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Conservation of Resources theory in the context of multiple roles: an analysis of within- and cross-role mediational pathways

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Based on the Conservation of Resources theory, we used data from the National Survey of Midlife Development in the United States (MIDUS I, 1995–1996; $N = 1779$) to estimate by covariance structure analysis the direct and indirect effects of work and family demands, resources, and support on psychological distress. In a new application of the theory, we estimated six within-role mediational pathways linking work-related predictors to psychological distress through work interfering with family (WIF) and family-related predictors to psychological distress through family interfering with work (FIW). Finally, in a departure from previous work–family research, we estimated six cross-role mediational pathways linking work-related predictors to psychological distress through FIW and family-related predictors to psychological distress through WIF. Ten of the 12 hypothesized mediational effects were significant and another was marginally significant, supporting the mediational role of work–family conflict within Conservation of Resources theory.

Keywords: families and work; spillover; multiple roles; social support; mental health; statistical mediation

En se basant sur la théorie de la « Conservation des ressources », nous avons utilisée les données de la l'étude américaine « Survey of Midlife Development » (MIDUS I, 1995–1996; $N = 1,779$) pour estimer par analyse de la structure de la covariance (équations structurelles) les effets directs et indirects sur la détresse psychologique de la demande, des ressources et du support au travail et dans la famille. Dans le cadre d'une application nouvelle de la théorie, nous avons estimé six chemins médiateurs reliant de façon interne (within-role mediational pathways), la détresse psychologique aux facteurs prédictifs liés au travail interférant avec la famille (TIF) et aux facteurs prédictifs liés à la famille intérférant avec le travail (FIT). Finalement, de façon différente des approches précédentes de la recherche dans le domaine famille-travail, nous avons estimé six chemins

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médiateurs inter-rôles (cross-role mediational pathways) reliant les prédicteurs de la détresse psychologique liés au travail dans le cadre FIT, et les prédicteurs liés à la famille dans le cadre TIF. Dix des douze hypothèses sur les effets de médiation étaient significatifs, une autre était à la limite de la significativité. Ces résultats sont en faveur du rôle de médiation du conflit travail-famille dans le cadre de la théorie de Conservation des ressources (Conservation of Resources theory).

Mots-clés: travail-famille; travail interférant avec la famille; famille intérférant avec le travail; les effets de médiation; chemins médiateurs; la détresse psychologique

A rich research literature exists on the links between multiple roles and psychological distress (e.g., Barling & Sorensen, 1997; Greenhaus & Parasuraman, 1999). One stream of research focuses on the direct relationship between multiple roles and distress outcomes (e.g., Baruch & Barnett, 1986; Mirowsky & Ross, 1989; Rushing & Schwabe, 1995). This body of research indicates that multiple roles have a salutary effect on psychological distress and that aspects of each role contribute in unique ways to these positive outcomes, necessitating a focus on specific role attributes rather than on role occupancy per se. Another stream focuses on the relationship between work and family roles and work–family conflict (e.g., Geurts, Kompier, Roxburgh, & Houtman, 2003; Vinokur, Pierce, & Buck, 1999; Voydanoff, 2005); that is, work interfering with family (WIF) and/or family interfering with work (FIW). From this perspective, fulfilling the demands of one role interferes with the performance of the other role, creating conflict and resulting in negative con- sequences (Greenhaus, Allen, & Spector, 2006). Work–family conflict has, in turn, been linked to distress (Frone, 2000; Grzywacz, 2000; Hobfoll, 1989). Finally, there is growing evidence that work–family conflict mediates the relationship between role- specific stressors and psychosocial outcomes (Geurts et al., 2003).

Following the Conservation of Resources theory (Hobfoll, 1989; Hobfoll & Shirom, 1993), we expect that work and family demands, resources, and support will
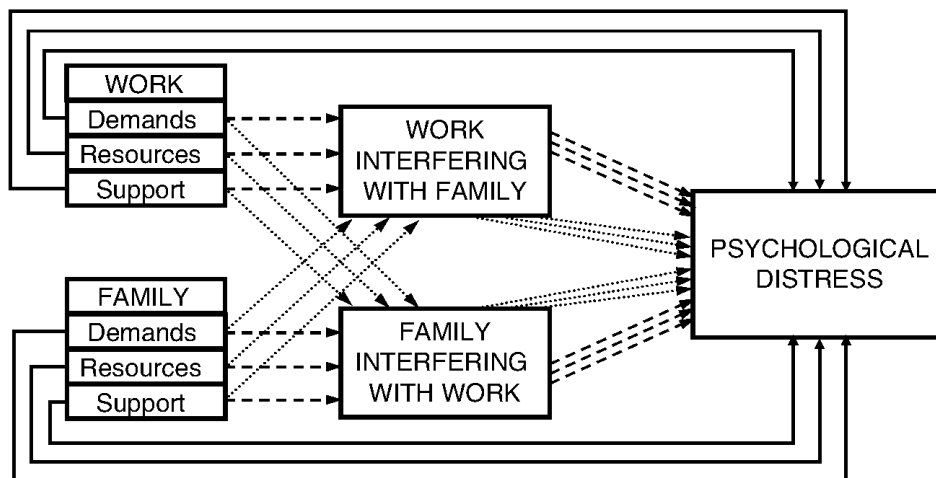

Figure 1. Hypothesized model showing direct, within-role mediational, and cross-role mediational pathways linking work and family predictors to psychological distress.
Note: Solid lines represent the direct pathways, dashed lines represent the within-role mediational pathways, and dotted lines represent the cross-role mediational pathways.

have direct effects on psychological distress (Walen & Lachman, 2000; solid lines in Figure 1). Additionally, in a new application of the theory, we estimate within-role mediational pathways in which work demands, resources, and support are linked to distress through WIF, and family demands, resources, and support are linked to distress through FIW (dashed lines in Figure 1). Further, in the context of multiple roles, we predict for the first time mediated cross-role effects. Specifically, we estimate cross-role mediational pathways in which work-related predictors are linked to distress through FIW and family-related predictors are linked to distress through WIF (dotted lines in Figure 1).

We test these hypotheses with data from the National Survey of Midlife Development in the United States (MIDUS I, 1995–1996; Brim et al., 2003). To the best of our knowledge, this is the first study to estimate within-role and cross-role mediational pathways within the context of the full Conservation of Resources theory and in the context of multiple roles (see Grandey & Cropanzano, 1999, for a test of a mediational pathway within the context of a partial operationalization of the Conservation of Resources theory).

Literature review

Conservation of Resources theory and multiple roles

The Conservation of Resources theory (Hobfoll, 1989) encompasses several general stress models that highlight how external circumstances threaten, tax, or exceed individual resources. External circumstances (e.g., demands) present a potential threat in terms of the depletion of net resources. According to Hobfoll (1989), there are four basic categories of resources: objects (e.g., car), conditions (e.g., job stability), personal characteristics (e.g., high self-esteem), and energies (e.g., money).

Further, Hobfoll gives a key role to social support, which can expand individuals' resources beyond their personal assets (Hobfoll, Freedy, Lane, & Geller, 1990), either through actual assistance or feelings of attachment (Hobfoll & Stokes, 1988). By bolstering resources, social support is conceptualized as a central building block of health and well-being. Hobfoll emphasizes the person-in-environment nature of social support (Hobfoll et al., 1990). In the context of multiple roles, it is necessary, therefore, to assess social support separately for each role.

According to Conservation of Resources theory, individuals are motivated to retain or enhance resources that may be used to solve problems or cope with difficult situations (Greenhaus & Powell, 2006). For example, re-employment following work loss is one strategy for retaining resources associated with employment (e.g., self-esteem). Based on the tenets of Conservation of Resources theory, we expect that high work and family demands, low work and family resources, and low work and family support will be linked to psychological distress.

Most stress theories consider only one role at a time (e.g., Job Strain Theory; Karasek & Theorell, 1990), yet most employees occupy multiple roles, thereby creating a gap in our understanding of the complexity of the stress process. We address this gap by applying Conservation of Resources theory to the situation of simultaneous occupancy of work and family roles. The Job Demands–Resource model (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001) is similar to Conservation of Resources theory in that it recognizes a broader range of job conditions that might

be associated with job stress than the dominant Job-Strain Model (Karasek & Theorell, 1990), better capturing the complexity of working organizations. However, unlike Conservation of Resources theory, it does not consider family-related resources and demands.

Work–family conflict (WIF and FIW)

Work–family conflict is the perception that demands from one role interfere with performance in the other role, with negative personal consequences (Greenhaus et al., 2006). It is generally agreed that work–family conflict is a bidirectional construct consisting of both WIF and FIW (Greenhaus & Beutell, 1985).

Within-role mediational pathways

The Conservation of Resources theory does not provide theoretical insight into the potential mediational pathways linking demands, resources, and support to psychological distress. Building on Hobfoll (1989) and, more directly, on work by Gutek and Huang and their colleagues on work–family conflict (Gutek, Searle, & Klepa, 1991; Huang, Hammer, & Perrin, 2004), as well as previous research by Barnett, Gareis, and Brennan (1999), we assign mediational roles to WIF and FIW in our model. Specifically, we expect high work demands to be linked to high psychological distress through increased WIF and high work resources and high work support to be linked to low psychological distress through decreased WIF. Although previous studies have found support for individual links within our hypothesized mediational model (e.g., Frone, 2000; Grzywacz, 2000; Voydanoff, 2005), none have estimated the simultaneous links among work demands, resources, and support; family demands, resources, and support; FIW and WIF; and psychological distress. For example, previous research suggests that the predictors of WIF are in the work domain, whereas the predictors of FIW are in the family domain (e.g., Frone, Russell, & Cooper, 1992). Further, both WIF and FIW have been linked to psychological distress (e.g., Frone, 2003) and dissatisfaction, depression, and anxiety (Grandey & Cropanzano, 1999).

Thus, we test the following two hypotheses:

(1) WIF will mediate relationships between work-related predictors and psychological distress. That is:
    (a) WIF will mediate the relationship between high work demands and psychological distress
    (b) WIF will mediate the relationship between low work resources and psychological distress
    (c) WIF will mediate the relationship between low work support and psychological distress.
(2) FIW will mediate relationships between family-related predictors and psychological distress. That is:
    (a) FIW will mediate the relationship between high family demands and psychological distress
    (b) FIW will mediate the relationships between low family resources and psychological distress

(c) FIW will mediate the relationship between low family support and psychological distress.

Cross-role mediational pathways

Conservation of Resources theory provides limited insight when considering multiple roles and psychological distress. To address this limitation, we propose that when the demands of one role threaten depletion of one type of resource, other resources from other roles may be called upon. This strategy may lead to actual or threatened cross-role resource depletion, which would be reflected in FIW or WIF. For example, employed caregivers whose work demands threaten to outstrip their resources (and who therefore experience WIF) may, in an effort to avoid further resource depletion, draw on their family resources such as family time and devote more time and/or other personal resources to work. With less time at home, for example, they may experience actual or threatened depletion of their family resources, resulting in FIW. Similarly, family demands may also be linked to distress through WIF. For example, employees who are threatened with family-resource depletion due to their inability to meet their family demands may reduce their time at work to reallocate time resources from work to family, making them vulnerable to distress from WIF when it becomes more difficult to meet work demands. Thus, we propose that, in addition to the link between work demands and distress through WIF, work demands may also be linked to distress through FIW.

Cross-role mediational pathways can also originate with work or family resources. For example, work resources (e.g., control) may have a beneficial effect on distress through lowering FIW as well as WIF. Individuals who can adjust their work schedules are able to respond to unplanned family stressors and should, therefore, experience lower distress due to lower FIW than those who cannot control their work schedules. In addition, family resources may provide emotional benefits that would help to reduce distress through decreased WIF as well as FIW. Employees who feel that they have enough time to get everything done at home may have feelings of competence that help reduce threats of work resource depletion.

Finally, as noted above, according to Hobfoll (Hobfoll & Freedy, 1990; Hobfoll & Stokes, 1988), role-specific social support can be drawn upon to reduce the threat of cross-role resource depletion. Thus, we test the following two hypotheses:

(3) WIF will mediate relationships between family-related predictors and psychological distress. That is:
  (a) WIF will mediate the relationships between high family demands and psychological distress
  (b) WIF will mediate the relationship between low family resources and psychological distress
  (c) WIF will mediate the relationships between low family support and psychological distress.
(4) FIW will mediate relationships between work-related predictors and psychological distress. That is:
  (a) FIW will mediate the relationships between high work demands and psychological distress

  (b) FIW will mediate the relationships between low work resources and psychological distress

  (c) FIW will mediate the relationships between low work support and psychological distress.

Method

Participants

The first wave of MIDUS collected data in 1995–1996 from English-speaking adults aged 25–74 in the coterminous USA. The core sample was obtained through random digit dialing. The present analyses included all respondents in the core sample who were currently employed or self-employed for at least 10 hours per week and were not missing responses for study variables ($N = 1779$; 935 men and 843 women). Our sample was 87.4% White, 6.5% Black or African-American, and 1.4% Asian or Pacific Islander; the remaining 4.7% identified themselves as multiracial or 'other.' The average age was 43.1 years (SD = 10.7), 34.6% had a bachelor's degree or higher, and median annual household income was US$47,000. Respondents worked an average of 45.0 hours per week (SD = 13.3). The majority (69.2%) were married or living with a partner. Of those, 75.4% had employed partners who worked an average of 41.0 hours per week (SD = 13.6); thus, 52.2% were in dual-earner couples. Some 44.9% had minor children at home, and 35.5% reported spending at least some time each month assisting their parents; 17.0% of the sample was 'sandwiched' by both child- and elder-care responsibilities.

Procedures

For each household contacted through random digit dialing, one respondent was randomly selected from all household members aged 25–74. Men and older individuals were oversampled to obtain a good distribution on the cross-classification of age and gender. If the respondent did not complete the interview, no other household member was selected. Respondents completed a 30-minute telephone interview and two mailed 45-page questionnaires. The response rate was 70% for the phone interview; 87% of these completed questionnaires, for an overall response rate of 60.9%. MIDUS sample weights were used in our analyses.

Measures

Global *psychological distress* was measured using the K-6 Non-Specific Psychological Distress Scale (Kessler et al., 2002; Mroczek & Kolarz, 1998). The scale was validated in eight administrations to different populations. The scale includes six emotion descriptors: worthless, hopeless, nervous, restless or fidgety, that everything is an effort, and so sad that nothing can cheer one up. Respondents were asked to rate on a scale from 1 (*none of the time*) to 5 (*all of the time*) how often they experienced each emotion in the past 30 days. Cronbach's alpha was 0.85 in the present sample.

Work demands was a five-item measure, the first three from the Whitehall Health II Survey (Bosma et al., 1997) and the other two created for the MIDUS survey (Lachman & Weaver, 1998). The scale assesses the amount of psychological strain

associated with working. Respondents were asked to rate on a scale from 1 (*never*) to 5 (*all of the time*) how often one has to work very intensively (that is, one is very busy trying to get things done), different people or groups at work demand things that one thinks are hard to combine, one has too many demands made on one, one has enough time to get everything done, and one has a lot of interruptions. All items were coded so that higher scores reflect higher work demands. Cronbach's alpha was 0.75 in the present sample.

Work resources (control) was a six-item decision authority measure, four from the Whitehall Health II Survey (Bosma et al., 1997) and two developed for MIDUS (Lachman & Weaver, 1998), assessing control over the work environment. Respondents rated on a scale from 1 (*never*) to 5 (*all of the time*) how often they: have to initiate things at work such as coming up with one's own ideas or figuring out on one's own what needs to be done, have a choice in deciding how one does one's tasks at work, have a choice in deciding what tasks one does at work, have a say in decisions about one's work, control the amount of time one spends on tasks, and have a say in planning one's work environment (that is, how one's workplace is arranged or how things are organized). Items were coded so that higher scores reflect greater work resources (control). Cronbach's alpha was 0.86 in the present sample.

Work support included a two-item co-worker support scale and a three-item supervisor support scale adapted from the Whitehall Health Survey (Bosma et al., 1997). Each was rated on a scale from 1 (*never*) to 5 (*all of the time*). Co-worker support items asked how often co-workers gave help and support and how often co-workers listened to one's work-related problems. Supervisor support items asked how often supervisors gave necessary information, gave help and support, and listened to one's work-related problems. For those who did not have co-workers, only the supervisor support scale was included; for those who did not have supervisors, only the co-worker support scale was included. Items were coded so that higher scores reflect more support. Cronbach's alpha was 0.80 in the present sample.

Family demands were assessed using a two-item scale based on Rossi's (2001) work. Respondents rated on a scale from 1 (*never*) to 5 (*all of the time*) how often one has too many demands made on them at home and how often one has lots of interruptions at home. Cronbach's alpha was 0.66 in the present sample; alpha may be constrained by the limited number of items in this scale.

Family resources (control) were also assessed using a two-item scale based on Rossi's (2001) work. Respondents rated on a scale from 1 (*never*) to 5 (*all of the time*) how often one controls the amount of time one spends on tasks at home and how often one has enough time to get everything done at home. Cronbach's alpha was 0.52 in the present sample. As with the alpha for family demands, this is likely constrained by there being only two items on the scale.

Family support included a six-item partner support scale and a four-item family member (other than partner) support scale. Items were adapted from Schuster, Kessler, and Aseltine (1990) and rated on a scale from 1 (*not at all*) to 4 (*a lot*). Partner support items were how much the partner really cares about one, appreciates one, understands how one feels and how much one can rely on the partner for help with a serious problem, open up to the partner about worries, and relax and be oneself around the partner. Family support items were how much family members really care about one and understand how one feels and how much one can rely on the family member for help with a serious problem and open up to the family member about worries. For

those who did not have partners, only the family member support scale was included; for those who did not have non-partner family members, only the partner support scale was included. Cronbach's alpha was 0.85 in the present sample.

Work interfering with family (WIF) and *family interfering with work (FIW)* were assessed using two four-item scales of negative spillover from work to family and from family to work. Items were developed by the MIDUS I researchers (Grzywacz & Marks, 2000) and rated on a scale from 1 (*never*) to 5 (*all of the time*) during the past year. WIF items were that the job reduces one's effort at home, job stress makes one irritable at home, tiredness from the job affects one's attention at home, and job worries or problems distract one at home. FIW items were that responsibilities at home reduce the effort one can devote to the job, personal or family worries and problems distract one at work, activities and chores at home prevent one from getting enough sleep to do the job well, and stress at home makes one irritable at work. Cronbach's alpha was 0.81 for WIF and 0.79 for FIW in the present sample.

Analysis strategy

By definition, statistical mediation requires evidence that a predictor, or independent variable, has an effect on an outcome, or dependent variable, and that this relationship is partially or fully explained by a third variable, the mediator. The presumed causal direction is that variation in the predictor causes variation in the mediator, which then causes variation in the outcome (MacKinnon, 2008; MacKinnon & Leucken, 2008). Complete mediation is when the entire relationship between the predictor and the outcome is explained by the link through the mediator. If the relationship consists of both a direct relationship of the predictor to the outcome (solid lines in Figure 1) as well as an indirect one of predictor to mediator to outcome (dashed and dotted lines in Figure 1), this is referred to as partial mediation. Baron and Kenny (1986) provide criteria that are often used as the definition of mediation; however, mediation can exist even when the initial finding is no overall effect of the predictor on the outcome in the absence of the mediator (see Ozer, Barnett, Brennan, & Sperling, 1998, for an example), one of the requirements of the Baron and Kenny (1986) test.

We consider multiple predictors mediated through two variables, WIF and FIW, onto a single outcome, psychological distress, a situation where the Baron and Kenny (1986) test cannot be applied because the mediating effects are multiple and not independent. One longstanding approach to multiple mediation, known as either path analysis (Alwin & Hauser, 1975) or causal modeling (Blalock, 1971; Heise, 1975), once relied exclusively on ordinary least squares regression as its underpinning. However, the use of hierarchical order of entry of regression coefficients (Cohen & Cohen, 1983) biased this procedure against finding mediation, resulting in low statistical power. A superior method for estimating direct (predictor to outcome) and indirect (predictor to mediator to outcome) effects based on the covariance structure of data allows specification of complex equations and overcomes the limitations discussed above (Jöreskog, 1970). Using this approach, a valid test of mediation is when the estimated indirect path from a predictor to an outcome indirectly through a third variable, or mediator, is judged to be significantly different from zero (MacKinnon, 2008).

For work and family demands, resources, and support, we estimated both direct effects on psychological distress and indirect effects through WIF and/or FIW.

Partial mediation was defined by the presence of both a significant direct effect on psychological distress and a significant indirect path through WIF and/or FIW, whereas complete mediation was defined as a significant indirect path through WIF and/or FIW in the absence of a significant direct path to psychological distress.

In these analyses, we considered within-role mediational paths; that is, work-related predictors being mediated through WIF and family-related predictors being mediated through FIW. We also considered cross-role mediational paths; that is, work-related predictors being mediated through FIW and family-related predictors being mediated through WIF. Specifically, following theory and our hypotheses, we tested two models: an uncrossed mediational model, in which work-related predictors only act through WIF while family-related predictors only act though FIW, and a crossed mediational model in which all three predictors from both domains are crossed, operating through both WIF and FIW. Our goal was to show incrementally improved fit to the model by adding the cross-role predictors, not to get the best possible fit for a model to these data.

We estimated our path models based on covariance structure analysis using maximum likelihood estimation in Mplus (Muthén & Muthén, 2007), thus avoiding the pitfalls of both the Baron and Kenny (1986) approach and of hierarchical regression analysis (Blalock, 1971; Cohen & Cohen, 1983; Heise, 1975), by testing for partial as well as complete mediation and estimating the direct and indirect (mediating) effects simultaneously. Our models were weighted using a composite weight, RFNWT, developed by MIDUS (MIDUS I; 1995–1996). Bootstrapping was employed in Mplus (Muthén & Muthén, 2007) as part of the strategy of implementing the weights. Weighted analyses were also compared to the unweighted analyses. Further, models including demographic covariates were also estimated (not shown) and compared to the analyses presented in this paper.

Results

Descriptive statistics are shown in Table 1. On average, respondents rated WIF as more frequent than FIW; $t(\mathrm{df} = 1777) = 34.55, p < 0.001$. Work demands were rated just above the midpoint of 'sometimes,' family demands just below the midpoint of

Table 1. Descriptive statistics for measures.

Predictor	Mean	(SD)	Range
Work demands	3.11	(0.64)	1–5
Work resources	3.67	(0.75)	1–5
Work support	3.66	(0.72)	1–5
Family demands	2.82	(0.81)	1–5
Family resources	3.58	(0.78)	1–5
Family support	3.46	(0.52)	1–4
Work interfering with family	2.67	(0.71)	1–5
Family interfering with work	2.11	(0.64)	1–5
Psychological distress	1.54	(0.59)	1–5

Note: $N = 1779$.

'sometimes,' and work and family resources and support as higher than work and family demands. Distress was relatively low, with a mean closer to the 'none of the time' end of the distress measure.

We estimated two path models using the weighted data based on covariance analysis using Mplus (Muthén & Muthén, 2007), beginning with a within-role mediational model because the literature makes a strong case for the effects of WIF and FIW as mediating the link between within-role stressors and mental health indicators such as psychological distress (e.g., Frone et al., 1992; Grandey & Cropanzano, 1999).

The uncrossed model has a CFI of 0.80, with a $\chi^2 = 398.65$ (df $= 7$), and a standardized root mean square residual of 0.069. The crossed model has a CFI of 0.88, with a $\chi^2 = 238.20$ (df $= 1$), and a standardized root mean square residual of 0.035, indicating significantly improved fit, $\chi^2 = 160.45$ (df $= 6$); $p < 0.001$. We present weighted results; there were only small differences between the population-weighted and unweighted analyses. We also tested models that controlled for the covariates gender, married/partnered status, number of children, household income, and age, but found no important differences from the models presented here.

The coefficients for the predictors of WIF and FIW from the crossed model are displayed in Table 2. Demands, resources, and support from work and family significantly predicted WIF. Work and family demands predicted significantly higher WIF, while work and family resources and support predicted lower WIF. Although work resources did not also predict FIW, work and family demands did predict greater FIW, while family resources and support predicted lower FIW and work support showed a trend to predict lower FIW.

Results for the direct, indirect, and total effects of these predictors on psychological distress are displayed in Table 3 and in Figure 2. The results provide

Table 2.   Regression coefficients and standard errors for predictors of work–family conflict.

Predictor	Coefficient	(SE)
Work interfering with family		
Intercept	2.382***	(0.194)
Work demands	0.466***	(0.025)
Work resources	−0.044**	(0.020)
Work support	−0.155***	(0.021)
Family demands	0.104***	(0.022)
Family resources	−0.101***	(0.022)
Family support	−0.104***	(0.030)
Family interfering with work		
Intercept	2.149***	(0.199)
Family demands	0.249***	(0.023)
Family resources	−0.119***	(0.023)
Family support	−0.167***	(0.030)
Work demands	0.130***	(0.025)
Work resources	0.002	(0.018)
Work support	−0.039*	(0.023)

$^*p \leq 0.100$; $^{**}p \leq 0.050$; $^{***}p \leq 0.001$.
Note: $N = 1779$; coefficients are unstandardized.

Table 3. Regression coefficients and standard errors for predictors of psychological distress.

Predictor	Total effect (SE)		Indirect effect (SE)		Direct effect (SE)	
Intercept	0.478****	(0.093)				
Work interfering with family	0.119****	(0.015)				
Work demands	0.059****	(0.013)	0.055****	(0.008)	−0.007	(0.014)
Work resources	−0.038****	(0.011)	−0.005**	(0.003)	−0.033****	(0.010)
Work support	−0.018	(0.012)	−0.018****	(0.003)	0.003	(0.010)
Family demands	0.039****	(0.011)	0.012****	(0.003)	0.006	(0.011)
Family resources	−0.035***	(0.012)	−0.012****	(0.003)	−0.013	(0.010)
Family support	−0.150****	(0.017)	−0.012****	(0.004)	−0.124****	(0.014)
Family interfering with work	0.081****	(0.013)				
Family demands	0.039****	(0.011)	0.020****	(0.004)	0.006	(0.011)
Family resources	−0.035***	(0.012)	−0.010****	(0.003)	−0.013	(0.010)
Family support	−0.150****	(0.017)	−0.012****	(0.005)	−0.124****	(0.017)
Work demands	0.059****	(0.013)	0.011****	(0.003)	−0.007	(0.014)
Work resources	−0.038****	(0.011)	0.000	(0.002)	−0.033****	(0.010)
Work support	−0.018	(0.011)	−0.003*	(0.002)	0.003	(0.011)

$*p \leq 0.100$; $**p \leq 0.050$; $***p \leq 0.010$; $****p \leq 0.001$.
Note: $N = 1779$; coefficients are unstandardized.

full support for Hypotheses 1 and 2 and partial support for Hypotheses 3 and 4. Specifically, all six of the hypothesized within-role mediational pathways were statistically significant, whereas four of the six hypothesized cross-role mediational pathways were statistically significant and a fifth was marginally significant. These pathways are depicted in Figure 2.

The effect of work demands on distress is completely mediated via WIF ($p < 0.001$) and FIW ($p < 0.001$), as evidenced by the fact that only the indirect effects of these predictors are significant. The mediated effect through WIF is by far the strongest of these, accounting for most of the direct and indirect effects of work demands combined (i.e., 0.055 out of a total effect of 0.059). The effect of work resources is partially mediated through WIF ($p = 0.036$) and also has a direct effect on psychological distress ($p = 0.001$), but is not mediated by FIW. Here, the direct effect of work resources is stronger than any of the indirect effects, accounting for −0.033 out of −0.038 for all effects combined. Work support is mediated through WIF ($p < 0.001$) and has a trend toward mediation through FIW ($p = 0.095$), but has no direct effect on distress. In this case, the mediated effect through WIF is very strong, accounting for −0.018, all of the net effects combined.

Family demands are completely mediated through FIW ($p < 0.001$) and WIF ($p < 0.001$). Here, the mediated effect of family demands through FIW is the largest of all the direct and indirect effects (i.e., 0.020 out of 0.039). Family resources follow the same pattern, with complete mediation through FIW ($p < 0.001$) and WIF ($p < 0.001$). In this instance, the mediated effect through WIF accounts for −0.012 out of a total of −0.035 for all effects combined. Finally, greater family support relates to lower distress through all three routes, with an especially large direct effect (see Table 3), which accounts for −0.124 out of a total of −0.150 for all direct and indirect effects combined.
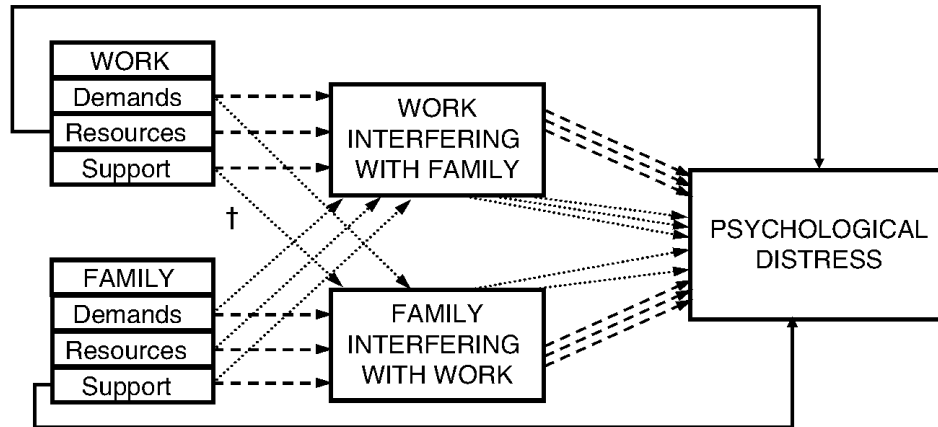
Figure 2. Observed model showing direct, within-role mediational, and cross-role mediational pathways linking work and family predictors to psychological distress.
Note: Soild lines represent the direct pathways, dashed lines represent the within-role mediational pathways, and dotted lines represent the cross-role mediational pathways.
†The cross-role mediational pathway from work support through FIW to distress was only marginally significant ($p=0.068$); the remaining direct and mediational pathways shown in the lower half of the figure are statistically significant ($p \leq 0.050$).

For five of the six work and family predictor variables, the total effect (combined effect of both direct and indirect paths) of each predictor on psychological distress, approximately the equivalent of a regression of distress on the predictors without the mediator, is significantly different from zero demonstrating that all the predictors except work support are related to psychological distress, as displayed in Table 3. In the case of work support there is ambiguous statistical evidence of its effect. There is a significant indirect effect through WIF ($p \leq 0.001$), while the direct effect and indirect effect through FIW nearly cancel each other out (see Table 3). Nonetheless, the total effect has a large enough standard error such that the probability level ($p = 0.117$) is considerably greater than the usual critical values.

Discussion

Overall, the findings of this study highlight the central role of WIF and FIW in understanding the relationships linking multiple role demands, resources, and support to psychological distress and provide strong validation for Conservation of Resources theory within the context of multiple roles. As predicted, we found evidence of significant within-role mediational pathways. Moreover, there was further partial support for the proposed cross-role mediational pathways; specifically, resource depletion, as shown by significant cross-role mediational pathways in which high work demands (and, marginally, low work support), and high family demands, low family resources, and low family support were significantly associated with distress through FIW and WIF, respectively. To our knowledge, this is the first study providing evidence of such within- and cross-role mediational pathways. Future research on the effect of multiple roles on distress outcomes should include both within-role and cross-role mediational pathways and other stress-related outcomes (e.g., sleep dysfunction, sickness absence).

The within-role mediational pathways are consistent with previous literature reporting separately on the relationships linking high work and family demands and low work and family resources and support to WIF and FIW, respectively (Geurts et al., 2003; Vinokur et al., 1999; Voydanoff, 2005). We extend this line of research by finding support for mediational pathways from high work demands and low work resources and support to distress through WIF, and from high family demands and low family resources and support to distress through FIW.

With respect to the cross-role mediational pathways, it seems that threats of resource depletion due to work demands spill over and are linked to distress via FIW as well as WIF. Speculatively, employees with high work demands may draw on family resources (e.g., family time) to avoid work resource loss. In so doing, loss of family resources may be threatened, giving rise to FIW. We also found evidence that family demands are linked to distress through WIF. Hypothetically, high family demands (e.g., many interruptions at home) might lead to perceived threat of resource loss. To try to minimize resource loss, an employee might limit the number of phone calls s/he will accept from work while at home. As a consequence, WIF could increase with the need to work longer or faster to better handle work matters at work, making fulfilling family responsibilities more difficult.

Additionally, the findings regarding work demands have considerable theoretical importance because of the key role this construct is given in prominent theories linking job conditions to stress outcomes (e.g., the Job Strain Theory; Karasek & Theorell, 1990). It appears that job demands do not impact psychological distress directly, but rather their impact is contingent upon whether the demands are associated with the perception of work–family conflict (i.e., WIF and FIW).

The cross-role mediational pathways that included work and family resources received mixed support. As hypothesized, family resources were linked to distress through WIF as well as FIW. Speculatively, family resources (e.g., enough time for household tasks) spill over, helping employees minimize or avoid work-resource depletion when threatened by work challenges that might otherwise be depleting. However, we found no support for the hypothesized cross-role mediational pathway linking work resources to distress through FIW. The overwhelming influence of low work resources was through its direct path to distress. It is possible, however, that an operationalization of work resources that focuses on job aspects other than control; for example, challenge, might cross over, with beneficial effects on distress through FIW. We also found mixed support for the two hypothesized cross-role mediational pathways involving low work and family support (i.e., low family support had a significant effect on distress through WIF, but low work support had only a marginally significant effect on distress through FIW). Most strikingly, low family support had a strong direct effect on distress, whereas low work support did not.

To the extent that cross-role feedback loops exist, organizational policies and family strategies that reduce WIF or FIW may also decrease FIW of WIF over time. For example, policies aiming to enhance work performance by reducing WIF may also lead to improved family attitudes and behaviors, which might then have a positive effect on work performance due to lowered FIW. These findings are of considerable interest to employers, who bear the high costs of employee psychological distress, including unplanned absences, turnover, and decreased productivity. Thus, it behooves employers to implement policies and practices to reduce work demands (e.g., limit meetings and interruptions so employees can get work done

during regular hours), reduce family demands (e.g., provide on-site or backup childcare), increase work resources (e.g., provide timely feedback), increase family resources (e.g., offer flexible hours to allow more family time), and increase workplace support (e.g., train managers to understand employees' work and family demands).

These findings are also of interest to practitioners, such as family therapists and employee assistance program staff, who work with families to reduce the stress associated with complex lives. For example, strategies that result in a more equitable division of childcare and household responsibilities between partners may reduce FIW and, in turn, reduce WIF. Families might regularly review the degree to which each partner feels overly burdened by the press of family demands. Strategies might then be implemented to redistribute responsibilities to better align them with each partner's resources and to muster additional resources, if needed

Taken together, these findings suggests that: (1) employers interested in reducing employee distress would be wise to consider the impact of their policies on employees' ability to meet their family demands; and (2) families would be wise to factor into their strategies for managing family demands the likely consequences of their decisions for each partner's ability to fulfill their work demands. To the extent that such workplace and family initiatives are successful, even employees threatened by work- or family-role resource depletion will be at lower risk of distress, with likely beneficial effects on work performance (for a review, see Sullivan & Bhagat, 1992).

Like all studies, this one has its limitations. First, the data are cross-sectional, raising the issue of direction of causality. This issue is nearly omnipresent in work–family research, most of which is cross-sectional. For example, negativity or anxiety could affect FIW through perceptions of high family demands and low family resources and support. These perceptions could in turn affect distress through WIF, perpetuating a mutually dependent and recursive process. Similar recursive feedback loops might be found with work-related predictors in the context of work-related outcomes and WIF. So, for example, low job satisfaction might increase perceptions of WIF, which might then be associated with feelings of high work demands, low work resources, and low work support. Longitudinal or diary studies are the best way to illuminate these questions.

Second, the data rely on self-report measures of predictors and outcomes. The interpretation of results from such studies is always difficult. In addition to the fact that the data are all self-report, the MIDUS data-set has several other potential sources of common-method bias, including social desirability, negative and positive affectivity (Brennan & Barnett, 1998), and similar scale format (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Specifically, the use of objective mental health outcomes (e.g., doctor visits and work absence), reports from family members, and inclusion of some measure of self-reporting bias as a covariate, although difficult (Podsakoff et al., 2003), would be advisable in future studies. However, the strong pattern of results across the within-role and cross-role mediation hypotheses suggests that self-report bias, while a potential problem, is not sufficient to account for the findings.

Third, as in any secondary data analysis, our choices for operationalizing the constructs of interest in our study were limited by the particular scales the study's designers included. There are good measures of work and family demands and of work and family support in MIDUS I, but the available measures of work and family

resources were limited to those addressing control. Specifically, work resources were operationalized as decision authority, which is conceptually similar to the definition used in Karasek's Job Strain Theory (Karasek & Theorell, 1990), and family resources were operationalized as control over the amount of time spent on tasks and having enough time to get everything done at home.

Fourth, because this paper is a new application of the Hobfoll Conservation of Resources theory, we focused on work–family conflict and did not include the measures of work–family enrichment available in the MIDUS I data-set as a possible mediator or moderator. Yet there is a growing literature (e.g., Gareis, Barnett, Ertel, & Berkman, 2009; Taylor, DelCampo, & Blancero, 2009; Van Steenbergen & Ellemers, 2009) suggesting that the inclusion of both work–family conflict and work–family enrichment provides a richer picture of the relationships under study than the inclusion of only one construct or the other.

Lastly, it is, of course, possible that the results would be different with different indicators of work and family resources and demands, as well as of poor mental health (e.g., low job or life satisfaction). It is also possible that the results would differ if we modeled coping, rather than work–family conflict, as the mediator (Hobfoll & Shirom, 1993) so that, for example, the relationship between demands and distress would depend on whether the employee utilized successful or unsuccessful coping strategies.

These limitations notwithstanding, this study has many strengths. Most critically, the adaptation of the Conservation of Resources model to the multiple-role context and the inclusion of role-specific demands, resources, and support at work *and* at home reflects the complexity of most peoples' lives. We are not just workers or just family members; we are both at the same time. Accordingly, any understanding of the predictors of psychological distress must incorporate aspects of these two key social roles. The inclusion of cross-role meditational pathways through work–family conflict (i.e., WIF and FIW) mirrors the reality that experiences in one of our social roles interact with and affect our experiences in other social roles. Moreover, there seems to be a complex, but predictable, relationship between resources, demands, and support in one role and the perception of inter-role conflict that is related, in turn, to psychological distress. More research using different populations and longitudinal as well as cross-sectional designs is needed to further clarify these inter-relationships, in particular the promising area of cross-role mediation.

Acknowledgements

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