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## **Adaptation in Work and Family Roles Link Support to Mental Health During a Pandemic**

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### **Abstract**

We address a key unresolved issue in the social support literature - how social support relates to psychological health - by examining behavioral adaptation as a mechanism through which support from work and family domains, during the COVID-19 pandemic, impacts psychological health. Given support may not equally benefit all, we consider individual differences in demographics as moderators in the relationships between support, adaptation and health outcomes. We examine both within-domain and cross-domain effects of support on adaptation using a sample of 392 employees who responded to two surveys, three weeks apart, shortly after the COVID-19 lockdown. Consistent with expectations, adaptation both within and across domains mediated the relationships between social support and psychological health. Moreover, the family support-family adaptation and family adaptation-psychological health relationships were stronger among participants without a cohabiting partner. Our findings highlight the important role social support and adaptation play in maintaining well-being during crisis events, particularly for persons without cohabiting partners. Our results suggest that workers can protect their psychological health during a crisis event to the extent they engage in behavioral adaptation and, thus, organizations should consider adopting interventions that promote behavioral adaptation, such as micro-interventions focused on stress reappraisal.

**Data Availability Statement:** The data that support the findings of this study are available from the corresponding author upon reasonable request.

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Practitioner Points:

- Perceived organizational support is a key resource for employee mental health during a crisis
- Organizations and managers can promote mental health by helping employees adapt to changes in work and family roles during a crisis
- Organizations can consider adopting micro-interventions that promote stress reappraisal and behavioral adaptation
- Workers can protect their psychological health during a crisis to the extent they engage in behavioral adaptation

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The COVID-19 pandemic caused major changes in how, when, and where we work (Hammer & Alley, 2020). Shelter-in-place orders in the U.S. and lockdown restrictions in the U.K. forced many people into remote work, who often had little experience with it (Carnevale & Hatak, 2020; Kramer & Kramer, 2020), blurring boundaries between work and home (Cho, 2020; Fisher et al., 2020). The ‘Stress in America’ report found high stress related to family well-being, work, unemployment, the economy, and the US government’s response to COVID-19 (American Psychological Association, 2020; Davis & Green, 2020). High stress due to COVID-19 has been linked to greater distress (Achenbach, 2020; Qui, et al., 2020), substance use (Jernigan, 2020; Umucu & Lee, 2020), and sleep problems (Altena et al., 2020). Moreover, reduced contact with friends, colleagues, and (non-cohabiting) family may foster isolation, further threatening mental health (Prime et al., 2020; Tull et al., 2020). As such, identifying factors that can foster mental well-being during crisis events such as the COVID-19 pandemic is important to public health (McLaughlin et al., 2012).

The pandemic caused rapid and unprecedented shifts in work and family roles (Kramer & Kramer, 2020; Matthews et al., in press; Shockley et al., 2021; Vaziri et al., 2020), creating a context with significant stressors (Rudolph et al., 2020), and threatening employee mental health. People reported more anxiety, depression, and other mental health issues during the pandemic (WHO, 2020) and abrupt changes in work and family roles (Kramer & Kramer, 2020). Understanding how people coped during the COVID-19 pandemic is important as health crises like SARS, MERS, and COVID-19 are expected to occur more often in the future (Hilsenrath, 2020). Research on adaptation during COVID-19 may also yield insight into how people adapt during other crises such as natural disasters, war, and industrial accidents.

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The purpose of our study is to identify the factors that can foster mental well-being during crisis and to provide theoretical clarity on the ways that social support, adaptation, and psychological health are related. We build on the stress-buffering model of social support by drawing from COR theory (Hobfoll, 2001) to assert that adaptation mediates the relationship of social support with psychological health. Based on the incongruence model of social support (Bavik et al., 2020), we examine how gender, partner status and caregiving status moderate the relationships of social support, adaptation, and psychological health.

One factor that may aid coping with stressors such as the COVID-19 pandemic is support from work and family roles. Social support is “fundamental to human survival and thriving” (Bavik et al., 2020, pg. 726) and is linked to lower work-family conflict (Kossek et al., 2011). As such, we examine social support from work and family domains as predictors of psychological health. We gathered data early in the pandemic as lockdowns were being imposed (Time 1 – 7<sup>th</sup> April 2020), and again three weeks later as workers adjusted to new ways of working and living (Time 2 – 27<sup>th</sup> April 2020). We draw our theorizing from Conservation of Resources (COR) theory (Hobfoll, 1989; 2001; 2002).

Extending research on social support and mental health (French et al., 2018), we focus on the mechanism explaining this relationship and assess for whom it is strongest during crises, contributing to research in three ways. First, we add to sparse research on social support during crises (Eby et al., 2016), such as a pandemic. Second, while we know social support relates positively to psychological health, the reasons as to *why* this is so not well-understood (Bavik et al., 2020; House et al., 1988; Lakey & Cohen, 2000; Uchino, 2009; Uchino, et al., 1996; Uchino et al., 2018). While social support has been theorized to foster psychological health via adaptation, the role of adaptation has not been empirically tested (House et al., 1988; Uchino et

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al., 2018). Understanding whether adaptation links support to mental health is important to create consensus in the literature and shed light on how workers and organizations can protect well-being during crises. Third, we test whether social support is more beneficial to persons with certain demographics (Bavik et al., 2020), seeking to offer insight into the role of demographics in the indirect effect of support on well-being via adaptation. Our results suggest that organizations should consider ways to promote perceptions of organizational support and to help employees engage in behavioral adaptation to help them protect their psychological health.

### **The COVID-19 Pandemic and Psychological Health**

Psychological health is defined as “a state of mind characterized by emotional well-being, good behavioral adjustment, relative freedom from anxiety and disabling symptoms, and a capacity to establish constructive relationships and cope with the ordinary demands and stresses of life” (American Psychological Association, 2020). People maintain well-being in part by adapting to harmful events (Graham & Oswald, 2010). The COVID-19 pandemic created major stressors, such as job insecurity and overload due to homeschooling children during remote work (Cluver et al., 2020), resulting in resource loss, a need for worker and family adjustment (Carnevale & Hatak, 2020; Kramer & Kramer, 2020), and poor mental health (WHO, 2020).

### **The Contested Role of Social Support in Stressor Contexts**

*Perceived social support.* Perceived social support occurs when people feel cared about and have access to social resources that aid well-being (Shumaker & Brownell, 1984). Work and family are key domains from which people draw support (Ford et al., 2007; French et al., 2018; Michel et al., 2010), and this may be especially so in crises (Sinclair et al., 2020; Zeidner et al., 1993). At work, perceived organizational support (POS) refers to employee perceptions that their organization values their contributions and cares about their well-being (Eisenberger et al.,

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1986). Outside of work, perceived family support (PFS) is a generalized view of being cared for by family (Toepfer, 2010). Following work-family research (Kossek, et al., 2011), we focus on perceived social support given it relates to adaptation (Cohen & Willis, 1985), and is more proximal to mental health than supportive behavior (French et al., 2018). We examine within-domain support (i.e., POS, PFS), rather than support from specific role partners (e.g., supervisor, spouse), given the relevance of broad perceptual support to strain (French et al., 2018).

*The contested role of social support.* Much research documents that social support relates to greater psychological health (French et al., 2018), but *how* it relates to health is contested. There are two prevailing models of the social support-health outcome relationship (Rueger et al., 2016). A general benefits model posits that social support promotes psychological health directly (Cohen & Wills, 1985); this has received extensive support (Bavik et al., 2020; Heller et al., 1986). The stress-buffering model proposes that social support predicts coping (a form of adaptation), which *moderates* the relationship between stress and health (Lakey & Cohen, 2000, pg. 31). The stress-buffering model has received mixed support (Bavik et al., 2020), as some studies do not find that that social support buffers or moderates the stress-psychological health relationship. Scholars have therefore proffered that studying the buffering effects of social support is not as important as understanding *why* social support is beneficial (Bavik et al., 2020; House et al., 1988; Lakey & Cohen, 2000; Uchino, 2009; Uchino et al., 1996), particularly when it comes to the role of adaptation (House et al., 1988), which we do presently.

### **Social Support and Conservation of Resources Theory**

We leverage COR theory to theorize about the links between perceived social support, adaptation, and psychological health. COR theory posits that people try to protect their resources (conservation) and acquire new ones (acquisition) (Hobfoll, 1989, 2001). Resources are defined



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as “objects, personal characteristics, conditions or energies that are valued in their own right, or that are valued because they act as conduits to the achievement or protection of valued resources” (Hobfoll, 2001, pg. 339). Improving mental health became a key goal for workers, families, organizations, and policymakers during the COVID-19 pandemic (Parks et al., 2022), an event quite high on the stress-severity continuum (Hobfoll, 2002).

*Social support as a resource in COR theory.* Social support is a condition, or a resource that emanates from outside the self (Ten Brummelhuis, & Bakker, 2012). Perceived support is defined as the potential access to support (Uchino, 2009) - a resource that can be drawn on in times of stress to aid coping. COR theory suggests that people with resources such as social support can handle stressors (Hobfoll, 2002) by allocating resources to adapt to changing demands (Hobfoll, 1989). In short, it is the potential for resource gain in the face of resource loss and uncertainty that protects well-being (Hobfoll, 2002).

*Adaptation as a resource in COR theory.* Adaptation is a form of coping that occurs in response to stressors (House et al., 1988), and is central to COR theory (e.g., Hobfoll, 2002). Under high-stress conditions when uncertainty is high, adaptation, or the “degree to which individuals cope with, respond to, and/or support changes that affect their roles as members of a team” (Griffin et al., 2007, pg. 331) is key to effectiveness. Dealing with uncertain situations, learning new tasks, technologies, and procedures, and being flexible and open-minded are all component behaviors of adaptation (Pulakos et al., 2000). In the context of this study, we define adaptation as *the extent to which an individual engages in behavioral changes that allow them to function more effectively within their work (family) environment*.

*Resource investment proposition and its corollary.* COR theory is an integrated resource theory which considers how multiple resources build on one another (Hobfoll, 1989; 2002). The

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resource investment principle proposes that people invest resources to protect current resources, acquire new ones, and recover from resource loss (Hobfoll, 2001). In other words, resources beget resources; people with resources can invest them to create more resources (Hobfoll, 2001). Drawing from COR theory, we posit perceived social support as an initial resource that helps people cope with stress by adapting to changes in work and family roles during the pandemic.

### **Social Support and Adaptation to Changes in Work and Family Roles**

Adaptation has been considered extensively in COR theory and related research (Hobfoll, 1989, 2002). For instance, in their transactional stress model, Lazarus and Folkman (1984) discuss how resources aid adaptation to changing contexts by suggesting that an individual's appraisal of a situation as stressful, and their ability to cope with it, depends on their resources. COR theory views "the acquisition and facilitation of resources as a central motivational construct" (Hobfoll, 2002, pg. 312), positing that people must leverage resources (social support) to create more resources (adaptation) during stressors such as a pandemic. Thus, higher levels of social support (a resource) should predict more adaptation.

In line with COR theory, research has found social support relates to better adaptation in general (Jackson & Warren, 2000; Warren et al., 2009), and to stressful life events (Bavik et al., 2020; Cutrona & Russell, 1987; House et al., 1988). For instance, social support aids adapting to aging (Cutrona et al., 1986), surgery (Krohne & Slangen, 2005), widowhood (Bankoff, 1983), cancer survival (Blanchard et al., 1995), the threat of a missile attack (Zeidner et al., 1993), and the 2008 recession (McLaughlin et al., 2012). During the COVID-19 pandemic, changes to work and family roles were abrupt, unexpected, and disruptive (Kramer & Kramer, 2000), such that social support could enable adaptation in work and family roles. COR theory posits that resource investment to foster resource gains during threats of resource loss protects well-being (Hobfoll,

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1989; 2001; 2002). As such, we suggest people leverage social support to create resources in the form of adaptation. We theorize both within and cross-domain relationships of support with adaptation (Ford et al., 2007), consistent with the role accumulation view (Voydanoff, 2001).

*Hypothesis 1a/b:* Perceptions of organizational (1a) and family (1b) support early in the pandemic are positively related to work role adaptation.

*Hypothesis 1c/d:* Perceptions of organizational (1c) and family (1d) support early in the pandemic are positively related to family role adaptation.

### **Adaptation to Pandemic-Related Changes and General Psychological Health**

COR theory suggests people invest initial resources (social support) to create more resources (adaptation) to cope with stress and protect mental health (Hobfoll, 2002), explaining findings that people adapt to negative events over time (Dukes et al., 2003; Hobfoll, 2001). In the context of the pandemic, COR theory posits that people respond to uncertainty by adapting to changes in work and family roles to protect their psychological health. Adaptation is a positive response to stress (Baum et al., 1981) which fosters mental well-being in the face of stressors such as organizational change (Michel & González-Morales, 2013), aging (Ferri et al., 2009), pregnancy (Kim & Yu, 2014), and career transitions (Lea & Leibowitz, 1992). Although people resist change and find it stressful (Dugdill et al., 2009; Mihiotis & Argirou, 2016); some people adapt well and others develop negative psychological sequelae (Niitsu et al., 2019). People adapt to stress by changing the situation or their experience of it, protecting psychological health (Huebschmann & Sheets, 2020). Preliminary research suggests adaptation may relate to mental well-being during COVID-19 (Corvo & De Caro, 2020). Thus, people who adapt more effectively to change in work and family during COVID-19 also report better mental health.

*Hypothesis 2:* Work role adaptation (2a) and family role adaptation (2b) will be positively related to psychological health.

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### **Indirect Effects of Social Support on Psychological Health**

To understand why social support relates to psychological health, we examine adaptation as a *mediator* of the relationship between social support and psychological health during a crisis, such as a pandemic. Drawing from the resource investment principle of COR theory (Hobfoll, 1989; 2001; 2002), we propose that as people experience resource loss due to stressors, mental well-being declines. As resource investment can curb resource loss in the face of stressors (Ito & Brotheridge, 2003), investing social support resources can aid adaptation and prevent future resource loss (Hobfoll, 2001) while experiencing stress and strain (Halbesleben et al., 2014; Hobfoll, 1988; 2002). We suggest that leveraging perceived social support to adapt to change in work and family during the pandemic is an adaptive response that protects mental health during environmental change.

Social support enables adaptive, counter-responses to stressors when people leverage initial resources to acquire more resources, protecting well-being in the face of uncertainty (Hobfoll, 1989; 2001; 2002). We assert that adaptation is a behavioral response that occurs as an adaptive response to social support, placing an emphasis on the person's active response to a situation to protect their psychological health. Consistent with COR theory, we suggest people with more social support adapt to changes in work and family by leveraging these resources as an active, agentic response to a high-stressor context. To our knowledge, no prior research has examined adaptation as a behavioral response linking perceived social support to psychological health in a stressor context. We hypothesize that social support relates to psychological health in part indirectly via adaptation to changes in work and family roles, but that a direct relation of social support with psychological health also remains.

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*Hypothesis 3a/b:* Perceptions of organizational (3a) and family (3b) support are indirectly related to psychological health through work role adaptation.

*Hypothesis 3c/d:* Perceptions of organizational (3c) and family (3d) support are indirectly related to psychological health through adapting to family role adaptation.

*Hypothesis 3e/f:* Perceptions of organizational (3e) and family (3f) support are positively and directly related to psychological health, after the inclusion of adaptation in the model.

### **Gender, Partner Status and Caregiving as Moderators**

As noted above, social support can help workers adapt to changes in work and family roles brought on by COVID-19. However, people may differ in the degree to which social support enables adaptation, and in the extent to which adaptation relates to psychological health. The model of social support incongruence (Bavik et al., 2020) posits that some people respond to social support more than others and recent research supports this idea (Rudolph et al., 2020). For instance, women and members of disadvantaged groups have higher needs for social support (Bavik et al., 2020), and as such, are more responsive to its effects.

Integrating the incongruence model with the idea of adaptation as a response to social support in high-stress contexts, we expect that the degree to which social support relates to adaptation varies with demographic differences. The relationship between social support and adaptation should be stronger among employees with more family demands rather than fewer such demands. If adaptation is more critical to the mental health of certain demographic groups, these demographics should also moderate the adaptation-psychological health relationship.

*Gender.* According to Bavik et al. (2020), people differ in their need for social support, and marginalized groups such as women may need more support and benefit more from it. In fact, research shows that women receive, perceive, and provide more social support than men (Lepore, 1992; Liebler & Sandefur, 2002; Turner, 1994; Williamson & O'Hara, 2017); as such

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they may rely on support and seek it more than men to adapt to change in work and family during crises. Women also do more housework and childcare than men (BLS, 2020), and during the COVID-19 pandemic women shouldered the burden of childcare (Shockley et al., 2021) and reported greater distress than men (Horesh et al., 2020). Taken together, these findings suggest that the relationship of social support with adaptation will be stronger among women than men.

*Hypothesis 4a/b:* The positive relationship of POS with adaptation in response to changes in work (4a)/family (4b) will be stronger among women than men.

*Hypothesis 4c/d:* The positive relationship of PFS with adaptation in response to changes in work (4c)/family (4d) will be stronger among women than men.

Women may also have a greater need to adapt to work and family roles to preserve their psychological health. Women carry the bulk of family responsibilities, resulting in their greater family demands to adapt to during the COVID-19 pandemic than men (Horesh et al., 2020; Shockley et al., 2021). Women also score lower on self-perceived coping with stress (Zimmer-Gemberck et al., 2018), and report less adaptation during stress (Tamres et al., 2002) than men. Such findings suggest that adaptation may be more critical to women's mental health than men's.

*Hypothesis 4e/f:* The positive relationship between work role adaptation (4e)/family role adaptation (4f) and psychological health will be stronger for women than men.

*Partner status.* The social support incongruence model suggests family status may also relate to needs for support (Bavik et al., 2020). Having a partner is associated with higher socioeconomic status and more opportunities for social interaction (Dean et al., 1994) and the social support incongruence model suggests this is a source of advantage (Bavik et al., 2020). In fact, people who live with a spouse or partner perceive more social support than those who do not (Liese et al., 1989). Unpartnered people also receive more of their social support from outside the home (e.g., friends, neighbors, and coworkers) relative to partnered people (Liebler &

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Sanefur, 2002). During the COVID-19 pandemic, married employees reported more family-to-work enrichment than single employees (Vaziri et al., 2020), suggesting employees with partners may have more support within the home than those without partners. As people without a partner at home draw support solely from outside the home, they may need it and benefit from it more than those with partners at home. As people living alone are at more risk of social isolation (Shiovitz-Ezra & Leitsch, 2010), the positive relationship of social support with adaptation may be stronger among employees without, compared to those without, a cohabiting partner.

*Hypothesis 5a/b:* The positive relationship between POS and adaptation in response to change in work (5a)/family (5b) will be stronger among employees without a cohabiting partner than among partnered employees.

*Hypothesis 5c/d:* The positive relationship between PFS and adaptation in response to change in work (5c)/family (5d) will be stronger among employees without a cohabiting partner than among partnered employees.

Family status may also impact the degree to which adaptation matters to mental health. Adaptation to the COVID-19 pandemic may be especially important for unpartnered people who were more prone to isolation during lockdown (Saltzman et al., 2020). Among partnered people, a cohabiting partner can be a resource to keep them mentally well. However, as unpartnered employees cannot draw resources from a partner, their adaptability to work and family changes may be especially vital to their mental health during the pandemic. We accordingly suggest that partner status will moderate the relationship between adaptation and psychological health.

*Hypothesis 5e/f:* The positive relationship between adaptation in response to change in work (5e)/family (5f) and psychological health will be stronger among employees without a cohabiting partner than among partnered employees.

*Caregiving status.* Caregiving status is also relevant to a person's need for support (Bavik et al., 2020). Caregiving demands are associated with poorer psychological health (Gaugler et al., 2018; Kossek et al., 2001; Marks, 1998; Phillips et al., 2020; Shockley et al., 2020), consistent

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with the idea that people with caregiving demands need more support needs to manage these demands (Chiou et al., 2009). As such, social support from work and family may be especially helpful for caregivers to adapt to change in work and family roles. During COVID-19-related lockdowns, employees with caregiving demands faced unique demands such as working remotely while supervising children's remote learning (Fisher et al., 2020). Given heightened vulnerability of elders and immunocompromised adults to COVID-19, eldercare also created excess demands early in the pandemic before vaccines were available. Though eldercare and childcare are distinct (Kossek et al., 2001), we expected social support to be more vital to the adaptation of employee caregivers than to non-caregiver employees.

*Hypothesis 6a/b:* Caregiving status will moderate the positive relationship of POS with adaptation in response to change in work (6a)/family (6b), such that the effect will be stronger among people with caregiving responsibilities.

*Hypothesis 6c/d:* Caregiving status will moderate the positive relationship of PFS with adaptation in response to change in work (6c)/family (6d), such that the positive effect will be stronger among people with caregiving responsibilities.

Adaptation is also essential to psychological health among caregivers (Shivers et al., 2017). Employee caregivers had greater demands to adapt to during the pandemic, often resulting in more problems managing work and family (Kramer & Kramer, 2020). As adaptation is especially critical to the psychological health of employee-caregivers (Gökyar, & Erdur-Baker, 2021; Riggs & Riggs, 2011), the adaptation-mental health relationship should be stronger among caregivers than non-caregivers.

*Hypothesis 6e/f:* The positive relationship of adaptation in response to change in work (6e)/family (6f) with psychological well-being will be stronger among employees with caregiving responsibilities.

## **Method**

### **Participants and Procedure**



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We gathered data at two time points; the first for one week between 7<sup>th</sup> and 14<sup>th</sup> April 2020 (T1) and the second for one week between 27<sup>th</sup> April 2020 and 3<sup>rd</sup> May 2020 (T2), during the beginning of the COVID-19 pandemic in the UK and US. In the US, a national health emergency was declared on 13th March 2020. Data were collected from workers in the US and UK using two methods: a crowdsourcing platform called Prolific, and convenience sampling. Samples from Prolific are similar to traditional crowdsourcing samples (i.e., MTurk) with regards to data quality (e.g., reliability), although the former may benefit from greater diversity (versus MTurk e.g., geographical location; Peer et al., 2017). In Prolific, participants were paid \$2.60 at time 1, and \$1.56 at time 2, for completing two surveys. Convenience sample participants were solicited with a snowball technique from online discussions that pertained to COVID-19<sup>1</sup>. Participants obtained through convenience sampling were not compensated but were entered into a prize draw for one of two \$25 Amazon gift cards; this was done at both time points. Data were collected concurrently from Prolific and snowballing using the same inclusion criteria: age 18 – 66 years of age, employed part or full-time, and living in the UK or US.

We examined differences by recruitment source and found psychological health was higher in the snowball sample ( $M = 5.08$ ,  $SD = 0.99$ ) than the Prolific ( $M = 4.79$ ,  $SD = 1.06$ ) sample, so we controlled for sample type in analyses. There were also more women in the UK sample (US 61% female versus UK 72% female). There were 548 respondents at Time 1 (Prolific  $N = 375$ , convenience  $N = 173$ ), of which 433 (79%) responded at Time 2 (Prolific  $N = 303$  / 81% response rate, convenience  $N = 130$  / 75%). We removed 41 cases (25 from Prolific, 16 from convenience) due to missing data, for a final sample of 392. Of the 392, 38% were in the

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<sup>1</sup> Discussion forums about COVID-19 on Livescience.com, Facebook.com, and Reddit.com

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US, 65% were married or cohabiting, 82% were White, 36% had caregiving responsibilities, 32% were male, and the average age was 35 ( $SD = 10$ ) years. Around 60% were employed full-time (at least 35 hours per week), and the average hours worked weekly across the whole sample was 35 hours ( $SD = 11$  hours). Approximately 55% were employed in the private sector, with 20% public, 15% non-profit, and 10% semi-public; around 60% were in large organizations with over 250 employees, around 25% were in small employers with less than 50 employees, and 15% in medium organizations with between 50 and 250 employees.

To examine attrition as a threat to validity, we explored T1 differences in support and demographics (age, ethnicity, gender, partner status, and sample) with binary logistic regression with the dependent variable of attrition (0 = no, 1 = yes). The model was significant  $\chi^2 = 53.36, p < .001$ , but only ethnicity (0 = white, 1 = non-white) was a significant predictor, with non-whites having twice the odds of attrition compared to whites: wald ( $df = 1$ ) = 8.98,  $p < .01$ ;  $B = .70$ ; Odds ratio = 2.01.

## Measures

All items are included in Appendix A. Unless otherwise indicated, responses were provided on a seven-point (1 = strongly disagree to 7 = strongly agree) Likert scale.

***Gender (Time 1)*** – We asked respondents to report gender (0 – male, 1 – female).

***Partner Status (Time 1)*** - Participants reported whether they were living with a partner or spouse (0 – not cohabiting with a partner/spouse, 1 – cohabiting with a partner/spouse).

***Caregiving Responsibility (Time 1)*** – We asked respondents whether they had dependent children or any significant caring responsibilities (e.g., elder care) at home (0 – no, 1 – yes).

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***Perceived Organizational Support (POS – Time 1)*** - We measured POS with six items from Eisenberger et al. (2001). An example item is ‘The organization I work for really cares about my well-being’.  $\alpha = .91$ .

***Perceived Family Support (PFS – Time 1)***. PFS was measured using a three-item scale by House (1981).  $\alpha = .91$ . An example item is ‘My family really cares about my well-being’.

***Work (Family) Role Adaptation (W/FRA – Time 2)***. The three-item adaptivity scale by Griffin et al. (2007) was modified to measure adaptation to change in work (family) since the start of the pandemic. Instructions asked participants to rate “**the extent to which you feel that you have been able to adapt to changes in your work unit (changes in the way your home/family life operates) over the course of the pandemic so far**” for the items. For work adaptation  $\alpha = .70$ . An example item is ‘I have dealt effectively with changes affecting my work unit’. For family adaptation,  $\alpha = .76$ . An example item is ‘I have dealt effectively with changes affecting my home/family life’. Construct validity evidence for the modified measures, including content validity (Hinkin & Tracey, 1999; see Appendix B), and criterion-related validity (Hinkin, 1995; see Appendix C) is included in appendices.

***Psychological Health (PH – Time 2)***. We used six positively-valenced items<sup>2</sup> from the general health questionnaire (GHQ; Goldberg & Williams, 1988). Respondents were asked to rate how frequently (1 – never to 7 – always) they experienced each event over the past week. Higher values indicated better mental well-being.  $\alpha = .89$ . An example item is ‘I have been able to enjoy day-to-day activities’.

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<sup>2</sup> Focusing on positively-valenced items is consistent with other papers published in leading journals (Volpone, Marquardt, Casper, & Avery, 2018).

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**Control Variables** - We controlled for sample (0 – Prolific, 1 – convenience) and ethnicity (0 – white, 1 – non-white) in analyses. We also controlled for the extent of work and home roles changed due to the pandemic at T1 by asking respondents to rate change on a 5-point Likert scale (1 – not changed or changed very little to 5 – changed radically). In work they rated change in: i) their working pattern/schedule, ii) the number of hours they work per week, iii) the way they carried out their work, and iv) the overall work system they had to use ( $\alpha = .81$ ). For home they rated change in: i) the way they scheduled time with their family, ii) the way they communicated with their family, iii) the way they organized their physical environment/space at home, and iv) the way they spent their leisure time ( $\alpha = .77$ ). Principal components analysis using oblique rotation revealed two factors reflecting changes at work and at home as expected<sup>3</sup>.

## Results

### Preliminary Results and Measurement Model Testing

Means, standard deviations, reliabilities, and correlations are reported in Table 1. Confirmatory factor analysis revealed that our hypothesized five-factor measurement model (POS, PFS, WRA, FRA, psychological health) was a better fit than the best fitting alternative four-factor, three-factor, two-factor, and one-factor measurement models (see Table 2).

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Insert Table 1 about here  
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<sup>3</sup> Extent of changes at work had an eigenvalue of 3.51, explained 43.90% of variance; loadings ranged from .69 to .88. Extent of changes at home had an eigenvalue of 1.47, explained 18.38% of variance, had loadings from .65 to .76. There were no cross-loadings using the +/- .30 cutoff. The correlation between the two factors was .37.

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### Conceptual Model Testing

We tested our conceptual model using path analysis<sup>4</sup> in MPlus (Muthen & Muthen, 2017), and a 5,000 sample bootstrapping procedure. Demographic, social support, and adaptation variables used to create interactions were standardized. Our hypothesized model was an adequate fit to the data:  $\chi^2(18) = 41.06, p = .002$ ;  $\chi^2 / df = 2.28$  CFI = .93; RMSEA = .06; SRMR = .03.

Figure 1 presents the significant paths in our hypothesized model, and Table 3 shows the full results. A total of 11 percent of variance in work role adaptation, 11 percent in family role adaptation, and 35 percent in psychological health was explained by the model.

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Insert Figure 1 about here  
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First, we examined predicted within- and cross-domain relationships between work and family support ( $t_1$ ) and adapting to changes in the work and family domains ( $t_2$ ). POS was significantly related to greater work role adaptation ( $\beta = .17, SE = .06, p = .003, 95\% CI = .061$  to  $.286$ ), and family role adaptation ( $\beta = .12, SE = .05, p = .029, 95\% CI = .015$  to  $.219$ ). PFS was significantly associated with greater adaptation to changes at work ( $\beta = .15, SE = .06, p = .009, 95\% CI = .046$  to  $.267$ ), and in the family role ( $\beta = .20, SE = .05, p < .001, 95\% CI = .106$  to  $.308$ ). Thus, Hypotheses 1a – 1d were supported, indicating both within and cross-domain effects of support. Next, work role adaptation was related to greater psychological health ( $\beta = .24, SE = .06, p < .001, 95\% CI = .127$  to  $.350$ ), as was family role adaptation ( $\beta = .29, SE = .06, p < .001, 95\% CI = .183$  to  $.396$ ). Thus, Hypotheses 2a – 2b were supported.

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<sup>4</sup>For examples of studies using path analysis in MPlus published in leading journals, please see Huang et al. (2019), Lin et al. (2016), and Parke et al. (2015).

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Hypotheses 3a – 3d focused on the indirect relationships of social support ( $t_1$ ) with psychological health ( $t_2$ ) through work role adaptation and family ( $t_2$ ). As Table 4 shows, there was a significant indirect effect (IE) of POS on psychological health through work role adaptation (IE = .04, SE = .02, 95% CI = .012 to .079), and a significant IE of PFS on psychological health through work role adaptation (IE = .04, SE = .02, 95% CI = .010 to .068). There was also a significant IE of POS on psychological health through family role adaptation (IE = .03, SE = .02, 95% CI = .004 to .070), and a significant IE of PFS on psychological health through family role adaptation (IE = .06, SE = .02, 95% CI = .026 to .103). Thus, Hypotheses 3a – 3d were supported.

Hypotheses 3e – 3f focused on the positive direct association of social support ( $t_1$ ) with psychological health ( $t_2$ ). This direct association of POS with psychological health was nonsignificant ( $\beta = .08$ , SE = .04,  $p = .083$ , 95% CI = -.012 to .164), but the direct association of PFS with psychological health was significant and positive ( $\beta = .13$ , SE = .05,  $p = .007$ , 95% CI = .040 to .226). Hypothesis 3f was supported; hypothesis 3e was not.

Hypotheses 4a – 6f proposed that the participant's gender, partner status, and caregiving responsibilities would interact with social support to predict adaptation, and interact with adaptation to predict psychological health. At the first stage, only the interaction of PFS with partner status on family role adaptation was significant ( $\beta = -.12$ , SE = .05,  $p = .013$ , 95% CI = -.216 to -.027), whilst at the second stage, only the interaction of family role adaptation with partner status on psychological health was significant ( $\beta = -.12$ , SE = .06,  $p = .034$ , 95% CI = -.221 to -.003). To examine these two interactions further, we conducted a simple slopes test (Dawson & Richter, 2006). The first interaction, shown in Figure 2 and detailed in Table 5, showed the relationship between PFS and family role adaptation as significant and positive

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among participants that were not cohabiting with a partner/spouse ( $\beta = .32$ ,  $SE = .06$ ,  $p < .001$ , 95% CI = .204 to .450), but non-significant for those who had a cohabiting partner/spouse ( $\beta = .09$ ,  $SE = .08$ ,  $p = .269$ , 95% CI = -.065 to .239). The difference between these two slopes was significant ( $\beta = .24$ ,  $SE = .10$ ,  $p = .013$ , 95% CI = .053 to .431). For the second interaction, shown in Figure 3 and detailed in Table 5, the positive relationship of family role adaptation with psychological health was stronger for those without a cohabiting partner/spouse ( $\beta = .40$ ,  $SE = .08$ ,  $p < .001$ , 95% CI = .239 to .563), than for those with such a partner/spouse ( $\beta = .17$ ,  $SE = .07$ ,  $p = .017$ , 95% CI = .034 to .319). The difference between these two slopes was significant ( $\beta = .23$ ,  $SE = .11$ ,  $p = .034$ , 95% CI = .006 to .441). Thus, of Hypotheses 4a through to 6f, only Hypothesis 5d and 5f were supported.

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Insert Table 3 about here

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Insert Table 4 about here

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Insert Figure 2 about here

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### **Comparing results with no controls**

To check robustness of results, we reran the path analysis without covariates. All except one of the hypothesized relationships were the same (see Appendix D, Table D.1.), and all IEs were still significant (see Appendix D, Table D.2.). The one difference was in the second stage

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interaction between family role adaptation and partner status on psychological health. As Appendix D, Table D.1. shows, this relationship exhibited a nonsignificant trend ( $p = .071$ ) when control variables were removed. Simple slopes analysis revealed that, although slopes were still positive, similar to those with controls (Table 5 vs. Table D.3.), the difference between the slopes was no longer significant ( $\beta = .20$ ,  $SE = .11$ ,  $p = .071$ , 95% CI = -.021 to .413).

## Discussion

Societal crises such as the COVID-19 pandemic can be detrimental to psychological health. In this study, we find that adaptation is an important behavioral mechanism through which support from work and family relates to psychological well-being both within and across domains. Perceived family support appears to be especially important for adaptation among workers without a partner at home from whom to draw support. The link between family adaptation and mental health is also stronger among unpartnered employees, at least when covariates are included. Such findings suggest that employers that respect workers' time away from the job to build supportive home relationships may have employees with better mental health, which may help employees to be resilient and effective across work and nonwork roles.

### *Implications for Theory*

Consistent with the resource investment principle from COR theory (Hobfoll, 2001), we found that access to support in work and family contexts allowed employees to leverage these resources to adapt to change and maintain mental well-being in times of stress. COR theory posits that resource gain spirals occur as people invest resources to protect current resources, acquire new resources, and recover from resource loss (Hobfoll, 2001). As the role of adaptation in linking social support to psychological health has been theorized but not been studied extensively (Uchino et al., 2018), and scholars have noted the dearth of theoretical understanding



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of *why* social support benefits well-being (Bavik et al., 2020), our study offers new theoretical insight by identifying a behavioral mechanism linking support to mental well-being – adaptation in the work and family domain.

Our findings on adaptation as a mechanism through which social support relates to psychological health offer an important extension to the stress-buffering model of social support (Cohen & Willis, 1985), which posits that social support attenuates the deleterious relationship between stressors and health outcomes, but does not explain why social support is beneficial. We studied work and family adaptation in connection to the COVID-19 pandemic given the massive changes it forced in individuals' work and family roles (Hammer & Alley, 2020).

Although support from work and family domains did relate to psychological health indirectly through adaptation, just less than half of the total effect of social support on psychological health is attributed to the indirect effects of adaptation. Therefore, adaptation does not override the direct impact of social support, but rather, is one mechanism that provides a partial explanation for why social support is important to psychological health. Given the direct effect of support on mental health remains after considering adaptation, results also suggest that future researchers consider additional mediators through which social support is linked to health.

Social support research has not fully considered the cross-domain effects of support from multiple domains. However, work-family research suggests cross-domain effects are important (Ford et al., 2007; Michel et al., 2010). We found evidence of cross-domain direct associations of support with adaptation, and indirect associations with psychological health through adaptation. Cross-domain effects may be especially relevant in the COVID-19 pandemic when work and home often occupy the same space during work at home. Our findings point to the importance of

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support in adapting to change during crises both within and across-domains, and their positive implications for psychological health.

In addition to examining how support relates to psychological health, we test *for whom* social support matters more by examining gender, partner status, and caregiving status as moderators. The relationships of social support to adaptation, and from adaptation to psychological health, were generally robust across gender, partner status, and caregiving responsibility. That said, social support from family seems especially important to adaptation in the family for people without a cohabiting spouse or partner. This may reflect the fact that employees without a cohabiting spouse/partner draw support primarily from outside the home, making family support especially important. Adaptation in the family appeared slightly more important to psychological health for these same unpartnered employees, suggesting the effects of family adaptation may be particularly important for employees without partners. However, analyses revealed that this particular interaction was less well supported when control variables were not included. Therefore, we cannot be as confident overall in this finding. Yet given partner status also interacted with perceived family support in a similar way, we can be generally of the view that those not cohabiting with a partner during the pandemic perhaps had a slightly different need for support and adaptation at home, than those with cohabiting partners.

### *Practical Implications*

In this study we build on past research linking social support to health outcomes (e.g., Bavik et al., 2020; House et al., 1988) by identifying behavioral adaptation as a mechanism that explains how perceived social support translates into better psychological health in times of high stress. Our results suggest organizations, individuals, and policymakers should consider how to promote social support and adaptation during crisis events. Organizations can enhance POS

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through training to develop supportive skills among supervisors (Kossek et al., 2011). Providing employee assistance programs (EAPs) can also foster perceptions of organizational support and provide employees with additional sources of social support (City of New York, 2020; Ramanathan, 1995). Organizations can create “employee champions”, or mental health ambassadors who create virtual events to offer social support and educational resources related to mental health (City of New York, 2020, pg. 14). Policymakers can promote social support – especially in times of crisis – by developing community plans that are collaborative and provide opportunities for voice (Kwok et al., 2016). Organizations and policymakers might also offer support by training employees on adapting during change, or by offering virtual coffee mornings to foster relationship development in the context of virtual work, which have become more commonplace during, and because of, the pandemic. A more specific version of training is a micro-intervention focused on promoting stress reappraisals and behavioral adaptation through mindfulness about one’s personal resources (e.g., Peeters et al., 2020), which could include social support.

While our findings highlight the importance of social support during COVID-19, they additionally have implications for research on the work and family interface during change-related events (Eby et al., 2016). For example, adaptation in the work and family domain could also be important to worker mental health during less catastrophic change. This could include organizational changes, such as mergers, layoffs, and leadership changes; as well as family changes, such as divorce, birth/ adoption of a child, or death of a family member. The interventions suggested above, such as EAP programs, mental health ambassadors, family-supportive supervisors, and collaborative community planning may all promote social support

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and adaptation during change. Despite this, future research is needed to extend and verify these claims across different change contexts.

### *Study Limitations*

Our study was designed to capture social support shortly after stay-at-home orders were implemented in the US and UK, and capture adaptation and psychological health three weeks later. As with all research, our study has limitations. For instance, all measures were collected from the same source. However, perceptions of social support and psychological health are best measured by a focal respondent. Two surveys were administered three weeks apart to reduce the effect of transient mood and common method bias on the relationship between support and adaptation, albeit the mediator (adaptation) and dependent variable (psychological health) were not temporally separated (both gathered at time 2). Whenever possible, we used existing, validated scales. Since there were no existing measures of adaptation in work and family, we adapted a scale for these constructs but provided construct validity evidence in two studies (Appendices B and C). The reliability of family role adaptation was lower than ideal, but still higher than the minimally acceptable level of .70 (Kopalle & Lehmann, 1997). Still, given the attenuating effects of lower reliability, the relationships of family adaptation with social support and psychological health would likely have been stronger if our measure of family adaptation had higher reliability. As such, the relationships of family role adaptation with other model variables may be underestimated in the current study. There was also some attrition between time 1 and 2 surveys, although analyses suggested non-response bias was not a major concern.

The current study collected data across two waves, so called a ‘half-longitudinal design’ (Cole & Maxwell, 2003). Because it did not measure all variables across all time points and did not separate the measurement of mediation from outcomes, reverse-causality cannot be ruled out,

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limiting our conclusions on the causal direction of relationships (Taris et al., 2021). Future research could work to address this issue by employing a cross-lagged design to test for temporal precedence of the constructs, and control for autocorrelations within constructs across different time points, and factor in potential sources of spuriousness.

In addition, although we reasoned that given the intensity and rapid unfolding of the pandemic, the effects of social support would transpire within a three-week window, we cannot say for certain that this is the ideal time-lag. Instead, Cole and Maxwell (2003) recommend that researchers should conduct several tests to deduce the length of time needed for the effects of X (predictor) to transpire on M (mediator), and for M to have on Y (outcome); which should then inform the final measurement intervals incorporated. Whilst ideal, this was not possible in our study because of the unpredictable nature of the pandemic which would have caused us to miss the initial examination of our social support predictors just as the full extent of the pandemic was unfolding. In addition, it would have been ideal to collect data from a large, representative sample (vs. combining samples).

Finally, we measured general caregiving status because we were interested in how overall caregiving demands exacerbated the need for greater social support, in order to aid adaptation during the pandemic. We did not measure amount of hours spent in caregiving. Nevertheless, research suggests that the demands of elderly care are unique to childcare, such that the former may have more significant ramifications, warranting a discriminate approach when considering caregiving (Kossek et al., 2001). Moreover, having both types of caregiving demands may arguably be more strenuous. Future research could thus distinguish between different types of caregiving demands, as well as the cumulative effect of having both demands, and how they modify the effects of social support on adaptation, during crises situations.

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### **Conclusion**

It is critical to understand how to promote worker psychological health during crisis events like a global health pandemic. Building on research about social support, we found that work and family adaptation may be an important mechanism linking perceived work and family support to psychological health, alongside (and in extension to) the direct effects of social support. This highlights the relevance of behaviors that link social support to health outcomes, as compared to the psychological mechanisms that are typically studied. Our study also highlights the importance of cross-domain effects of support for adaptation, which may reflect weak work-home boundaries as a function of remote work during the COVID-19 pandemic. Finally, our results point to the importance of partner status, suggesting that family support matters more for workers without live-in partners to draw support from. In short, our findings highlight the important role organizations and individuals might play in supporting workers to stay mentally well during crisis events and other major life changes.

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Table 1.  
*Descriptive Statistics*

Variable	Mean (SD)	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
1. Sample	.29	(-)											
2. Ethnicity	.19	.02	(-)										
3. Extent of changes at work	3.13 (1.16)	-.10*	.02	(.81)									
4. Extent of changes at home	3.09 (1.02)	-.04	.01	.42***	(.77)								
5. Gender	.68	-.03	-.09	.06	.07	(-)							
6. Partner Status	.65	.07	-.14**	-.06	.04	.06	(-)						
7. Caregiving Responsibility	.36	-.02	-.10*	-.01	.10*	.09	.28***	(-)					
8. POS	5.03 (1.24)	.09	-.01	-.00	.02	.03	.05	.12*	(.91)				
9. PFS	6.15 (1.17)	.05	-.02	.02	.06	.00	.13*	.01	.19***	(.91)			
10. WRA	5.32 (1.03)	.08	.02	-.08	.06	.11*	.03	.05	.21***	.20***	(.70)		
11. FRA	5.13 (1.10)	-.06	.02	-.01	.02	.12*	-.03	.10*	.15**	.22***	.45***	(.76)	
12. Psychological Health	4.87 (1.00)	.14**	-.09	-.10*	-.13*	-.12*	.07	.05	.20***	.27***	.39***	.40***	(.89)

Notes: \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ . Reliability estimates given in parentheses.  $N = 392$ . Sample 0 = Prolific, 1 = Convenience; Ethnicity 0 = white, 1 = non-white; Gender 0 = male, 1 = female; Partner Status 0 = not cohabiting with a partner, 1 = cohabiting with a partner; Caregiving Responsibility 0 = no, 1 = yes. POS = Perceptions of organizational support; PFS = Perceptions of family support; WRA = Work role adaptation during COVID-19; FRA = Family role adaptation during COVID-19.

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Table 2.  
*Measurement Models*

Measurement Model	$\Delta\chi^2$ (df) from previous model	$\Delta\chi^2$ (df) from 5 factor model	$\chi^2$ (df)	$\chi^2 /$ df	RMSEA	CFI	SRMR
<b>5 factor hypothesized model</b> (POS, PFS, WRA, FRA, PH)	255.20*** (4)		366.04*** (179)	2.04	.05	.96	.04
<b>4 factor ‘adaptation’ alternative</b> (POS, PFS, WRA/FRA, PH)	884.07*** (3)	255.20*** (4)	621.24*** (183)	3.40	.08	.91	.06
<b>3 factor ‘social support’ alternative</b> (POS/PFS, WRA/FRA, PH)	684.67*** (2)	1139.27*** (7)	1505.31*** (186)	8.09	.14	.73	.12
<b>2 factor ‘predictors &amp; outcome’ alternative</b> (POS/PFS/WRA/FRA, PH)	1071.14*** (1)	1823.94*** (9)	2189.98*** (188)	11.65	.17	.58	.16
<b>1 factor baseline</b> (POS/PFS/WRA/FRA/PH)		2895.08*** (10)	3261.12*** (189)	17.25	.20	.36	.20

Notes: \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ . POS = Perceptions of organizational support; PFS = Perceptions of family support; WRA = Work role adaptation during COVID-19; FRA = Family role adaptation during COVID-19; PH = Psychological health. In the model descriptions the ‘,’ denotes separate factors between constructs whereas ‘/’ denotes where constructs were combined together to form a factor, for example WRA, FRA mean these were two separate factors, whereas WRA/FRA mean this was one factor which combined WRA and FRA items.

Table 3.  
Full results of the Path Analysis

Variable	Predicting WRA			Predicting FRA			Predicting Psychological Health		
	Effect (SE)	95% CI	Std. Effect	Effect (SE)	95% CI	Std. Effect	Effect (SE)	95% CI	Std. Effect
<b>Controls</b>									
Sample	.13 (.11)	-.080, .344	.06	-.18 (.11)	-.390, .049	-.08	.25 (.09)**	.069, .435	.11
Ethnicity	.07 (.13)	-.193, .322	.03	.08 (.12)	-.159, .320	.03	-.32 (.13)*	-.567, -.064	-.12
CaW	-.12 (.05)*	-.211, -.015	-.13	-.02 (.05)	-.109, .073	-.03	.01 (.04)	-.072, .093	.01
CaH	.10 (.05)	-.009 .202	.10	-.01 (.06)	-.117, .100	-.01	-.15 (.05)**	-.253, -.059	-.15
<b>Predictors</b>									
POS	.17 (.06)**	.061, .286	.17	.12 (.05)*	.015, .219	.12	.08 (.04)	-.012, .164	.08
PFS	.15 (.06)**	.046, .267	.15	.20 (.05)***	.106, .308	.20	.13 (.05)**	.040, .226	.13
<b>Moderators</b>									
Gender	.11 (.05)*	.009, .204	.11	.11 (.05)*	.006, .204	.11	-.19 (.04)***	-.269, -.109	-.19
Partner	-.03 (.05)	-.119, .072	-.03	-.10 (.05)	-.190, .005	-.10	.05 (.05)	-.041, .146	.05
Caregiver	.01 (.05)	-.089, .112	.01	.11 (.05)*	.004, .216	.11	.00 (.05)	-.084, .093	.00
<b>Interactions</b>									
Gender x POS (1) / WRA (2)	.00 (.06)	-.109, .107	.00	-.02 (.05)	-.119, .080	-.02	-.04 (.06)	-.169, .078	-.04
Gender x PFS (1) / FRA (2)	.04 (.06)	-.086, .149	.04	.03 (.05)	-.074, .127	.03	.07 (.06)	-.042, .176	.07
Partner x POS (1) / WRA (2)	.05 (.06)	-.081, .165	.05	.02 (.05)	-.087, .119	.02	.06 (.06)	-.053, .170	.06
Partner x PFS (1) / FRA (2)	-.02 (.06)	-.138, .084	-.02	-.12 (.05)*	-.216, -.027	-.12	-.12 (.06)*	-.221, -.003	-.11
Caregiver x POS (1) / WRA (2)	-.02 (.07)	-.148, .115	-.02	.05 (.05)	-.058, .171	.05	.07 (.05)	-.036, .170	.07
Caregiver x PFS (1) / FRA (2)	.08 (.06)	-.030, .196	.08	-.07 (.05)	-.179, .019	-.08	.03 (.05)	-.076, .130	.03
<b>Mediators</b>									
WRA							.24 (.06)***	.127, .350	.24
FRA							.29 (.06)***	.183, .396	.29

Note: \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ . POS(1) and PFS (1) refer to first stage moderations involved in predicting WRA and FRA. WRA(2) and FRA(2) refer to second stage interactions involved in predicting psychological health only. 95% CI values are based on a 5,000 bootstrapped procedure.

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Table 4.

*Total, Direct, and Indirect Effects of Predictors on Psychological Health*

Indirect Effect	POS (X) on Psychological Health (Y)			PFS (X) on Psychological Health (Y)		
	Effect (SE)	95% CI	Std. Effect	Effect (SE)	95% CI	Std. Effect
Total Effect of X on Y	.15 (.05)	.060 , .262	.15	.22 (.06)	.116 , .338	.22
Direct Effect of X on Y	.08 (.04)	-.012 , .164	.08	.13 (.05)	.040 , .226	.13
Indirect effects of X on Y						
- Via WRA	.04 (.02)	.012 , .079	.04	.04 (.02)	.010 , .068	.03
- Via FRA	.03 (.02)	.004 , .070	.03	.06 (.02)	.026 , .103	.06
- Total indirect	.07 (.03)	.027 , .127	.07	.09 (.03)	.046 , .152	.09

Notes: POS = Perceptions of organizational support; PFS = Perceptions of family support; WRA = Work role adaptation during COVID-19; FRA = Family role adaptation during COVID-19.

95% CI values are based on a 5,000 bootstrapped procedure.



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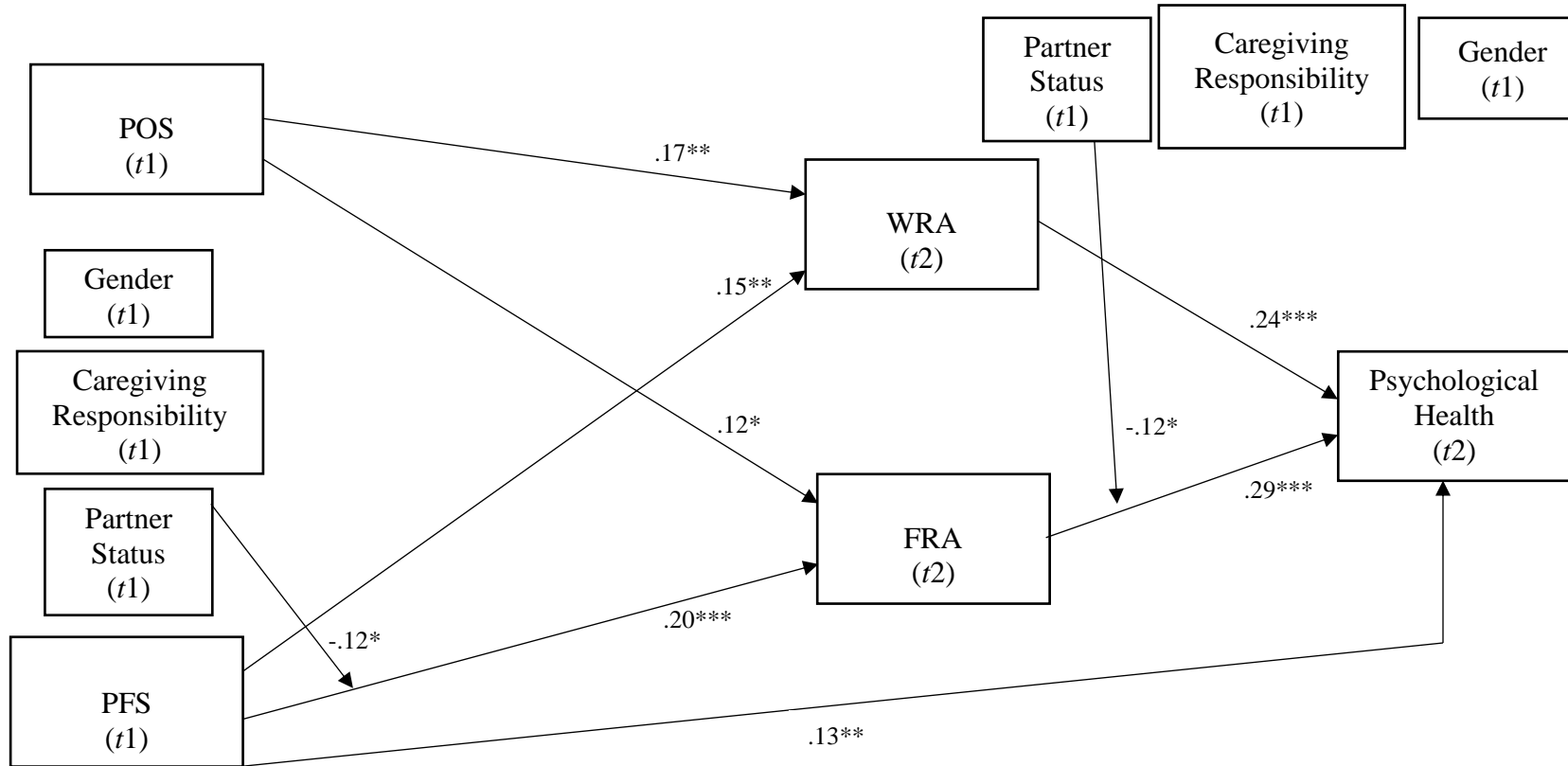
Table 5.

*Simple Slope Tests for the Effects of Significant Interactions on Adaptation and Psychological Health*

Simple slope for those:	First stage Moderation (PFS x Partner Status on FRA)			Second stage Moderation (FRA x Partner Status on PH)		
	<i>Est. (SE)</i>	<i>p value</i>	<i>95% CI</i>	<i>Est. (SE)</i>	<i>p value</i>	<i>95% CI</i>
Without cohabiting partner	.32 (.06)	< .001	.204, .450	.40 (.08)	< .001	.239, .563
With cohabiting partner	.09 (.08)	.269	-.065, .239	.17 (.07)	.017	.034, .319
Difference between slopes	.24 (.10)	.013	.053, .431	.23 (.11)	.034	.006, .441

Notes: PFS = Perceptions of family support; FRA = Family role adaptation during COVID-19; PH = Psychological Health; 95% CI values are based on a 5,000 bootstrapped procedure.

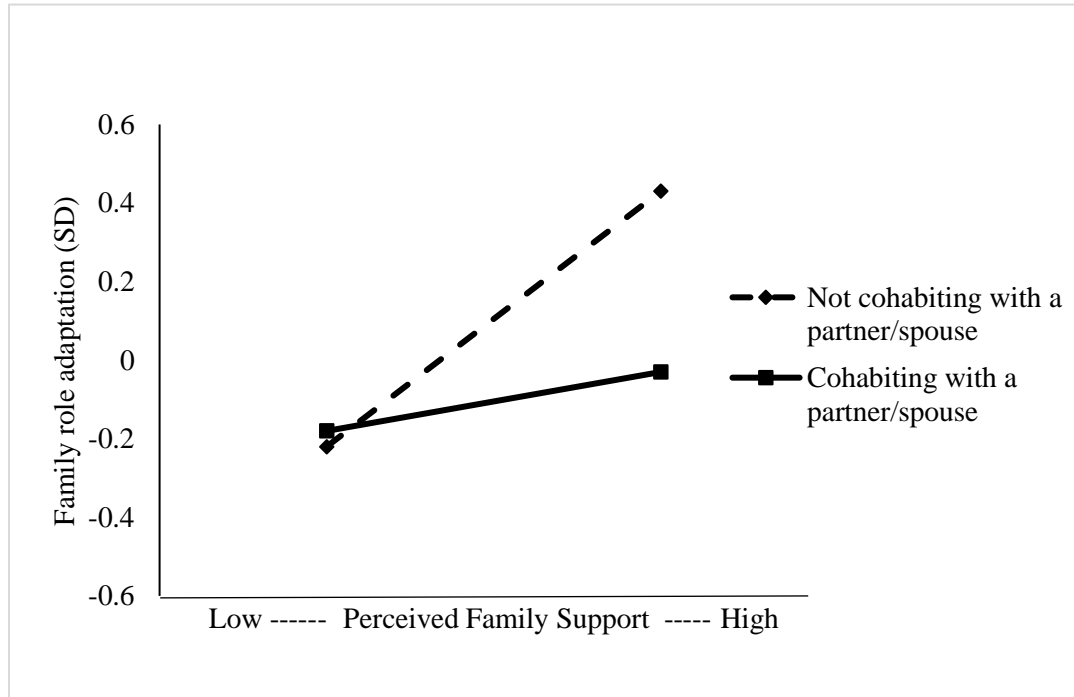
Figure 1. Significant paths within the hypothesized model



Note. Standardized results of the significant paths within the hypothesized (partially mediated) model. Non-significant effects are not represented. \* $p < .05$ ; \*\* $p < .01$ ; \*\*\*  $p < .001$ . POS = Perceptions of organizational support; PFS = perceptions of family support; WRA = Work role adaptation during COVID-19; FRA = Family role adaptation during COVID-19.

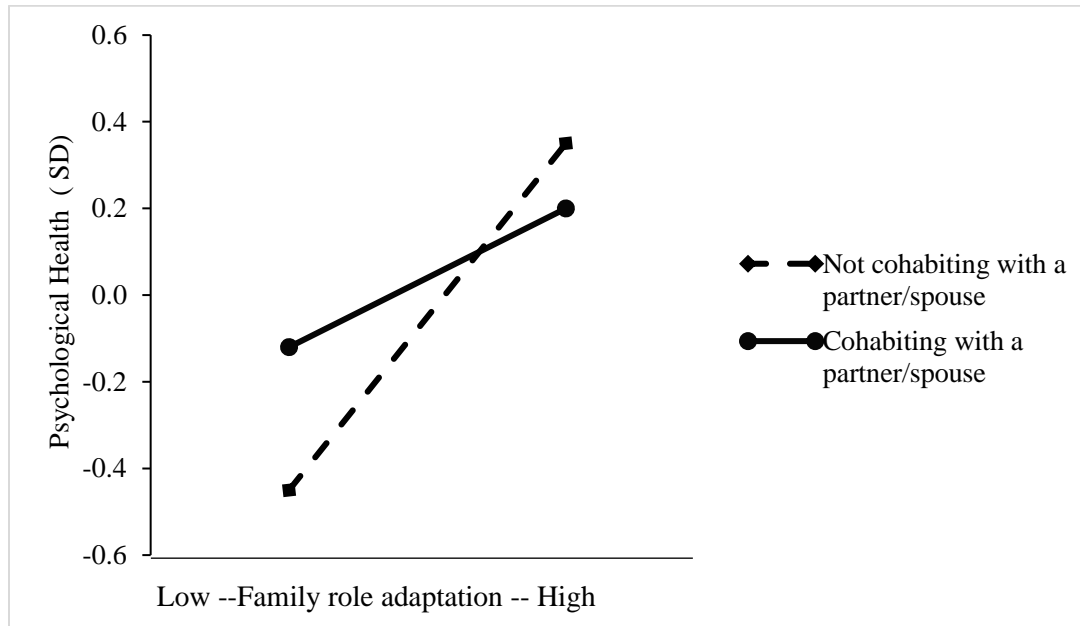
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Figure 2. Interaction between partner status and family support as related to family role adaptation during COVID-19



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Figure 3. Interaction between partner status and family role adaptation as related to psychological health during COVID-19



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## **Appendix A: List of Measures and Items**

### ***Perceived Organizational Support – Eisenberger et al. (2001)***

1. The organization I work for takes pride in my accomplishments
2. The organization I work for really cares about my well-being
3. The organization I work for values my contribution to its wellbeing
4. The organization I work for strongly considers my goals and values
5. The organization I work for shows little concern for me (R)
6. Help is available from the organization I work for when I have a problem

### ***Perceived Family Support – House (1981)***

1. My family can be relied upon when things get tough in life
2. My family is willing to listen to problems that I am having in my life
3. My family really cares about my well-being

### ***Work role adaptation – Griffin et al. (2007)***

1. I have dealt effectively with changes affecting my work unit
2. I learnt new skills or took on new roles to cope with changes in the way my work unit works
3. I have responded constructively to changes in the way my team works

### ***Family role adaptation – Adapted from Griffin et al. (2007)***

1. I have dealt effectively with changes affecting my home/family life
2. I have learnt new skills or taken on new roles to cope with changes in the way my home/family operates
3. I have responded constructively to changes in the way my home/family life operates

### ***Psychological Health – Goldberg & Williams (1988)***

1. I have been able to concentrate at work and at home
2. I have played a useful part in things
3. I have been capable of making decisions
4. I have been able to enjoy day-to-day activities
5. I have been able to face problems
6. I have felt reasonably happy

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## **Appendix B:**

### **Results of Content Validity Study for Adaptation Measures**

To measure an individual's adaptation in work and family domains in response to COVID-19, we used a modified version of the adaptivity scale by Griffin, Neal, and Parker (2007). To assess the content validity of the work and family adaptation scales, 44 subject matter experts with expertise in applied psychology, organizational behavior and work-family research were asked to rate the extent to which each item from the work and family adaptation scales, as well as measures of family role performance (i.e., Chen et al., 2014) and in-role job performance (Williams & Anderson, 1991), corresponded to the definition of each construct. Following Hinkin and Tracey (1999), one-way ANOVAs and Duncan's post hoc tests were conducted. Evidence of content validity is suggested when the mean rating for the item is significantly higher on the theoretical construct compared to non-focal constructs.

The one-way ANOVAs were significant for each of the work role adaptation items:  $F(3, 171) = 100.63, p < .01$  (WRA1);  $F(3, 171) = 97.18, p < .01$  (WRA2);  $F(3, 171) = 97.18, p < .01$  (WRA3). The one-way ANOVAs were significant for each of the family role adaptation items:  $F(3, 172) = 65.33, p = 0.00$  (FRA1);  $F(3, 172) = 74.34, p = 0.00$  (FRA2);  $F(3, 172) = 97.04, p = 0.00$  (FRA3). Duncan's post-hoc tests indicated that mean ratings for each item on the focal construct were higher than on non-focal constructs (see Table 3), providing evidence of content validity (Hinkin & Tracey, 1999).

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Table 3.

	<b>WRA</b>	<b>FRA</b>	<b>FRP</b>	<b>JP</b>
WRA1	<b>6.64</b>	1.59	1.67	3.39
WRA2	<b>6.70</b>	1.77	1.77	3.55
WRA3	<b>6.73</b>	1.65	1.65	3.34
FRA1	3.02	<b>6.57</b>	4.52	1.59
FRA2	2.80	<b>6.66</b>	4.89	1.64
FRA3	2.34	<b>6.59</b>	4.98	1.59

*Mean ratings for content validity – Duncan’s multiple group comparison tests*

*Notes.*  $N = 44$ . WRA = work role adaptation; FRA = family role adaptation; FRP = family role performance; JP = job performance. Bolded items were rated significantly higher than other items on the appropriate dimension.

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## **Appendix C:**

### **Results of Criterion-related Validity Study for Adaptation Measures**

To examine criterion-related validity of our scales used to measure adaptation in work and family domains, we predicted adaptation in work and family behaviors would be higher among people who were more open to change in general, and that adaptation behaviors would be positively related to measures of life and job satisfaction, and negatively related to hopelessness (Cheng, Lau, & Chan, 2014; Roger, 1995). To test these propositions, we surveyed 223 people via Amazon Mechanical Turk (MTurk). Respondents were predominantly White (72%), male (64%), and cohabiting with a spouse or partner (62%).

#### Measures

*Adaptation in work and family* were measured using modified versions of the adaptivity scale by Griffin, Neal, and Parker (2007) as described in our Methods section.  $\alpha = .68$  for work role adaptation and  $.72$  for family role adaptation.

*Hopelessness.* The twenty-item Hopelessness Scale (Beck et al., 1974) was used to measure hopelessness. Respondents were asked to rate the extent to which they agreed (1 – strongly disagree to 7 – strongly agree) with statements such as “I might as well give up because I can’t make things better for myself”.  $\alpha = .92$ .

*Job satisfaction.* The single-item overall measure of job satisfaction by Dolbier et al. (2005) was used to measure job satisfaction. Respondents were asked to rate the extent to which they agreed (1 – strongly disagree to 7 – strongly agree) with the statement “Taking everything into consideration, how do you feel about your job as a whole?”. The validity of single item measures of job satisfaction has been established in prior studies (Wanous et al., 1997).



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*Life satisfaction.* The five-item Satisfaction with Life Scale (SWLS) (Diener et al., 1985) was used to measure life satisfaction. Respondents were asked to rate the extent to which they agreed (1 – strongly disagree to 7 – strongly agree) with statements such as “The conditions in my life are excellent”.  $\alpha = .87$ .

*Openness to change.* The eight-item Openness Towards Organizational Change scale (Miller et al., 1994) was used to assess openness to change during the pandemic. Instead of asking respondents about their openness to organizational change, they were asked to “think about how open you have been to change during the pandemic”. Respondents were asked to rate the extent to which they agreed (1 – strongly disagree to 7 – strongly agree) with statements such as “I consider myself to be open to change” and “From my perspective, the changes I have experienced during the pandemic have been for the better”.  $\alpha = .77$ .

## Results

Correlations between these variables are reported in Table 4; reliability estimates are reported on the diagonal. Results are consistent with our predictions. Individuals who are more open to change report higher levels of adaptation in work and family. Moreover, people who report higher levels of adaptation in work and family also report higher job and life satisfaction and lower hopelessness. Results help demonstrate the criterion-related validity of the work and family adaptation scales.

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Table 4.

<b>Variable</b>	<b>1.</b>	<b>2.</b>	<b>3.</b>	<b>4.</b>	<b>5.</b>
1. Work role adaptation	<b>(.68)</b>				
2. Family role adaptation	.58**	<b>(.72)</b>			
3. Openness to Change	.32**	.29**	<b>(.77)</b>		
4. Hopelessness	-.35**	-.22**	-.45**	<b>(.92)</b>	
5. Life Satisfaction	.42**	.38**	.23**	-.27**	<b>(.87)</b>
6. Job Satisfaction	.40**	.35**	.27**	-.33**	.50**

*Correlations between measures in criterion-related validity study.*

*Notes.* \*\*  $p < .01$ . Reliability estimates are reported on the diagonal.

**Appendix D:**

**Results without controls included**

Table D.1.

*Full Results of Path Analysis without Controls*

Variable	Predicting WRA			Predicting FRA			Predicting Psychological Health		
	Effect (SE)	95% CI	Std. Effect	Effect (SE)	95% CI	Std. Effect	Effect (SE)	95% CI	Std. Effect
<b>Predictors</b>									
POS	.18 (.06)**	.069, .296	.18	.11 (.05)*	.006, .214	.11	.09 (.05)	-.008, .177	.09
PFS	.15 (.06)**	.049, .270	.15	.20 (.05)***	.102, .304	.20	.13 (.05)*	.033, .235	.13
<b>Moderators</b>									
Gender	.10 (.05)*	.003, .196	.10	.11 (.05)*	.007, .203	.11	-.19 (.04)***	-.271, -.110	-.19
Partner	-.01 (.05)	-.108, .081	-.01	-.11 (.05)*	-.201, -.006	-.11	.07 (.05)	-.020, .164	.07
Caregiver	.02 (.05)	-.086, .114	.02	.11 (.05)*	.007, .213	.11	-.01 (.05)	-.094, .084	-.01
<b>Interactions</b>									
Gender x POS (1) / WRA (2)	.00 (.06)	-.109, .108	.00	-.02 (.05)	-.123, .079	-.02	-.04 (.06)	-.168, .075	-.04
Gender x PFS (1) / FRA(2)	.03 (.06)	-.093, .142	.03	.03 (.05)	-.079, .121	.02	.06 (.06)	-.059, .170	.06
Partner x POS (1)/ WRA (2)	.05 (.07)	-.086, .167	.05	.02 (.05)	-.090, .119	.02	.06 (.06)	-.050, .171	.06
Partner x PFS (1) / FRA (2)	-.03 (.06)	-.143, .077	-.03	-.12 (.05)*	-.215, -.023	-.12	-.10 (.06) <sup>a</sup>	-.207, .010	-.10
Caregiver x POS (1) / WRA (2)	-.01 (.07)	-.137, .129	-.01	.06 (.06)	-.054, .176	.06	.05 (.05)	-.049, .154	.05
Caregiver x PFS (1) / FRA (2)	.06 (.06)	-.053, .168	.06	-.07 (.05)	-.172, .030	-.07	.01 (.05)	-.096, .109	.01
<b>Mediators</b>									
WRA							.24 (.06)***	.130, .350	.24
FRA							.28 (.06)***	.164, .382	.27

Note: <sup>a</sup>  $p = .071$ , \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ . POS(1) and PFS (1) refer to first stage moderations involved in predicting WRA and FRA. WRA(2) and FRA(2) refer to second stage interactions involved in predicting psychological health only. Fit of model:  $\chi^2(18) = 39.44$ ,  $p = .003$ ;  $\chi^2 / df = 2.19$ , CFI = .92; RMSEA = .06; SRMR

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=.04. A total of 9 percent of variance in work role adaptation, 11 percent in family role adaptation, and 30 percent in psychological health was explained by the model.

Table D.2.

*Total, Direct, and Indirect Effects of Predictors on Psychological Health, without controls*

Indirect Effect	POS (X) on Psychological Health (Y)			PFS (X) on Psychological Health (Y)		
	Effect (SE)	95% CI	Std. Effect	Effect (SE)	95% CI	Std. Effect
Total Effect of X on Y	.16 (.05)	.060 , .262	.16	.22 (.06)	.116 , .338	.22
Direct Effect of X on Y	.09 (.05)	-.008 , .177	.09	.13 (.05)	.033 , .235	.13
Indirect effects of X on Y						
- Via WRA	.04 (.02)	.015 , .082	.04	.04 (.02)	.011 , .069	.04
- Via FRA	.03 (.02)	.001 , .066	.03	.06 (.02)	.024 , .099	.05
- Total indirect	.07 (.03)	.026 , .126	.07	.09 (.03)	.045 , .148	.09

Notes: POS = Perceptions of organizational support; PFS = Perceptions of family support; WRA = Work role adaptation during COVID-19; FRA = Family role adaptation during COVID-19.

Simple slope for those:	First stage Moderation (PFS x Partner Status on FRA)			Second stage Moderation (FRA x Partner Status on PH)		
	Est. (SE)	p value	95% CI	Est. (SE)	p value	95% CI
Without cohabiting partner	.32 (.06)	< .001	.203, .446	.38 (.08)	< .001	.208, .532
With a cohabiting partner	.08 (.08)	.287	-.068, .239	.18 (.07)	.017	.032, .322
Difference between slopes	.24 (.10)	.014	.047, .429	.20 (.11)	.071	-.021, .413

Table D.3.  
*Simple Slope Tests for Interactions without Controls*

Notes: PFS = Perceptions of family support; FRA = Family role adaptation during COVID-19; PH = Psychological Health

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