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Not Just Work-to-Family Conflict, But How you React to It Matters for Physical and Mental Health

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Abstract

Individuals with higher work-to-family conflict (WTFC) in general are more likely to report poorer physical and mental health. Less research, however, has examined the daily implications of WTFC, such as whether individuals' reactions to minor WTFC day-to-day (e.g., missing family dinner due to work obligation) are associated with health outcomes. We examined whether affective reactivity to daily WTFC was associated with poorer sleep, health behaviors, and mental health in a sample who may be particularly vulnerable to daily WTFC. Employed parents in the IT industry with adolescent-aged children (N = 118, M_{age} = 45.01, 44.07 % female) reported daily WTFC and negative affect on 8 consecutive days, in addition to completing a survey that assessed sleep, health behaviors (smoking, drinking, exercise, fast food consumption), and psychological distress. Multilevel modeling outputted individual reactivity slopes by regressing daily negative affect on the day's WTFC. Results of general linear models indicated that affective reactivity to WTFC was associated with poorer sleep quality and higher levels of psychological distress – even when controlling for average daily negative affect on non-WTFC days. Individual differences in reactivity to daily WTFC have implications for health. Interventions aimed to reduce daily WTFC and reactivity to it are needed.

Keywords

work-family conflict; stress reactivity; sleep; physical health; mental health; daily diary

Due to societal level trends such as an increasing number of dual-earner couples and single parents, employees have to maintain substantial work and family responsibilities simultaneously (Berkman et al., 2015). As a result, a plethora of research has been devoted to understanding the connections between work and family. This research includes the ways work and family benefit each other (work-family enrichment or facilitation), the ways work

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and family have negative implications for each other (work-family conflict), and a holistic view of integrating both influences (work-family balance). The influence between work and family also have directions (work-to-family or family-to work), and particularly the impact of work-to-family conflict (WTFC) – defined as a type of inter-role conflict in which work roles interfere with family roles (Frone, 2003) – on employee health is well documented.

Research finds that WTFC is associated with poorer physical, behavioral, and mental health (Allen, Herst, Bruck, & Sutton, 2000; Allen & Armstrong, 2006; Amsted, Meier, Fasel, Elfering, & Semmer, 2011). Most of this research focuses on employees' evaluations of overall levels of WTFC, answering the question of whether individuals who experience more WTFC experience poorer health. Research, however, shows that WTFC fluctuates on a daily basis, and that there are inter-individual differences in affective reactivity – defined as the likelihood that an individual will react emotionally to daily stressors (Almeida, 2005; Bolger & Zuckerman, 1995; Butler, Grzywacz, Bass, & Linney, 2005; Sanz-Vergel, Demerouti, Moreno-Jimenez, & Mayo, 2010). In other words, even if individuals experience similar levels of WTFC overall, some individuals are more prone to report lower levels of negative affect on days when they experience WTFC. Maertz and colleagues' (2019) theory of work-family conflict episode processing asserts that more research is needed that examines the psychological processing of episodes of WTFC and its role in long-term outcomes. The daily processing of WTFC, which includes routine challenges of balancing work and family (e.g., finding the energy to make dinner and complete the bath/bedtime routine after a long day at work) and unexpected challenges (e.g., a late meeting at work causes a parent to be late picking up a child from daycare) may accumulate over time and have long-last implications for health and health behaviors (Almeida, 2005). Therefore, the purpose of the present study is to go beyond examining levels of WTFC and to answer calls to examine the psychological processing of episodes of WTFC using daily diary methodology (Maertz, Boyar, and Maloney, 2019). More specifically, the present study examines whether *affective reactivity* to daily WTFC is associated with poorer sleep, health behaviors, and mental health.

Work-to-Family Conflict and Health

Experiencing WTFC is associated with a myriad of adverse health outcomes. Higher rates of WTFC are associated with poor appetite, fatigue, nervous tension, and elevated blood pressure (Allen et al., 2000) as well as higher cardiometabolic risk (Berkman et al., 2015; Buxton, Lee, Marino, & Almeida, 2018) and poorer self-reported general physical health (Amsted, et al., 2011; Minnotte & Yucel, 2018). Higher WTFC is also associated with poorer sleep outcomes, including lower sleep sufficiency and quality, more insomnia symptoms, shorter sleep duration, and less consistency in sleep timing (Buxton et al., 2016; Jacobsen et al., 2014). Research has likewise demonstrated an association between experiencing WTFC and health behaviors such as less healthy food consumption (Allen & Armstrong, 2006), higher rates of alcohol abuse (Allen et al., 2000; Frone, 2003), a higher quantity of cigarette consumption among smokers (Macy, Chassin, & Presson, 2013), more frequent sweetened-beverage and fast food consumption (Bauer, Hearst, Escoto, Berge, & Neumark-Sztainer, 2012), and less regular physical exercise (Gryzwacz & Marks, 2001).

Similarly, WTFC is related to a wide variety of negative mental health outcomes, such as psychological distress (Frone, 2003). Meta-analyses reveal that WTFC is associated with lower life satisfaction, psychological strain (defined by general mental health, coping with difficulties, self-worth, and enjoyment of daily activities), increased anxiety, higher levels of hostility/irritability, more negative feelings outside of work, higher rates of depression, job burnout/exhaustion, and general stress (Allen et al., 2000; Amsted et al., 2011). More recent studies further support these findings, demonstrating that WTFC is associated with poorer mental health (defined as feelings of depression and stress), especially among individuals experiencing job insecurity (Minnotte-Yucel, 2018).

Not only does WTFC have acute implications for health as demonstrated by cross-sectional research, but longitudinal studies demonstrate long-term implications as well. Specifically, higher rates of WTFC among nursing home employees predict higher body mass index (BMI) – a cardiometabolic risk factor – both at baseline and across 18 months (O'Donnell, 2019). Further, the more WTFC older workers (age 55 years and older) report experiencing, the more comorbidity (having chronic illness diagnoses) and disabilities (having trouble performing tasks such as walking and cooking a meal) they report having (Cho & Chen, 2018). The implications of WTFC for health are not unique to workers in the United States. Indeed, a review of European data reveals that WTFC is associated with poorer self-rated health, poorer sleep, higher rates of psychosomatic symptoms, higher cholesterol, lower physical fitness, and higher alcohol consumption and obesity (Borgmann, Rattay, & Lampert, 2019).

Theoretical Background and Affective Reactivity to WTFC

Based on the past research outlined above, it is evident that overall levels of WTFC takes a large toll on workers both mentally and physically. A majority of research and theoretical models examining the outcomes associated with WTFC focus on levels of WTFC or frequency that it occurs (Maertz & Boyar, 2011; Maertz, Boyar, & Maloney, 2019). Maertz and colleagues (2011; 2019), however, argue that WTFC theoretical models need to account for how individual episodes of WTFC are processed psychologically – which includes cognitions, affect, and behavioral responses – and how this process causes changes overtime in subjective well-being. This psychological processing includes what stress theorists refer to as affective reactivity to stressors, which is defined as the likelihood that an individual will react emotionally to WTFC stressors (Almeida, 2005; Bolger & Zuckerman, 1995; Butler et al., 2005; Sanz-Vergel et al., 2010). Maertz and colleagues' (2019) theory of work-family conflict episode processing posits that if an event occurs when an individual's work and family responsibilities are incompatible, then the individual attempts to solve the problem using scripts (i.e., past methods that worked to alleviate the WTFC) and available resources. For example, if an emergency at work will cause an employee to be late picking up a child from daycare, the individual may call a family member nearby and ask them to pick the child up from daycare if this resource is available and he/she has already successfully used this method in the past – solving the problem, requiring little cognitive effort, and reducing the negative affect originally caused by the WTFC (i.e., reducing affective reactivity to WTFC). If the individual does not have a past script and/or resources, negative affective reactivity likely increases and the individual must

employ cognitive resources to figure out another coping mechanism. Successful mechanisms will be stored for later use and decrease negative affect reactivity, whereas unsuccessful mechanisms will lead to increased affective reactivity. According to this theory, over time, a series of unsuccessful coping mechanisms resulting in higher affective reactivity can decrease an individual's role satisfaction, performance, and overall well-being.

Even though Maertz and colleagues' (2019) theory of work-family conflict episode processing argues that more research is needed on the processing of WTFC episodes to fully understand the long-term implications of WTFC, there is a dearth of research on the examination of daily *affective reactivity* to WTFC and its association with health outcomes. According to Maertz and colleagues' (2019) theory, two employees can have the same level of WTFC but may experience different health outcomes due to differences in affective reactivity to the WTFC. Those with successful scripts and resources will likely experience less negative affective reactivity in response to WTFC, relative to others. The authors of the model suggest that research methodologies that allow for the examination of affective reactivity to WTFC are needed, such as daily diary methodologies.

Daily Diary Assessment of Reactivity to Daily Stress

In order to study the psychological processing of daily WTFC episodes – and more specifically affective reactivity – daily diary methodology is needed. This methodology requires participants to report their stressors, behaviors, and physical/mental health over the course of several days (Almeida, 2005; Maertz et al., 2019). One of the most valuable benefits of daily diary methodology is that it allows for within-person assessments of reactivity (Almeida, 2005; Maertz & Boyar, 2011). Thus, instead of looking at mean level WTFC assessed with surveys administered to participants at one point in time, which is what a majority of past research has done, a researcher can evaluate fluctuations in daily WTFC and well-being and how individuals psychologically process or *react* to those fluctuations with daily diary methodology. As a result, one can assess whether experiencing a stressor such as WTFC on any given day will lead to more negative affect, compared to days without experiences of WTFC (i.e., affective reactivity). It is important to examine these fluctuations because stress is experienced within the individual and these experiences differ day to day, which is not reflected in between-person methodology, and because within-person methodology allows one to rule out stable personality and environmental factors that may confound the relationships between stressors and health (Almeida, 2005). Not only that, but daily diary methods avoid issues such as ecological validity and memory distortions that can occur in traditional survey methods (Almeida, 2005). Taken together, because reactivity to WTFC can fluctuate as WTFC, scripts, resources, and the success of coping methods fluctuate, the use of daily diary methodology is favorable when examining the psychological processing of WTFC, including daily reactivity to WTFC, and its implications on health and health behaviors. Thus, the present study answers Maertz and colleagues (2019) call to examine how individual episodes of WTFC are processed psychologically (i.e., affective reactivity), and how this process influences health of employees.

Although there is evidence that WTFC varies daily and there are benefits to using daily diaries to better understand both predictors and outcomes of WTFC (e.g., Butler et al.,

2005; Sanz-Vergel et al., 2010), there is a dearth of research examining the association between *affective reactivity* to WTFC and health outcomes. This research can be informed, however, by stressor research using daily diary/assessment methods, which demonstrates a relationship between affective reactivity to daily stressors and health outcomes. For example, past research shows that higher rates of affective reactivity to daily stressors are associated with an elevation in biomarkers for inflammation (Sin, Graham-Engeland, Ong, Almeida, & 2015) and poorer sleep efficiency and quality as well as diminishing morning restfulness (Ong et al., 2013). Longitudinal studies reveal that higher rates of affective reactivity to daily-stressors predict higher mortality rates over a 10-year period (Mroczek et al., 2013) and over a 20-year period (Chiang, Toriano, Mroczek, & Miller, 2018). Further, higher rates of affective reactivity to daily stressors are associated with an increased risk of reporting a chronic condition such as diabetes or an autoimmune disease across a 10-year period (Piazza, Charles, Silwinski, Mogle, & Almeida, 2012). Finally, affective reactivity to stress is an important mediator between relationship quality and mortality rates over time, such that lower levels of perceived partner responsiveness (feeling cared for, understood, and appreciated by one's partner) predict higher affective reactivity to daily stressors, which predict higher mortality rates (Stanton, Selcuk, Ferrell, Slatcher, & Ong, 2019).

Although not as expansive, previous work likewise demonstrates a relationship between affective reactivity and mental health. In a longitudinal study, affective reactivity to daily stressors predicted greater psychological distress and a higher probability of reporting a self-diagnosed affective disorder (i.e., depression, anxiety) a decade later (Charles, Piazza, Mogle, Siliwski, & Almeida, 2013). Similarly, affective reactivity to daily interpersonal stressors among students predicted higher rates of experiencing depressive symptoms two months later (O'Niell, Cohen, Toplin, & Gunthert, 2004). Not only is affective reactivity to stress associated with negative mental health outcomes but it is also related to treatment outcomes for depression such that higher rates of affective reactivity to negative appraisals of daily stressful events predict slower responses to Cognitive Behavioral Therapy for depression (Gunthert, Cohen, Butler, & Beck, 2005). The present study is guided by Maertz and colleagues (2019) theory of work-family conflict episode processing and expands on past findings on reactivity to daily stress by using daily diary methodology to examine whether affective reactivity to daily WTFC is associated with sleep, health behaviors, and mental health outcomes (see Figure 1).

Present Study

The present study examines affective reactivity to WTFC as a predictor of physical and mental health, including overall sleep characteristics (i.e., sufficiency, quality, and insomnia), health behaviors, and psychological distress in a sample of employed parents in the IT industry. To illustrate, the information technology (IT) workplace is a particularly demanding environment (Kelly et al., 2014; Crain et al., 2015; Buxton et al., 2016). If this were coupled with parental status, this may lead to higher levels of daily stress. If an IT employee is in a demanding work environment as well as taking care of a child, and they experience stress in the form of WTFC as a result, they may be more likely to experience reactivity, and thus experience negative health outcomes.

The present study extends previous research in several ways. First, previous research has examined the relationship between affective reactivity to general daily stressors rather than focusing on any one specific stressor. Our study extends this work by examining the relationship between day-to-day reactivity to one type of stressor – WTFC – and physical, behavioral, and mental health outcomes. It is important to focus on WTFC by itself because it is a challenge heightened in the United States due to a dearth of policies promoting work-life balance (e.g., out of all OECD countries, the U.S. is the only country without a paid national parental leave policy; OECD, 2019) and because WTFC can result in increased employee job burnout, strain, and sickness absences that hurt the employer in addition to the employee (Berkman et al., 2015). Ultimately, WTFC not only negatively impacts the individual experiencing it but also company productivity, thus negatively impacting the company's bottom line. Second, previous research demonstrates that experiencing WTFC is associated with a myriad of negative implications for physical, behavioral, and mental health (Allen et al., 2000; Allen & Armstrong, 2006; Amsted et al., 2011), that WTFC changes daily, and that workers experience both physical and psychological reactivity to WTFC (Almeida et al., 2016). However, more research is needed that focuses on the psychological processing of episodes of WTFC, which includes affective reactivity (Maertz et al., 2019). No previous studies to the authors' knowledge has examined the association between *affective reactivity* to daily WTFC and health outcomes and we aim to fill this gap with the present study. This is important because the way one reacts to WTFC can affect one's mental and physical health differently than WTFC in isolation, just as with other daily stressors. In line with previous research on affective reactivity to daily stressors in general adult populations (not in workers; Charles et al., 2013; Chiang et al., 2018; Ong et al., 2013; Mroczek et al., 2013; Piazza et al., 2013; Sin et al., 2015), we hypothesize that higher affective reactivity to WTFC among IT workers will be associated with poorer sleep characteristics, more unhealthy health behaviors, and higher levels of psychological distress.

Method

Participants and Procedure

Data for the present study were part of a larger study designed to examine the effects of workplace practices on employee, family, and organizational well-being (Bray et al., 2013; King et al., 2013). Participants included IT employees working for a U.S. Fortune 500 company. Data collection occurred in a series of steps. First, participants (n = 823; 69.6% response rate) completed a computer-assisted personal interview (CAPI) at their work, conducted by trained interviewers. During this interview, participants completed the informed consent process and answered questions about work and family experiences and well-being. Participants were paid $20 for completing the CAPI interview.

From this sample, a subsample of employees with children aged 9–17 who lived at home at least 4 days a week (n = 222, 26.97%) were invited to participate in a daily diary study. This range in age for children was determined by the larger study that included a daily diary reported by children and thus recruited employed parents with at least one school-aged child who could self-report. The specific age range was chosen based on previous research findings that parents of school- and adolescent-aged children experience high levels of

WTFC (Allen & Finkelstein, 2014), and that many parenting responsibilities for children of this age can be time and/or energy consuming endeavors (e.g., driving children to social commitments, teaching how to drive, coaching sports teams; Updegraff, McHale, Crouter, & Kupanoff, 2001). Of the 222 invited participants, 131 (59.01%) completed the daily diary. Analyses indicated that those who chose to participate ($n = 131$) did not significantly differ from those who did not participate ($n = 91$) in basic demographic characteristics (employee's age, education, number of children in the household, marital status, child gender) or work variables (schedule control, work-family conflict, tenure, family supportive supervisor behaviors), with a few exceptions: Those who chose to participate earned less money, $t(2, 201) = 2.14$, $p < .05$, and were less likely to identify as a minority individual, $\chi^2 = 7.92$, $p < .01$, relative to those who chose to not participate.

The daily diary portion of the study collected in-depth information about daily experiences, including experiences of WTFC and mood. Participants completed a nightly telephone interview for 8 consecutive days (interviews averaged about 25 minutes per day), which were conducted by the survey research center located at the principal investigator's university. Participants were compensated $150 for completion of the daily diary portion of the study. Study procedures were approved by the principal investigator's university Institutional Review Board.

Because the present study examines reactivity to WTFC as a predictor of health, participants who did not experience WTFC ($n = 13$) were removed from the dataset (i.e., those who do not have WTFC cannot react to it), resulting in an analysis sample of 118. Sample demographics can be seen in Table 1. Overall, a majority of the sample identified as white, is highly educated (with a majority of participants having earned a college degree), and had an average of 2.14 children living at home at least four days a week (minimum number of children = 1, maximum = 8).

Measures

Reactivity to WTFC.—During the daily diary portion of the study, on 8 consecutive days participants reported whether they experienced work-to-family conflict using Netemeyer and colleagues' (1996) scale. If the participants reported working during the previous 24 hours, participants rated the degree to which WTFC occurred using 5 items (e.g., Since this time yesterday, how much did the demands of your work interfere with your family or personal time; *1 = not at all, 2 = a little, 3 = some, and 4 = a lot*). Items were averaged to create a daily WTFC score, which was dichotomized to indicate whether WTFC occurred on a given day (*0 = no; not at all, 1 = yes;* including *a little, some, a lot*). Participants also reported their daily negative affect by reporting how often they felt 10 adverse mood states (e.g., irritable, nervous) during the day (Watson, Clark, & Tellegen, 1988; *1 = none of the time, 5 = all of the time*). Items were averaged together to create a daily negative affect score. These items have been used in past research from the current sample of IT employees (with slightly different participant selection criteria) and were found to have high reliability (e.g., the 90 partnered employees – Lee et al., 2017). For the current sample of 118 employed parents who completed the daily diary and experienced at least one day of WTFC, the daily-level Cronbach's alpha was .92 for the WTFC scale and .83 for the negative affect scale.

To create individual affective reactivity to WTFC scores (indicating the difference in negative affect between WTFC and non-WTFC days), SAS PROC MIXED was utilized. This procedure uses a two-level hierarchical model to estimate within- (level 1) and between-person (level 2) variability. In the multi-level model (MLM), two WTFC variables representing level 1 WTFC (did participants experience WTFC on a given day, *0 = no, 1 = yes*) and level 2 WTFC (the average number of days participants experienced WTFC across the 8 days, centered at the grand mean) were examined as predictors of daily negative affect. The intercept and slopes for analyses were outputted, so that each participant had his/her own intercept (which indicated the negative affect level on non-WTFC days for the individual) and affective reactivity slope (which indicated each individual's change in negative affect in response to daily WTFC). This procedure has been used in past research examining the affective reactivity to stressors as predictors of health (Charles et al., 2013; Sliwinski et al., 2009).

Sleep.—Items from the Pittsburgh Sleep Quality Index (Buysse, Reynolds, Monk, Berman, & Kupfer, 1989), a widely used scale to measure general sleep characteristics, were used to measure 3 components of sleep. *Sleep sufficiency* was measured using one item: How often during the past 4 weeks did you get enough sleep to feel rested upon waking up (*1 = never, 5 = very often*). *Sleep quality* was measured using one item: Over the past 4 weeks, how would you rate your sleep quality overall (*1 = very good, 4 = very bad*). The item was reverse-coded so that higher scores reflect better sleep quality. *Insomnia symptoms* were measured using one item: During the past 4 weeks, how often did you wake up in the middle of the night or early morning (*1 = never, 4 = three or more times a week*). These sleep items have been used in previous studies and validated to predict cardiometabolic health outcomes (Buxton et al., 2018; Vigoureux et al., 2019).

Health behaviors.—Smoking, drinking, exercise, and fast food consumption variables from the National Health Interview Statistics (2011) were used to create a composite health behavior variable. Participants were asked whether they smoke tobacco cigarettes (*1 = every day, 2 = some days, 3 = not at all*), how many days they drink alcohol on average during a week, how many times in the past 4 weeks they engaged in exercise that caused them to break into a sweat for at least 20 minutes, and how many times in the past 4 weeks they ate a meal from a fast food restaurant, defined as food that is prepared in advance and sits in warming areas (e.g., McDonald's or Wendy's; *1 = never, 7 = two or more times per day*). These variables were transformed to dichotomous variables: smoking (*0 = do not smoke or only on some days, 1 = smoke every day*), drinking (*0 = on average, drink less than 2 days a week, 1 = drink 2 or more days a week*), exercising (*0 = exercised more than more than once a week during the past 4 weeks; 1 = exercised once a week or less during the past 4 weeks*), and fast food consumption (*0 = less than once a week during the past 4 weeks, 1 = one to two times a week or more during the past 4 weeks*). These 4 dichotomous variables were then summed to create an overall health behavior score (0 to 4), with higher scores reflecting poorer health behaviors. This method for operationalizing health behaviors into one composite variable has been used in past research (Vigoureaux et al., 2019).

Psychological distress.—Psychological distress was measured using Kessler and colleagues' (2003) 6-item scale, which requires participants to rate how often psychological distress symptoms occurred over the past 30 days (*1 = All of the time, 5 = None of the time;* example item: During the past 30 days, how much of the time did you feel so sad that nothing could cheer you up?*)*. Items were reverse coded and summed so that higher scores reflected more perceived distress. This scale is commonly used in research and there is evidence of adequate validity and reliability, including the fact that it is a good predictor of serious mental illness (Kessler et al., 2003). For the current study, there is evidence of internal consistency of items (Cronbach's alpha = .78).

Analyses

To examine the research questions, a series of general linear models were conducted in SAS version 9.4 (one model for each outcome: sleep sufficiency, sleep quality, insomnia symptoms, health behaviors, and psychological distress). Each model included the intercept and slope scores from the WTFC reactivity MLMs (described in the WTFC reactivity section above), which indicated each participants' negative affect level on non-WTFC days (intercept) and an individual's affective reactivity to WTFC (slope). These variables vary only at the between-person level (i.e., some people are more reactive than others) and not at the within-person level. Models controlled for sociodemographic covariates commonly found to be associated with health and/or WTFC, including age (centered at the sample mean), gender (*0 = female, 1 = male*), dual-earner status (*0 = single earner family, 1 = dual-earner family*), number of children living in the household (centered at the sample mean), race/ethnicity (*0 = White, 1 = African American, Asian Indian, Asian, Pacific Islander, Hispanic, Biracial*), and education (*0 = no college degree, 1 = college degree*).

Results

Descriptive statistics and correlations between study variables can be seen in Table 2. Overall, the sleep and psychological distress variables were significantly correlated, whereas the health behavior variable was not significantly correlated with sleep or psychological distress. In addition, although sleep variables are significantly correlated with each other, the low to moderate correlations (ranging from −.19 to .56) indicated that they are separate constructs. Thus, it is appropriate to use these variables as separate sleep health outcomes, similar to past research (Buxton et al., 2016; Buxton et al., 2018).

Research Questions

Sleep.—Results of regression analyses (see Table 3) indicated that affective reactivity to WTFC was significantly associated with sleep quality, but not sleep sufficiency or insomnia symptoms. More specifically, higher affective reactivity to WTFC was associated with poorer sleep quality – even when controlling for daily negative affect on non-WTFC days (i.e., between-person differences in daily negative affect). Daily negative affect on non-WTFC days did not significantly predict sleep sufficiency, sleep quality, or insomnia symptoms. It was, however, a trend-level (p = .072) predictor of insomnia symptoms, indicating that those with higher negative affect on non-WTFC days reported more insomnia symptoms.

Health behaviors.—Results indicated that daily negative affect on non-WTFC days and affective reactivity to WTFC were not significant predictors of health behaviors.

Psychological distress.—Affective reactivity to WTFC was a significant predictor of psychological distress: Higher affective reactivity to WTFC was associated with more psychological distress, controlling for daily negative affect on non-WTFC days (which predicted psychological distress at a trend level, p = .053).

Discussion

The present study examined affective reactivity to WTFC as a predictor of sleep, health behaviors, and mental health among parents employed in the IT industry. The results indicated that individuals who are more affectively reactive to daily WTFC – i.e., those who exhibited greater daily increases in negative affect in response to daily WTFC – were more likely to report poorer sleep quality and more psychological distress. These results held true, even after controlling for individual differences in overall levels of negative affect on non-WTFC days. Although past research often focused on the role of exposure to stressors in health, these findings suggest that affective reactivity to seemingly minor daily experiences of WTFC also have important implications for health and health behaviors in employed parents.

Maertz and colleagues (2019) called for research that examines the psychological processing of episodes of WTFC, and then how this psychological processing relates to well-being. We responded to this call by examining one potential element of psychological processing (i.e., affective reactivity) and how it is associated with employed parents' well-being. Building on Maertz and colleagues' (2019) theory, we theorized that people may affectively react differently to WTFC based on a number of mediating or moderating factors such as whether they have past scripts and resources available to alleviate the WTFC, and whether the methods used to alleviate the WTFC have been successful. Individuals with successful past scripts and resources are less likely to experience affective reactivity to WTFC and would in turn experience fewer negative outcomes related to their well-being. The present study focused on establishing the relationship between affective reactivity and various health outcomes. In line with this theory and similar to past research that has found individual differences in reactivity to daily stressors predict physical and mental health (Chiang et al., 2018; O'Niell et al., 2004; Ong et al., 2013; Mroczek et al., 2013; Piazza et al., 2012; Sin et al., 2015), the present study found that affective reactivity to daily WTFC predicted poorer sleep quality (but not sleep sufficiency or insomnia symptoms) and more psychological distress. Based on our findings, future studies could test different elements or mechanisms in the psychological processing of WTFC such as cognitive or behavioral reactivity. Future studies could also benefit from considering diverse moderators because the psychological processing of WTFC may differ by a range of individual and family characteristics (e.g., personality and spouse support).

We found that higher affective reactivity to daily WTFC was associated with poorer sleep quality, but not associated with sleep sufficiency or insomnia symptoms. Perhaps, sleep sufficiency and insomnia symptoms, which asked the frequency of feeling rested upon

waking and waking up in the middle of the night or early morning, may not relate to how individuals affectively react to WTFC. Another potential reason is the measurement time scale. By using the Pittsburgh Sleep Quality Index (Buysse et al., 1989), we asked the frequency of sleep sufficiency or insomnia symptoms during the past 4 weeks; because affective reactivity to WTFC was calculated based on responses over one diary week, the time frame of sleep sufficiency and insomnia symptoms measures may not precisely correspond to the time frame of affective reactivity, although these measures are assumed to capture individual reactivity and sleep characteristics overall. Unlike sleep sufficiency and insomnia symptoms, the sleep quality item that did not ask frequency and thus might have been less sensitive to the time scale of affective reactivity. The fact that we found consistent results on another domain of health (psychological distress) increase the validity of our results.

The present study also supports the theory of work-family conflict episode processing (Maertz et al., 1999) assertion that there are individual differences in affective reactivity to WTFC. The average reactivity score across the sample was .13 (indicating that experiencing WTFC was associated with an increased level of negative affect) and the standard deviation of the average reactivity score across the sample was .14 – indicating that scores varied quite a bit between individuals. Future research is needed to better understand factors that predict or buffer individuals from affective reactivity – particularly resources that companies can invest in to reduce employees' affective reactivity to WTFC by helping employees feel they have the resources and scripts necessary to deal with these stressors. Although preliminary research finds that resources such as a supportive supervisor may buffer affective reactivity to WTFC (Almeida et al., 2016), other workplace resources such as childcare or schedule flexibility may influence the appraisal process when employees are faced with daily WTFC and ultimately have implications for workers' health.

Limitations & Future Research

The present study included IT employees with at least one child between 9 to 17 years old. We strategically chose this sample, because the IT work context may lender permeable boundaries between work and family (e.g., telecommuting, overtime work) and being a parent may make them vulnerable to experiencing WTFC. However, the sample was relatively privileged in terms of socioeconomic status, as a majority of employees reported they were married and had higher education and income. These factors may have caused workers to have more resources and scripts to balance work and family, such as the ability to pay for childcare and another partner at home to help with family responsibilities. Future research is needed with a more diverse sample in order to determine if the results are generalizable to other employees with fewer resources and/or more demands (e.g., lower SES, single parents, younger children at home).

Longitudinal research is also needed to examine whether reactivity to daily WTFC has implications for long-term health. Evidence has accumulated that reactivity to daily stressors has long-term implications for health (Charles et al., 2013; Mroczek et al., 2013, Piazza et al., 2012), but research is needed on daily WTFC, too. This may be particularly important for companies, given the rising health care costs for employers (McDonald, Mecklenburg,

& Martin, 2015). A better understanding of the role of both exposure and reactivity to WTFC would be informative for future interventions and wellness programs designed to reduce WTFC, reactivity, and long-term implications (and financial costs) of exposure and reactivity. Additionally, future research could examine potential mediators or moderators in the link between reactivity to WTFC and long-term health. For example, the link between WTFC and health may be stronger for individuals of lower socioeconomic status, given they may have less access to resources to reduce WTFC and better health (e.g., health insurance). Unfortunately, this could not be examined in the current study, as the sample was relatively privileged in terms of socioeconomic status.

The present study also focused on the psychological processing of daily instances of WTFC, but more research is needed to better understand this processing of work-family enrichment – how work and family may benefit each other – to create a holistic view of the role of *reactivity* in overall work-family balance. Finally, the present study relied on self-reports of sleep, health behaviors, and mental health. Future research is needed that uses more objective measures of health, such as actigraphy sleep data, BMI, blood pressure, and cortisol levels.

Conclusion

Many studies have examined the negative impact of WTFC on employee health. The current study is one of the first that reports, not just WTFC, but how employees react to it is important for their physical and mental health. The results indicate that higher affective reactivity to daily WTFC is associated with poorer sleep quality and worse mental health of employees. Perhaps, the cumulative wear and tear of daily WTFC may shape employees' reactivity, such that frequent exposure to daily WTFC may make them more sensitive to perceiving WTFC and responding negatively to it. Or there may be trait-like factors that influence reactivity, regardless of the frequency of WTFC. Overall, this study shows that affective reactivity to WTFC as a one way to examine the psychological processing of work-family conflict episodes and its implications for health (Maertz et al., 2019). Research is needed to better understand resources that may help reduce affective reactivity to WTFC.

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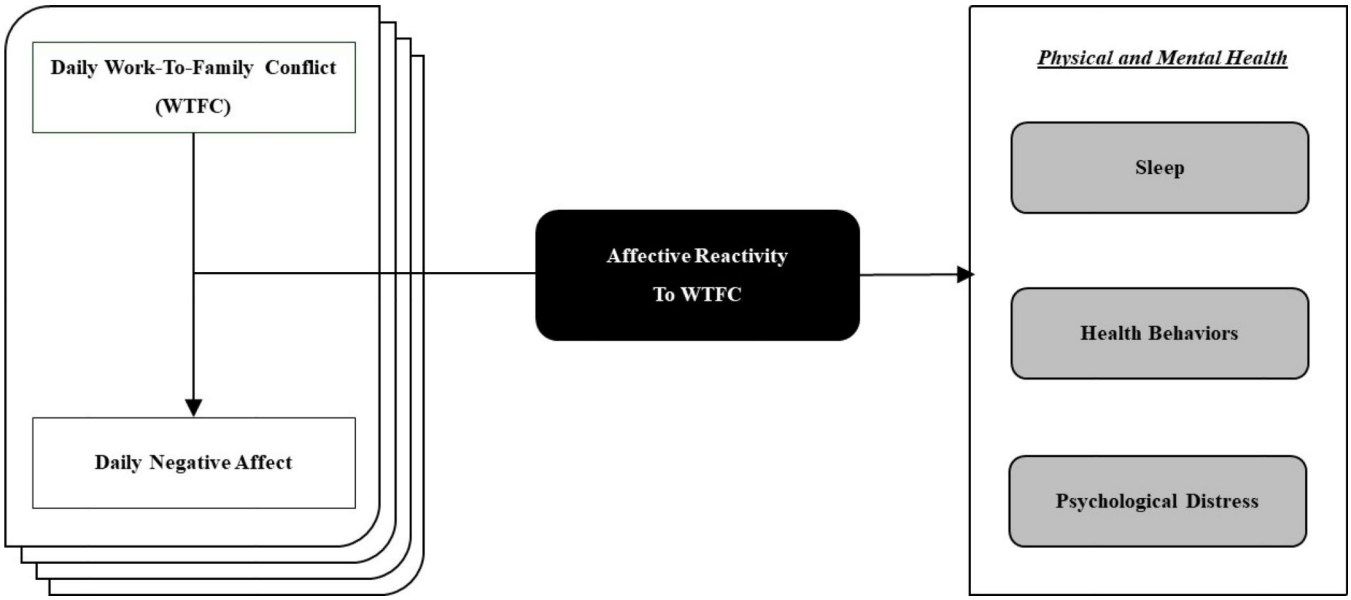

Figure 1.
Theoretical Model and Research Questions

Table 1

Participant demographics (N = 118)

	Mean (SD) or n (%)
Employee age	45.01 (6.33)
Gender (% women)	52 (44.07%)
Education	
High school graduate	3 (2.54%)
Some college or technical school	23 (19.49%)
College graduate	92 (77.97%)
Marital Status	
Married/Living with romantic partner	102 (86.44%)
Single	16 (13.56%)
Number of children living at home	2.14 (1.12)
Race/ethnicity	
White, non-Hispanic	82 (69.49%)
Black or African American	2 (1.69%)
Asian Indian	13 (11.02%)
Other Asian	6 (5.08%)
Other Pacific Islander	1 (0.85%)
Hispanic	13 (11.02%)
More than one race	1 (0.85%)
Annual Household Income	
50,000–99,999	30 (28.04%)
100,000–149,999	51 (47.66%)
More than 150,000	26 (24.30%)
Tenure years at current job	13.32 (6.49)
Work hours per week	46.09 (5.90)
Job Title	
Administrative assistant	2 (1.92%)
Software development engineer I/II	8 (7.69%)
Lead/staff quality assurance engineer	6 (5.77%)
Quality assurance engineer I/II	14 (13.46%)
Lead/staff IT project manager	16 (15.38%)
Lead/staff IT analyst	2 (1.92%)
IT analyst/engineer I/II	10 (9.62%)
Principal/lead/staff information systems engineer	9 (8.65%)
Information systems developer/engineer I/II	3 (2.88%)
Team lead IT	1 (0.96%)
Lead/staff design by analysis (DBA) design engineer	1 (0.96%)
Design by analysis (DBA) design/production engineer I/II	1 (0.96%)
Lead/staff process analyst	1 (0.96%)
Lead/staff system software support engineer	8 (7.69%)

	Mean (SD) or n (%)
IT project coordinator I/II	2 (1.92%)
Tech support specialist I/II	2 (1.92%)
Principal/lead/staff architect design	1 (0.96%)
Software programmer/analyst I/II	2 (1.92%)
Other	15 (14.42%)

Table 2

Descriptive statistics and correlations among study variables (N = 118)

	Mean (SD)	1	2	3	4	5	6	7
1. WTFC intercept	1.20 (.11)	1.00						
2. WTFC slope	.13 (.14)	.45***	1.00					
3. Sleep sufficiency	3.03 (.89)	−.21*	−.16†	1.00				
4. Sleep quality	2.83 (.80)	−.25**	−.28**	.56***	1.00			
5. Insomnia symptoms	3.10 (.99)	.19*	.09	−.19*	−.32***	1.00		
6. Health behavior	1.21 (.85)	−.06	.10	−.14	−.17†	−.02	1.00	
7. Psychological distress	11.55 (3.56)	.31***	.42***	−.32***	−.40***	.18*	.07	1.00

Note. WFC intercept represents the negative-affect level on a non-WTFC day. WFC slope represents affective reactivity to WTFC. *SD* = standard deviation.

† $p<.10$

* $p < .05$

** $p < .01$

*** $p < .001$.

Table 3

Results of regression analyses examining reactivity to work-to-family conflict as predictors of physical and mental health

	Sleep Sufficiency			Sleep Quality			Insomnia Symptoms			Health Behaviors			Psychological Distress		
	β	***B* (SE)**		**β**	***B* (SE)**		**β**	***B* (SE)**		**β**	***B* (SE)**		**β**	***B* (SE)**	
Intercept		4.49 (0.99)	***		4.38 (.86)	***		1.22 (1.11)			2.26 (.94)	*		5.72 (3.54)	
Negative-affect level on non-WTFC day	−.16	−1.30 (.83)		−.16	−1.13 (.73)		.19	1.69 (.93)	†	−.12	−.94 (.79)		.17	5.25 (2.97)	†
Affective reactivity to WTFC	−.08	−.47 (.65)		−.21	−1.15 (.57)	*	.00	.02 (.74)		.17	1.01 (.62)		.31	7.49 (2.35)	**
Covariates															
Age	.07	.01 (.01)		.04	.01 (.01)		−.09	−.01 (.02)		−.12	−.02 (.01)		−.09	−.05 (.05)	
Gender	−.06	−.11 (.17)		−.15	−.24 (.15)		.03	.07 (.20)		−.03	−.04 (.16)		−.16	−1.17 (.62)	†
Dual-earner	.06	.11 (.18)		−.02	−.04 (.16)		−.05	−.10 (.21)		.06	.11 (.17)		−.19	−1.46 (.66)	*
Number of children	−.07	−.06 (.08)		.01	.01 (.07)		−.05	−.04 (.09)		−.13	−.10 (.07)		.08	.26 (.28)	
Race/ethnicity	.02	.04 (.18)		−.03	−.06 (.16)		−.11	−.23 (.21)		−.19	−.35 (.17)	*	.01	.09 (.66)	
Education	.08	.17 (.21)		.09	.17 (.18)		−.03	−.07 (.23)		−.00	−.01 (.20)		.03	.22 (.74)	
R^2	.07			.12			.06			.08			.26		

*Note: Gender (*0 = Female, 1 = Male*). Dual earner (*0 = single income family, 1 = dual-earner family*). Race/ethnicity (*0 = White, 1 = African American, Asian Indian, Asian, Pacific Islander, Hispanic, Biracial*). Education (*0 = No College Degree, 1 = College Degree*).

† $p<.10$

* $p < .05$

** $p < .01$

*** $p < .001$.