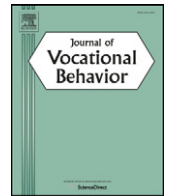




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## Family mastery enhances work engagement in Chinese nurses: A cross-lagged analysis

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### ABSTRACT

Based on Greenhaus and Powell's (2006) theory of work–family enrichment and the job demands–resources (JD–R) model of work engagement (Bakker & Demerouti, 2008), this study focused on the family-to-work enrichment process by investigating the effect of family mastery on work engagement in a Chinese context. A sample of 279 Chinese female nurses completed questionnaires in a two-wave longitudinal survey. With a cross-lagged analysis, the results indicated that family mastery at Time 1 had a significant positive effect on work engagement at Time 2. Furthermore, the relationship between family mastery and work engagement was stronger in a context of high (vs. low) job demand. These findings suggested that resource generated in family could directly help people stay engaged in the workplace, particularly under stressful working conditions. Our findings have expanded the JD–R model of work engagement and bridged it with theory of work–family enrichment. Implications for theory and practices are discussed.

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### Introduction

There have been varieties of theories providing explanations on how to motivate people to engage in their work (e.g., Latham & Pinder, 2005; Maslach & Leiter, 2008; Schaufeli & Bakker, 2004). In the job demands–resources (JD–R) model of work engagement (Bakker & Demerouti, 2008), it is assumed that job resources have motivational potential and are positive predictors of work engagement. Recent trend in work–family balance literature has suggested that resources generated in family domain could also promote role involvement and performance in work domain (outcome of work engagement), such process is conceptualized as family-to-work enrichment (Greenhaus & Powell, 2006). Furthermore, according to the JD–R model (Bakker & Demerouti, 2007, 2008), resources gain their salience when individuals are facing high job demands. Family mastery is certainly a highly valued personal resource that is generated from family domain (e.g. Hobfoll, 1989). We thus intended to explore family-to-work enrichment process by examining the impact of family mastery on work engagement when individuals have to deal with high job demands. The results of the study would contribute to Western organizational theories by bridging research in work–family balance and the JD–R model.

In collectivistic cultures, family has been envisaged as a major, if not central, source of ego strength for individuals; in general, family life and work life are likely to be perceived connective rather than distinctive (e.g., Daly, Jennings, Beckett, & Leashore, 1995; Trompenaars & Hampden-Turner, 1998). Furthermore, the family could also serve as important social support systems to buffer the negative impacts of job stress for Chinese people (e.g., Bu & McKeen, 2000; Spector, Allen, Poelmans et al., 2007; Yang, 2005). The main purpose of the present study was to elucidate an empirical investigation of the relationship between family

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mastery (an antecedent of family-to-work enrichment) and work engagement by a longitudinal study in a Chinese context. We also investigated in what way family-to-work enrichment operated under the context of job demands.

While most work–family enrichment/balance research are conducted with Western working populations, there is a paucity of similar study conducted in Chinese work context. A recent study by Lu, Siu, Spector, and Shi (2009) found that experiences in family (new parental experiences, spouse support) had significant positive effects on the facilitation component of work–family balance. Yet Lu's et al. study was limited by its cross-sectional data and small sample size. Work–family research has long been criticized for an overreliance on cross-sectional data (Barnett, 1998; Casper, Eby, Bordeaux, Lockwood, & Burnett, 2007; Greenhaus & Parasuraman, 1999; Zedeck, 1992). Thus our study also contributed to this literature by adopting a longitudinal design. Specifically, we conducted a cross-lagged panel analysis to further probe the causal relation between family mastery and work engagement in China, which would offer a significant contribution to the validation and generalization of Western theories.

Our focus in this study was on Chinese female nurses. Nurses in China constitute a high stress group in health care sectors because of serious shortage of nurses for serving a population of 1.3 billion and they have to face the challenge of current health care reforms (Siu et al., 2009; Wu, Chi, Chen, Wang, & Jin, 2010; Zeng, 2009). This is especially true after the outbreak of severe acute respiratory syndrome (SARS) in 2003 and the recent fear of spread of pandemic. We believe engaged nurses have vigor, absorption and dedication to their work activities and be able to deal with demands at work more effectively (Bakker & Demerouti, 2008). Understanding nurse engagement is therefore an important prioritized research agenda (Simpson, 2008). More importantly, female nurses are more prone to work–family interface issues (Byron, 2005). Rothbard (2001) study also supported that enrichment from family to work only applicable for females rather than males. Hence, Chinese female nurses offer one of the most important contexts for family-to-work enrichment research in the world today.

In sum, the objectives of the study were two folds. First, we extended the existing literature through exploring the family-to-work enrichment process by examining the impact of family mastery on work engagement using a longitudinal design, which has received little attention in the past studies. Second, by combining Greenhaus and Powell (2006) theory of work–family enrichment and the JD-R model of work engagement (Bakker & Demerouti, 2008), we investigated in what way family-to-work enrichment operated under the context of job demands.

## Theory and hypotheses

### *Work-to-family enrichment and family-to-work enrichment*

Work and family are the central and salient domains in one's life. Juggling work and family life has become a challenge for many employees and families (Hammer, Neal, Newsom, Brockwood, & Colton, 2005). Over decades, research on work–family interface has been dominated by a conflict perspective (see review by Eby, Casper, Lockwood, Bordeaux, & Brinley, 2005). Work–family conflict can result in adverse health and performance outcomes for individuals, families and organizations (Allen, Herst, Bruck, & Sutton, 2000; Bruck, Allen, & Spector, 2002). With the emerging trend in psychology emphasizing the positive subjective experiences and individual traits which promise the quality of life (e.g. Seligman, Rashid, & Parks, 2006), there is a growing consensus for an expansion of the work–family paradigm to include the positive outcomes of the work–family interface. For instance, the positive spillover theory postulates that attitude, behaviors, and emotions associated with one role may spill over to another positively (Edwards & Rothbard, 2000). Positive experiences (e.g. affect, development, capital) in one domain (e.g. family) are transferred to another domain (Carlson, Kacmar, Wayne, & Grzywacz, 2006). The positive aspect of work–family interface has been exemplified in terms such as facilitation (Frone, 2003), enhancement (Greenhaus & Parasuraman, 1999), and enrichment (Rothbard, 2001). A close scrutiny of these terms reveals considerable content overlap although subtle differences remain (Grzywacz, 2002). In an effort to synchronize these researches, Greenhaus and Powell (2006) suggested that work–family enrichment could best capture the process that had often been discussed and examined. They defined work–family enrichment as “the extent to which experiences in one role improve the quality of life in the other role” (p.73). Specifically, Greenhaus and Powell (2006) proposed that skills and perspectives, psychological and physical resources, social-capital resources, flexibility and material resources generated in family/work role could directly promote high performance in work/family role. Work-to-family enrichment occurs when work experiences improve the quality of family life, and family-to-work enrichment occurs when family experiences improve the quality of work life. Furthermore, in their model of work–family enrichment, two mechanisms or paths were proposed to explain how a resource generated in one role can promote high performance and positive affect in another role. One is instrumental path, which refers to a resource generated in one role can be transferred directly to enhance another role performance. Another is affective path, which captures the process of positive affect between two roles, resulting in role performance enhancement and positive affect experiences consequently. Nevertheless, studies on family-to-work enrichment process are far less than work-to-family enrichment process in the research literature.

### *Family mastery and work engagement*

Kofodimos (1993) suggested that integrating mastery and intimacy is one of the ways to achieve work–life integration. Mastery or the sense of mastery refers to “the extent to which one regards one's life chances as being under one's own control in contrast to being fatalistically ruled” (Pearlin & Schooler, 1978, p.5). Mastery has been recognized as an important psychological resource (e.g. Frone, Russell, & Cooper, 1991; Hobfoll, 1989), and could be treated as a multifaceted resource that is specific to a given domain or role (e.g., Lawton, Kleban, Moss, Rovine, & Glicksman, 1989). Hence, the degree to which mastery is attributed to

oneself varies by domain of behavioral competence. Family mastery concerns the extent to which individuals control their families' lives (Pearlin & Schooler, 1978). Extant research has demonstrated that mastery has both direct and moderation effect to protect individuals from stressful experiences. For example, Christensen, Stephens, and Townsend (1998) provided the evidence that mastery in women's family roles (parent care, mother and wife) was strongly related to psychological well-being. Miller, Campbell, Farran, and Kaufman (1995) found that mastery in caregivers of persons with dementia was not only negatively related to role strain and depression but also buffered the effects of stressors on depression.

Work engagement is defined as "a positive, fulfilling work-related state of mind that is characterized by vigor, dedication, and absorption" (Schaufeli, Salanova, Gonzalez-Romá, & Bakker, 2002, p.74). Vigor refers to high levels of energy while working. Dedication refers to being strongly involved in one's work, and experiencing a sense of significance, enthusiasm, inspiration, pride and challenge. Finally, absorption indicates that one is fully concentrated and happily engrossed in one's work, whereby time passes quickly. Employees with high work engagement feel a strong identity with their work, and they perceive their work as meaningful, inspirational and challenging, thus they tend to apply knowledge, and utilize skills and resources to a greater extent at work (Bakker & Demerouti, 2008; Bakker, Schaufeli, Leiter, & Taris, 2008). It has been argued that engaged workers perform better (Demerouti & Cropanzano, 2010), experience positive emotions (Wright & Cropanzano, 2000) and report better health (Schaufeli & Bakker, 2004), and hence create more job and personal resources (Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2009), which would fuel future work engagement.

Previous studies have consistently demonstrated that job resources such as social support from colleagues and supervisors, performance feedback, skill variety, autonomy, and learning opportunities are the antecedents of work engagement, and act as motivational roles (Bakker & Demerouti, 2008; Mauno, Kinnunen, & Ruokolainen, 2007). In addition to job resources, personal resources such as self-efficacy, optimism, are also found to be positive predictors of work engagement, and mediated the relationship between job resources and work engagement (Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2007).

Individuals' nonwork lives could help them generate both physical and emotional energy, and gain more life meaning, which was also the main source of personal resources (Khan, 1990). In previous studies, Rothbard (2001) found that the positive affect experienced in family life was associated with work engagement for women, which to some extent indicated that work engagement could be enhanced by family experiences. Sonnentag (2003) also found that nonwork recovery experiences had positive effects on work engagement. Hence, Jones, Burke, and Westman (2006) advocated more research into what the individual can do to actively involve family life so as to facilitate recovery from work. However, the limitation of Rothbard (2001) study was its adoption of a cross-sectional design, which made the causal direction in family experiences and work engagement remained in speculation. We addressed this gap in work-family enrichment literature by examining the effect of family mastery on work engagement using longitudinal design with cross-lagged panel analysis.

According to the conservation of resources (COR) model (Hobfoll, 1989), "...people strive to retain, protect, and build resources and what is threatening to them is the potential or actual loss of these valued resources" (p. 516). Hobfoll (1989) suggested that in order to develop and gain more resources, people would employ resources that they possess or call on resources which are available to them from their environment. A sense of mastery of family life would make people experience more positive affect such as positive mood, satisfaction with family roles, and psychological well-being (Christensen et al., 1998). All these positive psychological experiences (also kind of resources) could be employed by the individuals to help them stay highly engaged in their work, and thus develop more job and personal resources for them (Xanthopoulou et al., 2009). In addition, individuals with high family mastery would have more and better recovery experiences at home. Thus, they are more energetic in the workplace than those who do not master situations at home. Therefore we anticipate,

**Hypothesis 1.** Family mastery at Time 1 will be positively related to work engagement at Time 2.

#### *The moderating role of job demand*

One of the central assumptions in the JD-R model of work engagement is that gaining resources becomes more imperative, and takes up their motivational effects when individuals face high job demands (Bakker & Demerouti, 2008). There has been evidence supporting this assumption. For example, Bakker, Hakanen, Demerouti, and Xanthopoulou (2007) found that job resources (appreciation, organizational climate, innovativeness) had a stronger relationship with work engagement when teachers are exposed to profound pupil misbehavior. Yet, as far as we know, there is little empirical evidence that supports whether family resources can also gain their salience to help people engage in their work when they face high job demands. Greenhaus and Powell (2006) proposed that, resources generated in Role A (e.g., family) were more likely to directly promote high quality life in Role B (e.g., work) when the resources were perceived to be relevant to Role B than when they were not relevant. Based on this proposition, we can infer that when people face a high job demand (a stressful work condition), they are more likely to seek help and support from family members. Thus family resources would be more relevant to them at work, and then can have a stronger impact on improving the quality of their work life. Family mastery is certainly a highly valued personal resource generated in family role (e.g. Hobfoll, 1989), which is beneficial for an individual to perform work role. Accordingly, by combining Greenhaus and Powell (2006) proposition and the JD-R model of work engagement (Bakker & Demerouti, 2008), we can infer that family mastery will have a strong positive effect on work engagement when individuals have to deal with a high job demand. Thus we suggest,

**Hypothesis 2.** Family mastery will have a stronger relationship with work engagement when job demand is high than when job demand is low.

## Method

### Participants and procedures

We adopted a 2-wave longitudinal survey for testing the hypotheses. The surveys were administered twice to a sample of female nurses drawn from a hospital in Guangzhou, with a 6-month time interval. The span of 6 months was to provide ample separation between our measures while not spacing surveys so far apart as to unnecessarily increase participant attrition. Before administering the survey, the researcher explained the purpose of the project and asked for their consent to participate. The anonymity of their answers was assured. Participants were asked to write a self-identifiable coding (mother's surname plus month/year of her own birth), which was needed to match the second wave responses. During the first wave of the survey (Time 1), 1100 nurses were distributed the questionnaires, 990 (90%) returned completed questionnaires. The same procedure was followed for the second wave of the survey (Time 2), all employees ( $N=1016$ ) in Time 1 (T1) were invited again to participate. For the Time 2 survey (T2), 808 (80% response rate) questionnaires were returned. By checking the self-identifiable coding, we got only 279 matched sample who both took part in T1 (28%) and T2 (35%). The low matched rate may be due to the fact that some participants forgot their codes created in T1 or they did not create their codes in T1 or T2. Furthermore, there are not many varieties of surnames in Chinese; hence there were many coincidences of codes in the sample that made it difficult for us to identify the matched ones.

The respondents' age ranged from 18 to 51 years ( $M=29$ ,  $SD=6.8$ ) at T1. Over half (57%;  $n=160$ ) of the respondents were married or cohabitating; 115 (41%) were single or never married; 4 (2%) were divorced or separated. Concerning education level, 2 (1%) of the respondents finished secondary education; 35 (12%) had vocational diploma/certificate; 240 (86%) had a university or college degree; and 2 (1%) received postgraduate qualification.

### Measures

#### Family mastery

The seven-item scale developed by Pearlman and Schooler (1978) was used to measure family mastery. On a 7-point scale ranging from 1 ("strongly disagree") to 7 ("strongly agree"), employees indicated the extent to which they controlled their family life. Sample items are "What happens to me in my family life in the future mostly depends on me" and "There is really no way I can solve some of the problems I have in my family life" (reversed-coded). Cronbach's alphas were .71 and .72 for T1 and T2 respectively.

#### Work engagement

We used the 9-item Utrecht Work Engagement Scale to measure work engagement (UWES; Schaufeli, Bakker, & Salanova, 2006). Each dimension of work engagement was measured by three items. Ratings were completed on a 7-point scale ranging from 0 ("never") to 6 ("always"). A sample item is "I find the work that I do full of meaning and purpose". Cronbach's alphas were .91 and .91 for T1 and T2 respectively.

#### Job demand

The five-item measure of job demand from Boyar, Carr, Mosley, and Carson (2007) was adopted. Sample items are "My job requires all of my attention" and "I am given a lot of work to do." On a 5-point scale ranging from 1 ("strongly disagree") to 5 ("strongly agree"), employees indicated the extent to which each of the five items applied to them in terms of how their work demanded them. Cronbach's alphas were .77 and .79 for T1 and T2, respectively.

All measures were in Chinese. A back-to-back translation procedure (Brislin, 1980) was performed on measures which do not have existing Chinese versions.

### Data analysis

In analyzing the cross-lagged relationships between family mastery and work engagement, we used structural equation modeling (SEM) performed by the LISREL 8.70 program. Prior to the cross-lagged analyses, we examined a series of measurement models to support the discriminant validity between family mastery and work engagement. Specifically, we compared the hypothesized *four-factor* model (family mastery, work engagement, at both T1 and T2 respectively) with a *one-factor* model (in which all indicators were constrained to load on a single factor), two different *two-factor* models, one of which made a distinction between family mastery and work engagement (irrespective of time of measure), and the other reflecting time of measurement (T1 measured loading on one factor and T2 measured loading on the other). In addition, we also specified two different *three-factor* models, one of which combined the T1 and T2 measures of family mastery, and the other combined the T1 and T2 measures of work engagement. Following Cole and Maxwell (2003), in test of the measurement models we allowed the error terms for the corresponding latent variable indicators to be correlated and constrained the factor loadings to be equal across time for testing the measure equivalence. In order to reduce the number of parameters and thereby improve the sample size-to-estimator ratio, parceling procedure was employed for SEM (Marsh, Hau, Balla, & Grayson, 1998).

The predictive relationship between family mastery and work engagement was tested by nested structural equation models. To do this, a series of SEM models were estimated (e.g. Hakanen, Schaufeli, & Ahola, 2008): (1) the stability model ( $M_{\text{stabil}}$ ), which included the autoregressive effects over time of each latent variable but did not include any cross-lagged associations; (2) the



**Table 1**  
Descriptive statistics, correlations, and reliabilities for study variables ( $N=279$ ).

	Mean	SD	1	2	3	4	5	6	7	8
1 Age (in years) T1	29.47	6.79	–							
2 Marital status T1	1.57	.53	.69**	–						
3 Family mastery T1	4.63	.90	-.01	.13**	(.71)					
4 Family mastery T2	4.55	1.02	.08	.15*	.39**	(.72)				
5 Job demand T1	3.65	.60	.22**	.13*	-.10	-.05	(.77)			
6 Job demand T2	3.86	.61	.09	.10	.12	.07	.21**	(.79)		
7 Work engagement T1	2.94	1.09	.05	.11	.21**	.16**	-.06	.10	(.91)	
8 Work engagement T2	2.87	1.12	.05	.09	.20**	.04	-.08	.08	.42**	(.91)

Note. Cronbach's alpha reliabilities are in parentheses on the diagonal. Marital status was coded as 1 for single/never married, 2 for married/cohabitating, and 3 for divorced/separated. T1 = Time 1; T2 = Time 2. \* $p < .05$ , \*\* $p < .01$ .

causality model ( $M_{\text{causal}}$ ), which was identical to  $M_{\text{stabil}}$  but included the causal relationship as hypothesized; (3) the reversed causation model ( $M_{\text{revers}}$ ), which was identical to  $M_{\text{stabil}}$  but included the reversed effect of work engagement at T1 on family mastery at T2; and (4) the reciprocal model ( $M_{\text{recipr}}$ ), which was a combination of  $M_{\text{causal}}$  and  $M_{\text{revers}}$ .

In order to test Hypothesis 2, we conducted MSEM (moderated SEM) analysis and followed the procedure proposed by Jaccard and Wan (1996). The reason that we chose MSEM rather than hierarchical regression analyses to test the moderation effect of job demand was because MSEM not only allows us to assess and correct for measurement error but also provided measures of fit of the models under study (e.g. Bakker et al., 2007).

## Results

### Measurement models

Table 1 presents means, standard deviations, Cronbach's alphas, and correlations among the main variables. Table 2 presents fit indices of the measurement models. The results showed that the four-factor model, in which factor loadings were constrained to be equal and the error terms for the corresponding latent variable indicators were allowed to be correlated over time, provided a substantially better fit to data as compared to the models specifying one, two, or three factors. As shown in Table 2, the goodness-of-fit of the four-factor model was very good ( $\chi^2(48) = 45.86, p > .05, SRMR = .045, CFI = 1.00, NFI = .98, RMSEA = .00$ ). These results indicated that the measures of family mastery and work engagement were distinct from each other. They also supported for measurement model equivalence over time, which meant that the constructs were measured in a consistent way at both time points.

### Cross-lagged models

As can be seen in Table 3, all estimated structural models generated an excellent fit to data. The comparison among the four models showed that both the causal model ( $M_{\text{causal}}$ ;  $\Delta\chi^2 = 5.25, \Delta df = 1, p < .05$ ) and the reciprocal model ( $M_{\text{recipr}}$ ;  $\Delta\chi^2 = 7.2, \Delta df = 2, p < .05$ ) provided a better fit to the data than the stability model without any cross-lagged associations ( $M_{\text{stabil}}$ ), whereas the reversed causation model ( $M_{\text{revers}}$ ;  $\Delta\chi^2 = 1.8, \Delta df = 1, p > .05$ ) did not improve the model fit compared with  $M_{\text{stabil}}$ . Also, the reciprocal model ( $M_{\text{recipr}}$ ) did not have a significantly better fit than  $M_{\text{causal}}$  ( $\Delta\chi^2 = 1.95, \Delta df = 1, p > .05$ ), suggesting that  $M_{\text{causal}}$  was the best fitting model in terms of parsimony. Moreover, the path between work engagement at Time1 and family mastery at Time 2 in  $M_{\text{recipr}}$  and  $M_{\text{revers}}$  was not significant, which indicated that work engagement did not have a reversed cross-lagged effect on family mastery. Family mastery at T1 had a positive cross-lagged effect on work engagement at T2 ( $\beta = .16, p < .05$ ) as expected after the autoregressive effects were controlled (see Fig. 1). Hence, Hypothesis 1 can be supported.

**Table 2**  
Results of the confirmatory factor analysis on the variables studied ( $N=279$ ).

Model	df	$\chi^2$	SRMR	CFI	NFI	RMSEA	Comparison	$\Delta df$	$\Delta\chi^2$
Model 1. four- factor model	48	45.86	.045	1.00	.98	.00	–	–	–
Model 2. one- factor model	54	839.77***	.173	.60	.59	.231	Model 2 vs. Model 1	6	793.33***
Model 3. two-factor model (family mastery; WE)	53	599.19***	.111	.72	.71	.191	Model 3 vs. Model 1	5	553.33***
Model 4. two-factor model (Time1; Time2)	53	436.70***	.165	.81	.79	.170	Model 4 vs. Model 1	5	390.84***
Model 5. three-factor model (family mastery T1 and T2; WE)	51	474.90***	.098	.79	.77	.169	Model 5 vs. Model 1	3	429.04***
Model 6. three-factor model (family mastery ; WE T1 and T2)	51	172.91***	.070	.94	.92	.097	Model 6 vs. Model 1	3	127.05***

Note. SRMR, standardized root mean square residual; CFI, comparative fit index; NFI, normed fit index; RMSEA, root mean square. WE, work engagement. \*\*\* $p < .001$ .

**Table 3**  
Results of cross-lagged structural models for family mastery and work engagement (N = 279).

Model	Model description	df	$\chi^2$	SRMR	CFI	NFI	RMSEA	Comparison	$\Delta df$	$\Delta \chi^2$
Model 1. $M_{stabil}$	Stability model	48	48.55	.048	1.00	.98	.00	Model 1 vs. Model 2	1	5.25*
Model 2. $M_{causal}$	Causal model ( $M_{stabil}$ + family mastery → work engagement)	47	43.30	.037	1.00	.98	.00	Model 2 vs. Model 4	1	1.95
Model 3. $M_{revers}$	Reversed causation model ( $M_{stabil}$ + work engagement → family mastery)	47	46.75	.044	1.00	.98	.00	Model 1 vs. Model 3	1	1.8
Model 4. $M_{recipr}$	Reciprocal model ( $M_{causal}$ + $M_{revers}$ )	46	41.35	.034	1.00	.98	.00	Model 1 vs. Model 4	2	7.2*

Note. SRMR, standardized root mean square residual; CFI, comparative fit index; NFI, normed fit index; RMSEA, root mean square. \* $p < .05$ .

Even though it was found that the psychological processes seem to hold for several family types (Bakker et al., 2007; Frone, Russell, & Barnes, 1996; Siu et al., 2010), we still attempted to examine the generalizability of our models across different marital status. This would offer further support for the external validity of our findings. To examine whether the findings based on the full sample were invariant across marital status, a series of within- and between-group models were specified. The results of these analyses are shown in Table 4. The within-group fit indices revealed that the model fit well for respondents who were single and those who were married/cohabitating (see Table 4), although the chi-square test for single respondents was significant ( $\chi^2 = 79.5$ ,  $df = 47$ ,  $p < .01$ ). The between-group chi-square difference test ( $\Delta df = 7$ ,  $\Delta \chi^2 = 11.4$ ,  $p > .05$ ) also indicated that there were no significant group differences in the parameter estimates for the hypothesized relationships.

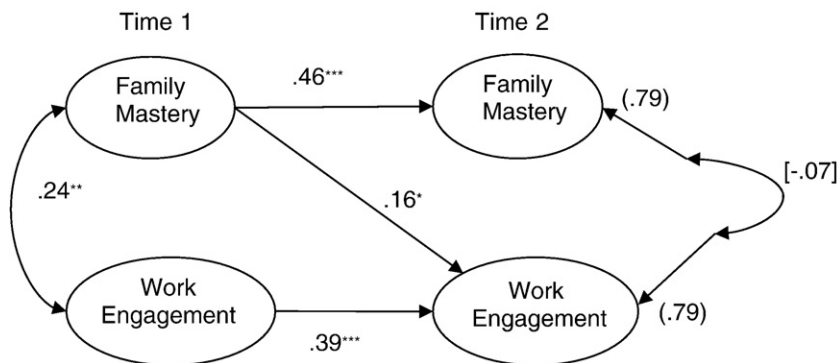
*The moderation effect of job demand*

As can be seen in Table 5, job demand interacted significantly with family mastery at T1 in predicting work engagement at T2 and the model also fits well ( $\chi^2(34) = 43.83$ ,  $p > .05$ , SRMR = .045, CFI = .99, NFI = .96, RMSEA = .30). To interpret this interaction further, a plot of the interaction is presented in Fig. 2. This plot was created by adapting the procedure described in Aiken and West (1991) by using the standardized path coefficients. Fig. 2 shows that family mastery had a stronger effect on work engagement when job demand was high (vs. low). Therefore, Hypothesis 2 can be fully supported.

**Discussion**

The purpose of the present study was to investigate the impact of family mastery on work engagement when individuals have to deal with high job demands. Using a longitudinal design with cross-lagged analysis, our results supported our hypotheses and demonstrated that family mastery at Time 1 had a significant positive impact on work engagement at Time 2. Moreover, we found that family mastery had a stronger relationship with work engagement when job demand was high than when job demand was low.

However, our results indicated that there was no significant reversed effect of work engagement at Time 1 on family mastery at Time 2, which was different from the results obtained by Xanthopoulou et al. (2009). Xanthopoulou et al. (2009) found that resources (job resources and personal resources) and work engagement were mutually reciprocal over time. These different results imply that positive work experiences (work engagement) may be more likely to create personal resources or resources in work domain rather than in family domain. Furthermore, in the current study, analyses examining the generalizability of our model yielded no significant evidence of marital status difference in the overall fit of the model or in the magnitude or direction of the hypothesized relationships. This result corroborates previous studies in work-family conflict and work-family facilitation theories (Frone et al., 1996; Lu et al., 2009), and has provided evidence of external validity.



**Fig. 1.** Cross-lagged relationships between family mastery and work engagement (N = 279) Note. Values represented standardized path coefficients. Curved lines reflect correlation between exogenous factors or disturbances of endogenous factors. Numbers in round brackets and square brackets represent variances of the residual error and correlation between the residual terms respectively. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

**Table 4**Goodness-of-fit information for within- and between-group comparisons ( $N = 279$ ).

Groups	df	$\chi^2$	SRMR	CFI	NFI	RMSEA
<i>Marital status</i>						
Single/never married (within-group, $n = 115$ )	47	79.5**	.076	.96	.90	.057
Married/Cohabiting (within-group, $n = 160$ )	47	34.63	.037	1.00	.97	.00
Unconstrained between-group model	94	114.13	.037	.99	.94	.021
Constrained between-group model	101	125.27	.058	.99	.94	.023
$\Delta\chi^2$ (constrained-unconstrained)	7	11.14				

Note. Of all respondents, 4 were divorced or separated. Unconstrained between-group model means there were *not* any constraints on the parameter estimates between the two marital status groups. Constrained between-group model means the paths in Fig. 1 were constrained to be invariant across marital status groups. \*\* $p < .01$ .

### Research contributions

Some studies have already provided evidence that generated resources in one domain (e.g., family) could be transferred to another domain (e.g., work), supporting the theoretical model of work–family enrichment proposed by Greenhaus and Powell (2006) (e.g., Demerouti, Bakker, & Voydanoff, 2010). Our results also support this model and have further demonstrated that work engagement might act a critical and significant mediating role in the family-to-work enrichment process. As mentioned earlier, research on antecedents of family-to-work enrichment is needed but they are relatively less found in the work–family literature (Jones et al., 2006; Kofodimos, 1993). Our study has therefore filled this gap of knowledge and contributed to Western theories in work–family literature. To date, the current study is the first research exploring family mastery in a Chinese context which has advanced research in achieving work–life balance/integration as advocated by Kofodimos (1993) and Jones et al. (2006).

In the JD-R model of work engagement, it is assumed that job resources and personal resources independently or combined to predict work engagement (Bakker & Demerouti, 2008). In our study, we found that family mastery, which is the power or control over family life, can also serve as a personal family resource to predict work engagement. To a certain extent, our research findings have expanded the JD-R model of work engagement (Bakker & Demerouti, 2008) by adding family resource as the predictor of work engagement in addition to job resources and personal resources. This is another research contribution of our study.

One of the central assumptions in the JD-R model of work engagement is that resources could gain their salience when individuals face high job demands (Bakker & Demerouti, 2008). Greenhaus and Powell (2006) also proposed that, resources generated in Role A (e.g., family) were more likely to directly promote high quality life in Role B (e.g., work) when the resources were perceived to be relevant to Role B than when they were not relevant. Our findings revealed that family mastery had a stronger effect on work engagement when job demand was high (vs. low), which have expanded organizational theories by bridging the JD-R model of work engagement with Greenhaus and Powell (2006) theory of work–family enrichment. This is definitely a theoretical contribution of our study.

### Practical implications

As aforementioned, nurses are considered as an occupational group experiencing high risk of job stress, with major sources of stress as high workload, lack of staff support, and contact with critically ill patients (Baldwin, 1999). Resources therefore become more salient in protecting them from burnout and maintaining their work engagement in those high job demand contexts (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001). For collectivistic cultures like Chinese, family may be particularly important in serving as social support systems to buffer individuals against stressful events (Yeh, Arora, & Wu, 2006). When confronted with a high job demand situation, resources from family may be quite important for Chinese working people, specifically nurses.

To provide recommendation to organizations, our research findings are deemed important. As family mastery enhances work engagement particularly under a high job demand condition for women (nurses), organizations may encourage their employees to participate in family activities, from which they may gain energy and resources and stay engaged in work. To do this, organizations may adopt some family-friendly organizational policies, such as flexible work scheduling, childcare assistance, personal and family leave, and elder care assistance (Brough, O'Driscoll, & Kalliath, 2005; Siu & Phillips, 2007). These family-

**Table 5**Results of moderated structural equation modeling: interaction of family mastery and job demand ( $N = 279$ ).

T1 predictors	T2 work engagement		Fit indices					
	UPC (SE)	SPC	df	$\chi^2$	SRMR	CFI	NFI	RMSEA
Family mastery	.34(.10)	.24**						
Job demand	-.05(.08)	-.04						
Family mastery $\times$ Job demand	.40(.19)	.24*	34	43.83	.045	.99	.96	.03
$R^2$	12%							

Note. T1, Time 1; T2, Time 2; UPC, unstandardized path coefficient; SPC, standardized path coefficient; SE, standard error \*  $p < .05$ , \*\* $p < .01$ .



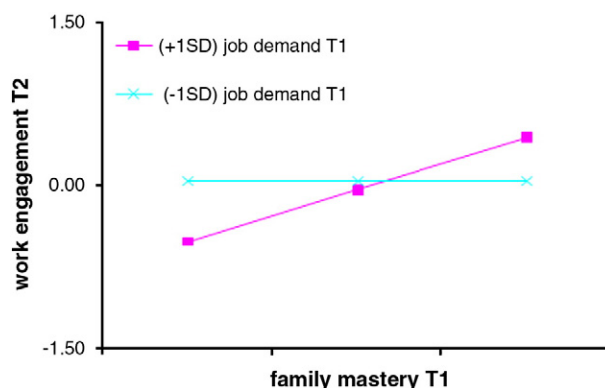


Fig. 2. The interaction effect of family mastery and job demand at Time 1 (T1) on work engagement at Time 2 (T2).

friendly organizational initiatives may allow employees to formulate a sense of control or mastery over their families, and such positive psychological state would be beneficial to the employees' work engagement.

To conclude, our study has several contributions to work–family research. First, we adopted a longitudinal design which is suitable for testing assumptions about causality of family-to-work enrichment process (Bollen, 1989; Williams & Podsakoff, 1989). Second, as far as we know, this is the first study to investigate the relationship between family mastery and work engagement in a Chinese context, which would contribute to the growing work–family enrichment literature. Third, our findings have also expanded the JD-R model of work engagement (Bakker & Demerouti, 2008) by adding family resource as the predictor of work engagement in addition to job resources and personal resources. Fourth, by combining JD-R model of work engagement and Greenhaus and Powell (2006) theory of work–family enrichment, we found that the positive spillover effect of family to work was more salient in the context of high job demand.

#### Limitations and future directions

Some limitations of this study should be noted. First, as the sample only included females, we have no idea whether the present results exist for males. Previous limited research on gender differences in family-to-work enrichment (Kirchmeyer, 1993; Rothbard, 2001) has produced inconsistent results. We recommend further investigation of the role of gender in family-to-work enrichment process. Second, the study was based on self-reports that may raise questions of common-method bias (e.g., Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). However, the longitudinal design overcomes some of the problems because previous levels of the variables are controlled for to a certain degree. Also, the results of confirmatory factor analyses showed that all variables could be empirically distinguished within and across waves. Another potential limitation of the present research findings concerns the issue of causal inferences. It is acknowledged that causality requires not only that variables are found to be associated, but also the isolation of these variables from other potential sources of influence (Bollen, 1989). However, although our results yielded no significant difference in marital status, we did not control any other individual difference variables that may potentially influence the relation between family mastery and work engagement, such as general self-efficacy and optimism (Xanthopoulou et al., 2009). Hence, our findings do not allow conclusions about absolute causality. Nevertheless, by comparing the proposed model with a number of alternative models, our results provide evidence that the assumption of a causal effect of family mastery on work engagement is at least plausible. Lastly, the matching rate of samples was low. Future research should adopt other method for creating a personal code to avoid overlap. Furthermore, future research can replicate our study to other Chinese or Western societies with different occupational groups.

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