



An integrative model of work/family interface for Chinese employees

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Abstract

Purpose – The purpose of this paper is to examine the mediating roles of four aspects of work and family interface (WFI: work-to-family conflict, WFC; family-to-work conflict, FWC; work-to-family enrichment, WFE; and family-to-work enrichment, FWE) in a Chinese context in Taiwan. Included in the integral model are demands and resources from the work and family domains as antecedents, and role satisfaction and burnout as consequences.

Design/methodology/approach – Structured questionnaires were used to collect data from 499 full-time working Chinese parents in Taiwan.

Findings – Structural equation modeling results showed that antecedents had cross-domain and within-domain effects on all aspects of the WFI; and conflict and enrichment also had cross-domain and within-domain effects on job satisfaction and family satisfaction, while influences from the work domain (WFC and WFE) had a significant impact on burnout. Overall, the partial mediation model was supported, showing that antecedent variables having both indirect (through the WFI variables) as well as direct relationships with the outcome variables.

Originality/value – This is the first study testing a comprehensive model of the whole loop of antecedents-WFI-consequences with a non-Western sample. One unique contribution of the study is that the authors extended Western-based resources theories to Chinese employees, confirming that all four aspects of the WFI are important mediators linking up antecedents with consequences from both the work and family domains. Basing upon the findings, the authors suggests that both managers and employees should endeavor to break the destructive flow of conflict → dissatisfaction/burnout and to initiate the constructive flow of enrichment → satisfaction/free of burnout, by considering not only demands but also resources from both the work and family domains.

Keywords Burnout, Chinese employees, Demands and resources, Role satisfaction, Work and family interface

Paper type Research paper

For nearly 30 years, the vast majority of work and family interface (WFI) research has focussed on its negative aspects (Grzywacz and Bulter, 2008), and work-family conflict, which is defined as occurring when participating in one role is made more difficult by virtue of participating in the other role (Greenhaus and Beutell, 1985), has been the most investigated topic to date. More recently, in line with the development of the positive organizational behavior approach (Bakker and Schaufeli, 2008), researchers have been shifting their attention to positive aspects of the WFI. Work-family enrichment, which is conceptualized as “the extent to which experiences in one role improve the quality of life in the other role” (Greenhaus and Powell, 2006, p. 73), is proposed as the concept that best captures the essence of positive WFI. Both work-family conflict and work-family enrichment are bi-directional



constructs: work-family conflict comprises work-to-family conflict (WFC) and family-to-work conflict (FWC) (Frone, 2003), while work-family enrichment comprises work-to-family enrichment (WFE) and family-to-work enrichment (FWE) (Carlson *et al.*, 2006).

During the last several decades, the number of publications on the WFI has increased dramatically. As Kossek *et al.* (2011) have pointed out, however, over 95 percent of WFI studies are based on the Western samples, which means that international samples may not be well represented in current findings. Moreover, substantial differences in WFI across the East-West divide have been found in existing cross-cultural studies (Lu *et al.*, 2010b; Spector *et al.*, 2007). Therefore, directly generalizing Western findings to culturally different populations, such as the Chinese people, should be cautious. Western research has shown that WFC, FWC, WFE, and FWE each has work and family antecedents (Byron, 2005; Michel *et al.*, 2011) and consequences (Allen *et al.*, 2000; McNall *et al.*, 2010). Nevertheless, to the best of our knowledge, no study has examined the mediating roles of all four aspects of the WFI simultaneously between antecedents and consequences for the Chinese population. In the present study, our purpose is thus to include demands and resources from both the work and family domains, all four aspects of the WFI, work and family satisfaction, and burnout in a single comprehensive model, in order to gain a better understanding of how Chinese employees act in the process of WFI.

Theoretical framework and hypotheses

Resources theories and WFI

Conservation of resource (COR) theory (Hobfoll, 1989) is a resource-oriented model and assumes that people strive to retain, protect, and build resources; moreover, potential or actual loss of these valued resources threatens or is stressful for individuals. This places the acquisition and facilitation of resources as a central motivational construct. Hobfoll (2002, p. 307) broadly defined resources as those entities that either are centrally valued in their own right (e.g. self-esteem, close attachments) or act as a means to obtain centrally valued ends (e.g. money, social support). Resource loss is thus central to the stress and adaptation experience. Resource gain in turn becomes more salient in the face of resource loss. Moreover, loss of resources tends to lead to resource loss cycles that have increasing strength and speed. Although stressful circumstances challenge resources and often result in resource loss, COR theory is unique in positing that successfully addressing challenging circumstances will result in increased resources, thus resource gain cycles are likely to emerge when people identify and mobilize resources.

Recently, ten Brummelhuis and Bakker (2012) elaborated on the resource loss cycles and resource gain cycles of the COR theory (Hobfoll, 1989, 2002) to develop the work-home resources (W-HR) model. Specifically, the W-HR model identifies work-family conflict as a loss spiral whereby demands in one domain deplete personal resources and encumber accomplishments in another domain, further leading to prolonged strain. Enrichment in the model is identified as a gain spiral of resource accumulation: namely, resources from work and family domains increase personal resources and in turn, can be utilized to improve work and family outcomes, further leading to elevated levels of well-being. Recent longitudinal studies in the Chinese context supported these resource-based theories, which provide an integrated framework to emphasize both the loss and gain processes of resource vicissitudes (Lu, 2011; Lu and Kao, 2013). Specifically, WFC and FWC have

been found as a mediator in the work and family stressors-role dissatisfaction relation, while WFE and FWE as a mediator in the work and family resources-role satisfaction relation. However, these studies tested separate models including either the negative or the positive aspects of WFI within a particular domain (e.g. work stressor-WFC-job dissatisfaction). We thus expanded the scope of our study by including all four aspects of the WFI as mediators linking demands/resources and outcomes from both the work and family domains. This would provide a direct test of the loss spiral and gain spiral processes in the WFI context as proposed in the COR theory and the WH-R model.

Paths linking antecedents and WFI

The effort-recovery (E-R) model (Meijman and Mulder, 1998) posits that employees need adequate rest after exertion of efforts at work to recover and recharge both physically and psychologically. Failing to gain sufficient recovery will result in a depletion of psychic energy that will force individuals to increase their efforts to cope with subsequent work demands and further lead to prolonged strain. Applying this theory in the context of WFI, we can infer that when demands from work or family exceed the individual's capacity to cope, work and family roles thus come into conflict, depriving the individual adequate chances of recovery from performing either the work or family role, resulting in dampened role satisfaction as well as increased strains.

According to Byron's (2005) meta-analysis, three kinds of antecedents are related to work and family conflict: work-domain variables, family domain variables, and individual variables. Individual-level variables, such as sex and marital status, however, are poor predictors of work and family conflict. A more recent meta-analysis revealed that work-role stress and work support are predictors of both WFC and FWC, while family role stress and family support are predictors of both WFC and FWC (Michel *et al.*, 2011). Several studies have since confirmed that work and family antecedents are associated with both directions of work and family conflict, regardless of whether they used Western or Chinese samples (DiRenzo *et al.*, 2011; Lu *et al.*, 2010b).

A similar pattern of relations has been suggested in the work and family enrichment area. A recent Indian study found that supervisory support was an antecedent of both WFE and FWE (Bhargava and Baral, 2009). Other studies with Western samples have yielded similar findings, indicating that work resources (supervisory support) and family resources (family support) are antecedents of both WFE and FWE (Greenhaus and Powell, 2006; Hill, 2005). However, studies of enrichment in the Chinese context are fewer and evidence scattered. For example, Siu *et al.* (2010) found among mainland Chinese employees that supervisory support was related to WFE and family support was related to FWE. Lu (2011) conducted a three-wave longitudinal study with a Taiwanese sample and found consistent relationships across time between supervisory support and WFE, as well as those between family support and FWE. Unfortunately, neither study examined the cross-domain paths linking antecedents and enrichment (e.g. supervisory support → FWE).

As depicted in the above studies, enrichment research has emphasized resource-based antecedents more often than demand-based ones. A few studies have even shown that neither objective indicators (e.g. work hours) nor subjective demand indicators were related to work and family enrichment (Hill, 2005; Proost *et al.*, 2010). Nonetheless, we believe that fulfilling the requirements of work or family role would

erode one's resources and in turn restrain the accessibility of enrichment. Our belief is in line with the main tenets of COR theory and the W-HR model. Thus, in the present study we examined specific antecedents from the work and family domains. As revealed in the latest meta-analysis, role overload is a strong predictor of both WFC and FWC, whereas social support is an important resource-based antecedent of WFI (Michel *et al.*, 2011). Therefore, we focussed on workload and parental workload to represent the specific work and family forms of role overload, and focussed on supervisory support and couple cohesion to represent the specific forms of work and family support.

One feature of the existing work and family research is that we understand much more the mechanisms of various work resources than the benefits of family resources (Eby *et al.*, 2005). To close this gap of knowledge, we borrowed the well-defined and researched construct of couple cohesion from the field of family study, as a potentially vital form of family resources in the WFI context. Couple cohesion is conceptualized as the emotional bonding that couples have with each other (Olson *et al.*, 1985). Couples with higher levels of cohesion are characterized by features of emotional bonding, boundaries, and coalitions, and have a sense of togetherness. More generally, cohesion is seen as an indicator of commitment, help and support among family members (Moos and Moos, 1994). Recently researchers have conceptualized cohesion as the index of the strength of bonding among family members, including both emotional bonding and the actual provision of support (Manzi *et al.*, 2006). Family research has shown that couples with a strong feeling of togetherness can overcome life's challenges and adjust well in a family crisis (Walsh, 2003), and that couples with the high congruence of wanting to have a child can conquer the stress of infecundity (Kopper and Smith, 2001). Furthermore, evidence has shown that the sense of conjugal solidarity over-performed concrete supportive behaviors from family members in promoting role satisfaction and adjustment to a family transition (Lu, 2006). Thus, couple cohesion indicating conjugal affection and commitment is worthy of exploration as a family resource in the WFI processes, as opposed to the more often researched construct of spousal/family support.

Based on the resources theories, E-R model, and the empirical studies mentioned above, we thus hypothesized:

- H1. Demands (workload, parental workload) are positively related to both WFC and FWC.
- H2. Resources (supervisory support, couple cohesion) are negatively related to both WFC and FWC.
- H3. Demands (workload, parental workload) are negatively related to both WFE and FWE.
- H4. Resources (supervisory support, couple cohesion) are positively related to both WFE and FWE.

Paths linking WFI and consequences

Allen *et al.* (2000) and McNall *et al.* (2010) used similar typologies to examine the relationships between WFI and outcomes, which included variables related to work, family, and health. Attitudes, such as satisfaction, have been the most-discussed

variables in past studies (Allen *et al.*, 2000). Job or family satisfaction is conceptualized as the degree to which an individual has positive feelings about the work or family domain (Cammann *et al.*, 1983). Several meta-analyses have focussed on examining the relationships between satisfaction and WFI, and the findings have shown that they are important outcomes of WFI (Ford *et al.*, 2007; Shockley and Singla, 2011). Therefore, in the present study, we chose job and family satisfaction to represent work- and family related consequences. In line with the resources theories, people who are suffering WFC or FWC are more likely to encounter stressful circumstances that may lead to poor physical and mental health. In contrast, people who perform multiple roles can generate resources to help them solve problems, and, in turn, enjoy better well-being. We thus focussed on emotional exhaustion, which is the central component of burnout (Maslach and Jackson, 1981), to represent health-related consequences of WFI.

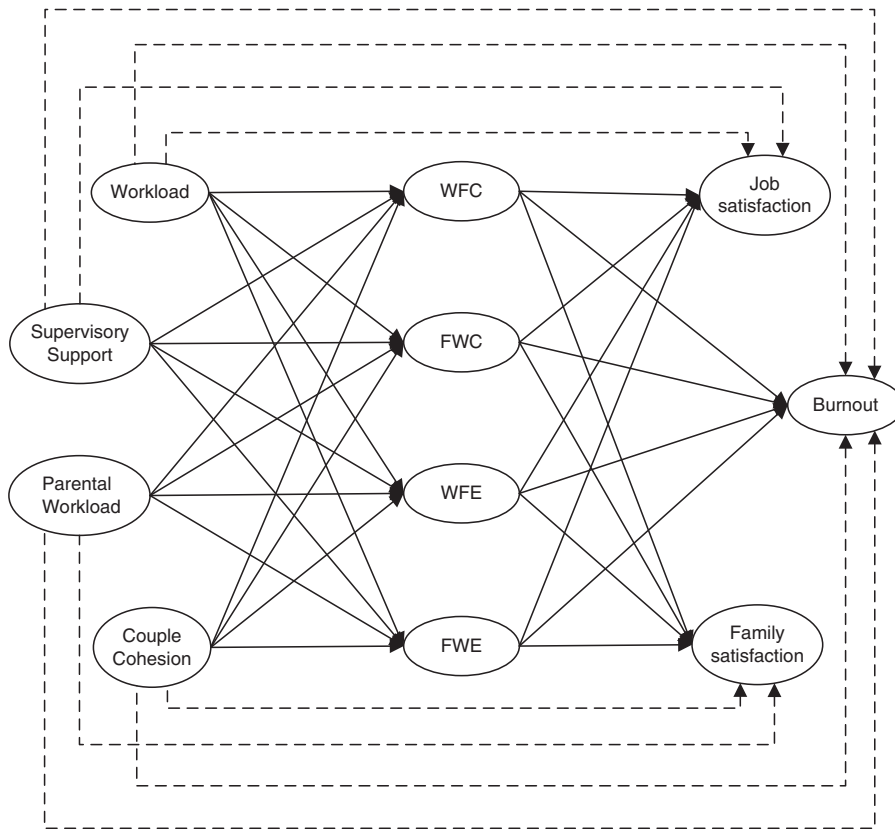
Some studies have found that burnout is related to both work-family conflict and enrichment (Allen *et al.*, 2000; Peeters *et al.*, 2009), while other studies have shown that job or family satisfaction is significantly related to both work-family conflict and enrichment (McNall *et al.*, 2010). Based on the resources theories and prior empirical findings, we thus hypothesized that:

H5. WFC and FWC are negatively related to role satisfaction (job satisfaction, family satisfaction), and positively related to burnout.

H6. WFE and FWE are positively related to role satisfaction (job satisfaction, family satisfaction), and negatively related to burnout.

The present study

The proposed research framework is presented in Figure 1. Although WFI as a mediator between antecedents and consequences has been implied in the resources theories (e.g. the COR and W-HR model), a comprehensive model including work and family antecedents and consequences along with all four aspects of the WFI has never been empirically tested. While other researchers have previously used COR theory in work and family studies, they primarily examined only the negative aspects of WFI (e.g. Jansen *et al.*, 2003; Seiger and Wiese, 2009; Shaffer *et al.*, 2001). We thus set out to empirically compare a full mediation model constructed with all of our hypotheses (presented in solid arrows in Figure 1), with a partial mediation model adding direct links between workload/supervisory support and job satisfaction/burnout, parental workload/couple cohesion and family satisfaction/burnout (shown as dotted arrows in Figure 1). The hypothesized loops with the bi-directional work and family conflict as mediators are consistent with Frone *et al.*'s (1992, 1997) models. However, our research model extends the above conflict models by including the bi-directional work and family enrichment as a key mediating variable to account for positive cross-role relations between the domains of work and family. To sum up, our purpose in the present study was to extend resources theories to investigate the mediating roles of all four aspects of the WFI on the paths from antecedents (work-family demands and resources) to consequences (job and family satisfactions and burnout) in a Chinese sample of employees. To consolidate the demands of overload from both work and family roles, we focussed on the dual-earner family, where each partner is a member of the general workforce and both partners share a common residence (Parasuraman *et al.*, 1992).



Notes: Solid arrows represent the full mediation model. The combination of solid and dotted arrows represent the partial mediation model. Dotted arrows represent the direct model

Figure 1.
The hypothesized
research model

Method

Procedure and participants

Participants in our study were full-time working parents with at least one child living with them. These employees worked in different organizations of diverse industries across Taiwan. A variety of recruitment methods were used: some participants who enrolled in executive education programs were recruited in class; some were recruited through personal contacts, and some were invited to participate through personnel managers in various organizations. Participation was voluntary and anonymity assured. A total of 602 questionnaires were sent out and 499 returned, yielding a response rate of 83 percent. The sample was 50.5 percent male and 49.5 percent female, with a mean age of 41.33 (SD = 7.02, range = 22-62), and a mean job tenure of 10.39 years (SD = 7.98). Average years of formal education was 16.10 (SD = 2.30). More people worked in the service industry (28.0 percent), manufacturing (27.0 percent), and education (18.9 percent) than other industries, and 42.8 percent worked as managers at various levels. A wide range of occupations were represented in our sample, including accountants, engineers, university faculties, doctors, nurses, teachers, clerks, administrators, managers, etc.

Measures

The survey was administered in Chinese, and except for the Parental Stress Scale, Chinese versions of all the scales have been used in previous studies, which have shown them to have good psychometric properties. The references for these studies will be given along with reference for the original English version when each scale is introduced below. In this paper, all scales used Likert-type rating scales, and higher scores represented higher levels of the designated constructs.

Work and family demands. Quantitative workload was used to indicate work demands. Five statements from the Quantitative Workload Inventory (QWI, Spector and Jex, 1998) were listed describing quantitative aspects of work demands (e.g. "How often is there a great deal to be done?"). Respondents answered each statement by indicating the frequency of occurrence, from 1 (never happened) to 5 (always happening). Lu *et al.*'s (2010a) study used the Chinese version of the QWI, which demonstrated good psychometric properties. The internal consistency of the QWI was 0.83 in the present study.

The Parental Stress Scale (PSS, Frone *et al.*, 1992) was composed of four items to assess parental workload and the extent of their children's misbehavior (e.g. "How often do you feel that you have too little time to spend by yourself because of your child(ren)?"). Each item used a five-point frequency-based response scale (1 = not at all, 5 = a great deal). The internal consistency of the PSS was 0.78 in the present study.

Work and family resources. Supervisory support and couple cohesion were used to indicate work and family resources, respectively. Supervisory support was assessed by a three-item scale developed by Clark (2001), tapping perceived understanding and psycho-emotional support provided by direct supervisors regarding workers' family-role obligations (e.g. "My supervisor listens when I talk about my family"). Respondents rated the three statements on a five-point Likert scale (1 = absolutely incorrect, 5 = absolutely correct). The Chinese version of supervisory support scales was used in Chang and Lu's (2011) study with good psychometric properties. The internal consistency of this scale was 0.87 in the present sample.

Couple cohesion was assessed by a ten-item subscale drawn from the Family Adaptability and Cohesion Evaluation Scales III (FACES III, Olson *et al.*, 1985) describing the extent of the couple's emotional bonding (e.g. "We feel very close to each other"). FACES III was originally designed for assessing families, but it also could be used to assess couples; therefore, we replaced "Family members" with "We" in all ten items using a five-point Likert scale ranging from 1 (absolutely disagree) to 5 (absolutely agree). The Chinese version of the couple cohesion subscale was used in Soong's (1988) study with good psychometric properties. The internal consistency of the couple cohesion scale was 0.93 in the present sample.

WFC and FWC. The Work-Family Conflict Scale (WFCS, Netemeyer *et al.*, 1996) was used to assess WFC and FWC separately. Sample items are: "The amount of time my job takes up makes it difficult to fulfill family responsibilities" (WFC), and "I have to put off doing things at work because of demands on my time at home" (FWC). Respondents rated the items on a five-point Likert scale (1 = absolutely incorrect, 5 = absolutely correct). The Chinese version of WFCS was recently used in Chang *et al.*'s (2012) study with acceptable validity. The internal consistency of the WFC scale was 0.91 and that of the FWC scale was 0.85 in the present study.

WFE and FEW. The Work-Family Enrichment Scale (Carlson *et al.*, 2006) was used to assess WFE and FEW, respectively. Sample items are: "My involvement in my work provides me with a sense of accomplishment and this helps me be a better family

member" (WFE), and "My involvement in my family helps me expand my knowledge of new things and this helps me be a better worker" (FWE). Respondents rated the items on a five-point Likert scale (1 = strongly disagree, 5 = strongly agree). The internal consistency of the WFE scale was 0.82 and that of the FWE scale was 0.74 in the present study.

Role satisfaction and burnout. Three items from the Michigan Organizational Assessment Questionnaire (Cammann *et al.*, 1983) were used to assess job satisfaction (e.g. "In general, I like working here"). The Family Satisfaction Scale (Edwards and Rothbard, 1999) was used to assess family satisfaction (e.g. "My family life is very enjoyable"). Six-point rating scales ranging from 1 (disagree very much) to 6 (agree very much) applied to both satisfaction measures. Chinese versions of these two scales were used for the Chinese sample included in Spector *et al.*'s (2007) international study. The internal consistency of the job satisfaction scale was 0.89 and that of the family satisfaction scale was 0.96 in the present study.

A nine-item emotional exhaustion scale from the Maslach Burnout Inventory (MBI, Maslach *et al.*, 1996) was used to indicate burnout (e.g. "I feel used up at the end of the workday"). Respondents rated their feelings in regard to each item for the recent week, ranging from 0 (never experienced such a feeling) to 6 (experienced such feelings every day). The Chinese version of MBI was used in Lu *et al.*'s (2005) study. The internal consistency of the emotional exhaustion scale was 0.94 in the present study.

Demographics. Demographic information on sex (coded male = 0, female = 1), age, education attainment, tenure on the job, and rank (coded managers = 1, employees = 0) were recorded. These were intended as control variables.

Data analysis

According to the hypothesized research model (Figure 1), workload, parental workload, supervisory support, and couple cohesion are treated as antecedents, WFC, FWC, WFE, FWE are mediators, and work satisfaction, burnout, and family satisfaction are consequences. Correlation analyses were employed as an initial test of the hypotheses. Structural equation modeling (SEM) techniques using the AMOS program tested the research model. As suggested by Anderson and Gerbing (1988), a two-step approach to SEM analysis was employed in the current study. Measurement models were first tested to examine the distinctiveness of the measures, then the nested structural model test was employed to test the research hypotheses.

Results

Proceeding to the model testing, the means, standard deviations, and bi-variable correlations were computed first, with results shown in Table I. Consistent with past research, WFC and FWC were moderately correlated, as were WFE and FWE. Conflict (WFC and FWC) and enrichment (WFE and FWE) were weakly correlated. It is worth noting that none of the demographic variables (i.e. sex, age, education, tenure, rank) was systematically related to the model variables (not shown in the tables). Thus, to facilitate model estimation, the demographics were excluded from all further analyses.

Hypothesis testing

To ensure whether all variables in the model were distinct constructs, we compared separate measurement models. We compared a hypothesized 11-factor model (M1, workload, supervisory support, parental workload, couple cohesion, WFC, FWC, WFE, FWE, job satisfaction, burnout, and family satisfaction are 11 distinct factors) with

Table I.
Means, standard deviations (SD), and correlations for the research variables with Cronbach' α on the diagonal

	M	SD	1	2	3	4	5	6	7	8	9	10	11
1. Workload	3.43	0.67	0.83										
2. Supervisory support	3.19	0.95	0.01	0.87									
3. Parental workload	2.59	0.72	0.26***	0.02	0.78								
4. Couple cohesion	3.76	0.79	0.04	0.16***	-0.09	0.93							
5. WFC	2.60	0.80	0.44***	-0.20***	0.11*	-0.12**	0.91						
6. FWC	2.20	0.62	0.24***	-0.09	0.30***	-0.10*	0.41***	0.85					
7. WFE	3.93	0.86	-0.11*	0.23***	-0.07	0.18***	-0.23***	-0.06	0.82				
8. FWE	4.02	0.75	0.03	0.26***	-0.09	0.40***	-0.19***	-0.11*	0.57***	0.74			
9. Job satisfaction	4.47	1.01	-0.05	0.31***	-0.11*	0.14**	-0.36***	-0.26***	0.50***	0.36***	0.89		
10. Family satisfaction	4.89	0.95	-0.02	0.21***	-0.26***	0.65***	-0.21***	-0.20***	0.28***	0.49***	0.37***	0.94	
11. Burnout	2.09	1.28	0.43***	-0.18***	0.26***	-0.09*	0.53***	0.29***	-0.30***	-0.20***	-0.46***	-0.23***	0.96

Notes: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

four alternative models (M2, M3, M4, M5, see the note for Table II for detailed description). The results presented in Table II suggest that M1 fits the data better than the alternative models.

Following Anderson and Gerbing's (1988) procedure for analyzing structural models, three sets of competing models were fitted to the data to test our research hypotheses (see Figure 1 for model specification). First of all, a base model (direct model) was specified, shown as dotted arrows in Figure 1. This model estimates therefore the coefficients between antecedents and consequences (direct effects), without decomposing the variance into mediating paths through conflict and enrichment. Second, this direct model was compared with two more complex models that were nearest in likelihood to the hypothesized structural model.

The partial mediation model is identical to the direct model but also includes mediational paths, shown as the combination of solid and dotted arrows in Figure 1. This model estimates therefore the coefficients between antecedents and consequences, while decomposing the variance into mediating paths through conflict and enrichment (direct and indirect effects).

The full mediation model is identical to the partial mediation model but excludes all paths in the direct model, shown as solid arrows (only) in Figure 1. This model estimates therefore the coefficients between antecedents and consequences decomposing the entire variance into mediating paths through conflict and enrichment (indirect effects).

Table III displays the overall fit indices of the competing models. When using SEM, a major component of the analysis involves evaluating how the hypothesized model fits the observed data. Considerable debate exists regarding which fit indices are appropriate and there is still no golden-standard. Nonetheless, researchers have warned that some commonly used fit indices, such as GFI and NFI were substantially affected by factors extrinsic to actual model misspecification (e.g. sample size and number of indicators per factor) and did not generalize well across samples (Anderson and Gerbing, 1984; Hu and Bentler, 1998; Marsh *et al.*, 1988). Some SEM experts have

Model	χ^2	df	χ^2/df	<i>p</i>	GFI	CFI	NFI	RMSEA
11-factor model (M1)	3,028.27	1,281	2.36	<0.000	0.80	0.95	0.89	0.05
9-factor model (M2)	4,012.17	1,296	3.10	<0.000	0.73	0.85	0.80	0.07
8-factor model (M3)	5,231.22	1,306	4.01	<0.000	0.66	0.79	0.74	0.08
7-factor model (M4)	8,486.77	1,311	6.47	<0.000	0.56	0.61	0.57	0.11
1-factor model (M5)	14,146.27	1,325	10.68	<0.000	0.32	0.30	0.29	0.14

Notes: *n* = 499. df, degree of freedom; GFI, goodness of fit index; CFI, comparative fit index; NFI, normed fit index; RMSEA, root mean square error of approximation. The 11-factor model (M1) assumes that workload, supervisory support, family conflict, family support, WFC, FWC, WFE, FEW, job satisfaction, burnout, and family satisfaction are 11 distinct factors. 9-factor model (M2) is the same as M1 except that all items for WFC and FWC loaded on the same factor and all items for WFE and FWE loaded on the same factor. 8-factor model (M3) is the same as M1 except that all items for WFC, FWC, WFE, and FWE loaded on the same factor. 7-factor model (M4) is the same as M1 except that all items for workload, supervisory support, family conflict, and family support loaded on the same factor and all items for job satisfaction, burnout, and family satisfaction loaded on the same factor. 1-factor model (M5) assumes that all items for workload, supervisory support, family conflict, family support, WFC, FWC, WFE, FEW, job satisfaction, burnout, and family satisfaction loaded on the same factor

Table II.
Model fit summary
and measure models
comparison

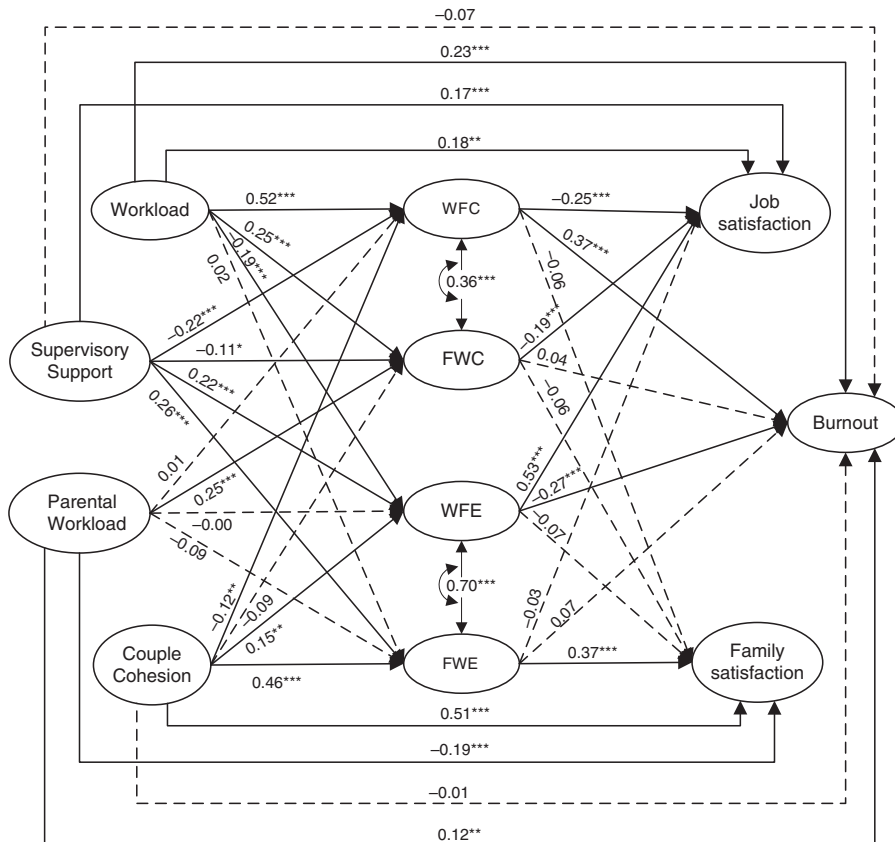
Table III.
Model fit summary
and structural
models comparison

	χ^2	df	χ^2/df	GFI	CFI	NFI	RMSEA	Comparison	$\Delta\chi^2$	Δdf
1. Partial mediation model (Model A)	3,336.78	1,289	2.59	0.79	0.89	0.83	0.06	A vs A1	201.67***	2
2. Partial mediation model-modified (Model A1)	3,135.11	1,287	2.44	0.80	0.90	0.84	0.05	B vs A1	395.93***	10
3. Full mediation model (Model B)	3,531.04	1,297	2.72	0.78	0.88	0.82	0.06	B vs B1	279.69***	2
4. Full mediation model-modified (Model B1)	3,251.42	1,295	2.51	0.79	0.89	0.84	0.06	B1 vs A1	116.31***	8
5. Direct model (Model C)	4,146.79	1,320	3.14	0.74	0.85	0.79	0.07	C vs A1	1,011.68***	33

Notes: $n = 499$. $\Delta\chi^2$, χ^2 difference. *** $p < 0.000$

recommended against the use of the GFI, AGFI, χ^2/df ratio, and NFI, while supporting the use of the CFI and RMSEA (e.g. Hu and Bentler, 1998, 1999; Steiger, 2000). As noted by Martens (2005), the research underlying these recommendations is some of the most comprehensive on the topic. Thus, these recommendations were followed in this study.

As shown in Table III, results of Models A and B are less than desirable (CFI < 0.90, RMSEA > 0.06). We therefore modified both models by allowing the error terms of WFC and FWC, WFE and FWE to correlate (shown in Figure 2). This is because theoretically WFC and FWC may be indicators of a higher-order factor, namely work-family conflict; similarly, WFE and FWE may be indicators of a higher-order factor, namely work-family enrichment (also see Table I). The modified partial mediation model (A1) produced a significantly better fit to the data compared to Model A ($\Delta df = 2$, $\Delta\chi^2 = 201.67$, $p < 0.001$), Model B ($\Delta df = 10$, $\Delta\chi^2 = 395.93$, $p < 0.001$), Model B1 ($\Delta df = 8$, $\Delta\chi^2 = 116.31$, $p < 0.001$), and Model C ($\Delta df = 33$, $\Delta\chi^2 = 1,011.68$, $p < 0.001$). The value of CFI for Model A1 was 0.90 and the value of RMSEA was 0.05, both within the recommended range of an acceptable fit



Notes: $n = 499$. Solid lines represent significant paths, dotted lines represent non-significant paths. The double arrows represent the correlations between residual terms

Figure 2. Summary of standardized path coefficients for the modified partial mediation model (Model A1)

(Hu and Bentler, 1998, 1999; Steiger, 2000). Therefore, we concluded that Model A1 provided the most parsimonious fit to the data.

The paths and parameter estimates for Model A1 are shown in Figure 2. We found that workload significantly predicted WFC and FWC, while parental workload significantly predicted only FWC. Therefore, *H1* was partially supported. Supervisory support significantly predicted WFC and FWC, while couple cohesion significantly predicted only WFC. Therefore, *H2* was partially supported. Workload had a negative impact on WFE, and parental workload had no impact on either WFE or FWE. Hence, *H3* was partially supported. Supervisory support and couple cohesion had positive impacts on both WFE and FWE. Thus, *H4* was partially supported. In sum, demands were mostly related to conflict, while resources were mostly related to both conflict and enrichment.

Regarding the relations between work-family conflict and consequences, we found that WFC and FWC led to job dissatisfaction. Thus *H5* was partially supported. WFE led to job satisfaction and burnout, while FWE led to family satisfaction. Thus *H6* was partially supported. In addition, the direct paths between workload and job satisfaction, workload and burnout, supervisory support and job satisfaction, parental workload and family satisfaction, parental workload and burnout, couple cohesion and family satisfaction were also significant.

Discussion

The main purpose of the present study was to explore the mediating roles of all four aspects of the WFI (i.e. WFC, FWC, WFE, FWE) simultaneously between the antecedents and consequences in a Chinese sample of employees. Our major findings are: most antecedents had cross- and within-domain effects on all aspects of the WFI; WFC, WFE and FWE had within-domain effects on role satisfaction, while FWC had a cross-domain effect on role satisfaction; burnout was affected mainly by work-domain mediators, which were WFC and WFE.

More importantly, our proposed partial mediation model was supported, showing that antecedent variables having both indirect (through the WFI variables) as well as direct relationships with the outcome variables. Proceeding to interpreting the mediation mechanisms, we need to follow the guidelines to establish mediation effects. According to Baron and Kenny (1986) and others (MacKinnon *et al.*, 2012; Williams *et al.*, 2009), for mediation to occur the independent variable must be significantly related to the mediator as well as to the dependent variable and the mediator must be significantly related to the dependent variable. In Figure 2, we can see that each of the four WFI mediator variables had differential roles in the paths linking antecedents and outcome variables. Specifically, in the following cases, mediation does take place: WFC mediated the paths between workload/supervisory support/couple cohesion and job satisfaction/burnout; FWC mediated the paths between workload/parental workload/supervisory support and job satisfaction; WFE mediated the paths between workload/supervisory support/couple cohesion and job satisfaction/burnout; FWE mediated the paths between supervisory support/couple cohesion and family satisfaction. As antecedent variables are not all significantly related to each of the four WFI mediator variables and the four WFI variables are not all significantly related to outcome variables, the exact mechanisms underlying these differential mediation effects should be further explored in the future. In addition, our findings also shed light on two ongoing debates in the field, discussed below.

The antecedents-WFI relations: congruence or incongruence effects?

The ongoing debate of antecedents-WFI congruence vs incongruence effects pertains to an important theoretical issue in the work and family research. Voydanoff (2008) proposed a conceptual model of the WFI encompassing two hypothesized mechanisms: within-domain demands are relatively salient for work-family conflict because they would restrict individuals' ability to meet obligations in another domain; and within-domain resources are relatively salient for work-family enrichment because they would enhance one's ability to participate in other domains. Testing these hypotheses will need an integrative model including paths linking both within- and cross-domain antecedents to positive and negative aspects of the WFI (i.e. enrichment and conflict). Our present study is the first to empirically model such paths and compare them in an integrative model. We found that work resources (supervisory support) are beneficial for all four aspects of the WFI, but work demand (workload) is the strongest predictor of both WFC and FWC. In contrast, WFE and FWE are influenced mainly by work and family resources, respectively. Taken together, it seems that the demand-conflict congruence effects outshined the resource-conflict incongruence effects, and also, the resource-enrichment congruence effects outweighed the conflict-enrichment incongruence effects. Our findings are thus mostly in line with Voydanoff's (2008) proposition.

In a rare study, Hill (2005) also investigated the relationships between antecedents (namely work, family, and individual stressors and resources) and four aspects of the WFI simultaneously. However, in that study, family stressors and resources were represented by objective indicators (e.g. child care hours and stay-at-home spouse) and the positive WFI construct was "facilitation" rather than "enrichment". It is thus difficult to compare our findings with those of Hill's due to the different operationalization of key constructs. Due to the paucity of studies including both positive and negative constructs of WFI in the same model, existing meta-analyses (Byron, 2005; Michel *et al.*, 2011) focus on only WFC/FWC and did not include WFE/FWE, providing only a partial picture of the antecedents-WFI relationships. Thus, we need more empirical evidence, especially when the four aspects of the WFI are examined integrally, to determine whether demands are more salient than resources for work-family conflict and whether resources are more salient than demands for work-family enrichment.

Much WF research has used objective characteristics to represent demands or resources, and industrial and organizational psychology/organizational behavior research has overemphasized the work domain, which resulted in a relative lack of research on family domain variables (Eby *et al.*, 2005). Objective characteristics associated with one's role (e.g. age of children, number of children), however, are not likely to capture the complexity of one's real feelings or perceptions. Time spent with family members, for example, has been used to represent family demand; nevertheless, time spent in family could result from a higher family role salience (Bagger *et al.*, 2011). A recent qualitative study found that the meanings Taiwanese employees construed for work and family shaped the strategies they adopted to manage demands of work and family roles (Lu *et al.*, 2012). These studies have highlighted the importance of using subjective measurements in the WF research. Therefore, rather than using an umbrella term, in the present study we examined a specific work demand (i.e. work role overload) and a family demand (i.e. parental role overload), and also specific work and family resources (i.e. supervisory support and couple cohesion, respectively). Thus, we could further disentangle the influences coming from different sources of demands or resources.

The WFI-consequences relations: domain-specificity or source attribution?

Frone *et al.* (1997) advocated a domain-specificity perspective, which stated that when family undermines one's ability to meet one's work obligations (i.e. FWC), satisfaction about the receiving role (i.e. job satisfaction) would decrease. This direction of influence seems intuitively plausible, however, empirical evidence has been inconsistent (e.g. Allen *et al.*, 2000). More recently Shockley and Singla (2011) proposed a source attribution theory, which stated that when the work role benefits (hinders) the family role (or vice versa), satisfaction should be higher (lower) with the initiating (or contributing) role rather than the recipient role. In addition to their own literature review (Shockley and Singla, 2011), other meta-analyses (Amstad *et al.*, 2011; McNall *et al.*, 2010) have found support for their theory. In the present study, we found support for both theoretical propositions. Specifically, the significant relationship between FWC and job satisfaction, corroborate the domain-specificity perspective on the one hand. On the other hand, the significant relationships between WFC and job satisfaction, WFE and job satisfaction, FWE and family satisfaction support the source attribution theory. Taking all these findings into consideration, the source attribution theory seems more able (3 vs 1) to account for the relationships between WFI and consequences. It is a thrust of the present study that by involving all four aspects of the WFI and both kinds of role satisfaction, we can test competing theoretical views and extend the research on this debate in a non-Western sample.

Last but not the least, the COR theory (Hobfoll, 1989, 2002) can account for our findings pertaining to burnout as a consequence of WFI. According to the COR theory, stress occurs when individuals risk losing or actually lose resources. Managing the conflict between work and family depletes one's resources and further produces strain on the individual. However, COR theory also claims that individuals with resources are less likely to encounter stressful circumstances that have negative impacts on mental health. Such are the resource loss cycles and the resource gain cycles explained earlier (Hobfoll, 2002). Work and family enrichment can generate resources and in turn help individuals solve problems and lessen the likelihood that they will suffer from strain. Our findings support these notions, but it seems that only WFC and WFE, which both come from the work domain, are important predictors of burnout. Previous research has noted that if the work role is more salient, individuals would expend more time and effort at work; however, when individuals fail to satisfy the requests of work roles, this would result in more strain (Geurts and Demerouti, 2003). Research has found that work is more important than family for Americans (Barnett and Hyde, 2001), but, for Chinese people, family is more important than work (Grahame, 2003; Lu and Lin, 1998). Taiwanese parents often view work as a means of maintaining and improving their families' living standards, or as a way of fulfilling their duties and commitments to glorify the family name (Lu *et al.*, 2012). Therefore, it is understandable that the negative or positive infiltration from work role to family role bring more impact on Chinese employees' feelings of burnout, than the other way around. Our finding serves to underline the cultural influences on the relative importance of work and family for individuals, which in turn shapes the consequences of the WFI.

Limitations

Before we draw implications from our findings to provide practical suggestions, a few limitations need to be acknowledged. First, we used self-reports to collect data, which may increase the possibility of contamination of the reported relationships through common method variance (CMV, Podsakoff *et al.*, 2003). However, the results of

confirmatory factor analyses (Table II) showed that all variables could be empirically distinguished and thus reducing the likelihood of CMV. Moreover, the individual should be the most important and viable source for providing information regarding his/her unique job and family experiences (Cooper *et al.*, 2001). In fact, some researchers have provided evidence showing that alternatives to self-reports have not proved to be superior in many cases (Frese and Zapf, 1999), and objective job demands are related to self-reports of these demands (Semmer *et al.*, 1996).

The second limitation of the present study is that we only surveyed Chinese workers in Taiwan, and thus caution needs to be exercised in generalizing our conclusions to other Chinese societies, such as the mainland China, which has its own political, economic, and social characteristics (Lu *et al.*, 2003). Nevertheless, a recent comparative study found that the experiences of WFC and FWC are not different between Taiwanese and mainland Chinese employees (Kao *et al.*, 2008). Finally, the inclusion of additional sources of data, such as coworkers, supervisors, and family members, could enrich our understanding even further.

Practical implications

Our findings have potential implications for practices. First, supervisory support was related to all aspects of the WFI. Thus, managers need to provide their subordinates with more psycho-emotional support to reduce the impact of conflict on satisfaction and create a flow of enrichment and well-being. For employees striving to balance work and family roles, making use of organizational resources especially winning support from direct supervisors may be crucial. At the same time, gaining resources from family members may be equally important. Couple cohesion, which is the feeling of togetherness within a couple, can help transfer gains in one realm to another, which in turn fosters more positive experiences of both work and family life. Especially for dual-career parents, consolidating conjugal bond and nurturing the sense of couple commitment may provide a valuable pool of psychological and social resources for fulfillment in both career advancement and familial satisfaction. Family resources have been largely overlooked in extant work and family research and practice, and thus this presents an opportunity for future research and intervention.

Third, demands are mainly related to conflict, and in turn result in dissatisfaction and burnout. Organizations may consider developing family friendly practices such as flextime to help employees better manage the workload. Organizations can also provide counseling to help employees better resolve family problems. Such actions would alleviate work and family interferences in both directions.

In sum, the interactions of employees' WFI have a huge impact on organizations. Managers should help employees to break the destructive flow of conflict → dissatisfaction or burnout (loss spiral) and initiate the constructive flow of enrichment → satisfaction or (free of) burnout (gain spiral), by considering not only demands but also resources from both the work and family domains.

Conclusion

Our main aim in the present study was to investigate the mediating roles of all four aspects of the WFI (i.e. WFC, FWC, WFE, FWE) in the relationships between work and family demands, as well as resources, burnout, and role satisfaction, integrally. To the best of our knowledge, very few studies have assessed the antecedents, outcomes, and the mediating role of WFI in a non-Western sample. Furthermore, instead of using a convenient but restricted sample from one or two organizations, we recruited a large

sample of working parents from different organizational and industry backgrounds, thus enhancing the generalizability of our findings. One unique contribution of our study is that we extended Western-based theories to Chinese employees, confirming that all four aspects of the WFI are important mediators linking up certain antecedents with certain consequences from both the work and family domains.

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Further reading

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