

**When Daily Challenges Become Too Much during COVID-19:  
Implications of Family and Work Demands for Work-Life Balance among Parents of  
Children with Special Needs**

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### Abstract

Working parents of children with special needs (e.g., emotional, behavioral, and learning difficulties) face recurrent stressors that can make balancing work and family demands difficult. This strain has been magnified during the COVID-19 pandemic, as these parents often need to take on greater responsibility in supporting their children's remote learning, while still meeting their own job-related responsibilities. Accordingly, working parents of special needs children may be particularly vulnerable to adverse outcomes stemming from pandemic-induced changes to work (e.g., teleworking) and education (e.g., remote instruction). We sought to understand how daily family and work challenges influence satisfaction with work – life balance in this priority population, with an emphasis on contextualizing this process through chronic job stress perceptions. Conducting a 10-day daily diary study in a sample of 47 working parents of special needs children during fall 2020, we observed family challenges to deplete positive affect from day-to-day, which undermined satisfaction with work – life balance. Furthermore, detrimental influences of daily family and work challenges on positive affect were magnified under chronic job stress, yielding diminished work – life balance satisfaction for more chronically stressed employees. We discuss how these findings can be harnessed to support particularly vulnerable employees during the COVID-19 pandemic and other chronic stress circumstances, while also drawing attention to how the pandemic may be exacerbating work – life inequities that some employees face.

Keywords: *family challenge; work challenge; work – life balance; affect; COVID-19*

The COVID-19 pandemic has altered how employees work and live (Kniffin et al., 2020), with particular acceleration of the need for working parents to simultaneously meet challenging work (e.g., teleworking) and family (e.g., supporting children's remote learning) demands (Shockley et al., 2021). This juggling act may be especially taxing for parents when their children have emotional, behavioral, and academic difficulties (i.e., special needs), given that the remote learning which has been widespread at various points during the pandemic appears particularly difficult for clinical child populations (e.g., Becker et al., 2020; McFayden et al., 2021). Additionally, the pandemic has resulted in exacerbation of emotional and behavioral difficulties (e.g., Breaux et al., 2021; Colizzi et al., 2020) and increased family conflict (e.g., Liu et al., 2021; Sinko et al., 2021). As such, at the daily level, parents of children with special needs face many family challenges (e.g., tantrums; difficulties navigating school demands; increased need for monitoring) that may be difficult to balance with daily challenges extending from work (e.g., a deadline; giving a presentation). These demands may be further magnified by the higher chronic stress that parents of special needs children face (Neece et al., 2012). This begs the question of how employees with special needs children can maintain work – life balance (WLB) while juggling daily family and work challenges.

Moreover, when layering in added *job* stress extending from the COVID-19 pandemic that has been observed across numerous industries and occupations (Troughakos et al., 2020), parents of special needs children may be especially vulnerable to changes made to work (e.g., working at home) and school (e.g., remote learning) that have occurred during the pandemic. Since the pandemic began, job stress has risen for some employees as a consequence of numerous factors (e.g., isolation of working at home, fewer hours available to devote to work for working parents; Guntuku et al., 2020), which may be particularly challenging to handle when

parents are facing the strain of supporting their children's remote learning in addition to additional care demands for their children with special needs (Nyanamba et al., 2021). Maintaining WLB while combining daily work and family demands might therefore be even more difficult for parents of children with special needs who perceive higher levels of chronic stress during the pandemic. Therefore, our overarching goal is to map how daily family and work challenges undermine satisfaction with WLB during the COVID-19 pandemic among parents of special needs children, with consideration of how chronic job stress alters this process.

Applying the Work – Home Resources (WH-R) model (Ten Brummelhuis & Bakker, 2012), we position *volatile personal resources* (resources close to the self that are temporal and reflect psychological states that come and go) as linchpins linking daily family and work challenges to satisfaction with WLB, arguing that the implications of these challenges for personal resources are magnified under chronic job stress. We focus specifically on high positive affect (PA) and low negative affect (NA) as volatile personal resources because daily family and work challenges engender acute affective reactions (Ilies et al., 2007; Kubicek et al., 2013), which in turn may play a key role in how employees experience WLB (Casper et al., 2018). We selected satisfaction with WLB because it varies from day-to-day (Calderwood et al., 2021; Gabriel et al., 2020) and shows incremental variance over alternative WLB indicators in predicting organizationally-valued criteria (e.g., organizational commitment, turnover intentions; Wayne et al., 2017).

We evaluated our predictions in a 10-day daily diary study of working parents of children with special needs during the early days of remote learning during the COVID-19 pandemic. More specifically, these parents reported their daily experiences and chronic job stress perceptions during fall 2020, a particularly stressful time when many parents were balancing job

demands with supporting their children in attending school remotely or in a hybrid format. We chose to focus on the three main family challenges that have been well-documented during the COVID-19 pandemic: academic difficulties as a result of remote learning, emotional/behavioral difficulties, and family conflict. We aimed to make three primary contributions. First, we explore how daily work and family challenges simultaneously drive daily satisfaction with WLB.

Although considering the simultaneous influence of work and family factors is theorized to be critical to understanding WLB from a conceptual perspective (Casper et al., 2018; Hirschi et al., 2019), existing empirical work has been criticized for adopting a sequential view in which work factors engender conflict that undermines balance (Wayne et al., 2017), with limited attention to family factors (Guest, 2002). We thus build on the nascent literature to understand WLB from a daily perspective (Calderwood et al., 2021; Gabriel et al., 2019; Haar et al., 2018) to account for how changes in work *and* family challenges from day-to-day simultaneously and uniquely inform daily satisfaction with WLB.

Second, we unravel how micro-level changes in affective experience connect daily challenges from family and work life to WLB. Although daily challenges are known to engender short-term negative and positive affective reactions (Rodell & Judge, 2009) and alterations in affect are viewed as important to WLB (Casper et al., 2018), whether and how short-term affect connects daily challenges to this balance has yet to be established. Our approach thus serves to bridge work on daily challenge exposure, which has been extensively studied in occupational health psychology (e.g., Breevaart & Bakker, 2018; Tadić et al., 2015), with the broader literature on WLB through the lens of acute affective experience. In doing so, we build theory to explain why daily work and family challenges influence WLB. This intended theoretical contribution may also have downstream implications for practice, as mapping mechanistic

relationships is key to laying the groundwork for interventions (Mackinnon, 1994).

Third, we suggest that person-level variability in chronic job stress forms a boundary condition on how the daily WLB process unfolds. This insight is particularly relevant to understanding WLB during the pandemic, as employees face numerous and novel chronic job stressors (e.g., difficulties accessing needed equipment, communication difficulties, Zoom fatigue) that may impact their bandwidth to cope with daily stressors. Extending insights from resource loss cycles (Hobfoll, 2002), we identify if daily challenges particularly undermine WLB for those who have a limited resource reservoir due to high chronic job stress. Similarly, by focusing on parents of children with special needs, we contextualize how employees who may be stretched thin due to chronic and recurring family stressors maintain balance in the face of daily challenges. These insights highlight potentially vulnerable employees who may require particular support to navigate challenges induced by the pandemic and expand understanding of work – life inequities (Kossek & Lautsch, 2017) to account for disparities that may have set in or been magnified by the pandemic.

### **Theoretical Background and Hypotheses**

The WH-R model (Ten Brummelhuis & Bakker, 2012) extends Conservation of Resources theory, which argues that stress results from the loss or potential loss of resources (Hobfoll, 1989; 2001), in two key ways. First, this model provides greater specificity to the resources construct, arguing that resources can be (1) volatile (i.e., fleeting and non-reusable) or structural (i.e., durable and reusable) and (2) contextual (i.e., located within one’s social context) or personal (i.e., proximal to the self). Second, this model explains that volatile (i.e., short-term) and structural (i.e., longer-term) contextual demands encountered in work or home life can deplete personal resources, with consequences for criteria in the other domain.

Figure 1 outlines our application of the WH-R model to associations linking daily family and work challenges to WLB satisfaction. These challenges are considered to be volatile contextual demands arising from family and work life, respectively. Dynamic personal resources, such as state PA and NA, are volatile personal resources that can be depleted in response to these demands. Following this logic (Ten Brummelhuis & Bakker, 2012), daily family and work challenges should yield reduced personal resources, in the form of lower state PA and higher state NA. While early theorizing about challenges contrasts this view by suggesting that challenges have positive affective implications (Cavanaugh et al., 2000; Lazarus & Folkman, 1984), views on the positivity of challenges have become more ambivalent over time. For example, Rodell and Judge (2009) found both positive *and* negative emotions to result from daily challenges. Building on this logic, Rosen et al. (2020) demonstrated that variability in challenge exposure over time yields less positive (e.g., attentiveness) and more negative (e.g., anxiety) emotionality, relative to more stable levels of challenge. Thus, while the net implications of challenges for affect may be positive at the between-person level, within-person variability in challenges may have more negative affective implications. Thus, we expect that:

**Hypothesis 1:** At the daily level, family challenges (a) negatively co-vary with state PA and (b) positively co-vary with state NA.

**Hypothesis 2:** At the daily level, work challenges (a) negatively co-vary with state PA and (b) positively co-vary with state NA.

While the WH-R model focuses on how personal resources affect criteria at work and home (Ten Brummelhuis & Bakker, 2012), other scholars have argued that these resources are directly relevant to satisfaction with WLB. Grawitch et al. (2013) contended that the depletion of personal resources extending from one domain of life (e.g., work) results in fewer remaining

resources for another domain (e.g., family), which reduces WLB satisfaction. Conversely, these authors also argued that having a surplus of personal resources allows for resource allocation across life domains as needed, enhancing WLB satisfaction. Recent nomological work (Casper et al., 2018) underscores the importance of affect specifically to WLB, suggesting that this balance is reached when individuals have positive affective experiences in roles they find important. These authors further suggests that if individuals experience NA in work and family roles, satisfaction with WLB will be lower. Thus, summarizing these lines of theorizing, we expect that:

**Hypothesis 3:** At the daily level, (a) state PA positively co-varies with satisfaction with WLB and (b) state NA negatively co-varies with satisfaction with WLB.

Synthesizing this evidence within the WH-R model (Ten Brummelhuis & Bakker, 2012), we expect daily family and work challenges to deplete personal resources across the day, manifesting in lower PA and higher NA. In turn, we expect this personal resource depletion to yield reduced satisfaction with WLB at the daily level. Accordingly, we predict that:

**Hypothesis 4:** Daily family challenges are indirectly negatively related to satisfaction with WLB via (a) reduced state PA and (b) enhanced state NA.

**Hypothesis 5:** Daily work challenges are indirectly negatively related to satisfaction with WLB via (a) reduced state PA and (b) enhanced state NA.

We expect these within-person processes to be magnified under chronic job stress. The primacy of loss hypothesis states that the detrimental influence of additional demands on personal resources is magnified in chronically demanding situations (Hobfoll et al., 1990). Individuals who are under chronic stress have fewer resources to tackle new stressors, lack buffers to offset resource loss, and are more prone to attract new stressors (Hobfoll, 2002; Ten



Brummelhuis et al., 2011). Changes to work induced by the pandemic have led to additional challenges, such as difficulties navigating teleworking technology (Hodder, 2020), barriers to meeting work goals because children are at home (Shockley et al., 2021), and adjustments to work design to manage virus spread (Yuan et al., 2021), that may make work feel more effortful. The WH-R model would predict that such demands are chronically depleting personal resource reservoirs that can be drawn on to meet daily demands (Ten Brummelhuis & Bakker, 2012), which is bolstered empirically by generally increasing stress perceptions across the pandemic (Guntuku et al., 2020). This means that individuals with chronic job stress have fewer resources to draw from when dealing with daily work and family challenges, and as a result, they are less likely to successfully cope with daily challenges. Instead, given the low resource reservoir they start with, daily challenges will deplete daily volatile personal resources even further among individuals with high as opposed to low chronic job stress. Integrating this theorizing, we contend that daily family and work challenges will deplete volatile personal resources more under chronic job stress, ultimately manifesting in a greater reduction in satisfaction with WLB.

**Hypothesis 6:** The indirect effects of daily family challenges on satisfaction with WLB via PA and NA are conditional on chronic job stress such that a) the negative relationship between daily family challenges and positive affect and b) the positive relationship between daily family challenges and negative affect are stronger under high as compared to low chronic job stress.

**Hypothesis 7:** The indirect effects of daily work challenges on satisfaction with WLB via PA and NA are conditional on chronic job stress such that a) the negative relationship between daily work challenges and positive affect and b) the positive relationship between daily work challenges and negative affect are stronger under high as compared

to low chronic job stress.

## Method

### Procedure and Sample

Participants were parents of school-aged children with special needs who had teleworked at some point during the COVID-19 pandemic.<sup>1</sup> They were recruited largely through invitations sent to parents who had previously sought a comprehensive psychological evaluation for their child through the [MASKED FOR REVIEW] Center at [MASKED FOR REVIEW], which treats families in an approximately 3-hour radius of this center (i.e., families from Virginia, West Virginia, Tennessee, North Carolina). Only one parent per child was invited to participate (i.e., couples reporting experiences pertaining to the same child were not included in the sample). After completing a *baseline survey* containing a measure of chronic job stress, participants engaged in a 10-day *daily survey period*. This period began the Monday after completion of the baseline survey and lasted for 10 consecutive weekdays (i.e., Monday – Friday). During this period, participants completed a daily *bedtime survey* with measures of family and work challenges, state affect, WLB satisfaction, and select statistical control variables.

Forty-seven participants ( $N = 47$ ) completed the baseline survey, opted-in to the daily survey period, and completed three or more daily surveys (such that within-person variability could be modeled). After screening out 39 daily observations that were out-of-range (e.g., completed after 9 a.m. the next morning;  $n = 20$ ), incomplete ( $n = 16$ ), or duplicates (e.g.,  $n = 3$ ), the final sample contained responses at 380 (80.9%) out of 470 possible day-level time points.<sup>2</sup>

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<sup>1</sup> We note that this is the first manuscript from a larger data collection effort.

<sup>2</sup> We note that our Level 1 sample size of 10 days of daily observations and our Level 2 sample size of 47 participants are roughly comparable to the median Level 1 and Level 2 sample sizes of 5 and 51, respectively, that Mathieu et al. (2012) reported to characterize sample size properties across a decade of published multilevel applied psychology research studies.

Data were assumed missing at random based on a non-statistically significant Little's (1988) MCAR test statistic ( $\chi^2_{(16)} = 19.66, ns$ ) and a lack of observed correlation between the number of daily surveys completed and parent or child demographic characteristics ( $r = -.23 - .07, all ns$ ) or a measure of typical (i.e., between-person, enduring) WLB satisfaction that was included in the baseline survey (Valcour, 2007;  $r = .28, ns$ ).

Most participants were female (74.5%). Participants were 40.83 years old ( $SD = 7.96$ ) and had a job tenure just over six years ( $M = 6.03; SD = 5.50$ ) on average. Over half of participants had been teleworking exclusively since the COVID-19 pandemic began (63.8%). As baseline data was collected early in the pandemic, only one participant reported having personally tested positive for COVID-19; however, 31.7% of the sample reported that someone at their work place had COVID-19, 33.3% reported having a family member or friend hospitalized due to COVID-19, and 13.7% reported having a family member or friend die due to COVID-19. Just over half of their children with special needs were male (53.2%), these children were 12.09 years old on average ( $SD = 3.04$ ), and they were drawn from a broad range of academic grade levels. Regarding the nature of the difficulties they faced, 39% presented with clinically significant internalizing behaviors, 51% presented with clinically significant externalizing behaviors, and 63% received special education services/accommodations through school.

## Measures

**Chronic Job Stress.** Chronic job stress was measured with four items from Motowidlo et al. (1986) rated on a 6-point Likert-type scale (1 = *Strongly disagree*; 6 = *Strongly agree*). A sample item is "I feel a great deal of stress because of my job" ( $\alpha = .82$ ).

**Daily Family Challenges.** Participants rated how challenging three types of family experiences were for them: (1) academic difficulties (i.e., child completing their schoolwork/homework), (2) emotional/behavioral difficulties (e.g., crying, tantruming, aggression, not listening), and (3) family conflict (i.e., solving/ending disagreements or arguments among family members). Ratings were made on a 4-point Likert-type scale (1 = *not at all challenging*; 4 = *very challenging*; average  $\alpha = .76$ ).

**Daily Work Challenges.** Participants reported daily work challenges using eight items from Rodell and Judge (2009), responding on a 5-point Likert-type scale (1 = *Strongly disagree*; 5 = *Strongly agree*). A sample item is “Today, my job required me to work on a large number of projects and/or assignments” (average  $\alpha = .93$ ).

**State Affect.** PA was measured using four items from Van Katwyk et al. (2000), while NA was measured using four items from Watson et al. (1988), each rated on a 5-point Likert-type scale (1 = *Not at all*; 5 = *Very much*). A sample PA item is “Joyful” (average  $\alpha = .88$ ), while a sample NA item is “Anxious” (average  $\alpha = .86$ ).

**Satisfaction with WLB.** Participants rated their current satisfaction with WLB in the bedtime survey using five items from Valcour (2007), rated on a 5-point Likert-type scale (1 = *Very dissatisfied*; 5 = *Very satisfied*). A sample item is “The way you divide your time between work and personal or family life” (average  $\alpha = .93$ ).

### **Analytic Approach**

Our hypotheses were evaluated via multilevel path analysis in MPlus Version 8.4 (Muthén & Muthén, 1997 – 2017) using Bayesian estimation.<sup>3</sup> The mediation model was

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<sup>3</sup> Bayesian estimation can more efficiently estimate model parameters (facilitating model convergence) than other alternatives, such as maximum likelihood estimation, for models with multiple random slope terms included (Asparouhov & Muthén, 2020). This estimation method also can account for non-normally distributed indirect

specified with daily family and work challenges predicting state PA and NA, which both predicted satisfaction with WLB. Random slope terms were estimated for the first-stage pathways linking daily work and family challenges to state PA and state NA, consistent with our theorizing. We specified model constraints to represent each hypothesized indirect and conditional indirect effect (Preacher et al., 2011). Statistical significance was evaluated using a 95% Credibility Interval (*C.I.*), with *C.I.s* that exclude zero indicative of significant coefficient estimates (Muthén, 2010).

After examining the mediation model, we computed four separate models with chronic job stress as a cross-level moderator of each challenge – affect association (*family challenge – PA, family challenge – NA, work challenge – PA, work challenge – NA*). Chronic job stress was also entered as a cross-level direct effect predictor of the affective mediator being evaluated in each model (Aguinis et al., 2013), while separate models were examined to prevent interpretational ambiguities when multiple joint effects are included in a model (Edwards & Cable, 2009). Statistically significant interactions were graphed using the approach of Preacher et al. (2006), with within-person relations depicted at 1 *SD* below and above the chronic job stress mean.

We statistically controlled for day of the week using the day, sine of the day, and cosine of the day when estimating all within-person relations, as well as day of participation (Gabriel et al., 2019). We also statistically controlled for exposure to daily work hindrances (Cavanaugh et al., 2000), measured with eight items from Rodell and Judge (2009; average  $\alpha = .86$ ), when estimating within-person relations, as these hindrances explain variance in affect (Tadić et al.,

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effects better than some alternative methods (see Muthén, 2010, for an overview of Bayesian estimation advantages).

2015). Finally, we allowed PA and NA to correlate (see Watson et al., 1988) and allowed daily work challenges and hindrances to correlate (see Rodell & Judge, 2009).

## Results

### Descriptive Analysis and Measurement Model Evaluation

Table 1 contains means, standard deviations, internal consistency estimates, and inter-correlations for all study variables. We computed an unconditional model to ensure sufficient within-person variability in all measured Level 1 variables. Estimates of within-person variability ranged from 26.3% - 45.6%, justifying the use of multilevel modeling. We also computed a multilevel confirmatory factor analysis to ensure an adequate fit of the measurement model containing items intended to measure six distinct within-level factors (*daily family challenges, daily work challenges, state PA, state NA, satisfaction with WLB, daily work hindrances*) and one between-level factor (*chronic job stress*). This measurement model provided an adequate fit to the data ( $\chi^2_{(451)} = 1127.31, p < .01, CFI = .90, RMSEA = .06, SRMR_{within} = .07, SRMR_{between} = .04$ ) that was superior to the fit of a model with all of the Level 1 variables loaded on a single factor ( $\Delta\chi^2_{(466)} = 5107.85, p < .01, CFI = .33, RMSEA = .16, SRMR_{within} = .17, SRMR_{between} = .04$ ), a model with work challenges and hindrances and PA and NA loaded on common factors ( $\Delta\chi^2_{(460)} = 2347.95, p < .01, CFI = .73, RMSEA = .10, SRMR_{within} = .13, SRMR_{between} = .04$ ), and a model in which state PA, state NA, and satisfaction with WLB loaded on a common factor ( $\Delta\chi^2_{(463)} = 3181.27, p < .01, CFI = .61, RMSEA = .12, SRMR_{within} = .18, SRMR_{between} = .04$ ). Accordingly, we proceeded with our plan to test inter-relations among these variables in a multilevel path analysis. Table 2 presents the full model results; the model is presented graphically with coefficient estimates in Figure 2.

### Hypothesis Testing

In support of Hypotheses 1a and 1b, greater daily family challenges were found to co-vary with lower state PA ( $\gamma = -.31$ , 95% *C.I.* = [-.49, -.12]) and higher state NA ( $\gamma = .36$ , 95% *C.I.* = [.21, .50]). In contrast, failing to support Hypotheses 2a and 2b, we had no evidence to link daily work challenges to either state PA ( $\gamma = -.15$ , 95% *C.I.* = [-.31, .01]) or state NA ( $\gamma = .08$ , 95% *C.I.* = [-.04, .20]). Regarding satisfaction with WLB, we observed state PA to positively co-vary with this criterion ( $\gamma = .21$ , 95% *C.I.* = [.14, .29]), but had no evidence to link state NA to these WLB perceptions ( $\gamma = -.07$ , 95% *C.I.* = [-.16, .01]). This pattern of results yields support for Hypothesis 3a, but no support for Hypothesis 3b.

When considering indirect effects, we observed daily family challenges to influence WLB satisfaction via state PA ( $\gamma = -.07$ , 95% *C.I.* = [-.12, -.02]), supporting Hypothesis 4a. In contrast, we did not have evidence to link daily family challenges to WLB satisfaction via state NA ( $\gamma = -.03$ , 95% *C.I.* = [-.06, .01]), nor did we support daily work challenges as influencing satisfaction with WLB via either state PA ( $\gamma = -.03$ , 95% *C.I.* = [-.07, .00]) or state NA ( $\gamma = -.01$ , 95% *C.I.* = [-.02, .00]). This pattern of results yielded no support for Hypothesis 4b, 5a, or 5b.

In regards to boundary conditions (see Table 3), we observed chronic job stress to moderate relations linking daily family ( $\gamma = -.25$ , 95% *C.I.* = [-.40, -.10]) and work ( $\gamma = -.18$ , 95% *C.I.* = [-.31, -.04]) challenges to state PA. In both cases (see Figures 3 and 4, respectively), the nature of the interaction was such that daily family ( $\gamma = -.56$ , 95% *C.I.* = [-.82, -.32]) and work ( $\gamma = -.32$ , 95% *C.I.* = [-.54, -.10]) challenges negatively co-varied with state PA at high levels of chronic job stress, but were unrelated to state PA at low levels of chronic job stress ( $\gamma = -.06$ , 95% *C.I.* = [-.30, .18] and  $\gamma = .04$ , 95% *C.I.* = [-.17, .25] for daily family and work challenges, respectively). Furthermore, the conditional indirect effects linking daily family ( $\gamma = -.12$ , 95% *C.I.* = [-.20, -.06]) and work ( $\gamma = -.07$ , 95% *C.I.* = [-.13, -.02]) challenges to WLB

satisfaction via state PA were statistically significant and negative at high levels of chronic job stress, but not at low levels of chronic job stress ( $\gamma = -.01$ , 95% *C.I.* = [-.07, .04] and  $\gamma = .01$ , 95% *C.I.* = [-.04, .05] for daily family and work challenges, respectively). In contrast, we had no evidence to suggest that chronic job stress moderated associations linking daily family ( $\gamma = .01$ , 95% *C.I.* = [-.13, .15]) or work ( $\gamma = .04$ , 95% *C.I.* = [-.08, .15]) challenges to state NA. In total, this pattern of results provides support for Hypotheses 6a and 7a, but no support for Hypotheses 6b and 7b.<sup>4</sup>

### Supplemental Analyses

Given that the nascent COVID-19 literature suggests that mothers are taking on greater responsibility for home tasks relative to fathers (Hjálmsdóttir & Bjarnadóttir, 2021) and that younger adults show stronger daily affective reactions to daily COVID-19 related stressors than older adults (Klaiber et al., 2021), we evaluated parent gender and age as potential cross-level moderators of daily challenge – state affect associations for exploratory purposes. To accomplish this goal, we recomputed the hypothesized mediation model, entering parent gender as a cross-level moderator of first-stage challenge – affect relationships in four separate models (*family challenge – PA*, *family challenge – NA*, *work challenge – PA*, *work challenge – NA*). We then repeated this approach with parent age a cross-level moderator of each of these four first-stage pathways in separate analyses.

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<sup>4</sup> For comparison purposes, we evaluated if our model results were robust to accounting for measurement error in all self-reported variables included in the hypothesized model. To accomplish this goal, we computed an alternative version of the model in which a latent factor was created to correspond to each self-report variable, with each latent factor assigned a fixed value of measurement error using the formula  $\theta = (1 - \text{reliability}) * \text{sample variance}$  (see Muthén & Muthén, 2009). The pattern of results in this alternative model was robust to the results of the original hypothesized model with one exception, which was that the non-statistically significant work challenge – state PA relationship from the original hypothesized model became statistically significant when accounting for measurement error ( $\gamma = -.30$ , 95% *C.I.* = [-.51, -.07]). This also resulted in the relationship of daily work challenges to WLB satisfaction via state PA being statistically significant in this alternative model ( $\gamma = -.08$ , 95% *C.I.* = [-.16, -.02]). Therefore, it is plausible that daily work challenges may relate to state PA, with downstream implications for satisfaction with WLB, when accounting for measurement error.



While most of these exploratory cross-level interaction terms were not statistically significant, results of these exploratory analyses did suggest that parent gender moderated the daily family challenge – PA association ( $\gamma = -.51$ , 95% *C.I.* = [-.87, -.15]) and that parent age moderated the daily work challenge – PA association ( $\gamma = .02$ , 95% *C.I.* = [.003, .032]). The nature of the gender-focused cross-level interaction was such that family challenges were negatively related to state PA for mothers ( $\gamma = -.43$ , 95% *C.I.* = [-.63, -.23]), but unrelated to state PA for fathers ( $\gamma = .08$ , 95% *C.I.* = [-.25, .41]). This first-stage interaction yielded a conditional indirect effect in which daily family challenges influenced WLB satisfaction via state PA in mothers ( $\gamma = -.09$ , 95% *C.I.* = [-.15, -.04]), but not in fathers ( $\gamma = .02$ , 95% *C.I.* = [-.05, .09]).

The nature of the age-focused cross-level interaction was such that daily work challenges were negatively related to state PA in younger parents ( $\gamma = -.28$ , 95% *C.I.* = [-.48, -.09]), but unrelated to state PA in older parents ( $\gamma = -.01$ , 95% *C.I.* = [-.20, .17]). This cross-level interaction resulted in a conditional indirect effect in which daily work challenges influenced WLB satisfaction via state PA in younger parents ( $\gamma = -.06$ , 95% *C.I.* = [-.10, -.02]), but not in older parents ( $\gamma = .00$ , 95% *C.I.* = [-.04, .03]). These findings add to the burgeoning literature suggesting that mothers and younger parents are more disadvantageously affected by family and work challenges, respectively, relative to fathers and older working parents, during the pandemic. Full model results for all supplemental analyses are presented in the Supplemental Online Appendix.

## **Discussion**

We sought to examine how daily family and work challenges influence satisfaction with WLB in a priority population of working parents of children with special needs during the

COVID-19 pandemic. Applying the WH-R model (Ten Brummelhuis & Bakker, 2012) to this context, our results demonstrated that daily family challenges are more relevant to these parents' personal resource levels from day-to-day than daily work challenges, which in turn has implications for their WLB satisfaction. More specifically, we found greater daily family challenges to co-vary with lower state PA and higher state NA, with the alterations in state PA having downstream implications for daily satisfaction with WLB. Consistent with our expectation that enduring job stress would magnify the impact of daily challenges on WLB, perceptions of chronic job stress exacerbated the detrimental influences of both daily family and work challenges on state PA, which in turn led to reductions in WLB satisfaction. Exploratory analyses also suggested that working mothers and younger parents may be particularly impacted by the detrimental influence of challenges from family and work life on PA and downstream satisfaction with WLB. Below, we describe how this pattern of results advances theoretical understanding of WLB and practical applications to identify and support vulnerable employees during the COVID-19 pandemic.

### **Theoretical Implications**

Although both work and non-work challenges have been argued to relate to processes at the work/non-work interface (LePine et al., 2007), extant work has disproportionately focused on the implications of work-related challenges for occupational health (e.g., recovery experiences; Bennett et al., 2018) and performance (e.g., job performance; LePine et al., 2005). Building theory to explain how daily family and work challenges influence WLB satisfaction through alterations in personal resources, our research suggests that daily family challenges may be more relevant than work challenges in predicting WLB perceptions. We consider three complementary possibilities for why this may be the case. First, working parents of special needs children may

be particularly attentive and reactive to family challenges extending from remote learning, as this instruction format appears particularly harmful to clinical child populations (Becker et al., 2020; McFayden et al., 2021). Second, the COVID-19 pandemic is said to be breaking down the “secret parenting” (Oster, 2019) that has long been argued to characterize organizational life (Kanter, 1977), in which parents feel either implicit or explicit pressure to prevent their co-workers from seeing the family demands that they face. Conceivably, by having greater insight into the challenges working parents of special needs children face, organizational members may be more supportive and understanding, such that work challenges feel more manageable for these parents. However, as workplaces have generally been criticized as being insufficiently supportive of family considerations during broader global and economic crises, including the current pandemic (Wenham et al., 2020), this more optimistic possibility is in need of a strong empirical test. Third, some parents of children with special needs have been observed to have fostered a resilience to meeting challenges from family life while maintaining aspects of their broader life (Heiman, 2002). Accordingly, these parents may be better able to adapt to or put in perspective alterations in work challenges that are induced by the pandemic, while still struggling to meet the heightened family challenges resulting from their particularly vulnerable children moving to remote learning. We encourage future research to evaluate each of these possibilities.

While WLB is recognized to include an affective component (Valcour, 2007), our work establishes state PA as a linchpin linking daily challenges to satisfaction with WLB. This pattern of results bolsters the observation that pleasant emotions are central to the occurrence of WLB (Casper et al., 2018), while also demonstrating and unraveling the micro-level process through which daily demands alter this transient personal resource such that perceptions of balance

change from day-to-day. Our finding that state PA, but not state NA, was a linking mechanism for challenge – WLB associations lends greater credence to the view that positive emotions may be particularly relevant to balance perceptions. One interesting possibility is that positive emotions underlie balance perceptions, whereas negative emotions are relevant to work-life conflict. From a theoretical perspective, this potential explanation seems plausible, as PA is a volatile personal resource (Ten Brummelhuis & Bakker, 2012) that can be harnessed to meet goals in work and non-work life in the service of enhancing WLB (Hirschi et al., 2019). In contrast, NA is a widely recognized indicator of psychological strain that may lead to strain-based conflicts between work and non-work life (French & Allen, 2020). Future research targeted at directly unraveling the unique relevance of positive and negative mood states to positive (e.g., balance) and negative (e.g., conflict) criteria at the work/non-work interface could directly address these possibilities.

Another alternative explanation that we view as less likely for the particular relevance of PA perceptions to challenge – WLB associations relative to NA is social desirability (an individual disposition characterized by a need for social approval that filters into self-report response styles; Marlow & Crowne, 1961), as PA and NA have been argued to be viewed as socially desirable and undesirable, respectively (Chen et al., 1997). However, because our modeling strategy removed between-person influences on within-person relations (see Asparouhov & Muthén, 2019), dispositions towards social desirability should be relatively accounted for when estimating affective associations in our model. Thus, our results bolster the conclusion that PA is more relevant than NA to challenge – WLB associations.

Arguably the most central contribution of our work is to advance theory and empirically demonstrate that chronic job stress during COVID-19 plays a critical role in how daily

challenges relate to WLB satisfaction. Our findings that chronic job stress magnifies the personal resource loss extending from daily family and work challenges provide strong empirical support for both the concept of loss spirals (Hobfoll, 2002) and the primacy of loss hypothesis (Hobfoll et al., 1990). Furthermore, we bolster the applicability of resource-based frameworks and arguments (Grawitch et al., 2013; Ten Brummelhuis & Bakker, 2012) to the prediction of WLB, while also building theory to explicate how volatile personal resource loss extending from daily experiences influences WLB from day-to-day. Moreover, we found that daily challenges were not detrimental to personal resource loss and downstream WLB at lower levels of chronic job stress. These observations suggest that employees may be resilient and adept at coping with daily stress if more chronic sources of job stress can be reduced. This finding is particularly noteworthy when considering that this observation was made within an at-risk group of working parents of children with special needs during a calamitous global pandemic. Thus, we view this pattern of results as a strong test of the potential of sufficient structural personal resource reservoirs to aid employees in meeting daily challenges.

Finally, exploratory supplemental analyses provide initial evidence that mothers and younger parents of children with special needs may see a particular impact of challenges from work and family life on state PA, with corresponding downstream implications for WLB. These findings fit with prior research (Ten Brummelhuis & Greenhaus, 2018) that has underscored that even in dual career couples, mothers, more than fathers, will make an effort (e.g., by providing more support) to ensure quality of family life while also taking on greater responsibility for managing relationships at home. Likewise, we find that the mothers in our sample were drained more by family challenges, possibly because they may have been more likely to be the parent trying to solve difficult episodes with a child. The finding that older employees were

disadvantaged less by daily work challenges can be understood from general stress management skills that have been proven to be more developed and more effective among older, and thus more experienced, employees (Johnson et al., 2013). In combination, these exploratory analyses suggest that accounting for parent gender and age may be important to consider when seeking to understand how daily challenges from work and family affect employee affect and WLB.

### **Practical Implications**

The results of this study suggest that when organizations take steps to mitigate chronic job stress, such as through work redesign (Karasek, 1979) and broader stress management interventions (Tetrick & Winslow, 2015), employees may feel more able to meet daily challenges at work and at home without corresponding decrements in WLB satisfaction. The need for organizations to proactively take these steps is particularly pronounced during the COVID-19 pandemic, which is resulting in a deterioration of work conditions (e.g., higher job demands, fewer job resources; Bakker & Demerouti, 2007) that is likely to elevate job stress perceptions over time. We contend that it is essential for organizations to intervene to support employees in meeting the daily challenges that they face from family and work life during the ongoing pandemic. When considering the broader stressful circumstances in which work is being conducted during the pandemic, failing to provide sufficient support for employees in mitigating chronic job stress is likely to advance from struggles with daily challenges to more chronic strain reactions, such as burnout, over time (Kniffin et al., 2020).

Work – life inequities, in which some employees have greater access and availability to use solutions that assist them in balancing demands in work and non-work life, are increasingly being demonstrated across occupational groups (e.g., lower vs. higher status workers; Kossek & Lautsch, 2017). However, within the nascent COVID-19 literature, whether and how changes to

work and education in response to the pandemic are engendering or magnifying these inequities has received relatively little attention. We have suggested that working parents of special needs children may face particular challenges in maintaining WLB, as their children may require greater support in participating in remote learning that can make meeting job-related responsibilities more difficult. Our findings generally support this prediction, with daily family challenges undermining WLB satisfaction for these employees and both daily family and work challenges serving as impediments to this satisfaction when parents of special needs children experience greater chronic job stress during the pandemic. Accordingly, identifying and finding avenues to provide greater flexibility in meeting work demands for these vulnerable employees may be key to maintaining their WLB as the pandemic wears on. Furthermore, we hope that our efforts will encourage future investigators to consider other work – life inequities (e.g., single parenthood, elevated risk for serious illness from COVID-19) that may be arising as organizations adapt to the context of the pandemic.

### **Strengths and Limitations**

There were many strengths of our study design, including sampling from a priority population of at-risk employees and collecting daily diary data across two consecutive work weeks. However, our study has several limitations that serve to contextualize our findings. Most notably, as we focused on the experiences of working parents of children facing emotional, behavioral, and academic challenges, the generalizability of our findings to other populations of employees can be called into question. Because of the particular vulnerabilities they face in relation to how work and education have changed in response to the pandemic, we felt it important to highlight and draw attention to the experiences of working parents of special needs children when initially testing our model. Furthermore, our use of an experience sampling

methodology, which allows for repeated in situ measurements collected within the context of participants' lived daily experiences, would be expected to enhance external validity, relative to alternative laboratory or cross-sectional survey-based approaches (Gabriel et al., 2019; Mitchell, 2012). However, by design from the perspective of our sampling strategy, it is possible that the inter-relations of daily challenges, affect, and WLB could show meaningful and theoretically-relevant relations that could differ in different populations (e.g., employees with limited family demands) or contexts (e.g., outside of the unique challenges of the earlier stages of the COVID-19 pandemic). We encourage future researchers to replicate and extend these findings in other employment groups facing particularly high family challenges (e.g., adult dependent relatives, chronically ill family members), broader employment groups, and different contexts relevant to the intersection of work and family life. Similarly, additional boundary conditions can be examined, including personal differences such as trait positive and negative affect and personality traits (e.g., neuroticism), to examine if some individuals (e.g., high trait PA and low neuroticism) are less susceptible to the harmful effects of daily work and family challenges.

In addition to these generalizability concerns, because we were deliberately recruiting from a population that we expected to be facing challenging circumstances during the pandemic, we elected to only administer one self-report survey per day in an attempt to minimize the burden of participating in this study. Accordingly, we were unable to evaluate within-day changes in challenge exposure and affect that may have had implications for daily satisfaction with WLB. Moreover, we were unable to temporally separate daily challenges, state affect, and WLB satisfaction when estimating our hypothesized mediation model. Temporally separating measures to allow for modeling of within-day changes may be particularly helpful in further unpacking the micro-level process through which daily challenges influence WLB satisfaction.



For example, given that work and family life are increasingly intertwined during the pandemic (Shockley et al., 2021), it would be valuable to establish whether the temporal sequencing of challenges from these different life domains across the day is relevant to daily WLB (e.g., daily work challenges inducing affective changes that make subsequent family demands seem more challenging). It would also be useful to consider whether the recovery of personal resources during periods that do not entail effortful engagement within the day (Meijman & Mulder, 1998) has implications for WLB at this level of analysis. Finally, integrating our self-report measurement approach with other-reports (e.g., partners, children living in the household) or objective measures (e.g., physiological indicators) in future research has a strong potential to yield a more complete view of the potentially complex inter-relationships of daily challenges, affect, and WLB satisfaction. Investigations of this nature would advance and extend our efforts to understand WLB at the daily level, both in the context of the COVID-19 pandemic and beyond.

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**Table 1***Descriptive Statistics, Internal Consistency, Intra-Class Correlation, and Inter-Correlation Estimates for Study Variables*

	<i>M</i>	<i>SD</i>	<i>ICC</i>	1	2	3	4	5	6	7	8	9
1. Day of Week	2.99	1.37	-	-	-	-	-	-	-	-	-	-
2. Day of Participation	5.51	2.86	-	.48**	-	-	-	-	-	-	-	-
3. Daily Work Hindrances	2.54	.83	.74	.01	-.01	(.86)	.76**	.50**	.50**	.60**	.07	-.13
4. Daily Work Challenges	3.33	.94	.64	-.09	-.04	.32**	(.93)	.35*	.39**	.36*	-.14	.09
5. Daily Family Challenges	1.92	.75	.62	-.08	-.11*	.03	.03	(.76)	.76**	.43**	.00	-.19
6. State Negative Affect	1.97	.94	.65	-.20**	-.09	.09	.07	.25**	(.86)	.47**	.01	-.16
7. State Positive Affect	2.54	.98	.54	.04	-.06	.02	-.08	-.23**	-.26**	(.88)	.48**	-.40**
8. Satisfaction with WLB	3.38	.83	.74	.08	.10*	-.04	-.08	-.18**	-.21**	.33**	(.93)	-.36*
9. Chronic Job Stress	3.79	1.02	-	-	-	-	-	-	-	-	-	(.82)

*Note.*  $N = 47$ . There were 380 day-level time points available for statistical analysis. WLB = Work – Life Balance. Person-level correlations are reported above the diagonal, while day-level correlations are reported below the diagonal. Day-level correlations are estimated from person-mean centered variables. Internal consistency estimates are provided in parentheses.

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

**Table 2**

*Empirical Test of Core Mediation Model*

Predictor	State PA			State NA			Satisfaction with WLB		
	$\gamma$	Posterior SD	95% CI	$\gamma$	Posterior SD	95% CI	$\gamma$	Posterior SD	95% CI
Intercept	3.04*	.33	[2.42, 3.71]	.62*	.24	[-.13, 1.07]	3.86*	.24	[3.39, 4.33]
<u>Statistical Controls</u>									
Day of the Week	.01	.05	[-.08, .11]	.02	.04	[-.06, .09]	-.05	.03	[-.11, .01]
Day of Participation	-.03	.01	[-.05, .00]	.01	.01	[-.01, .03]	.02	.01	[.00, .03]
Sine	.05	.08	[-.11, .20]	.14*	.06	[.01, .26]	-.08	.05	[-.18, .02]
Cosine	.13	.06	[.00, .25]	-.15*	.05	[-.26, -.05]	.07	.04	[-.01, .15]
Daily Work Hindrances	.25*	.09	[.07, .42]	.11	.07	[-.02, .24]	.00	.06	[-.10, .11]
<u>Predictors</u>									
Daily Family Challenges	-.31*	.09	[-.49, -.12]	.36*	.08	[.21, .50]	-.08	.05	[-.18, .02]
Daily Work Challenges	-.15	.08	[-.31, .01]	.08	.06	[-.04, .20]	-.04	.04	[-.12, .04]
State PA	-	-	-	-	-	-	.21*	.04	[.14, .29]
State NA	-	-	-	-	-	-	-.07	.04	[-.16, .01]
<u>Indirect Effects</u>									
Family challenge → PA → WLB	-	-	-	-	-	-	-.07*	.02	[-.12, -.02]
Family challenge → NA → WLB	-	-	-	-	-	-	-.03	.02	[-.06, .01]
Work challenge → PA → WLB	-	-	-	-	-	-	-.03	.02	[-.07, .00]
Work challenge → NA → WLB	-	-	-	-	-	-	-.01	.01	[-.02, .00]
<u>Residual Variance</u>									
Level 1	.38*	.03	[.32, .45]	.27*	.02	[.23, .32]	.16*	.01	[.14, .19]

*Note.*  $N = 47$ . There were 380 day-level time points available for statistical analysis ( $n = 380$ ). Reported coefficients are unstandardized. PA = Positive Affect, NA = Negative Affect, WLB = Work – Life Balance. First-stage relations from daily family and work challenges to state positive affect and negative affect were modeled with random slope terms. Estimates of slope variance were significant for all first-stage relations (Family challenge – positive affect [S1]  $\gamma = .12$ ; Family challenge – negative affect [S2]  $\gamma = .06$ ; Work challenge – positive affect [S3]  $\gamma = .07$ ; Work challenge – negative affect [S4]  $\gamma = .03$ ). Random slope terms were allowed to inter-correlate. The model explained 22.7% of the within-person variance in state PA, 23.3% of the within-person variance in state NA, and 19.8% of the within-person variance in satisfaction with work – life balance. Significant credibility intervals (C.I.) that do not include zero are marked with an asterisk.

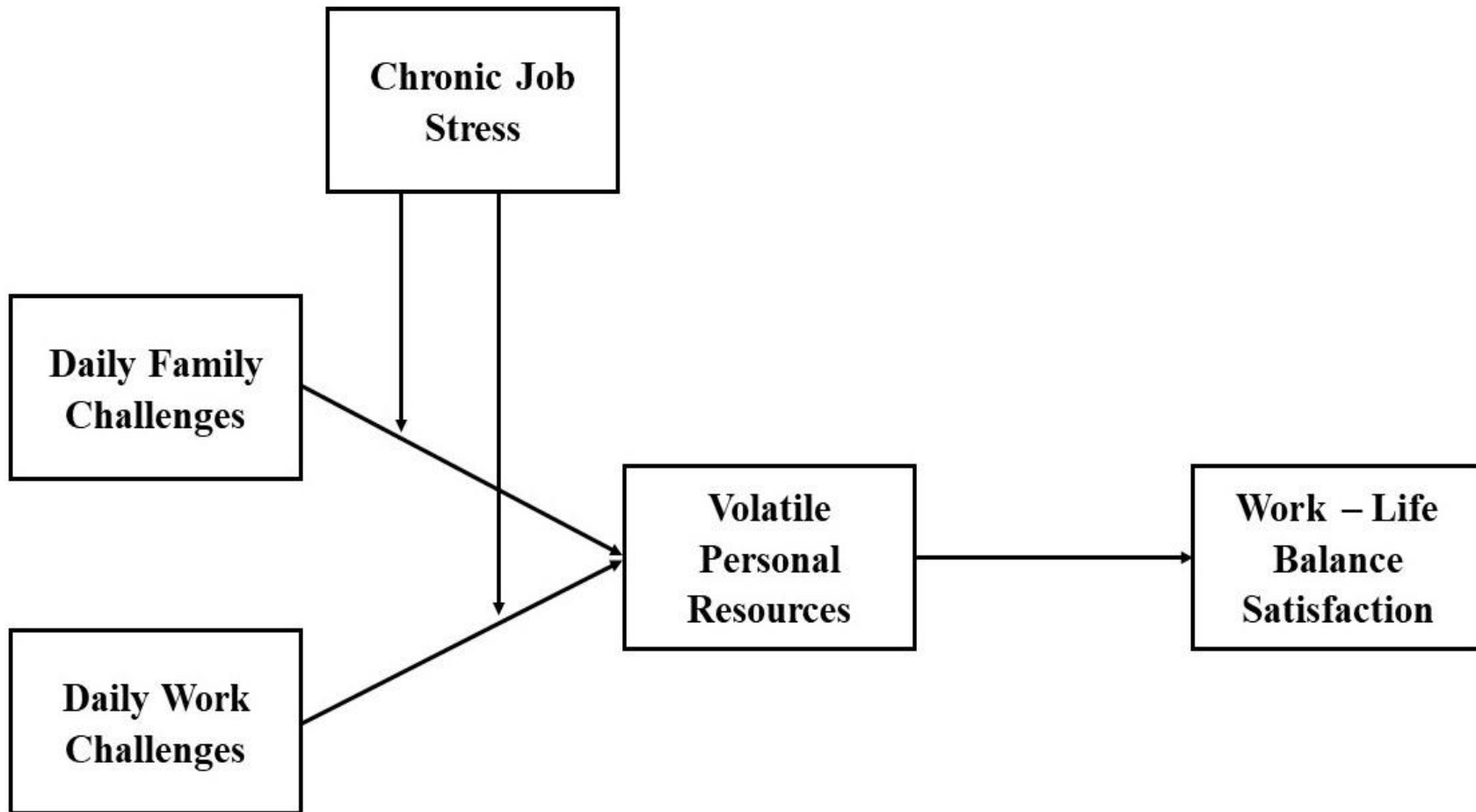
**Table 3***Tests of Conditional Indirect Effects Linking Daily Family and Work Challenges to Satisfaction**with WLB via Affect*

Pathway	$\gamma$	Posterior <i>SD</i>	95% <i>CI</i>
<u>Low Chronic Job Stress</u>			
Family challenge → PA → WLB	-.01	.03	[-.07, .04]
Family challenge → NA → WLB	-.02	.02	[-.06, .00]
Work challenge → PA → WLB	.01	.02	[-.04, .05]
Work challenge → NA → WLB	.00	.01	[-.02, .01]
<u>High Chronic Job Stress</u>			
Family challenge → PA → WLB	-.12*	.03	[-.20, -.06]
Family challenge → NA → WLB	-.02	.02	[-.07, .00]
Work challenge → PA → WLB	-.07*	.03	[-.13, -.02]
Work challenge → NA → WLB	-.01	.01	[-.03, .00]

*Note.*  $N = 47$ . There were 380 day-level time points available for statistical analysis ( $n = 380$ ). PA = Positive affect. NA = Negative affect. WLB = Work – life balance. Reported coefficients are unstandardized. Significant credibility intervals (*CI*) that do not include zero are marked with an asterisk.

**Figure 1**

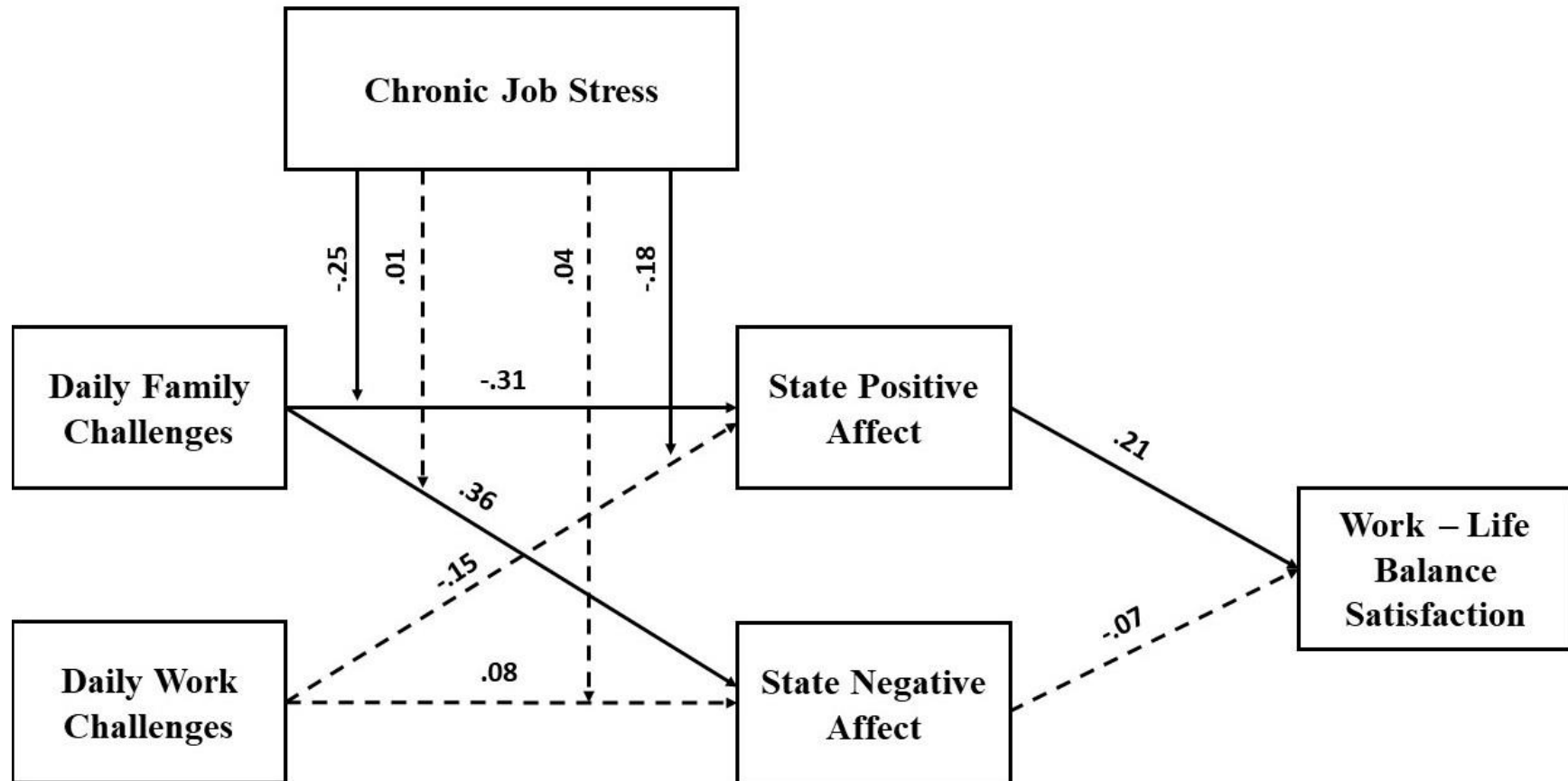
*A Conceptual Model of How Daily Family and Work Challenges Influence Satisfaction with Work – Life Balance*





**Figure 2**

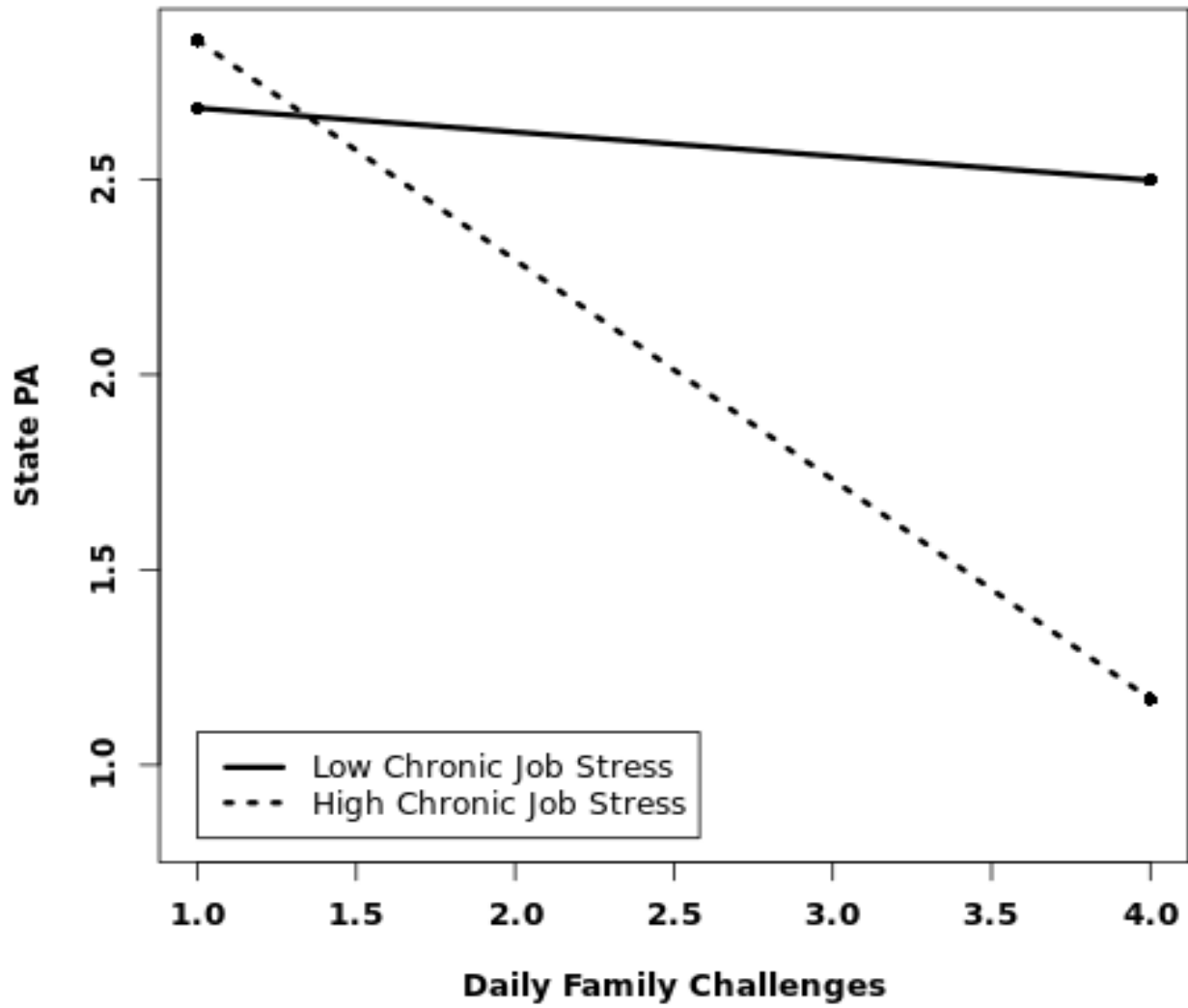
*Empirical Test of Conceptual Model of Daily Work and Family Challenges as Inputs to Satisfaction with Work – Life Balance*



*Note.* Solid lines depict significant relations, while dashed lines depict non-significant relations.

**Figure 3**

*Moderation of Daily Family Challenges – Positive Affect Relationship by Chronic Job Stress*



**Figure 4**

*Moderation of Daily Work Challenges – Positive Affect Relationship by Chronic Job Stress*

