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"You've Got Mail": a Daily Investigation of Email Demands on Job Tension and Work-Family Conflict

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Abstract
Email represents a useful organizational tool that can facilitate rapid and flexible communication between organizations, managers, and employees regardless of their physical location (e.g., office, home, on vacation). However, despite the potential benefits of email, its usage is a double-edged sword that also has the potential to negatively affect its users. To advance knowledge and inform both researchers and practitioners of such negative outcomes, we integrate the job demands-resources model with spillover theory to investigate email as a potential job demand and explore how it may relate to employees' job tension and work-family conflict. Using an interval-contingent experience sampling methodology with respondents from two separate organizations ($n = 134$) providing 704 observations across 6 days of surveys, we hypothesize that, as a job demand, email can have negative consequences on the job that can spill over into the home. Furthermore, we also examine an individual trait (i.e., trait self-regulation) as a potential boundary condition that moderates the extent to which experienced tension from email demands spills over into home life. Finally, theoretical and practical implications are also discussed.

Keywords Email · Job demands · Work-family conflict · Job tension · Trait self-regulation

From an organization's standpoint, email has become the preeminent and preferred means of communication (Guerin, 2017; Rosen et al., 2019). It is an important communication mechanism that links an organization and its employees together and provides benefits such as increased knowledge-sharing opportunities amongst employees (Miller-Merrell, 2012; Naslund, 2010), access to global talents and markets (Gibson & Gibbs, 2006), and flexibility in how, when, and where work tasks are completed (Boswell & Olson-Buchanan, 2007). Despite these findings, other research suggests that what is good for the organization is not always good for the individual employee, as there are often unintended, negative consequences felt by individuals that arise from organizations' reliance on email. For example, research has found that email can disrupt employees' workflow (Jackson et al., 2003), decrease work engagement (Reinke & Chamorro-Premuzic, 2014), or lead to the blurring of work and non-work boundaries (Butts et al., 2015). These negative consequences are receiving ever-increasing amounts of consideration, and have no doubt contributed to legislation being passed in countries such as France, Germany, and Spain that requires employers to uphold their employees' rights to disconnect from their workplace (Brin, 2019).

However, despite this previous research, more work is needed to extend our theoretical and empirical understanding of the negative consequences of email. Whereas email has been theorized as a source and symbol of work overload (Barley et al., 2011), there is limited empirical research that has directly considered it as a specific job demand in management research. For example, much of the previous research in this area has been theoretical, qualitative, or cross-sectional (e.g., Brown et al., 2014; Byron, 2008; Gimenez, 2006). Within the management literature, the limited research that exists focuses on leaders' responses to and outcomes of email as a job demand (e.g., Rosen et al., 2019). From a practical standpoint, many employees have been forced into work-

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from-home situations in response to the COVID-19 pandemic, causing employers and employees alike to lean heavily on email as a means of communication (Brynjolfsson et al., 2020). While these previous examinations represent meaningful work, given the ubiquity of email and its centrality to how work gets done, a greater amount of empirical research is needed that examines the construct of email demands, their consequences on individual employees, and understanding individual characteristics that could either exacerbate or attenuate negative effects.

Thus, in this study, we examine how and under what conditions email communication may negatively influence both work- and home-related outcomes, to the extent that such communication can be perceived as demanding. To do so, we utilize job demands-resource (JD-R) theory (Bakker & Demerouti, 2007; Bakker & Demerouti, 2017; Demerouti et al., 2001) to conceptualize email as a specific job demand and then leverage spillover theory (Carlson et al., 2011; Demerouti et al., 2005; Grzywacz & Marks, 2000b) to explain the relationships it shares with both job tension and work-family conflict.

Specifically, as illustrated in Fig. 1, we argue that to the extent individuals perceive email communication as a demand, they will also experience increased job tension, which, in turn, will increase work-family conflict. Furthermore, we examine an individual trait (i.e., trait self-regulation) as a moderating variable that affects the extent to which experienced job tension from email demands spills over into home life. We use an experience sampling study design and multilevel structural equation modeling (MLSEM) to explore email demands and their effects on work- and home-related outcomes. Such a design allows us to examine the between-and within-person variation related to email demands, job tension, work-family conflict, and trait self-regulation.

Our study makes several contributions to the literature. First, we contribute to the JD-R literature by introducing email as a type of job demand and using the JD-R model to explore its link to perceived strain. Additionally, we contribute to the JD-R model and spillover theory domains by considering them in tandem through an examination of the process through which a job demand (i.e., email demands) leads to experienced strain (i.e., job-tension), which spills over to an at-home outcome (i.e., work-family conflict). Such a concern for the interplay between home and the workplace is especially relevant, given the substantial increase and usage of modern communication technologies. Next, by examining trait self-regulation, we identify an important theoretical addition to these research areas that can help us understand the conditions under which these processes unfold. Finally, we make an empirical contribution by testing the negative effects of email demands across time and levels, by using MLSEM on data collected via an experience sampling methodology. The combination of this methodology with this data collection strategy allows us to avert more common limitations associated with cross-sectional designs (e.g., Boswell & Olson-Buchanan, 2007; Ferguson et al., 2016), while examining both the within- and between-individual factors to better isolate the effects of email demands.

Theoretical Foundations

Job demands refer to the aspects of one's job that require some sort of exertion to overcome, which often can result in the incurrence of a certain cost to the individual (Demerouti et al., 2001). Because these demands can be present in the physical, psychological, social, or organizational aspects of the workplace (Bakker & Demerouti, 2017), they can be difficult to escape and, thus, can take a toll on employees' well-being. For example, job demands such as excessive work pressure, unfavorable work environments, and large workloads consistently have been found to be associated with negative outcomes such as emotional exhaustion and problem drinking (Demerouti et al., 2001; Grzywacz & Marks, 2000a). These negative outcomes mostly focus on individual well-being, and research supports how job demands impair employees' health and how subsequent attempts to cope with these demands result in troubling physiological symptoms (e.g., increased blood pressure, Evans et al., 1996; fatigue, Cohen et al., 1986; increased levels of cortisol, McEwen & Lasley, 2003). Additionally, job demands predict at-work outcomes such as absence duration (Bakker et al., 2003),

Fig. 1 Conceptual model for the effects of email demands on work and non-work stress experiences
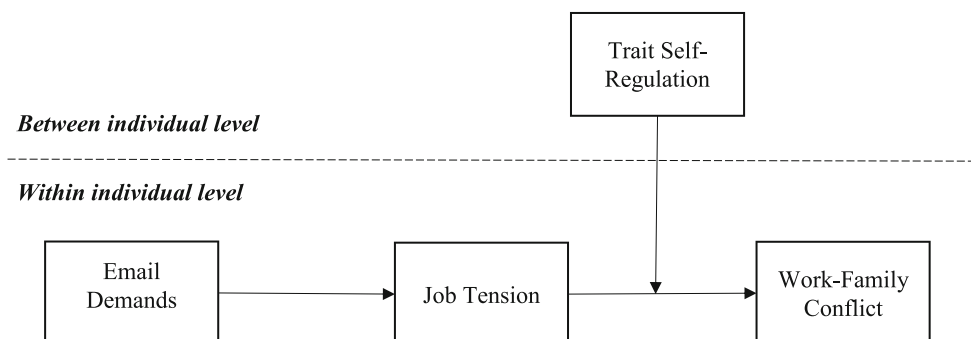
exhaustion, and performance (Bakker et al., 2009). As defined by the JD-R model, we argue that there are several aspects of the nature of email that would classify it as a job demand. As such, the demands of email can be felt to the detriment of individual employees.

The Effects of Email as a Job Demand

There are several ways in which email represents a job demand. For example, email represents a type of digital interruption that can disrupt workflow and attention that should be devoted to other tasks (Barley et al., 2011; Jett & George, 2003). Market research has found that individuals check their email, on average, 15 times each day (Plummer, 2019), using 28% of the workday reading and responding to emails (Chui et al., 2012). Not only does the constant checking of email disrupt workflow directly but also the recovery time from these continuous checks affects individuals' ability to "get back in the flow" (Jackson et al., 2003). The process of getting back in the flow after email interruptions can be taxing, often occurring at the expense of individuals' personal resources (Russell et al., 2017). We further note that these figures predate the COVID-19 outbreak of 2020, which has no doubt increased the number of emails employees receive and the time spent responding to them.

The expectations and norms of email communication can also help in its conceptualization as a job demand. Depending on the context, the expectations and norms surrounding email can require physical and emotional exertion. Organizations may have unwritten "rules" about the speed, accuracy, and method of responding to emails (Mazmanian, 2013). Even with proper acclimation, individuals may struggle to cope or keep up with these norms. Alternatively, these expectations and norms may depend on the individual(s) involved in the email.

Individuals may exert emotional labor in making sure to respond in a timely and professional manner to a superior in an organization. This psychological state has been identified by researchers as *workplace telepressure*, which is defined as the "preoccupation and urge to immediately respond to work-related [information and communications technology] messages" (Barber & Santuzzi, 2015, p. 172). Such preoccupations arise from internalized expectations or norms (Santuzzi & Barber, 2018), and are associated with negative outcomes, such as increased burnout and decreased sleep quality (Barber et al., 2019; Hu et al., 2019). Emails can be categorized as a job demand when they lead to increases in psychological states (such as workplace telepressure) wherein individuals will have preoccupations with and urges to respond to such messages.

Furthermore, the content of email may also contribute to it being viewed as a job demand. Somewhat related to interruptions, email often contains time-sensitive information or requests that require quick responses to "put out a fire." When these types of time-sensitive emails become routine, it is likely that employees will become wary of even reading emails from certain senders. Additionally, the affective tone in emails can be emblematic of a job demand. Research has found that the affective tone of an email results in psychological costs, with negative affective tone resulting in greater anger felt by email recipients (Butts et al., 2015).

Taken together, we argue that there is sufficient support for classifying email as a job demand (which we label as *email demands*). In accordance with JD-R theory, therefore, the extent to which individuals perceive email demands will result in physiological or psychological costs for employees. In this study, we consider job tension as one such cost of email demands. Job tension has been defined as an "individual's state of being bothered by work-related items" and the "pressure to change either the quality or quantity of…work" (Blalack & Davis, 1975, p. 32). Employees experience job tension when they are worried about work-related factors (Andrews et al., 2015; Lyons, 1971). Individuals will experience job strain in the form of job tension when personal or organizational expectations for checking and responding to email interrupt their personal workflow and when they receive an email with unfavorable or distracting content. In addition, these job strains will result in employees feeling internal or external pressure to change their approach to their work to cope with this demand, thus leading to increased job tension. Therefore, we hypothesize the following:

Hypothesis 1: Email demands will have a positive relationship with job tension.

When the Line Between Work and Home Blurs

One prominent feature of job tension is its ability to affect outcomes in other domains. This effect, known as "spillover" is a process by which one's behaviors, emotions, and attitudes in one setting or role affect another setting or role (Carlson et al., 2011). While spillover theory can explain some positive outcomes (e.g., Hammer et al., 2005; Hanson et al., 2006), it has been frequently used to describe the processes by which work-related stress (e.g., job tension) increases perceptions of work-family conflict by bringing unpleasant experiences, characteristics, and moods from the workplace into the home (Carlson et al., 2011; Demerouti et al., 2005; Eby et al., 2005; Grzywacz & Marks, 2000a, b). For example, research has demonstrated that stressors in the workplace are associated with job tension which can spill over to the home affecting family satisfaction, family tension, and even how well the family functions (Carlson et al., 2011).

These work-related behaviors, emotions, and attitudes tend to occur within the physical boundaries of the workplace and are susceptible to spilling over into the home; this suggests the blurred boundaries associated with email demands should make spillover even more likely to occur. Furthermore, before

the proliferation of advanced communications technologies, spillover was likely to manifest itself through negative effects on employees' cognition and affect at home (Beal et al., 2005). Now, however, it can take physical shape in the form of any number of smart devices. In this way, the digital and almost invisible intrusion of emails has now been given a tangible form (e.g., smart devices) that represents a physical pathway to spillover. Where employees once were able to detach physically from their organizations simply by walking out of the door, most modern US workers carrying smart devices keep this window to work-family conflict open. In this way, email blurs the boundaries between work and non-work (Ferguson et al., 2016), and leads to increased work-family conflict (Boswell & Olson-Buchanan, 2007). The COVID-19 pandemic has only blurred (or, in many cases, erased) the boundary between work and home, with working-from-home rates estimated to be anywhere from 31 (Brynjolfsson et al., 2020) to 42% (Bloom, 2020) of the total labor force.

The now ubiquitous checking of emails in locations once considered off-limits to work activities (e.g., children's plays, sporting events, family dinners) is evidence that the workplace has begun to spill over into the non-work domain, a process similar to boundary blurring (Sarker et al., 2012). Ferguson et al. (2016), p. 521) noted that employees engaging in work outside of the traditional workspace are "in two places and times simultaneously (e.g., at work and away from work, engaging in both family and work time)." However, as a job demand, email encompasses more than simply engaging in work outside of the office because it involves the perception of being constantly connected. It is likely that job tension, a feature generally limited to the work domain, will spill over into the home domain because the spheres of constantly connected employees are blurred, and they tend to exist with one foot at home and the other foot at work.

In our model, we argue that to the extent it is perceived as a job demand, email increases the degree to which individuals experience job tension. The experienced job tension then "spills over" into the home, creating greater work-family conflict.

Hypothesis 2:   Email demands will have a positive relationship with work-family conflict.
Hypothesis 3:   Job tension will mediate the positive relationship between email demands and work-family conflict.

Self-Regulation: Separating Work from Home

With the near erasure of the physical boundaries between work and home, it becomes incumbent upon employees to undertake the establishment of their own boundaries.

However, this is more difficult than ever due to the ever-increasing reliance on instant communication platforms that only serve to increase telepressure (Barber & Santuzzi, 2015; Grawitch et al., 2018). With technology continuing its march into each room of the modern-day home, limitless access to incoming messages and reminders shows no sign of abating. One likely result of this increased connectivity is heightened feelings of spillover. This makes intuitive sense because while research recommends employees experiencing spillover consider psychologically detaching from the workplace when at home (Sonnentag & Binnewies, 2013), the physical reminders and links (e.g., communications technology) to the workplace scattered about the home and carried in our pockets make it all the more difficult to do so. Thus, having already ceded physical space in our homes to tools that may function as reminders of the workplace, remedies for counteracting spillover need to be cognitive in nature. We argue that trait self-regulation is one cognitive remedy for spillover that employees can use to establish a sense of control over both their work and home domains.

Self-regulation is generally defined as individuals' abilities to resist temptation and to calibrate behavior in order to achieve desired goals (Baumeister et al., 2007; Lanaj et al., 2014), and self-regulation is a useful psychological mechanism that can dictate individuals' behaviors (or the ability to inhibit unwanted behavioral responses) in both the workplace and the home (Lian et al., 2014; McAllister et al., 2018; Yam et al., 2016). Thus far, research suggests that self-regulation provides mostly beneficial outcomes in the workplace, including increased work performance (Johnson et al., 2014), decreased perpetration of bullying behaviors in the workplace (McAllister & Perrewé, 2018), and a more robust involvement in helping behavior around the workplace (Trougakos et al., 2015). Additionally, self-regulation research suggests positive benefits in the home, such as healthier relationships between partners with high self-regulation (Tangney et al., 2004), less engagement in unethical behavior (Gino & Margolis, 2011), and increased prosocial behaviors (Xu et al., 2012).

Most of these outcomes require long-term inhibitions of impulses (Imhoff et al., 2014, p. 413), which characterize self-regulation as a relatively stable trait-like individual difference known as trait self-regulation (Tangney et al., 2004). These long-term outcomes follow logically as self-regulation generally is considered a stable individual difference measuring individuals' capacity to control their behavior over time. Thus, the experience of work-family conflict because of job tension may vary based upon the trait self-regulation of employees. Indeed, prior research demonstrates that trait self-regulation allows employees to keep work and home domains separate (e.g., Ferguson et al., 2016; Lanaj et al., 2014). For employees with high trait self-regulation, their capacity to self-regulate effectively should enable them to successfully detach from work once back home, inhibit expression of job

tension at home, and prioritize current domestic tasks (e.g., Lian et al., 2014; Tangney et al., 2004).

Furthermore, trait self-regulation is an ideal psychological characteristic to consider in this context given the changing nature of how job tension spills over into the home. As previously argued, bringing the negative spillover of job tension into the home has become simpler given the rise of advanced communications technology. Before such technology, employees could physically "leave work at work." Temptation is removed with such rigid boundaries, and individuals' trait self-regulation had little need to be used. Yet, with the bridge from home-to-work present in a physical form, trait self-regulation becomes a salient individual characteristic to consider as an attenuator of the negative effects of spillover. As such, the negative impact of email demands on work-family conflict via job tension is likely to be weakened for employees high in trait self-regulation. Conversely, employees low in trait self-regulation will have difficulty detaching from work and let tension from work spillover to their homes. Thus, we hypothesize the following:

Hypothesis 4: Trait self-regulation will moderate the relationship between job tension and work-family conflict such that the positive relationship between job tension and work-family conflict will be attenuated as trait self-regulation increases.

Hypothesis 5: The positive, indirect effect of emails demands on work-family conflict via job tension will be conditional upon levels of trait self-regulation, such that the indirect effect will be weaker for employees with higher levels of trait self-regulation than those employees with lower levels of trait self-regulation.

Method

Participants and Procedure

Because our framework sought to assess the intra-individual effects of email use on the daily planning processes, we used an interval-contingent experience sampling methodology (ESM) to gather our data. Previous research on the effects of organizational communication using electronic media has implemented similar methodologies (e.g., Butts et al., 2015; Rosen et al., 2019). Participants were recruited from two organizations headquartered in the Southeastern United States. One organization was a state governmental agency, while the other was a private global human resources firm. Participants were contacted by a leader at the vice-president (or higher) level to solicit support for our study. Those interested in participating first completed a demographic survey. One week after the demographic survey, we administered a series of surveys that spanned six workdays (one working week, plus the following Monday). Daily surveys were emailed in the morning at approximately 6:00 am; with a reminder survey that was sent later in the day at 2:30 pm.

Given the invasive nature of ESM data collection (Rosen et al., 2019), we sought ways to reduce the burden of our data collection on those who participated in this study, where possible. For instance, we ensured daily surveys were relatively short (average daily survey time was approximately seven minutes) to reduce the daily time demands of participants. For the 6 days, we measured email demands, job tension, and work-family conflict. Trait self-regulation was measured once as another way we sought to reduce the time commitment to this study.

Two-hundred and forty-eight individuals from across the two organizations were informed of the study. Of these, 134 employees ($n = 61$ from organization 1 and $n = 73$ from organization 2) actually participated in our study, yielding a 54% response rate (134 participants out of a potential 248). From these participants, we received 701 daily observations, with the average number of daily responses from participants being 5.14. Such response rates are consistent with previous ESM research (e.g., Kammeyer-Mueller et al., 2016). Participants had an average age of 45.59 years old (SD = 10.05) had worked at their current organization for 9.14 years (SD = 8.88), and worked an average of 45.66 h per week (SD = 6.83). The sample included a large percentage of supervisors (41.4%) and 47% of participants were female.

Measures

Unless otherwise noted, all responses were scored on a 7-point scale (1 = *strongly disagree,* 7 = *strongly agree*). For the within-person variables (i.e., email demands, job tension, and work-family conflict), reliabilities were calculated for each day of the study. For brevity, reported reliabilities represent an average of each day across the 6-day study.

Email Demands We used a six-item measure to capture perceptions of email demands that employees perceive during the day. Prior to the current study, we generated the six items in consultation with working professionals and human resource executives, whom all had several years' experience working in organizations. These subject matter experts confirmed the face validity of the six items, which are as follows: "At work, I often receive emails telling me there is a meeting in less than an hour;" "I receive too many emails from my organization;" "I cannot plan my day because I routinely receive emails with new requirements or meetings that must be completed during that business day;" "When I leave my desk for any length of

time, I become anxious because of how many emails are entering my inbox;" "Electronic communications have taken the place of planning in my organization;" and "The amount of emails I receive stresses me out." In addition to assessing our measure's face validity, we took several additional steps to ensure that it accurately captures our focal construct. We began assessing the psychometric properties of this scale by recruiting 376 full-time, adult employees to whom we administered our survey. Undergraduate students enrolled in a class at a large Southeastern University recruited these participants. With this sample, our six-item measure demonstrated good reliability (α = .86). We performed an exploratory factor analysis (EFA) using principal axis factoring with an oblique rotation. Our EFA yielded a single-factor structure that fit our data well ($\chi^2_{(9)}$ = 73.51, p < .01, CFI = .93, TLI = .89, RMSEA = .14, SRMR = .05). This single factor had an eigenvalue of 3.52 and extracted 58.6% of the variance. The factor loadings of the six items on the single factor ranged from .60 to .81. Next, we sought to confirm the appropriateness of this scale by administering it to an additional sample of working adults. With data gathered from 213 participants—via Amazon's Mechanical Turk platform—we assessed the measure's reliability (α = .83) and conducted a confirmatory factor analysis (CFA) for the single-factor structure of our scale. The CFA ($\chi^2_{(9)}$ = 60.51, p < .01, CFI = .91, TLI = .86, RMSEA = .16, SRMR = .05; factor loadings ranging from .67 to .82) yielded results that supported the findings of our EFA. We also administered several additional measures in this sample to assess the distinctiveness of our six-item measure with other related, albeit unique, constructs. As expected, our measure was significantly associated with constructs such as perceived organization support (Eisenberger et al., 1986) at −.16, job demands (Bakker et al., 2005) at .22, role overload (Cammann et al., 1983) at .33, organization resentment (Ehlen et al., 1999) at .37, and mWork (i.e., the use of smartphone/tablet to work during family time; Ferguson et al., 2016) at .59. The multilevel CFA conducted for the current study provided further indication of a single-factor structure for this six-item measure ($\chi^2_{(9)}$ = 114.85, p < .01, CFI = .91, TLI = .85, RMSEA = .12, SRMR = .05). The average Cronbach's alpha across each of the 6 days was .87. Based on these collective findings, we felt confident that our six-item measure both theoretically and psychometrically captured email demands.

Job Tension Job tension was measured using the seven-item measure developed by House and Rizzo (1972). A sample item from this measure is, "I work under a great deal of tension." Across the six days of our study, the average Cronbach's alpha for this measure was .93.

Work-Family Conflict A five-item measure developed by Netemeyer et al. (1996) was used to examine work-family conflict. This measure specifically examines how employees' work-related demands and commitments interfere with their family

obligations and/or responsibilities. A sample item from this measure is, "The amount of time my job takes makes it difficult to fulfill family responsibilities." In the present study, the average Cronbach's alpha for this measure across six days was .97.

Trait Self-regulation To measure trait self-regulation, we used the following items from Maloney et al.'s (2012) eight-item measure, with items such as, "I am good at resisting temptation." Participants rated the extent to which statements about their self-regulation were like them (1 = *not at all like me*, 5 = *very much like me*). Due to this construct being stable across time, as well as to decrease the load of employees participating in our study, trait self-regulation was administered only once. Its Cronbach's alpha for this study was .81.

Control Variables Due to the relatively nascent nature of smartphones and similar technology, it was expected that age might influence experienced job tension. Many of the youngest workers essentially grew up with smartphones, whereas older workers have had to transition from being relatively inaccessible at home to now being accessible at any location. Therefore, we controlled for respondents' age. We also controlled for respondent sex based on the results of previous stress research (e.g., Meurs et al., 2010). Finally, because we collected data from two organizations, we controlled for organizational membership. Different organizations may have varying expectations for the degree to which their members must remain constantly connected (Mazmanian, 2013).

Analytic Approach

Following previous research with hierarchical data (e.g., McCarthy et al., 2019), we tested our hypotheses using Mplus 8 (Muthén & Muthén, 1998–2013) to conduct multilevel path analyses. Level-1 variables were group-mean centered, while our Level-2 variable was grand-mean centered. We followed recommendations from Preacher et al.'s (2010) and Liu et al. (2012) to test a 1-1-1 second-stage-moderated mediation multilevel path model. This analytical strategy allowed us to avoid a piece-meal approach, wherein the nuances of examining relationships jointly are at risk of being lost (Liu et al., 2012). In line with prior ESM research (e.g., Scott & Barnes, 2011), we partitioned within-person variance from total variance for the three daily variables with null models in Mplus. Results of the null models show that there was meaningful (17% for email demands; 10% for job tension; and 10% for work-family conflict) and significant within-person variance (.30 (SE = .035, p < .001) for email demands; .25 (SE = .208, p < .001) for job tension; and .31 (SE = .053, p < .001) for work-family-conflict) for all of the three variables. Therefore, our use of multilevel analytic technique was justified (Bliese, 1998; Bliese, 2000; Scott & Barnes, 2011).

Results

Means, standard deviations, and correlations among study variables are reported in Table 1. Prior to hypothesis testing, given the relatively high intercorrelations between our study constructs, we conducted a multilevel confirmatory factor analysis (Dyer et al., 2005) to assess their distinctiveness of both the within- and between-level variables. Items for email demands, job tension, and work-family conflict were mean centered and modeled as three factors, and the items for trait self-regulation were uncentered and modeled as one factor. This four-factor, multilevel CFA fit the data well ($\chi^2_{(152)}$ = 514.37, p < .01, CFI = .93, TLI = .92, RMSEA = .05, SRMR$_{within}$ = .04 SRMR$_{between}$ = .06), suggesting that each of our latent factors are distinct constructs.

Hypothesis Testing

Table 2 summarizes the results of testing Hypotheses 1 to 3. Hypothesis 1 predicted a positive relationship between email demands and job tension. Consistent with our expectation, this hypothesis was supported (B = .32, p < .01). In support of Hypothesis 2, the relationship between email demands and work-family conflict was also found to be positive (B = .36, p < .01). Hypothesis 3 posited that job tension would mediate the positive relationship between email demands and work-family conflict. We followed Preacher, Zhang, and Zyphur's (2011) approach to assessing mediation in multilevel data. In addition, prior research shows that Mplus provides accurate point estimates of indirect effects but incorrect significant levels because the standard errors of these compound

coefficients are not normally distributed (e.g., Edwards & Lambert, 2007; Liu et al., 2012; Shrout & Bolger, 2002). In line with past researchers (e.g., Lanaj et al., 2016; Zhang et al., 2014), we used Liu et al.'s (2012) R code to construct bias-corrected confidence intervals with a Monte Carlo simulation. In support of Hypothesis 2, the indirect effect of email demands on work-family conflict through job tension was positive and significant (indirect effect = .15, 95% confidence interval [.09; .22])

Before testing Hypothesis 4—which predicted that trait self-regulation can act as a personal resource in the JD-R model to somewhat lessen the effects of job tension on work-family conflict—we examined whether there was significant variance of the slope between job tension and work-family conflict across individuals. Results show the slope variance was significant (variance = .17, p < .01). Subsequently, our results provide support for this hypothesis (B = −.18, p < .05). Figure 2 provides a plot of this interaction. Consistent with Hypothesis 3's predictions, simple slope test results show that job tension was less positively associated with work-family conflict for participants with high trait self-regulation (i.e., one standard deviation above the mean; simple slope = .20, p < .05) than for participants with low trait self-regulation (i.e., one standard deviation below the mean; simple slope = .43, p < .01).

Hypothesis 5 posited that the indirect effect of email demands on work-family conflict via job tension would be smaller for employees high in trait self-regulation than for employees who are low in trait self-regulation. Again, prior research shows that Mplus provides accurate point estimates of indirect effects and their differences but incorrect significant levels because the standard errors of these compound

Table 1 Within- and between-individual correlations, descriptive statistics, and variances

Variable	1	2	3	4	5	6	7
1. Email demands	–	.68**	.63**	−.15	−.03	−.07	.40**
2. Job tension	.55**	–	.88**	−.14	.05	−.13	.27**
3. Work-family conflict	.45**	.78**	–	−.08	.08	−.15	.28**
4. Trait self-regulation	–	–	–	–	.09	.08	−.20*
5. Age	–	–	–	–	–	-.03	.00
6. Gender	–	–	–	–	–	–	−.35**
7. Organizational membership	–	–	–	–	–	–	–
Mean	3.61	3.86	3.44	5.10	45.20	.50	.56
Standard deviation	1.30	1.59	1.71	0.64	10.03	.50	.50
ICC (1)	.80	.91	.90	–	–	–	–
ICC (2)	.95	.98	.98	–	–	–	–

Listwise n at within-individual level = 701; n at between-individual level = 134; within-individual level correlations are below the diagonal, and between-individual level correlations are above the diagonal. Variables 1 to 3 are aggregated to the individual level in order to compute their between-individual level correlations with other variables; σ^2 is the within-individual variance, and τ is the between-individual variance; the intraclass correlation (ICC) is computed as "$\tau/(\tau + \sigma^2)$." Gender was coded as follows: female = 0, male = 1. Organizational membership was coded as follows: state agency = 0, global HRM firm = 1

*p < .05. **p < .01; two-tailed

Table 2 Multilevel path model results of testing Hypotheses 1 to 3

Predictor	Job tension		Work-family conflict		Work-family conflict	
	B	SE	B	SE	B	SE
Intercept	2.02**	.55	1.65**	.43	2.65	.70
Within						
Email demands	.32**	.04	.01	.04	.04	.05
Job tension			.36**	.06	.31**	.07
Between						
Age	.01	.01	.00	.01	.01	.01
Sex	−.18	.23	.02	.12	−.20	.30
Organizational membership	.53*	.25	.11	.13	.75*	.33
Trait self-regulation					−.09	.23
Cross-level						
Trait self-regulation × job tension					−.18*	.08

Listwise n at within-individual level = 701; n at between-individual level = 134; B, unstandardized regression coefficient; SE, standard error; H, hypothesis; *$p < .05$. **$p < .01$; two-tailed

coefficients are not normally distributed (e.g., Edwards & Lambert, 2007; Liu et al., 2012; Shrout & Bolger, 2002). In line with past researchers (e.g., Lanaj et al., 2016; Zhang et al., 2014), we used Liu et al.'s (2012) R code to construct bias-corrected confidence intervals with a Monte Carlo simulation. The results show that although the indirect effects for employees with high (indirect effect = .04, 95% confidence interval [.01; .08]) and low (indirect effect = .09, 95% confidence interval [.06; .15]) trait self-regulation were positive and significant, the difference between the two indirect effects (difference = −.05, 95% confidence interval [−.10; −.01]) was negative and significant. Thus, Hypothesis 5 was supported. Figure 3 illustrates the multilevel path model used to test Hypothesis 5.
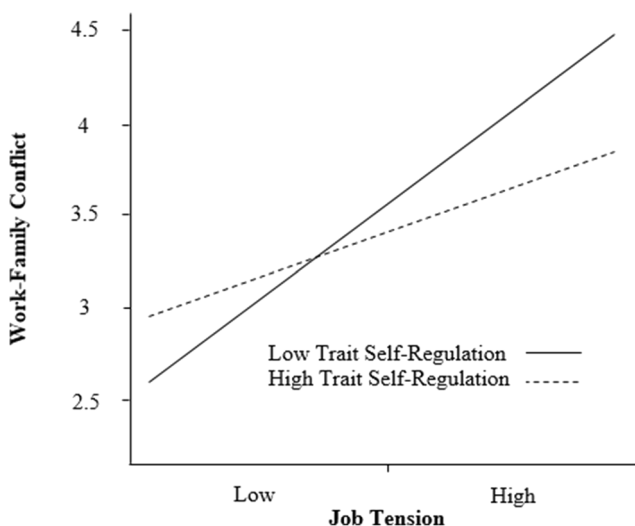

Fig. 2 The moderating effect of trait self-regulation on the relationship between job tension and work-family conflict

Discussion

We examined the relationships between email demands, job tension, work-family conflict, and trait self-regulation in this investigation. Specifically, we hypothesized that email demands would predict job tension and that job tension would predict work-family conflict, particularly for individuals with low trait self-regulation. Furthermore, we predicted that email demands would have an indirect effect on individuals' experienced work-family conflict through job tension. The results demonstrated full support for all our hypotheses.

Theoretical Implications

This investigation makes several important contributions to the literature. First, email demands are the product of technological advancements considered to be beneficial from an organization's perspective, with potential downsides only considering the ways in which the technology's potential has not yet been fully achieved (Burg, 2013). Adopting new technologies in hopes of enhancing employee productivity and accessibility is now a common organizational strategy (Henfridsson & Bygstad, 2013). Research has already demonstrated the improvements in organizational performance exhibited by organizations with enhanced information technology capabilities (Bharadwaj, 2000). However, our results suggest there is a downside associated with reliance on such communication technologies explicitly felt by individual employees. Although organizations may consider maintaining constant communications with their members a benefit, the members themselves may be paying a relatively invisible price in the form of increased job tension which can spill over into the home domain in the form of work-family conflict.

Fig. 3 Estimated multilevel path model for the effects of email demands on work and non-work stress experiences. Within-individual level $n = 701$; between-individual level $n = 134$; control variables (i.e., organizational membership, age, and gender) not shown in the model. $*p < .05.$ $**p < .01$; two-tailed
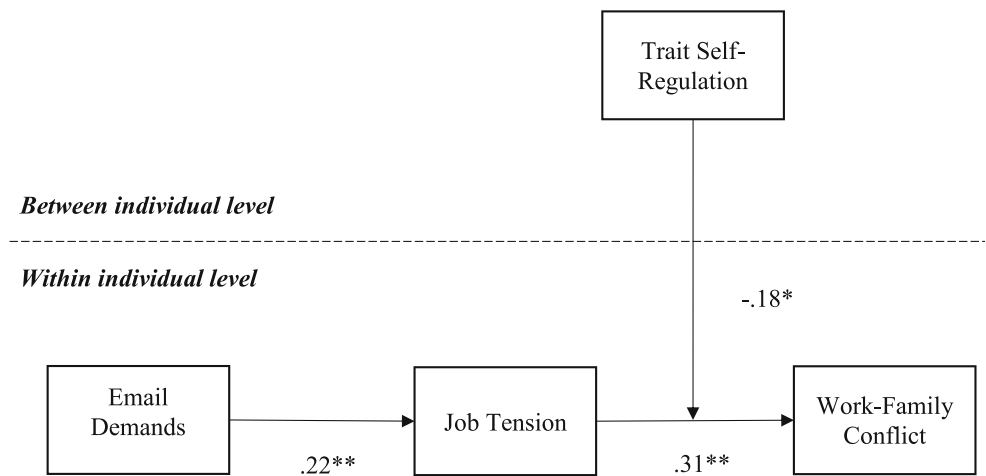
This investigation examines the construct of trait self-regulation within the context of a modern workplace. Research on self-regulation in the workplace has been gaining traction in elite management journals (e.g., *JAP*, *AMJ*; Barber et al., 2017, Johnson et al., 2014; Liang et al., 2016; Trougakos et al., 2015) due to its flexibility as a moderator and its ability to incrementally increase and refine our understanding of employee behaviors. Self-regulation's lengthy reach, coupled with its favorable relationships with positive work- and home-related outcomes (e.g., work performance; ethical behaviors; relationship success), makes trait self-regulation a well-suited moderator for the current study. Thus, we argued that work-family conflict due to experienced job tension will vary depending upon the employees' level of trait self-regulation. As such, the negative impact of email demands on work-family conflict through job tension is likely to be less for employees high in trait self-regulation as compared with employees with low trait self-regulation. Specifically, employees low in trait self-regulation have difficulty detaching from work and tend to let job tension spillover to their family lives after work.

Next, this investigation contributes to the stress literature by updating and advancing the investigation of technology on employees. Much of the technology organizations use to increase productivity may be viewed as performance-enhancing tools by the organization but can easily be seen as sources of stress by the employees. This dichotomy is evidenced in recent research demonstrating how the increased proliferation of technology has both intensified (Green, 2001) and expedited (Agger, 2004) the way in which we work, while simultaneously lengthening the average workday (Robinson & Godbey, 1997). This line of thinking would also suggest that our investigation has implications for the telepressure literature. As organizations demand an ever-increasing amount of connectivity from their employees (ramped up even more during COVID-19), employees may start to feel greater demands from their emails and increased preoccupations and urges to quickly respond to work-related messages. Those higher in self-regulation may be able to lessen the degree to which they feel telepressure, just as those in our study experienced less work-family conflict.

Clever employees can retain some perceptions of control over their work by managing submissions and deadlines. In the past, employees could submit a project to their supervisor and then begin working on another task safe in the knowledge that feedback likely would not be immediately forthcoming. However, technology now allows supervisors to provide feedback and potentially expect revisions just as quickly. This results in employees constantly working at maximum effort to "put out fires"; only to find that those same projects reignite while employees are still battling other infernos. Clearly, interruptions are not new and the act of superiors interrupting subordinates (e.g., asking for project updates, issuing refined guidance) is not indicative of a dysfunctional system, but rather a sign of a functioning supervisor-subordinate dyad. However, what at one time could only be accomplished within the confines of office walls (e.g., 9–5), now occurs at any time of the day or night. The "fires" start both during the day and now while employees sleep, and they often need to be put out not only during the time traditionally allocated for work but now the personal time allotted for family interaction.

Similarly, it has become commonplace for organizations to place restrictions on or monitor their employees' access to the internet during work hours (e.g., social media, Facebook, Twitter). This is somewhat hypocritical considering that employers now expect employees to check email when home or engaged in *social* activities. However, the reasoning behind these restrictions at work is clear: employees interrupted by social media updates are likely to experience decreased productivity. Nonetheless, organizations are engaging in their own form of sanctioned interruption when they send out mass emails notifying employees of a newly scheduled meeting

occurring in thirty minutes. Similarly, individuals who plan their workdays before going home may arrive at work the next day to find emails that completely change their schedule. As the workplace shifts from the discrete and defined office of the past to the more continuous and abstract modern office, recognizing and managing interruptions will be necessary to maintain the psychological well-being of employees.

Practical Implications

The pervasiveness of electronic communications today means that there are many practical implications for individuals and organizations embedded within this topic. Employees who are expected "to always be on" will be more likely to experience several negative effects associated with increased job tension and work-family conflict. For employees to establish or reclaim control over their time, boundaries need to be set. This may be particularly difficult in settings where email is the primary means of communication—such as during a global pandemic where brick-and-mortar workplaces were abandoned for bedroom or dining table offices. Where feasible, individuals in such settings should consider establishing or adjusting supervisory expectations. If they cannot set clear boundaries with their organization or immediate supervisor, then it is imperative that they set clear boundaries for themselves.

Such boundaries are likely to benefit not just individuals' work lives, but also their home lives. Thus, families need to be considered in this equation. The research on how "taking work home" affects families is abundant and has long been applicable in this situation (Jones & Fletcher, 1996). Unfortunately, whereas taking work home is generally associated with physically carrying home files or logging onto a computer in the home, the constant communication offered by smartphones and other devices is much subtler and potentially insidious. Consequently, employees are more regularly taking work home, then to the soccer game, then the dance recital, and then back to the home often increasing work-family conflict in the process. Unless boundaries are in place, it is difficult to imagine a scenario in which being constantly connected to work does not affect the employee's spouse, children, and friends.

Additionally, organizations should examine the impact communication practices have on their employees. More specifically, they need to consider the outcomes they receive when maintaining contact with employees. Two organizational implications are identified, the benefit-cost of connection and formal policy development to govern workplace behavior. First, organizations need to evaluate the benefit-cost of remaining constantly connected with their employees. This study has shown that increased organizational connectivity can have negative effects on important individual level outcomes. If organizations persist in remaining constantly connected, they must examine the short and long-term effects by asking the question, "Are the costs of such communication

(i.e., increased job tension and work-family conflict) worth the additional hour of work or the extra day saved on a project?"

The second organizational implication is the establishment of formalized standards for organization communication. Our understanding of the negative effects of email on the workplace is just now emerging. As such, the expectations and norms for its use in many workplaces have yet to be formalized. In fact, research suggests that some of the tensions experienced by the use of connectable devices may be due to the lack of policy and procedure in their usage (Mazmanian, 2013). Organizations should consider clearly defining the expectations for using devices that could potentially facilitate email demands on employees and supervisors. These clearly defined expectations are more important with the findings of this study as a backdrop. Organizational policies could be beneficial particularly for individuals low in trait self-regulation, who may otherwise not be able to resist after-hours work communication without such external boundaries placed on them.

However, policy changes are not just being suggested at the organizational level. More recently, governments, with the support of labor unions, have introduced legislative measures or enacted laws that regulate how organizations address the use of communication technologies outside of work hours. For example, in 2016 France adopted the "*El Khomir*" law, named after the former Labour Minister who proposed the bill, which provides employees the right to disconnect from work-related communications, including email, during non-working hours (Way, 2019). Globally, other countries are considering similar measures through either the legislative or legal processes. Spain and Italy have passed similar laws (Brin, 2019) and the Luxembourg courts recently ruled in favor of employees having the right to disconnect from work (Castegnaro & Claverie, 2019). Belgium, the Netherlands, India, and the Philippines have seen pro-disconnect regulatory measures introduced as part of a broader movement to address the effects of constant connectivity to work (Borkar & Rane, 2019; Ornstein, 2019; Way, 2019). Even in the USA, federal regulators have examined the impact of communication technology on employees' well-being when making policy decisions. Recent clarification of the Fair Labor Standards Act (FLSA) was issued that defined work activities such as checking email after hours and other work activities using communication technologies in excess of a 40-h workweek as compensable activities for certain employees.

Additionally, individual states and municipalities are taking up measures to address the issue of constant connectivity. In fact, a bill was introduced in the New York City Council that would make it unlawful for any employer to require an employee to access work-related electronic communications (e.g., email) during non-working hours and require prescriptive written policies outlining regarding the boundaries of

electronic communication (Ampry-Samuel et al., 2018). As a result of our emergent understanding of the negative effects of email demands and the changing regulatory environment, we suggest that organizations implement formal guidance (i.e., boundaries) on the use of email outside of work through standard operating policies and procedures that balance operational needs and reduce the need for employees to be in constant contact.

Limitations and Directions for Future Research

We note several limitations of our present examination. As with most experience sampling investigations, we utilized self-report data, and thus the primary limitation of our study is the possibility of common method variance (CMV). Specifically, this can affect results by inflating or deflating the relationships under investigation (Podsakoff et al., 2003; Podsakoff et al., 2012). However, this concern is somewhat mitigated due to the within-person design of data collection and the low demand characteristics of our study design where participants recorded responses each day as opposed to reconstructing past events (Huang et al., 2015). Additionally, there is a growing body of research demonstrating that the effects of CMV may have been exaggerated (Chan, 2000) and that the presence of CMV is more likely to attenuate relationships than to artificially inflate them (Siemsen et al., 2010). Nonetheless, we attempted to mitigate any potential effects of CMV by varying scale formats and anchors, keeping surveys short to reduce the length of time respondents invested and separated predictor and criterion variables (Podsakoff et al., 2003, 2012).

Despite our use of experience sampling for our study design, we are still limited by employees' self-report data for all measured variables. This is not particularly concerning for internal variables which necessitate self-ratings (i.e., trait self-regulation, job tension), but it is less ideal for a dependent variable such as work-family conflict where a significant other could be used in lieu of the focal participant to provide a secondary rating source. Additionally, access to organization-wide email communication records (i.e., objective data of received and sent emails) could provide researchers a unique perspective on email demands. Although it is important to consider that employee perceptions of email demands are just that, supplementing those perceptions with objective data could provide important insight into how individual emails contribute to those perceptions of email demands. Doing so might ease the potentially confounding nature of an email demands measure and a job tension one. Relatedly, we framed email demands as internal communication. Future research should address this limitation by incorporating emails received from sources external to the organization. Of further interest would also be research that looks at "family/life" related email demands and how those may affect what happens at work.

Future research needs to consider how employees' positions in the organizational hierarchy may affect the outcomes they feel as a result of email demands, as these contexts can no doubt have important, nuanced effects on how email demands are perceived. On the one hand, an argument can be made that lower-level employees (e.g., line workers, middle managers) may feel that email demands lead to interruptions and stress when they are received from someone who has power over them. Upper-level employees (e.g., top managers, executives) or professionals may feel as though they have more control over when and how to respond to emails and may therefore feel a reduction in negative outcomes. On the other hand, upper-level employees or professionals may experience more negative outcomes from email demands because their scope of communication may be broader in terms of those whom they email, the content of their emails, and/or the sheer volume of emails they receive. The effects organizational hierarchy has on email demands should be studied to more-fully understand how and under what circumstances email demands are most potent.

Researchers aiming to contribute to this research stream should investigate employees' perceptions as to the effectiveness/importance of their organizations' email practices. The differences between organizations and job types need to be considered to fully understand how constant communications affect employees. Furthermore, we believe it is possible that people in similar professions may actually experience a decrease in strain as a result of increased email usage because they can accomplish work at whatever time is best for them; in other words, scheduling meetings or responding to others when it does not interrupt their own schedules, but in doing so, interrupting the schedules of their subordinates. Subsequent research should acquire different samples so that these types of analyses can be conducted. There is also significant potential to look at this effect through the analysis of dyadic data. Measuring both the effects of email demands on a manager–subordinate pair may provide very insightful findings into the operation of this construct.

We also encourage scholars to look for other ways in which the workplace has started to infringe upon the home. These tentacles of work are difficult to see simply because they may already be everywhere; however, if we do not take inventory now, we may forget about them entirely. Consider that spillover has long been considered a psychological phenomenon that we are now giving a physical form. Even if employees could succeed at leaving work's psychological baggage in the workplace, now they have a constant reminder in their pocket, on their desk, or on their bedside table. The omnipresence of that physical device persists because interruptions are at the very center of the current technological trend, particularly in the wearable technology sector. Organizations are currently pushing the boundaries of sociomaterial interaction by introducing always-on, wearable devices that offer not only constant updates but also constant interruptions.

In this study, we have found that there are diminishing benefits with continuous organization/member connection in terms of individuals' job tension and work-family conflict. Future research could also examine the effects of email demands on other outcomes, such as telepressure and job performance. Because telepressure is a "preoccupation and urge to immediately respond to work-related messages" (Barber & Santuzzi, 2015, p. 172), it would be interesting to see the degree to which perceived email demands relate to such preoccupations and urges. In terms of job performance, it would be easy to assume that since email demands have dysfunctional relationships with work-family conflict that job performance would be impinged. However, future research may find that organizations benefit from email demands despite the impact it has on employees. Such findings would be important, as they would become major areas of consideration for organizations. Do the organizational benefits outweigh the individual level strain? Is there a difference between short-term and long-term performance? It may be that email demands increase short-term performance (e.g., the rapid completion of a project), but have deleterious effects over time.

Conclusion

In this study, we examined how email demands give rise to experienced job tension. We found email demands to be positively associated with work-family conflict through experienced job tension. We also found that the job tension—work-family conflict relationship was moderated by an individual's trait self-regulation, such that individuals low in trait self-regulation experience higher levels of work-family conflict than individuals with high trait self-regulation. Individuals and organizations should carefully consider the degree to which they remain connected with one another, as several negative outcomes were found in this study.

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