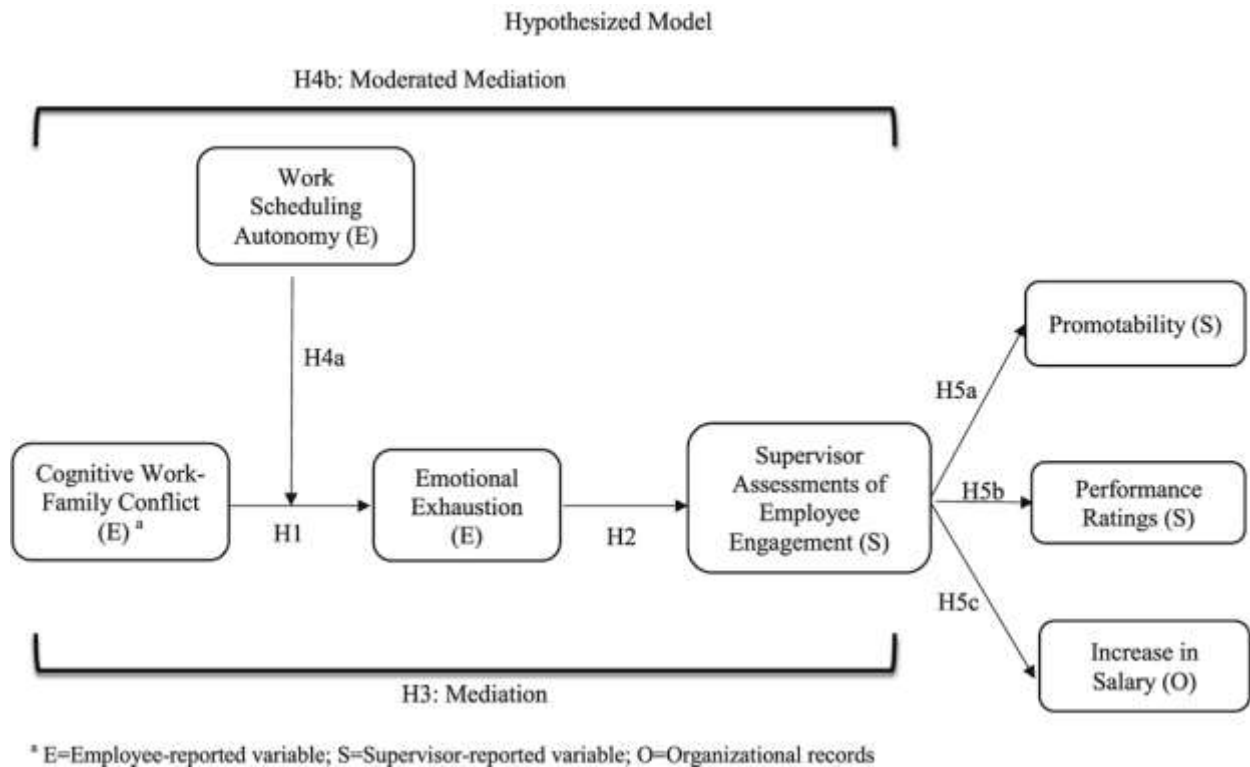


Figure 1. Hypothesized model

We strive to make several contributions to the WFC literature. First, we articulate a new area of inquiry with respect to COR theory (Hobfoll, 1988, 1989, 1998) and WFC research by investigating new ramifications of resource loss beyond the direct impact on the employee (i.e., emotional exhaustion). That is, we propose that the supervisor plays a critical role in understanding how employee WFC via emotional exhaustion impacts job success. Thus, our study calls attention to the role of other stakeholders, such as the supervisor, in resource loss spirals.

Our second contribution relates to the uncertain relationship between WFC and job success. While employees may assume that work interfering with family while in the home domain is a necessary cost for getting ahead at work, our model suggests an alternative perspective: such conflict is detrimental to job success due to employees having fewer personal resources available to devote to their job.

Third, we draw on signaling theory (Spence, 1973) to link employee emotional exhaustion to job success through supervisor assessment of employee engagement, which highlights the critical role supervisors play in the relationship between employee cognitive WFC and work-related consequences. Signaling theory suggests that supervisors glean signals about an employee's future capabilities from observable characteristics and qualities of that employee (Paustian-Underdahl, Halbesleben, Carlson, & Kacmar, 2016; Spence, 1973). We propose that supervisors view employee engagement as a signal indicating employee ability, effort, and suitability for higher-level positions. It is this evaluation of engagement that is hypothesized as an antecedent to job success, given supervisors' responsibility for

evaluating employee performance and distributing rewards (Dierdorff, Rubin, & Morgeson, 2009; Wayne, Liden, Kraimer, & Graf, 1999). We are unaware of existing studies that have adopted this perspective to delineate the mediating mechanisms by which WFC relates to job outcomes. Also, this study extends research on job and career outcomes associated with WFC—which have primarily been concerned with career satisfaction—by focusing on three outcomes: employee promotability, employee performance ratings, and increase in salary.

Theoretical Background and Hypotheses

In investigating the ways in which work–family conflict manifests, Ezzedeen and Swiercz (2007) identified the construct of *cognition-based work–family conflict* as a means to address a specific gap in the literature: that existing measures of work–family conflict do not evaluate the cognitive experience, and specifically, the harmful rumination that the experience of such conflict incites. These authors defined cognitive WFC as employees' "difficulty participating fully in domains outside of work given cognitive absorption with work" (Ezzedeen & Swiercz, 2007, p. 981). Individuals may come across to others as "absent," may discuss work more than anything else, and may not adapt their behavior to their nonwork role as necessary (Ezzedeen & Swiercz, 2007), creating discord in the home domain. Research on the short-term benefits of recovery (e.g., evening rest and its impact on the subsequent work day) and psychological detachment from work provides indirect support for the negative consequences associated with continually thinking about work when in the nonwork domain (Sonnentag, 2003; Sonnentag, Binnewies, & Mojza, 2010). However, research on work detachment is silent on the longer-term consequences of cognitive-based WFC, such as its potential impact on job outcomes, which we address in the next section through the lens of COR theory (Halbesleben et al., 2014).

Conservation of Resources Theory, Work–Family Conflict, and Emotional Exhaustion

Conservation of resources theory has been applied broadly in the organizational literature and has been an influential theory for understanding stress (Hobfoll, 1989; ten Brummelhuis & Bakker, 2012). A main tenet of COR is that individuals strive "to retain, protect, and build resources" and "what is threatening to them is the potential or actual loss of these valued resources" (Hobfoll, 1989, p. 516). Applying these principles, Hobfoll (1989) defined psychological stress as a reaction to an environment when there is a threat of or actual loss of resources or lack of resource gain following an investment of resources. He conceptualized resources as "those objects, personal characteristics, conditions, or energies that are valued by the individual or that serve as a means for attainment of these objects, personal characteristics, conditions, or energies" (1989, p. 516). While resources take many forms, a few include energy, cognitive capacity, self-esteem, self-efficacy, and intelligence. Resources provide instrumental value to the individual because they can be used to combat taxing situations and bolster individuals against future resource depletion.

Numerous studies have adopted COR theory (Hobfoll, 1989) to explore the work–family interface (Hoobler, Hu, & Wilson, 2010). A common argument presented in these studies is that high levels of WFC create stressful situations that cause resource drain. Because

employees have fewer motivational resources to perform work and family roles, their attitudes and behaviors suffer. For example, Grandey and Cropanzano (1999) found that WFC drained employees' resources over time, causing job distress, and in turn, higher turnover intentions, greater life distress, and poorer physical health. A recent meta-analysis examining consequences of WFC and family-to-work conflict provides further support. Amstad and colleagues (Amstad et al., 2011) categorized outcomes as work-related, family-related, and domain-unspecific outcomes. While WFC was related to outcomes in all three categories, the strongest relations were between WFC and the work-related domain and domain-unspecific outcomes, including stress and burnout/exhaustion. Integrating these findings, we contend that emotional exhaustion resulting from the stress of work interfering with family explains why this form of conflict impacts employees' workplace outcomes.

Emotional exhaustion, rather than the broader construct of burnout, is the focus in this study for two primary reasons. First, while Maslach's (1982) three-dimensional conceptualization of burnout as emotional exhaustion, cynicism (or depersonalization), and inefficacy (or reduced accomplishment) has dominated the literature, alternative conceptualizations have been proposed. However, the only dimension in common across various conceptualizations is emotional exhaustion, suggesting that it is a core component of burnout (Halbesleben & Bowler, 2007). Second, emotional exhaustion is described as "the basic individual strain dimension of burnout" and is associated with "feelings of being overextended and depleted of one's emotional and physical resources" (Maslach & Leiter, 2008, p. 498). Given our study's theoretical grounding in COR, focusing on the dimension of burnout that captures personal resources that may be applied in the work domain (i.e., emotional exhaustion) is appropriate.

Meta-analytic findings show that role conflict is an important predictor of emotional exhaustion across occupations (Alarcon, 2011; Lee & Ashforth, 1996). The incessant use of cognitive resources on work issues during nonwork time such that it creates conflict and stress likely leaves individuals mentally exhausted, depleted, and without the necessary personal resources to reinvest during work time (Bakker, Demerouti, & Sanz-Vergel, 2014; Freudenberger, 1974).

Hypothesis 1. Cognitive work–family conflict is positively related to emotional exhaustion.

Emotional Exhaustion and Supervisor Assessments of Employee Engagement

While emotional exhaustion is a depletion of emotional and cognitive resources operating through an internal process (Maslach, Schaufeli, & Leiter, 2001), it may also behaviorally manifest in the workplace. Related to this, Swider and Zimmerman's (2010) meta-analysis found that emotional exhaustion was associated with lower employee performance ratings and higher absenteeism and turnover. Interestingly, they found that the relation between emotional exhaustion and performance ratings was stronger when ratings were based on other-reports ($\rho = -.33$) versus self-reports ($\rho = -.16$), even though one would expect a stronger correlation between emotional exhaustion and self-rated performance given same-rater bias (common method variance). Explaining this, the authors suggested that those

who experience depleted personal resources may not be aware of its impact on their behavior; however, its behavioral manifestations may be observable by others (e.g., by a supervisor). This may be especially true for employees when their conflict and emotional exhaustion originated in the family, rather than the work domain.

Both COR and signaling theory support the idea that employees' emotional exhaustion is positively related to supervisor perceptions of their engagement. From a COR perspective, because emotional exhaustion is associated with fewer resources that employees can invest in their job, combined with employees' desire to protect their limited remaining resources, we expect a negative relationship between employee exhaustion and engagement (Hakanen, Bakker, & Schaufeli, 2006). Signaling theory (Bliege Bird & Smith, 2005; Spence, 1973) provides further support. In social situations, signals sent between two interacting parties (party A and party B) either alert party A to the quality of person B or to person B's behavioral intentions (Connelly, Certo, Ireland, & Reutzel, 2011). This is rooted in the human need to understand an interaction partner in order to better communicate with that other person, to better understand that other person's motivations, or to better anticipate the other person's actions. Applying this to the workplace, supervisors play a key role in making actionable judgments about their direct reports and, as such, will scan employee behavior to gather signals about each employee's potential (Paustian-Underdahl et al., 2016; Perkins & Hendry, 2005). As an example, an employee's enthusiasm in taking on a challenging project or acting as an informal leader may be viewed by the supervisor as a signal that the employee is willing to invest and commit to work (De Pater, Van Vianen, Bechtoldt, & Klehe, 2009).

In this study, we are interested in one specific signal, an employee's emotional exhaustion, and the supervisor's interpretation of that signal in the form of judgments about that employee's engagement. As previously outlined, employee emotional exhaustion is associated with depleted resources. Therefore, an employee with fewer resources to expend on the job is expected to be viewed by the supervisor as less engaged, as engagement is an evaluation of the employee's utilization of personal resources in work activities. Supervisor assessment of employee engagement is a particularly important signal for a supervisor to attend to because of engagement's criticality to performance-based and commitment-based outcomes (e.g., Cole, Walter, Bedeian, & O'Boyle, 2012; Harter, Schmidt, & Hayes, 2002). Therefore, we anticipate that employees with high levels of emotional exhaustion have fewer resources to expend in the work environment and thus may signal low immersion in the job. As such, supervisors are likely to view employees with higher emotional exhaustion as lower in engagement compared with those with lower emotional exhaustion.

Hypothesis 2. Emotional exhaustion is negatively related to supervisor assessments of employee engagement.

Emotional Exhaustion as a Mediator of the Relation between WFC and Supervisor Assessments of Employee Engagement

Based on COR, WFC is likely associated with fewer resources to expend in employee engagement (Rantanen, Mauno, Kinnunen, & Rantanen, 2011). Supervisors may not be aware of their employees' WFC, as it may manifest outside the work domain. However, as in the previous hypothesis, we suggest that supervisors are likely to detect lower employee engagement when employees experience higher levels of emotional exhaustion, which has been identified as an outcome of employee WFC.

Hypothesis 3. Emotional exhaustion mediates the effect of cognitive work–family conflict on supervisor assessments of employee engagement.

Work Scheduling Autonomy: A Boundary Condition

While COR explains the relation between WFC and employee emotional exhaustion as resource drain, this theory also emphasizes that an influx of additional resources can temper this relation. Work scheduling autonomy, which provides employees with greater latitude in determining when they do their work, can be viewed as a contextual resource in the work domain in that it may better enable employees to manage taxing situations resulting from WFC (ten Brummelhuis & Bakker, 2012). In other words, while WFC may be inevitable, work scheduling autonomy, as a resource, may provide employees with flexibility and control that enables them to better manage its impact on their emotional state, ameliorating emotional exhaustion due to WFC. Therefore, we expect the negative relation between WFC and emotional exhaustion to be tempered by work scheduling autonomy such that employees experiencing WFC but who have higher work scheduling autonomy should experience less emotional exhaustion. This moderation hypothesis and accompanying arguments also suggest moderated mediation effects. Specifically, due to work scheduling autonomy's moderating effect on the relationship between WFC and emotional exhaustion, work scheduling autonomy is expected to mitigate the indirect effect of WFC on supervisor assessments of employee engagement.

Hypothesis 4. The relationship between cognitive work–family conflict and emotional exhaustion is moderated by work scheduling autonomy (4a). In addition, the indirect relationship between cognitive work–family conflict and supervisor assessments of employee engagement via emotional exhaustion is moderated by work scheduling autonomy such that the indirect relationship becomes weaker as work scheduling autonomy is greater (moderated mediation; 4b).

Supervisor Assessments of Employee Engagement and Job Success

We propose that supervisor assessments of employee engagement impact job outcomes because engagement serves as a signal to the supervisor regarding an employee's worth and potential (Spence, 1973). Consistent with this perspective, a number of studies have underscored the importance of supervisor perceptions, beyond task-related accomplishments, when granting employees job-related rewards (e.g., Leslie, Manchester, Park, & Mehng, 2012; Shore, Barksdale, & Shore, 1995). Recently, Paustian-Underdahl et al. (2016) found that when nurses experienced positive family-to-work spillover, supervisors interpreted the resources gained at work as a signal of nurses' workplace competency, and supervisors viewed those nurses as more promotable. Extending this research, we test the relation between employee emotional exhaustion and supervisors' views of employee engagement, the latter being a signal of employee managerial potential. When supervisors view employees as more engaged with their work, they should see them as worthy of further resource investment (Hoobler, Lemmon, & Wayne, 2014; Hoobler, Wayne, & Lemmon, 2009). We examine three indicators of job success: supervisor assessments of employee promotability and performance and increases in salary.

As far as promotability, we contend that supervisor assessments of employee engagement are key to understanding why some employees “get ahead” at work. Previous research has established that supervisors provide favorable opportunities and resources to those employees whom they believe to be motivated and who have the potential to be successful (Ng, Eby, Sorensen, & Feldman, 2005; Paustian-Underdahl et al., 2016). Second, a number of studies have confirmed a link between employee engagement and measures of performance (e.g., Rich, LePine, & Crawford, 2010). The rationale is that engaged employees fully invest themselves in their roles—by displaying physical, cognitive, and emotional energies. Based on the subjectivity of performance ratings, employees who are viewed as withholding physical, cognitive, and emotional effort likely receive lower performance ratings. Third, salary, a commonly studied job/career outcome (e.g., Allen, Eby, Poteet, Lentz, & Lima, 2004; Ng et al., 2005), serves as an objective indicator of job success. In linking engagement and salary increases, we return to previous arguments about supervisors bestowing rewards upon those employees they view as high quality, engaged, and likely successful (Hoobler et al., 2014; Ng et al., 2005; Wayne et al., 1999).

Hypothesis 5. Supervisor assessments of employee engagement are positively related to supervisor assessments of employee promotability (5a), performance ratings (5b), and decisions on increase in salary (5c).

Method

Sample

Data were collected from a Fortune 1000 U.S.A. building materials company. Salaried employees and their supervisors completed web-based surveys as part of this study. Participants held a variety of white-collar positions, including administrative, accounting,

financial, and marketing jobs. Supervisors had direct authority over their respective employees, including compensation and promotion decisions.

Survey invitations were sent to 348 employee–supervisor dyads. These dyads were randomly selected from various departments within the company in order to gain a representative sample of employees across the organization's various divisions. Complete data were collected for 192 dyads (response rate = 55.2 percent). Because supervisors were responsible for multiple subordinates, some supervisors rated multiple employees (mean = 1.2 employees). Demographic information for the sample is as follows: 37 percent of the employee sample is female and 31 percent of the supervisor sample is female. Twelve percent of employees were ages 21–29; 21 percent were 30–39; 30 percent were 40–49; and 34 percent were 50 and over; the remaining sample did not provide age information. Five percent of supervisors were ages 21–29, 14 percent were 30–39, 42 percent were 40–49, and 39 percent were over 50. Both samples were predominantly Caucasian (employees = 81 percent; supervisors = 84 percent), with Hispanics representing 7 percent of the employee sample and 2 percent of the supervisor sample, and African-Americans representing 5 percent of the employee sample and 1 percent of the supervisor sample. The remaining participants did not report their race. In terms of education, 65 percent of the employee sample held a Bachelor's degree or higher, whereas 90 percent of the supervisor sample held the same. Thirteen percent of employees reported to their direct supervisor for less than a year; 33 percent 1–2 years; 35 percent 3–5 years; and 17 percent more than 6 years; the remaining employees did not report their tenure with their supervisor. Two percent of employees worked for the focal organization for less than a year, whereas 5 percent worked for 1–2 years, 28 percent worked 3–5 years, and 62 percent more than 5 years; the remaining population did not report their organizational tenure. Employees earned an average salary of \$70,007.60 with a standard deviation of \$25,557.72.

Procedures

Survey invitations were sent via e-mail to employees at time period 1. Reminder e-mails were sent 2 and then 4 weeks later to those who had not yet responded. Employees were assured that all reported answers would be kept confidential and only used in an aggregate and anonymous fashion. E-mail invitations sent to supervisors included the name of the focal employee they were to consider when answering the web-based questionnaire. Supervisor invitations were sent 3 weeks after the employee invitations were sent, and reminder e-mails were sent at the same intervals as the employee reminders. Nine months after the initial surveys were sent (time period 2), data were provided by the focal organization on employees' performance ratings and salary increases.

Measures—time period 1

All perceptual measures were assessed using a Likert scale with 1 = *strongly disagree* to 7 = *strongly agree*. All Cronbach alphas obtained are reported on the diagonal in Table 1.

Table 1. Means, standard deviations, and correlations among study variables.

| Variable | Mean | SD | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|-------|--------|------------------|--------|--------|-------|-------|-------|-------|-----|---|
| 1 Cognitive work–family conflict (<i>E</i>) ^a | 3.60 | 1.86 | .89 ^b | | | | | | | | |
| 2 Work scheduling autonomy (<i>E</i>) | 5.29 | 1.81 | -.18* | .97 | | | | | | | |
| 3 Emotional exhaustion (<i>E</i>) | 3.59 | 1.74 | .28** | -.53** | .93 | | | | | | |
| 4 Supervisor assessments of employee engagement—vigor dimension (<i>S</i>) | 5.45 | 1.24 | -.06 | .14 | -.21** | .92 | | | | | |
| 5 Supervisor assessments of employee engagement—dedication dimension (<i>S</i>) | 5.44 | 1.21 | -.07 | .11 | -.25** | .80** | .93 | | | | |
| 6 Supervisor assessments of employee engagement—absorption dimension (<i>S</i>) | 4.95 | 1.07 | .00 | .07 | -.17* | .58** | .67** | .69 | | | |
| 7 Promotability (<i>S</i>) | 4.78 | 1.36 | -.01 | .02 | .02 | .58** | .52** | .39** | .79 | | |
| 8 Performance ratings (<i>S</i>) | 2.16 | 0.41 | -.03 | .06 | -.06 | .29** | .33** | .28** | .22** | — | |
| 9 Increase in salary (<i>O</i>) | \$914 | \$1844 | -.09 | .13 | -.06 | .18* | .13 | .17* | .21** | .04 | — |

- $N = 192$
- ^a*E* = employee-rated variable; *S* = supervisor-rated variable; *O* = organizational records.
- ^bScale reliabilities reported on the diagonal.
- * $p < .05$.
- ** $p < .01$.

Cognitive work–family conflict

Employees rated their own cognitive WFC. We used Ezzedeen and Swiercz's (2007) 3-item measure. Cognitive WFC is the extent to which an employee thinks about work when he or she is not at work. An example item is “When not working, I am routinely distracted by work-related thoughts.”

Work scheduling autonomy

Employees rated the extent to which they had autonomy in scheduling their work. Morgeson and Humphrey's (2006) 3-item scale was used. An example item is “My job allows me to make my own decisions about how to schedule my work.”

Emotional exhaustion

Due to survey space constraints, emotional exhaustion was assessed with the second, third, and fourth highest-loading items of the emotional exhaustion dimension of Maslach and Jackson's original 9-item scale (Maslach & Jackson, 1981a; Maslach & Jackson, 1981b). The highest-loading item, “I feel burned out from my work,” was not included because of concerns that the phrase “burned out” would not be understood by all respondents (i.e., non-native English speakers). An example item is “I feel all used up at the end of the workday.”

Supervisor assessments of employee engagement

Supervisors rated their employee's engagement with work using a 9-item, shortened form of the Schaufeli, Salanova, González-Romá, and Bakker (2002) engagement scale. Based on a

pilot survey of 234 students, we conducted a confirmatory factor analysis and used the three highest loading items on each engagement dimension (vigor, dedication, and absorption). Because we sought to examine supervisor assessments of employee engagement, modifications to the wording of this scale included (i) a shift in referent from self-assessment to other-assessment and (ii) qualifiers about the extent to which a supervisor believes an employee feels a particular way. An example item is “At work, this employee appears to be full of energy.”

Supervisor assessments of employee promotability

Supervisors rated the extent to which they perceived their employee as being promotable using Thacker and Wayne's (1995) 3-item measure. An example item is “I believe that this employee will have a successful career.”

Measures—time period 2

Performance ratings

The participating organization provided supervisor ratings of an employee's overall performance from company records. Ratings were on a 3-point scale, with 1 = *does not meet expectations/needs improvement*, 2 = *meets expectations*, or 3 = *exceeds expectations*.

Increase in salary

We operationalized “increase in salary” as the difference between salary at time periods 1 and 2. The company provided salary data. A company representative indicated that salary increases were based on merit, rather than nonperformance factors.

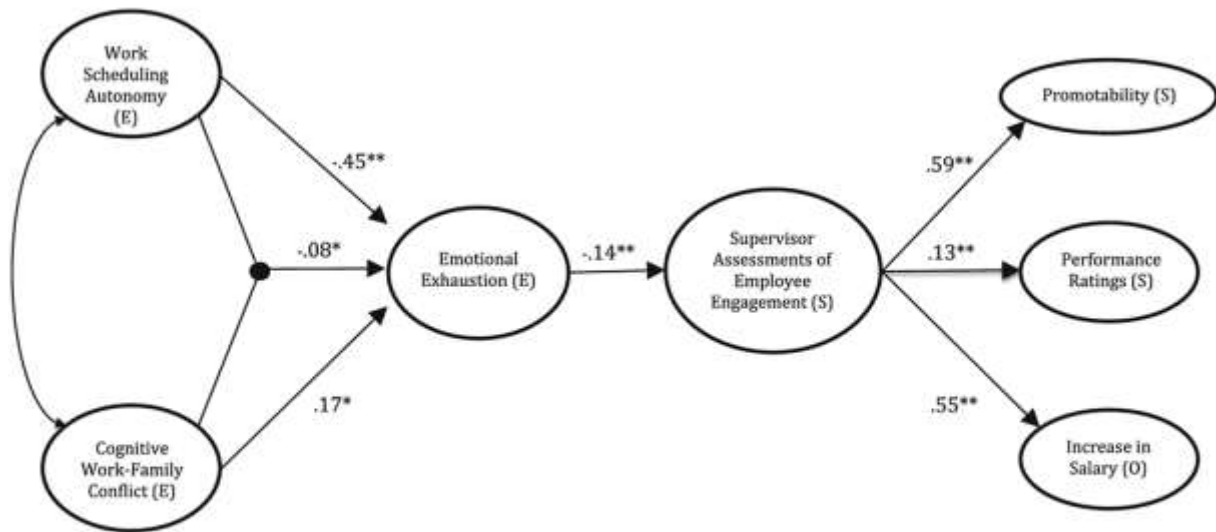
Results

Preliminary analyses

Zero-order correlations between variables are provided in Table 1. Prior to analyzing our hypothesized model, we sought to establish convergent validity and discriminant validity of our measures by running a confirmatory factor analysis using *Mplus* version 7.3 (Muthén & Muthén, 1998–2012). In this model, each item loaded on its appropriate factor, and we included supervisor assessments of engagement as a second-order latent factor that predicted its three dimensions: vigor, dedication, and absorption. The overall model fit was acceptable ($\chi^2(176) = 310.31$, CFI = .96, TLI = .96, RMSEA = .06, SRMR = .05; Hu & Bentler, 1999). In this model, all factor loadings were significant ($p < .05$), all standardized factor loadings were larger than 0.40, and correlation coefficients among all latent factors were substantially smaller than 1.0. We compared this model to an alternative measurement model wherein supervisor assessments of engagement were considered a single latent factor. Results indicated that the hypothesized model fit ($\chi^2(179) = 470.97$, CFI = .92, TLI = .91, RMSEA = .09, SRMR = .05) was significantly better than the alternative model ($\Delta\chi^2(\Delta df) = 160.66(3)$, $p < .01$), supporting our measurement model.

Because supervisors rated an average of 1.2 employees, it is possible that our data contain non-independent observations in that supervisor ratings of one employee may be correlated with their ratings of another employee. However, we decided to analyze our data without controlling for non-independent observations for the following reasons. First, currently there is no good method for bootstrapping nested data—bootstrapping nested data is not allowed in *Mplus*—and therefore, we had to choose between controlling for the nested data or bootstrapping the confidence intervals for the moderated mediation effects. Because the respondents were sampled at the employee level instead of using stratified or cluster sampling at the supervisor level, bootstrapping at the employee level was deemed to be most appropriate when the bootstrapping method was used. Because our model is a single-level model instead of a multi-level model, controlling for non-independent observations (nested data) will not change the parameter estimates, but will normally reduce the computed standard error associated with each estimate. We have estimated the parameters in Figure 2 twice by (i) controlling for the nested data and (ii) bootstrapping the CIs without controlling for the nested data. Parameters in both analyses were exactly the same, and the *p*-values for all parameters were exactly the same except for two parameters, which differed by only .002 and .006. On the other hand, the CIs show that the estimated parameters are not normally distributed, and hence biased-corrected bootstrapped CIs are more appropriate than relying on the Sobel tests (*t*-tests) for testing the significance of the parameters. Second, even if we may be able to combine the control for nested data and bootstrapping by using other SEM software packages, the control for nested data will only affect the computed standard errors but not the bootstrapped bias-corrected CIs. Because the estimated parameters are not normally distributed, the bootstrapped CIs will be reported in the manuscript while the standard errors adjusted for nested data will be ignored. Third, the ICC(1) values for supervisor-rated engagement (10 percent) and supervisor-rated performance (13 percent), were negligible (Kline, 2004). We also ran the analysis by randomly selecting one employee for each supervisor, which reduced our sample size to 159. The results were very similar to those of the full sample but with larger standard errors because of the smaller sample size.

Examination of Moderated Mediation with Latent Variables Results – Unstandardized Path Coefficients^{a, b}



$N = 192$

^a The solid circle represents latent interaction of work scheduling autonomy and cognitive work-family conflict

^b (E)=Employee-reported variable ; (S)=Supervisor-reported variable ; (O)=Organizational records

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

Figure 2. Examination of moderated mediation with latent variables results—unstandardized path coefficients^{a, b}

Test of hypotheses

We used the 3-step procedure for testing moderated mediation with latent moderated structural equations (LMS) described by Cheung and Lau (2015) to test our hypotheses. It has been demonstrated that the LMS approach produces more accurate parameter estimates and confidence intervals than the commonly used regression approach with observed variables. The LMS approach also allows us to model a second-order factor with multiple dimensions in the analysis, such as supervisor assessment of employee engagement. All variables in Figure 1 were considered as first-order latent variables except for supervisor assessments of employee engagement, which was a second-order latent variable with three first-order dimensions: vigor, dedication, and absorption. The analyses were conducted using *Mplus 7.4* with maximum likelihood estimation.

Because the LMS approach does not provide usual fit indices, the first step was to estimate a model without the latent interaction term to assess overall model fit (Muthén, 2012). The overall model fit indices suggest the model fit the data well ($\chi^2(219) = 351.66$, CFI = .96, TLI = .96, SRMR = .05, RMSEA = .06; Hu & Bentler, 1999).

In the second step, the model in Figure 2 with a latent interaction between cognitive work-family conflict and work scheduling autonomy was evaluated, as well as the estimation of the path from this latent interaction to emotional exhaustion. Following Cheung and Lau (2015), bias-corrected bootstrap confidence intervals were created for each estimated parameter because both the interaction term and the mediating effects are not normally distributed. Two thousand bootstrap samples were generated in the current analysis.

Unstandardized path coefficients are reported in Figure 2, and a summary of results for Hypotheses 1–5 is reported in Table 2.

Table 2. Coefficients for the conditional process model.

| | Emotional exhaustion | Supervisor assessments of employee engagement | Promotability | Performance ratings | Increase in salary |
|--|--|---|-------------------------|-------------------------|-------------------------|
| Cognitive work–family conflict | .168* ^a ; [.029, .321] ^b | — | — | — | — |
| Work scheduling autonomy | -.452**; [-.621, -.293] | — | — | — | — |
| Interaction: cognitive work–family conflict × work scheduling autonomy | -.084*; [-.161, -.002] | — | — | — | — |
| Emotional exhaustion | — | -.138**; [-.219, -.046] | — | — | — |
| Supervisor assessments of employee engagement | — | — | .593**; [.370, .812] | .131**; [.082, .186] | .549**; [.161, .996] |
| R^2 | .327 | .051 | .471 | .118 | .027 |

- ^aUnstandardized path estimate.
- ^b95 percent bias-corrected confidence intervals reported as: [Lower Limit Confidence Interval, Upper Limit Confidence Interval].
- * $p < .05$.
- ** $p < .01$.

In support of Hypothesis 1, cognitive WFC had a statistically significant, positive relationship with emotional exhaustion ($b = .17, p < .05$). Hypothesis 2 also received support: Emotional exhaustion had a statistically significant, negative relationship with supervisor assessments of employee engagement ($b = -.14, p < .01$). In order to test Hypothesis 3, we tested an alternative model with direct paths from cognitive WFC, work scheduling autonomy, and interaction between cognitive WFC and work scheduling autonomy to supervisor assessments of employee engagement (i.e., direct effect and first stage moderation model, Edwards & Lambert, 2007). The paths between supervisor assessments of employee engagement and cognitive WFC ($b = .01, p > .10$), work scheduling autonomy ($b = .00, p > .10$), and interaction between cognitive WFC and work scheduling autonomy ($b = .00, p > .10$) were all statistically nonsignificant. These results suggest that emotional exhaustion fully mediates the relationship between cognitive WFC and supervisor assessments of engagement, supporting Hypothesis 3.

Hypothesis 4 proposed that work scheduling autonomy would moderate the relation between cognitive WFC and emotional exhaustion (H4a) and that the indirect relationship between cognitive WFC and supervisor assessments of employee engagement through emotional exhaustion was conditional on the levels of scheduling autonomy (H4b). Following the outlined procedures, we found support for Hypotheses 4a and 4b. First, there was a statistically significant interaction effect between cognitive WFC and work scheduling autonomy on emotional exhaustion ($b = -.08, p < .05$; lower limit confidence interval (LLCI) = $-.161$; upper limit confidence interval (ULCI) = $-.002$). Second, the index of moderated mediation (Hayes, 2015), that is, the product term of the interaction effect

between cognitive WFC and work scheduling autonomy on emotional exhaustion and the direct effect between emotional exhaustion and supervisor assessments of employee engagement, was statistically significant ($b = .01, p < .05$; LLCI = .000; ULCI = .029). Following Cheung and Lau (2015), in Step 3, the conditional indirect effect was probed by examining the magnitude and significance of the indirect effect of cognitive WFC on supervisor assessments of engagement through emotional exhaustion at various levels of work scheduling autonomy (Preacher, Rucker, & Hayes, 2007). Table 3 shows the results at three levels of work scheduling autonomy (–1 standard deviation, mean, and +1 standard deviation). We found that, for those employees who reported low levels of work scheduling autonomy, the effect of cognitive WFC on supervisor assessments of engagement vis-à-vis emotional exhaustion was strongly negative (estimate = $-.045, p < .01$; LLCI = $-.102$; ULCI = $-.010$). On the other hand, for those employees who reported high levels of work scheduling autonomy, the effect of cognitive WFC on supervisor assessments of engagement vis-à-vis emotional exhaustion was not statistically significant (estimate = $-.002, p > .05$; LLCI = $-.031$; ULCI = $.026$). Following Wiedemann, Schüz, Sniehotta, Scholz, and Schwarzer (2009), we plotted the conditional indirect effects of cognitive work–family conflict on supervisor assessments of employee engagement through emotional exhaustion at various levels of work scheduling autonomy (Figure 3). It was shown that lower work scheduling autonomy was associated with a stronger negative indirect effect from cognitive work–family conflict to supervisor assessments of employee engagement through emotional exhaustion. The indirect effect was only significant when work scheduling autonomy was at levels lower than 0.2 standard deviations above the mean.

Table 3. Conditional indirect effects of cognitive work–family conflict on supervisor ratings of employee engagement,^a employee promotability, performance ratings, and increase in salary.^b

| Levels of work scheduling autonomy | Engagement | Promotability | Performance ratings | Increase in salary |
|------------------------------------|---|-------------------------------|----------------------------|-------------------------------|
| –1 Standard deviation | $-.045^{**c}$; [–.102, –.010] ^d | $-.026^{**}$; [–.068, –.007] | $-.006^*$; [–.014, –.001] | $-.024^{**}$; [–.079, –.005] |
| Mean | $-.023^*$; [–.071, –.004] | $-.014^*$; [–.038, –.003] | $-.003^*$; [–.008, –.001] | $-.013^*$; [–.045, –.002] |
| +1 Standard deviation | $-.002$; [–.031, .026] | $-.001$; [–.018, .016] | $.000$; [–.004, .004] | $-.001$; [–.019, .015] |

- ^aConditional indirect effects of cognitive work–family conflict on supervisor assessments of employee engagement through emotional exhaustion at various levels of work scheduling autonomy.
- ^bConditional indirect effects of cognitive work–family conflict on supervisor ratings of employee promotability, performance ratings, and increase in salary through emotional exhaustion and engagement at various levels of work scheduling autonomy.
- ^c95 percent bias-corrected confidence intervals reported as: [lower limit confidence interval, upper limit confidence interval].
- ^dUnstandardized indirect effects.
- * $p < .05$;
- ** $p < .01$.

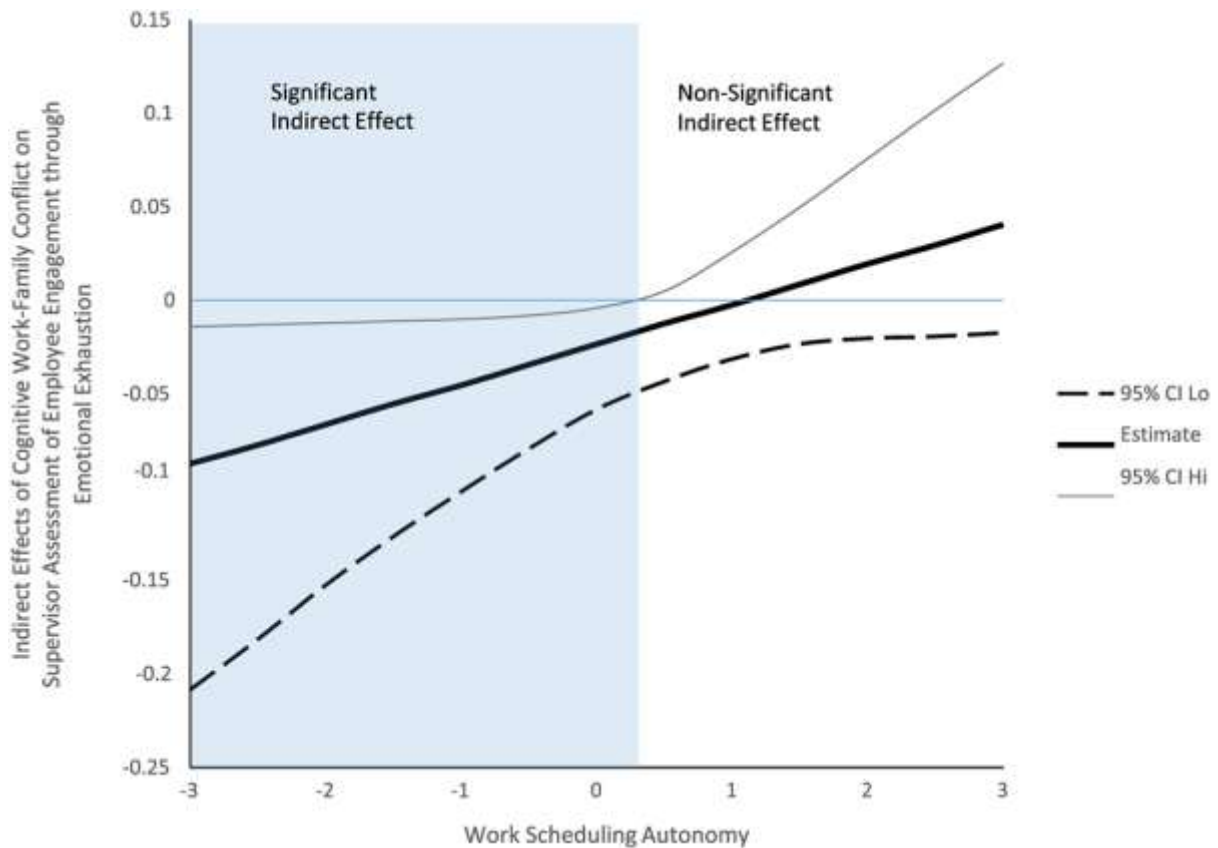


Figure 3. Indirect effects of cognitive work–family conflict on supervisor assessments of employee engagement through emotional exhaustion conditional on work scheduling autonomy

We then tested the direct effects proposed in our final set of hypotheses. Hypotheses 5a, 5b, and 5c all received support: Supervisor assessments of employee engagement had a statistically significant, positive relationship with promotability ($b = .59, p < .01$), performance ratings ($b = .13, p < .01$), and increase in salary ($b = .55, p < .01$). We found that our model explained about 47 percent of the variance in supervisor assessments of promotability ($R^2 = .47$), 12 percent of the variance in performance ratings ($R^2 = .12$), and 3 percent of the variance in increase in salary ($R^2 = .03$). Further analysis indicated that, through emotional exhaustion and supervisor assessments of employee engagement, cognitive WFC was negatively associated with supervisor assessments of promotability (estimate = $-.026, p < .01$; LLCI = $-.068$; ULCI = $-.007$), performance ratings (estimate = $-.006, p < .05$; LLCI = $-.014$; ULCI = $-.001$), and salary (estimate = $-.024, p < .01$; LLCI = $-.079$; ULCI = $-.005$) when work scheduling autonomy was lower. On the other hand, when the level of work scheduling autonomy was higher, the indirect effects of cognitive work–family conflict on supervisor assessments of promotability, performance ratings, and salary were all statistically nonsignificant. Table 3 shows these results at three levels of work scheduling autonomy (–1 standard deviation, mean, and +1 standard deviation).

Discussion

We tested a model to explain how and why cognitive WFC relates to indicators of employees' job success. Based on COR and signaling theories, we explored how employee outcomes in the work domain are associated with cognition-based WFC through employee

emotional exhaustion and supervisor assessments of employee engagement. Further, we proposed and tested work scheduling autonomy, a contextual resource, as an important moderator of the mediated relationship. From our results, we drew several main conclusions. First, our findings indicate that emotional exhaustion appears to be a behavioral signal an employee emits that serves to explain the relation between cognitive WFC and supervisor assessments of employee engagement. Specifically, our results indicate that when employees experience cognitive WFC, they report feeling emotionally exhausted, leaving them with fewer cognitive resources to devote to their work. Although supervisors may not be able to detect employees' cognitive WFC as it reveals itself in the home domain, what they do seem to be able to detect is their employees' engagement at work. Thus, the signal of emotional exhaustion emitted by an employee seems to have critical consequences for supervisory judgments of that employee. Further, we found that supervisor assessments of employee engagement were associated with the proximal job outcomes of supervisor assessments of employee promotability and performance and decisions regarding salary increases. Importantly, in addition to supporting these direct effects, cognitive WFC was negatively associated (through emotional exhaustion and supervisor assessments of employee engagement) with all three job outcomes. Finally, we found that work scheduling autonomy moderated this relationship: when employees had higher work scheduling autonomy, the indirect effect of WFC on supervisor assessments of engagement via emotional exhaustion was not significant. In sum, our results support a model specifying how cognition-based WFC, through loss spirals, may extend back to the workplace and relate to supervisors' assessments of employee engagement, as well as employee job outcomes, and how a contextual resource—work scheduling autonomy—may help diminish this effect. Our model highlights the ripple effects of WFC, which, interestingly, negatively impact the family domain but seem to undulate back into the work domain, where the conflict originated, to associations with employee job success.

This study makes a number of contributions. We provide a theoretical explanation as well as empirical evidence for both how and why cognitive WFC relates to indicators of employee job success. First, supporting COR theory, and particularly loss spirals, we found that cognitive WFC acts to deplete one's energy and resources, predicting emotional exhaustion. Our model also extends and offers a new area of inquiry for COR theory (Hobfoll, 1988, 1989, 1998) by investigating the ramifications of resource loss due to cognitive WFC beyond the direct impact on the focal employee in terms of stress or emotional exhaustion and highlighting the importance of the supervisor. In our study, an employee's loss of personal resources emanating from WFC has repercussions beyond employee emotional exhaustion. The loss spiral perpetuates as evidenced from the negative relation between employee emotional exhaustion and supervisor assessments of employee engagement and, in turn, job success. With respect to cognition-based WFC, incorporating the role of signaling theory into the personal resource loss spiral enabled us to articulate how conflict experienced outside of the work domain is associated with factors back in the workplace. Signaling theory, which suggests that evaluators look for specific signals that indicate future achievement potential (Paustian-Underdahl et al., 2016; Spence, 1973) enabled us to link an employee's experience of loss of resources (emotional exhaustion) to a direct judgment about that loss (supervisor ratings of employee engagement). Further, we highlight the pivotal role that supervisor assessments of employee engagement play in this loss spiral, as

this assessment appears to be associated with job outcomes that are ostensibly supervisor determined.

Additionally, our model is important to consider from the employee perspective. Employees may see WFC as a point of pride; that is, they may view their cognitive preoccupation with work as evidence that they are highly invested in their work, prioritizing work in their thoughts and their behaviors. However, our model indicates the contrary view—that cognition-based WFC may not be the “good worker badge of honor” that some may feel it is. We found that emotional exhaustion induced by cognitive WFC may be difficult to conceal and serves as a signal related to supervisors' perceptions of employees' behavioral investment of cognitive and emotional personal resources in their jobs. This is consistent with Kahn's (1992) description of engagement being an observable phenomenon. In this way, employees may be deceiving themselves insofar as they feel that being “always-on” for work and prioritizing work at the expense of family life is the way to get ahead at work. Rather, constant preoccupation with work during nonwork time may not allow the employee the benefits of recovery or psychological detachment from work (Sonnentag, 2003; Sonnentag et al., 2010), leaving them overextended and noticeably less engaged in their work. From the supervisor's perspective, our model underscores the importance of delineating clear work/nonwork expectations. Supervisors who harbor strong expectations that employees work long hours, continuously check e-mail on their own time, and always be “on-call”—hallmark antecedents to cognition-based WFC—may actually be impacting the extent to which their employees can be cognitively present, active, and engaged at work. So, ironically, those employees who are cognitively distracted from family by work may actually be the ones with low job engagement back at work.

We also add to the paucity of research that has explored the relationship between WFC and job success. Our results broaden researchers' understanding of cognitive WFC, revealing that it has a significant indirect association with three important job outcomes: supervisor assessments of employee promotability, employee performance ratings, and salary increases. These results shed light on what we know about the growing concern of managing the work–family interface, given contemporary blurred boundaries and the necessity that employees self-manage work and nonwork boundaries (Kossek, Ruderman, Braddy, & Hannum, 2012). With wireless technology making 24/7 communication and availability more the norm than the exception, work and nonwork boundary management has become key in successfully navigating one's personal life and career. Additionally, our study contributes to the few prior studies examining WFC and career and job outcomes (e.g., Hoobler et al., 2010), by examining why WFC, here cognitive WFC in particular, is associated with job success.

A final contribution focuses on our identification of work scheduling autonomy as one potential resource that may alleviate the impact of cognition-based WFC on supervisor assessments of employee engagement via employee feelings of emotional exhaustion. This suggests that human resource policies that enable employees more autonomy and control about how they juggle the time demands of work and family roles can stem the negative impact of cognitive WFC. Increased employee control over their time may mute rumination about work to an extent, because employees create work and family boundaries that fit with their needs and obligations.

Directions for Future Research

While this research uncovers a model of the relation between cognitive WFC and job success, it also highlights several potentially interesting future research directions. First, future research could directly examine the role of technology in cognition-based WFC. By understanding how variables such as tetheredness to technology (i.e., physical and psychological dependence on technology; Turkle, 2011), the number of e-mails received during nonwork hours, and supervisor expectations for fast response to e-mails impact cognition-based WFC, researchers could then focus on ways to stop or lessen the loss spirals that stem from this form of conflict. Additionally, many other moderators of the WFC and supervisor assessments of employee engagement relationship via emotional exhaustion could be considered as ways to replenish employees' resources. For instance, as Kossek and colleagues (Kossek, Pichler, Bodner, & Hammer, 2011) found in a meta-analysis, family-specific social support helps to alleviate WFC. Family-specific social support from both the supervisor and the organization (i.e., family-supportive organizational policies) could be considered as potential resource “replenishers,” alleviating the WFC-emotional exhaustion-supervisor assessments of engagement relationship (Allen, 2001).

Our results demonstrate the important role supervisors play in employees' work–family conflict and/or its consequences. As mentioned previously, the research is clear that family-supportive supervisors who help employees engage in creative work–family management can improve work-related as well as personal outcomes such as emotional well-being (Lapierre & Allen, 2006). We found that when employees had higher work scheduling autonomy, this ameliorated the negative relationship between WFC and engagement. So in organizations where supervisors have the authority to grant employees scheduling autonomy, this may break the cycle of WFC's negative impact on indicators of job success. Yet as suggested by an anonymous reviewer, perhaps it is time to study leadership and WFC in more complex ways besides leaders as the gatekeepers to organizational family-friendly resources. An example is new research that looks at the leader's role in employee WFC through a social exchange lens (e.g., Major & Morganson, 2011). Perhaps our ideas based on signaling theory could be combined with this new social exchange perspective: An employee's low engagement due to WFC might serve as a signal to the leader that the employee is not holding up his or her end of the exchange relationship, and hence, leader assessments of employee job success would be low. In sum, the work–family literature would benefit from studies that model the leader's role in employee WFC with more theoretical complexity and precision.

A final future research direction is to explore the role of coworkers impacted by an employee's loss spiral. For example, we focused acutely on employee emotional exhaustion and its association with engagement as viewed by the supervisor, but employees often work interdependently within teams. An employee experiencing emotional exhaustion may implicitly shift some of his or her tasks or responsibilities to teammates, unwittingly beginning a personal resource loss spiral in those coworkers and impacting their engagement. What implication does an employee's experience of cognitive WFC and emotional exhaustion have for team efficacy or team productivity? Further, an employee's teammates may also see emotional exhaustion as a signal of lower engagement, which may influence a team's cohesiveness or interpersonal dynamics. Will teammates of an

emotionally exhausted employee resent picking up the slack for this employee and helping with his or her work if asked? The implications may be even more poignant in situations where rewards are based on team performance. We suggest that future research explore whether employee loss spirals, begun by cognition-based WFC, have broader repercussions than previously reported, including repercussions for coworkers and team outcomes.

Practical Implications

This study raises the question of whether employees who experience cognitive WFC can ultimately experience positive job outcomes. We found that cognitive WFC is positively associated with emotional exhaustion, which acts as a signal for supervisors and is associated with lower supervisor assessments of engagement and job outcomes. The results make clear the importance of both the employee and the supervisor yet suggest that both parties can take steps to combat this issue. For instance, our study provides preliminary evidence that policies that supervisors control, that is, work scheduling autonomy, can stem the negative relationship between cognitive WFC and emotional exhaustion. In other words, supervisors may have control over some of the resources necessary for employees to manage the work-home interface effectively. Thus, supervisors who perceive an employee as lacking in engagement should consider whether conflicts between employee work and family domains (Ashforth, Kreiner, & Fugate, 2000; Zedeck, 1992) are in part responsible for low employee engagement. Supervisors who provide employees with resources and support that facilitate work-life balance mean that these employees also have resources to invest in on-the-job engagement, benefiting the organization and employee. Employees, too, must recognize that a constant focus on work may actually be detrimental to their job and career success, and they should seek ways to recover from the demands of work such as through leisure activities (Sonnentag, 2003).

Strengths and Limitations

This study has a number of strengths. First, we tested our model with multiple sources of data, using subordinate surveys, supervisor surveys, and organizational records (i.e., performance ratings and salary increases). In addition, two of the indicators of job success, performance ratings and increase in salary, were collected 9 months after the survey data. This separation by time allows for more confidence in the ordering of supervisor assessments of engagement as antecedent to these outcomes. However, our study would be further strengthened by a more distinct temporal lapse between the signal (employee emotional exhaustion) and the interpretation of that signal (supervisor assessments of employee engagement). Additionally, we used structural equation modeling to test our hypotheses, which allowed all proposed relationships, inclusive of the moderated mediation, to be tested in a single model.

Our study has some limitations that bear mentioning as well. First, our sample was white-collar employees whose jobs may have more flexibility than, for instance, lower-skilled, lower-wage employees whose work is more strictly controlled. In lower skilled, especially customer service jobs, work scheduling autonomy may simply not be an option. Therefore, other resources that alleviate some of the burdens posed by interrole conflict may need to

be considered for employees in these positions, such as compressed workweeks, which allow more continuity and flexibility in managing one's nonwork life. Further, testing our model in one organization may be viewed as both a potential strength and a limitation. The use of one organization controls for the presence of potential norms and cultures that vary from one organization to the other and that could impact study variables. However, it may also limit the generalizability of our results. It may be that these relationships operate differently in other types of jobs that have different norms for work–family segmentation or integration. Another limitation is that reverse causality among some of the variables in our model is possible. For example, consistent with the idea of loss spirals, emotional exhaustion may not only be a consequence of WFC but may increase WFC as well. Longitudinal research is needed to address the possibility of reverse causality among some variables in our model. Finally, because we were unable to collect demographic information from nonrespondents, we could not determine the representativeness of our sample.

Conclusion

Drawing on COR theory and loss spirals, as well as signaling theory, our results support a ripple effect whereby cognitive WFC is related to employee emotional exhaustion. Emotional exhaustion acts as a signal by which supervisors assess employee engagement, which is associated with indicators of employee job success. Taken together, these results extend COR theory by demonstrating the importance of both the employee and supervisor in understanding how and why cognitive WFC manifests and relates to employee job success.

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