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How do work-family balance practices affect work-family conflict? The differential roles of work stress

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Abstract

This paper investigates the relationship between employees' perception of work-family balance practices and work-family conflicts. It examines the role of challenge stress and hindrance stress as moderators. Based on survey data collected from 841 civil servants in Beijing, we found that perceived work-family balance practices may reduce work-family conflict, while challenge and hindrance work stresses were positively related to work-family conflict. In addition, challenge and hindrance stresses differentially moderated the relationship between perceived work-family practices and work-family conflict. When challenge stress is high then work-family balance practices will reduce work-family conflict. However, under high hindrance stress, work-family balance practices will serve to reduce work-family conflict less. More detailed analysis of the configurational dimensions of work-family balance practices (*work flexibility*, and *employee and family wellness care*) are also tested. This study provides additional insight into the management of work-family interfaces and offers ideas for future research.

Keywords: Work-family balance practices, Work-family conflict, Challenge stress, Hindrance stress

Introduction

In recent decades individuals have experienced increasing levels of job demands and job stress due to broadened job scopes. Increased job responsibilities and extended work hours become more common in the workplace. In the meantime, changes have also occurred in the family—there are more dual career and single parent families, as well as more working adults who are caring for both the elder and younger generations (Neal and Hammer, 2007). Researchers have responded to these trends by investigating work-family or work-family interfaces to understand the factors that may influence or be influenced by work-family balance. However, this line of research has employed different terminologies, levels, and approaches (Maertz and Boyar, 2011).

Research at the individual level, on the one hand, has focused on the constructs of work-family or family-work conflicts/enrichment/facilitation to investigate their antecedents and outcomes (Allen et al. 2012; Byron, 2005; Frone et al. 1992; Greenhaus and Beutell, 1985; Kinnunen and Mauno, 1998; Premeaux et al. 2007). On the other hand, research at the organizational level has focused on the influence of work-family

practices/policies on organizations. These studies consider a series of work-family practices as HRM bundles—using different terms such as family-friendly workplace practices (FFWP), work-family programs, and work-family human resource bundles (e.g. Bloom et al. 2011; Beauregard and Henry, 2009; Konrad and Mangel, 2000; Perry-Smith and Blum, 2000). Others mainly focus on special practice areas such as flextime, telework (e.g. Lapierre and Allen, 2006; Madsen, 2003), dependents care (e.g., Berg, et al., 2003), and the positive influence of the practices mentioned above are mostly supported. However, efforts to integrate work-family practices and employee work-family conflict have been sparse.

A closer examination of the empirical literature reveals that work-family balance practices may not always alleviate employee work-family conflict (Kelly et al. 2008). For example, while some studies found significant negative relationships between work-family balance practices and work-family conflict (O’Driscoll et al., 2003; Thompson et al. 1999), others found significant positive relationships (Brough et al. 2005; Hammer et al., 2005) or non-significant relationships (Kossek et al. 2006; Lapierre and Allen, 2006). These inconsistencies in previous research findings suggest that the existing conceptualizations of how work-family balance practices influence work-family conflict may be deficient. Some researchers have found that one explanation of this inconsistency might originate from the “agency and capabilities gap” (Hobson, 2014). They have also discovered that the extent of this gap was somehow dependent upon certain national policy frameworks, organizational/managerial support and the individual’s preferences.

Thus, a primary goal of this research is to explain the inconsistent findings regarding the relationship between work-family balance practices and work-family conflict. In their seminal review article, Kelly et al. (2008) suggest that previous research tended to vary in the measurement of work-family balance practices. Some focused on one or two specific practices such as flextime, telework (e.g. Lapierre and Allen, 2006; Madsen, 2003), and dependents care (e.g. Berg et al., 2003), while others examined multiple practices as predictors—such as family-friendly workplace practices (FFWP), work-family programs, and work-family human resource bundles (e.g. Bloom et al. 2011; Konrad and Mangel, 2000; Perry-Smith and Blum, 2000). In addition, while some previous studies have measured the adoption of work-family practices, others focused on the implementation of such practices as perceived by employees. Kelly et al. (2008) argue that measuring the perceived use of these practices is more meaningful because work-family balance practices will exert an effect on work-family conflict only when they are actually used by employees.

Another possible explanation for the inconsistent findings is that the effectiveness of work-family balance practices in easing work-family conflict depends on the types of stresses that are experienced by the employees. Researchers distinguish between stress that individuals perceive as rewarding (challenge stress) and stress that is viewed as constraining (hindrance stress). This is because these two types of stress are differentially associated with job attitudes and behavioral intentions (Cavanaugh et al., 2000). Despite evidence showing the effect of these two types of stress, there has been no attempt to integrate them with work-family and work-family interfaces to explain the relationships between best practices and perceived work-family conflict.

Building on conservation of resource (COR) theory (Hobfoll, 1989, Hobfoll and Freedy 1993), particularly from the resource building perspective, this paper intends to fill these gaps and make several contributions to the literature. First, we introduce work-family balance practices as a series of managerial policy resources. In addition, based on the literature and managerial practices, we construct and examine two specific dimensions of work-family balance practices through data analysis. These are *workplace flexibility*, which focuses on providing flexibility at work and enhancing job autonomy, such as telecommuting, workplace flexibility, job autonomy (Leslie et al., 2012; Kossek et al. 2006; Shockley and Allen, 2007; Kahn et al., 1964, p. 19), and *employee and family wellness care*, that involves the economic and material resources of an employee and their family—such as insurance and allowances—that compensate employees for their devotion to their work and the reduced time they spend with their family (Staines, 1980; Rothbard, 2001), thus preventing resource depletion (Premeaux et al. 2007). Based on these two dimensions, we examined their differential relationships with work-family conflict, which contributes to a configurational perspective to elaborate the in-depth structures of work-family balance practices.

Secondly, instead of measuring the organizations' adoptions of work-family practices, we measure employee perceptions of the actual use of work-family practices. In the public sector, work welfare practices account for a higher proportion of HRM systems (relatively) than that of firms, so the benefit policies themselves are almost equal to employees in the public sector. This in turn allows us to capture how individual perceptions of those practices substantially vary. In fact, human resource management researchers have argued and shown that human resource management practices need to be perceived by employees to be translated into desirable outcomes (Liao et al. 2009). By introducing the context of the public sector and investigating individual perceptions of work-family balance practices, this study also opens up an opportunity to examine individual moderators that may explain the differential effectiveness of work-family practices in reducing employee work-family conflict.

Thirdly, previous studies aligning individual differences with work-family conflict often focused on biographic factors, such as gender and marital status (i.e. Byron, 2005). In contrast to this, our study contributes by introducing work stress—particularly challenge and hindrance stress—into the model, and examines their moderation effects on the relationships between work-family practices and work-family conflict.

Theory and hypotheses

Work-family conflict and resource building

Individuals play multiple roles in their lives; incompatibilities among the roles can render full participation in one or more roles difficult (Kahn et al. 1964) and create work-family conflict. Work-family conflict is defined as “a form of interrole conflict in which the role pressure from the work and family domains are mutually incompatible in some respect” (Greenhaus and Beutell, 1985, p. 77). Furthermore, role conflict is due to the limited resources of individuals (Greenhaus and Beutell, 1985). Indeed, the emergence of work-family conflict reflects the competition for limited resources between a work

role and a family role (Guest, 2002). Only a few studies, however, have investigated ways of decreasing work-family conflict through the lens of resources (Kelly et al., 2008)—especially through the view of conserving resources, known as COR.

As COR theory suggests, individuals may own or fight for resources like objects, conditions, personal characteristics and energies; they strive to retain, protect and build these valued resources. When faced with potential or actual loss of resources, they may feel worried (Hobfoll, 1989, Hobfoll and Freedy 1993). So, the essential way to decrease work-family conflict is to retain and protect current resources—as well as to build and invest in future resources (Leslie et al., 2012; Hobfoll, 2001). Thus, the aspect of resource building is taken into consideration. As Kelly et al. state (Kelly et al. 2008; p. 310), work-family practices are deliberate organizational resources, targeting the work-family interface, which may play an important role in reducing work-family conflict and/or support employees' lives outside of work. Consequently, by introducing work-family balance practices into our model we are able to decrease work-family conflict by way of resource-building.

Work-family balance practices and work-family conflict

Work-family conflict is associated with negative work outcomes in organizations, so it is imperative that organizations should minimize their employees' work-family conflicts. Many initiatives have been employed to decrease work-family conflict, including job autonomy, supportive work-family culture, telecommuting, work flexibility (flextime and flexplace) and so on (e.g. Premeaux et al. 2007; Kossek et al. 2006; Shockley and Allen, 2007; Hobson, 2014). By providing employees with valuable resources, work-family balance practices are intended to reduce work-family conflict. However, these practices often have mixed effects on work-family conflict, which are often influenced by family characteristics or individual differences—such as family support, the number or age of children (e.g. Premeaux et al., 2007; Drobnič and León, 2014), and individual differences such as extraversion (Grzywacz and Marks, 2000).

Existing studies of work-family balance practices are mostly focused on workplace flexibility (e.g. telecommuting, flextime and flexplace); however, inconsistent results have been reported in the research environment of the impact of working hours/time autonomy on work-family conflict. Some results admit that work flexibility practices are negatively related to work-family conflict (Byron, 2005; Gajendran and Harrison, 2007; Shockley and Allen, 2007). However, there is also evidence from several previous studies that suggests that flexibility in working times that allows for autonomy and control over one's pace of work does not necessarily enhance the quality of one's personal life (Lee and McCann, 2006; Smith et al., 2008; Hobson and Fahlen, 2009; Hobson, 2014).

Similarly, the effect of family-friendly benefits (e.g. parental leave of absence, dependent childcare) on work-family conflict were also mixed. For example, Kossek and Ozeki (1998) did not find the expected impact that dependent care benefits exert on work-family conflict, while Goff et al. (1990) found that on-site childcare lowered work-family conflict among working parents (Anderson et al. 2002). Except for the above studies focusing on a specific practice, other researchers treat work-family balance practices as a bundle for testing their impacts on firm productivity or

organizational performance (de Bloom et al., 2010; Konrad and Mangel, 2000; Perry-Smith and Blum, 2000). For example, Family-Supportive Programs were advanced and used by many researchers (e.g. Friedman, 1990; Friedman and Galinsky, 1992; Kraut, 1990; Lewis, 1992; Thompson et al. 1992) which mainly consist of flextime, a compressed work week, job sharing, child care assistance, work at home, and reduced work hours. These items are largely consistent with previous research on dependent care benefits and work flexibility.

Although the two dimensions of work-family balance practices are different in their content, formats and effects, they ultimately act as essential resources provided by organizations. As mentioned above, role conflict takes place when one has full participation in one role, while ignoring another (Kahn et al. 1964). Indeed, the essence of role conflict is due to limited resources (Staines, 1980; Rothbard, 2001). In light of this, work-family balance practices, such as offering care for employees and family, can be seen as a kind of resource that compensates for a lack of family involvement. Work-family balance practices, like work flexibility, may promote flexible working, which may save one's time or energy resources, and compensate individuals for their family role.

Hypothesis 1. Employees' perception of work-family balance practices will reduce work-family conflict.

Work stress and work-family conflict

Stress is defined as "an individual's psychological response to a situation in which there is something at stake for the individual and where the situation taxes or exceeds the individual's capacity or resource" (LePine et al. 2004, p. 883). Individuals at work perceive different types of stress. Some may derive from job overload, time pressure, and added responsibilities that could provide challenges or opportunities for personal development and achievements; these are referred to as challenge stress (Cavanaugh et al., 2000).

On the contrary, some stress originates from excessive or undesirable constraints that can produce obstacles to personal growth and accomplishment; these are defined as hindrance stress (Cavanaugh et al., 2000). According to Rothbard (2001) and Staines (1980), if one receives more stress from work, then one cannot invest enough resources (e.g. energy and time) into one's family; this can lead to work-family conflict.

Although challenge and hindrance stress have been differentially related to work attitudes and intentions—such as job satisfaction, organizational commitment, job search, and voluntary turnover (Cavanaugh et al., 2000; Podsakoff et al., 2007)—they are both positively related to exhaustion and higher levels of work-family conflict because of added work demand (e.g. Lepine et al., 2004; Voydanoff, 2005a,b; Scherer and Steiber, 2009; Valcour, 2007; Schieman et al., 2009; Steiber, 2009; Beham and Drobnič, 2010; den Dulk et al., 2011). Podsakoff et al. (2007) also found in their meta-analysis of previous research that both challenge and hindrance stressors were positively associated with strain, which may render it very difficult for individuals to invest resources in family successfully. This suggests that the direct effects of both challenge and hindrance stress on work-family conflict would be positive.

Hypothesis 2. Challenge and hindrance stress will accentuate work-family conflict.

Challenge and hindrance stress as moderators

Although challenge and hindrance stress have been shown to be related to certain job attitudes and intentions in differing ways, no attempt has been made to integrate them with relationships between work-family balance practices and work-family conflict. When faced with potential or actual loss of resources in work, individuals with different kinds of stresses may experience opposite emotions, as well as distinct evaluations; this may influence how they react to those situational cues. As a result, stresses may moderate the effects of how individuals receive and make use of work-family balance practices to reduce their work-family conflict.

Challenge stress has a certain positive effect on individual attitudes and behaviors. As Cavanaugh et al. (2000) and Selye (1976) suggest, challenge stress is favorable for individual development, making a person more willing to positively evaluate work and tasks—as well as organizational practices (Lazarus and Folkman, 1984). More to the point, stresses that come from time, workload and responsibility can arouse the desire for challenges and achievements, which may convey good spirits and emotions (Weiss and Cropanzano, 1996). To summarize, challenge stress guides individuals into positive evaluations and emotions; thus it is positively related to motivation (Lepine et al., 2004). As we know, individuals are afraid of losing resources—they may try their best to avoid potential and actual loss of resources (Hobfoll, 1989). Therefore, promoted by challenge stress, individuals are more willing to invest in resources and to utilize existing work-family balance practices that actively increase work resources and family resources. With more resources, individuals may find it easier to fulfill their development and to reduce work-family conflict.

On the contrary, hindrance stress prevents individuals from working hard to achieve their goals because, due to various constraints, the goals are considered unachievable (Lepine et al., 2004). They may believe that efforts to change the status quo are not worthwhile—thus they make fewer attempts to utilize the organizational resources provided by work-family balance practices to reduce work-family conflict. In addition, hindrance stress may inspire negative emotions, making them respond passively to work and life. They might avoid changes, and stay on alert to risks from outside (Lepine et al., 2005), which may also decrease their utilization of organizational resources.

Thus, we propose that:

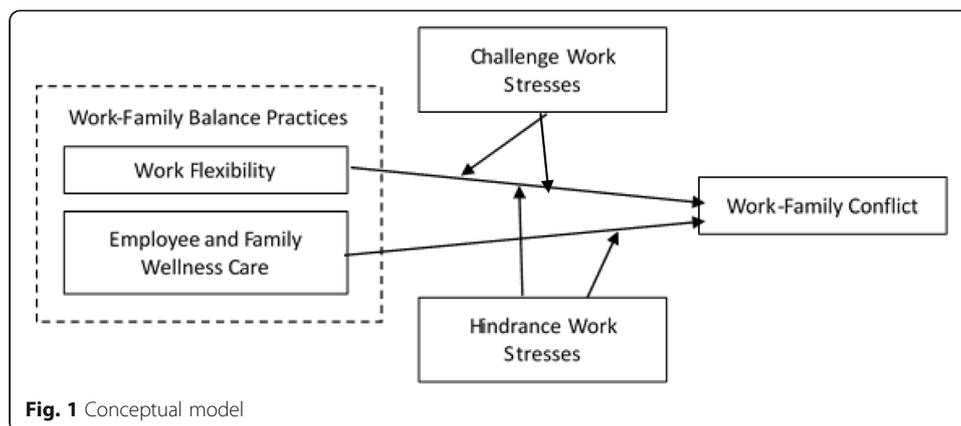
Hypothesis 3. Challenge stress will strengthen the relationship between employees' perception of work-family balance practices and work-family conflict so that, when challenge stress is high, work-family balance practices will reduce work-family conflict more than when challenge stress is low.

Hypothesis 4. Hindrance stress will weaken the relationship between employees' perception of work-family balance practices and work-family conflict so that, when hindrance stress is high, work-family balance practices will reduce work-family conflict less than when challenge stress is low (Fig. 1).

Methods

Sample and data collection

In 2014 we sent surveys to 1,000 public sector civil servants in Beijing, China. 841 respondents fully participated in this current study, leading to a response rate of 84.1%.



Civil servants are an appropriate sample for this study for the following reasons. Firstly, in China, work-family balance welfare practices for civil servants are abundant when compared with employees in the industrial sectors, which made the research cover more sufficiently work-family balance practices. Secondly, governments tend to adopt relatively consistent work-family benefits across different categories of civil servants. Therefore, variations in employee reporting of work-family balance practices may reflect individual perceptions of the actual implementation of these practices—rather than the difference in the adoption of practices. 58.3% of the respondents were men, 47.6% were between 41 and 50 years old, most had a Bachelor's degree (78.4%), and almost all were married (94.4%). Moreover, a large proportion of the respondents had been a civil servant for 21–30 years (45%) and had been at their section-level position for less than 4 years (62.2%).

Measures

Perception of work-family balance practices

To measure the perception of work-family balance practices, we integrated the measures used in several prior studies (Bloom et al. 2006; Kelly et al., 2008; Konrad and Mangel, 2000; Perry-Smith and Blum, 2000; Leslie et al., 2012), as well as the best practices suggested by the Alliance for Work-family Progress. We came up with 10 items. These include practices related to improving work flexibility, proactive health and wellness approaches, as well as benefits and support provided to families. We measured the extent to which each item was implemented in the organizations using a Likert scale ranging from 1 (to a very little extent) to 5 (to a great extent). We conducted exploratory factor analysis (EFA) to explore the dimensional structures of these items; the results are shown in Table 1.

The EFA Results show that perceived work-family balance practices fall into two factors. The first included six items which could be interpreted as wellness and benefits for both employees and their families, such as providing supplemental insurance or medical services to both employee and their dependents (child or elder). These practices focus on the direct and economic benefits of employees and their family members; we name this factor *employee and family wellness care*. The second factor consists of four items that focus on time-related or location-related benefits of flexibility such as

Table 1 Results of exploratory factor analysis of work-family practices

Items	Factor 1	Factor 2
<i>Employee and family wellness care</i>		
Caring dependents (insurance/medical service)	0.76	0.13
Financial support (loan, mortgage assistance)	0.72	0.23
Family travel allowance	0.71	0.05
Household expenses reimbursement	0.67	0.32
Employee assistance program	0.65	0.37
Supplemental personal insurance	0.53	0.44
<i>Work flexibility</i>		
Telework or telecommuting	0.25	0.83
Responsive shift-work policies	0.19	0.80
Paid holidays	0.12	0.72
Flextime	0.43	0.60
<i>Eigen value</i>	3.26	2.82
<i>Percentage of variance explained</i>	0.30	0.26

responsive work shifts, flextime, paid holidays and telecommuting; we name this indirect and non-economic work-family balance practice as *work flexibility*. The Cronbach's alphas for factor 1 and factor 2 are .82 and .79, respectively.

To confirm the rationality of the two dimensions mentioned above, we conducted a confirmatory factor analysis (as shown in Table 2), which shows modest support for our two-factor model: $\chi^2 (34, N = 841) = 275.58, p < .001$, comparative fit index (CFI) = .96, and non-normed fit index (NNFI) = .95 (Bentler and Bonett, 1980). The factor-loadings of the ten items are all greater than .5; the value of the average variance extracted (AVE) are .57 and .68 respectively for the two factors. We therefore adopted these two factors and formally named them as *employee and family wellness care* and *work flexibility* in the following analyses.

Challenge and hindrance stress

We adapted 10 items developed by Cavanaugh et al. (2000) and LePine et al. (2004) to measure challenge and hindrance stress. The five challenge stress items include “the

Table 2 Results of confirmatory factor analysis of work-family practices, work stress and work-family conflict

	Perception of work life balance		Work stress		Work family conflict	
χ^2	275.58		116.39		239.43	
CFI	0.96		0.92		0.98	
NNFI	0.95		0.87		0.97	
RMSEA	0.097		0.103		0.109	
AVE	Employee and family care	0.57	Challenge stress	0.57	Time-based	0.98
	Work flexibility	0.68	Hindrance stress	0.36	Strain-based	0.96
Cronbach's alphas					Behavior-based	0.87
	Employee and family care	0.82	Challenge stress	0.78	Time-based	0.95
	Work flexibility	0.79	Hindrance stress	0.55	Strain-based	0.94
					Behavior-based	0.88

amount of time I spend at work”, “my work is challenging”, “the number of projects and or assignments I have”, “the volume of work that must be accomplished in the allotted time”, “the amount of responsibility I have”, and “time pressure I experience”. The five hindrance stress items are “the degree to which politics rather than performance affects organizational decisions”, “the amount of red tape I need to go through to get my job done”, “the inability to clearly understand what is expected of me on the job”, “the lack of job security I have”, and “the degree to which my career seems ‘stalled’”. We used the Likert scale with response options ranging from 1 (to a very little extent) to 5 (to a great extent). The Cronbach’s alpha for challenge and hindrance stress are .78 and .55.

We further performed confirmatory factor analysis to validate the stress measures’ convergent validity and discriminant validity and obtained modest fit indices (Table 2), $\chi^2 (13, N = 841) = 116.39, p < .001, CFI = .92, NNFI = .87$ (Bentler and Bonett, 1980). In addition, the factor-loading of most of the items are greater than .5; only two of them are just below .5. In terms of Bagozzi and Yi (1988, 1998)’s suggested criteria ($AVE \geq .50$), although the AVE value of the hindrance stress is .36, which is below .5, the AVE value of challenge stress is .57, which is acceptable.

Work-family conflict

To measure work interference with family (WIF), we adopted 9 items developed by Carlson et al. (2000), which distinguishes between three dimensions of WIF: time-based, strain-based, and behavior-based WIF. We use a scale with response options ranging from 1 (strongly disagree) to 5 (strongly agree). The Cronbach’s alpha is .95.

A confirmatory factor analysis of the measures show (Table 2) that all the three factors had good convergent validity and discriminant validity: $\chi^2 (24, N = 841) = 239.43, p < .001, CFI = .98, NNFI = .97$ (Bentler and Bonett, 1980), and the factor-loadings of the 10 items are all greater than .5. In addition, the AVE of the three factors are all greater than .5 (AVE = .98, .96, and .87, respectively). The correlation coefficients between latent variables are quite moderate, and their squares are smaller than the relevant value of AVE.

Control variables

Based on previous research on the effects of work-family programs and the antecedents of work-family conflict, there are other explanations for the differences in WIF. Consequently, we adopted the following demographic characteristics as control variables.

Gender. Though the relationship between gender and work-family conflict is not consistent in previous meta-analyses (Allen et al. 2000; Byron, 2005), gender may play a role in influencing the relationship between perceived work-family balance practices and work-family conflict. As previous studies suggest that firms employing a larger percentage of women develop more extensive work-family programs (Konrad and Mangel, 2000), females may benefit from work-family balance programs that reduce work-family conflict more than males.

Education. Education may also influence how individuals react to work-family balance practices. Highly educated individuals may expect to be valued by the organization.

Effective work-family balance practices can be seen as a symbolic means to value employees (Pfeffer 1981). Thus, we included “education” as a control variable.

Marital status and age. Married individuals and middle age individuals may have more family responsibilities than unmarried ones (e.g. caring for children and elderly), so we included marital status and age as control variables.

Tenure. It is possible that work-family conflict may accumulate the longer an individual works. Thus, we also control for “tenure”.

Results

Table 3 reports the descriptive statistics (including means and standard deviations of all the variables) and correlations between variables. We found that the three dimensions of work-family conflict—time-based work family conflict, strain-based work family conflict, and behavior-based work family conflict—are all significantly and negatively related to the perception of work-family balance practices, “employee and family care” and “work flexibility” ($p < .01$). Moreover, both challenge and hindrance stresses are basically and positively related to three kinds of work-family conflict ($p < .01$).

Tables 4, 5 and 6 present the regression results predicting time-based, strain-based, and behavior-based work-family conflict, respectively. We used one-tailed tests to evaluate the significance of the predicted effects, given that one-tailed tests are suitable for directional hypotheses (Pelled et al. 1999). According to Hypothesis 1, we expected that work-family balance practices would be negatively associated with the three dimensions of work-family conflict, which received partial support as shown in Model 2 of the tables. The two configurational dimensions of work-family balance practices present differential effects. Employee and family wellness care have a slim and positive impact on work-family conflict, while work flexibility is consistently and negatively related to time-based, strain-based, and behavior-based work-family conflict.

We also hypothesized that both challenge and hindrance stress would be positively associated with three types of work-family conflict (Hypothesis 2), which received full support: both challenge and hindrance stress are consistently and positively related to all three types of work-family conflict.

To test the moderation between work-family balance practices, and challenge stress (Hypothesis 3) or hindrance stress (Hypothesis 4), we entered their interactions in Models 3 to 5. We centralized all the independent and dependent variables in the regression models to avoid multicollinearity between interaction terms and their individual components (Aiken and West, 1991). We entered the interaction terms for each dimension of the work-family balance practices in Model 3 and Model 4. In Model 5, we included all the interactions terms together. The results show that work stress has significant moderation effects on the relationship of work-family balance practices and work-family conflict; moreover, different work stresses (challenge vs. hindrance stress) display different moderating effects on the relationship. The moderation of each work stress on different configurational dimensions of work-family balance practices (“employee and family care” and “work flexibility”) are, however, fairly consistent.

Table 3 Descriptive statistics and correlations ^a

Variables	Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11
1. Gender ^b	0.42	0.49	1.00										
2. Education ^c	3.08	0.46	0.17**	1.00									
3. Marriage ^d	0.06	0.23	0.00	0.06	1.00								
4. Ln (Age) ^e	0.50	0.22	-0.07*	-0.28**	-0.37**	1.00							
5. Ln (Work time period) ^f	0.35	0.20	-0.07*	-0.30**	-0.31**	0.88**	1.00						
6. Employee and family wellness care	0.01	0.87	-0.07*	-0.02	0.08*	0.01	0.00	1.00					
7. Work flexibility	-0.01	0.91	0.03	0.06	0.13**	-0.13**	-0.15**	0.60**	1.00				
8. Challenge stress	-0.02	0.67	-0.02	0.11**	0.06	-0.11**	-0.08*	0.16**	0.12**	1.00			
9. Hindrance stress	-0.01	0.78	-0.03	-0.07*	-0.07*	0.06	0.06	-0.07*	-0.02	0.22**	1.00		
10. Time-based WIF	0.00	1.11	-0.20**	-0.07*	-0.12**	0.13**	0.18**	-0.10**	-0.29**	0.28**	0.40**	1.00	
11. Strain-based WIF	0.00	1.11	-0.10**	0.00	-0.08*	0.01	0.06	-0.13**	-0.25**	0.31**	0.42**	0.79**	1.00
12. Behavior-based WIF	-0.03	1.01	-0.14**	-0.11**	-0.11**	-0.04	0.04	-0.07*	-0.19**	0.21**	0.43**	0.62**	0.70**

^a N = 841 civil servants

^b Gender was coded as follows: "male," 0; "female," 1

^c Education was coded as follows: "high school diploma," 1; "associate degree," 2; "bachelor degree," 3; "master degree and above," 4

^d Marriage was coded as follows: "married," 0; "unmarried," 1

^e Age was coded as follows: "below 30," 1; "31-35," 2; "36-40," 3; "41-45," 4; "46-50," 5; "above 50," 6

^f Work time period was coded as follows: "1-10 years," 1; "11-20 years," 2; "21-30 years," 3; "above 30 years," 4

*p < 0.05

**p < 0.01

Two-tailed tests

Table 4 Results of hierarchical regression for time-based work interference with family^a

Variables	Model 1	Model 2	Model 3	Model 4	Model 5
<i>Controls</i>					
Gender	-0.20*** (0.08)	-0.18*** (0.07)	-0.19*** (0.06)	-0.19*** (0.07)	-0.19*** (0.06)
Education	0.01 (0.09)	0.02 (0.07)	0.02 (0.07)	0.01 (0.07)	0.02 (0.07)
Marriage	-0.08* (0.17)	-0.04 ⁺ (0.15)	-0.02 (0.15)	-0.03 (0.15)	-0.02 (0.15)
Ln (Age)	-0.11 ⁺ (0.35)	-0.08 ⁺ (0.30)	-0.06 (0.29)	-0.08 ⁺ (0.29)	-0.07 (0.29)
Ln (Work time period)	0.24*** (0.39)	0.18** (0.33)	0.17** (0.32)	0.18** (0.33)	0.18** (0.33)
<i>Independents</i>					
Employee and family wellness care		0.05 ⁺ (0.05)	0.07* (0.05)	0.07* (0.05)	0.06* (0.05)
Work flexibility		-0.34*** (0.04)	-0.32*** (0.04)	-0.34*** (0.04)	-0.32*** (0.04)
Challenge stress		0.23*** (0.05)	0.22*** (0.05)	0.22*** (0.05)	0.21*** (0.05)
Hindrance stress		0.32*** (0.04)	0.29*** (0.04)	0.30*** (0.04)	0.29*** (0.04)
<i>Interactions</i>					
Employee and family wellness care * challenge stress			-0.13*** (0.05)		-0.12** (0.07)
Work flexibility * challenge stress				-0.11*** (0.05)	-0.01 (0.07)
Employee and family wellness care * hindrance stress			0.11*** (0.04)		0.14** (0.05)
Work flexibility * hindrance stress				0.07* (0.04)	-0.04 (0.06)
Adjusted R ²	0.08***	0.34***	0.36***	0.35**	0.36***
R ²	0.08***	0.35***	0.37***	0.36**	0.37***
ΔR ² from Model 2			0.02***	0.01**	0.02***

^a N = 841 civil servants, the standard errors are in parentheses

*p < 0.10; **p < 0.05; ***p < 0.001

Table 5 Results of hierarchical regression for strain-based work interference with family ^a

Variables	Model 1	Model 2	Model 3	Model 4	Model 5
<i>Controls</i>					
Gender	-0.12*** (0.08)	-0.09** (0.07)	-0.10*** (0.07)	-0.10*** (0.07)	-0.10*** (0.07)
Education	0.04 (0.09)	0.04 (0.07)	0.04 ⁺ (0.07)	0.04 (0.07)	0.05 ⁺ (0.08)
Marriage	-0.09** (0.18)	-0.05 ⁺ (0.15)	-0.03 (0.15)	-0.04 (0.15)	-0.03 (0.15)
Ln (Age)	-0.19** (0.36)	-0.15** (0.30)	-0.14** (0.30)	-0.15** (0.30)	-0.14* (0.30)
Ln (Work time period)	0.20** (0.40)	0.15** (0.33)	0.14* (0.33)	0.15** (0.33)	0.13* (0.33)
<i>Independents</i>					
Employee and family wellness care		0.01 (0.05)	0.02 (0.05)	0.02 (0.05)	0.02 (0.05)
Work flexibility		-0.30*** (0.05)	-0.29*** (0.05)	-0.30*** (0.05)	-0.29*** (0.05)
Challenge stress		0.25*** (0.05)	0.24*** (0.05)	0.25*** (0.05)	0.25*** (0.05)
Hindrance stress		0.35*** (0.04)	0.33*** (0.04)	0.34*** (0.04)	0.33*** (0.04)
<i>Interactions</i>					
Employee and family wellness care * challenge stress			-0.10*** (0.05)		-0.14** (0.08)
Work flexibility * challenge stress				-0.05* (0.05)	0.06 (0.07)
Employee and family wellness care * hindrance stress			0.09** (0.04)		0.09* (0.06)
Work flexibility * hindrance stress				0.07* (0.04)	-0.002 (0.06)
<i>Adjusted R²</i>	0.02***	0.32***	0.33***	0.32*	0.33**
<i>R²</i>	0.03***	0.33***	0.34***	0.33*	0.34**
ΔR^2 from Model 2			0.01***	0.00*	0.01**

^a N = 841 civil servants, the standard errors are in parentheses
⁺p < 0.10; *p < 0.05; **p < 0.01; ***p < 0.001

Table 6 Results of hierarchical Regression for behavior-based work interference with family ^a

Variables	Model 1	Model 2	Model 3	Model 4	Model 5
<i>Controls</i>					
Gender	-0.13*** (0.07)	-0.11*** (0.06)	-0.12*** (0.06)	-0.12*** (0.06)	-0.12*** (0.06)
Education	-0.09** (0.08)	-0.08** (0.07)	-0.08** (0.07)	-0.08** (0.07)	-0.08** (0.07)
Marriage	-0.15*** (0.16)	-0.11*** (0.14)	-0.09** (0.14)	-0.10** (0.14)	-0.09** (0.14)
Ln (Age)	-0.30*** (0.32)	-0.29*** (0.28)	-0.28*** (0.28)	-0.29*** (0.28)	-0.28*** (0.28)
Ln (Work time period)	0.22** (0.35)	0.18** (0.31)	0.18** (0.31)	0.18** (0.31)	0.18** (0.31)
<i>Independents</i>					
Employee and family wellness care		0.05 (0.04)	0.06 ⁺ (0.04)	0.07* (0.04)	0.06 ⁺ (0.04)
Work flexibility		-0.24*** (0.04)	-0.22*** (0.04)	-0.24*** (0.04)	-0.23*** (0.04)
Challenge stress		0.14*** (0.05)	0.14*** (0.05)	0.14*** (0.05)	0.14*** (0.05)
Hindrance stress		0.38*** (0.04)	0.35*** (0.04)	0.36*** (0.04)	0.35*** (0.04)
<i>Interactions</i>					
Employee and family wellness care * challenge stress			-0.07* (0.05)		-0.07 ⁺ (0.07)
Work flexibility * challenge stress				-0.06* (0.04)	-0.01 (0.06)
Employee and family wellness care * hindrance stress			0.10*** (0.03)		0.07 ⁺ (0.05)
Work flexibility * hindrance stress				0.10** (0.04)	0.05 (0.06)
Adjusted R ²	0.06***	0.28***	0.29**	0.29**	0.29**
R ²	0.06***	0.29***	0.30**	0.29**	0.30**
ΔR ² from Model 2			0.01**	0.00**	0.01**

^a N = 841 civil servants; the standard errors are in parentheses

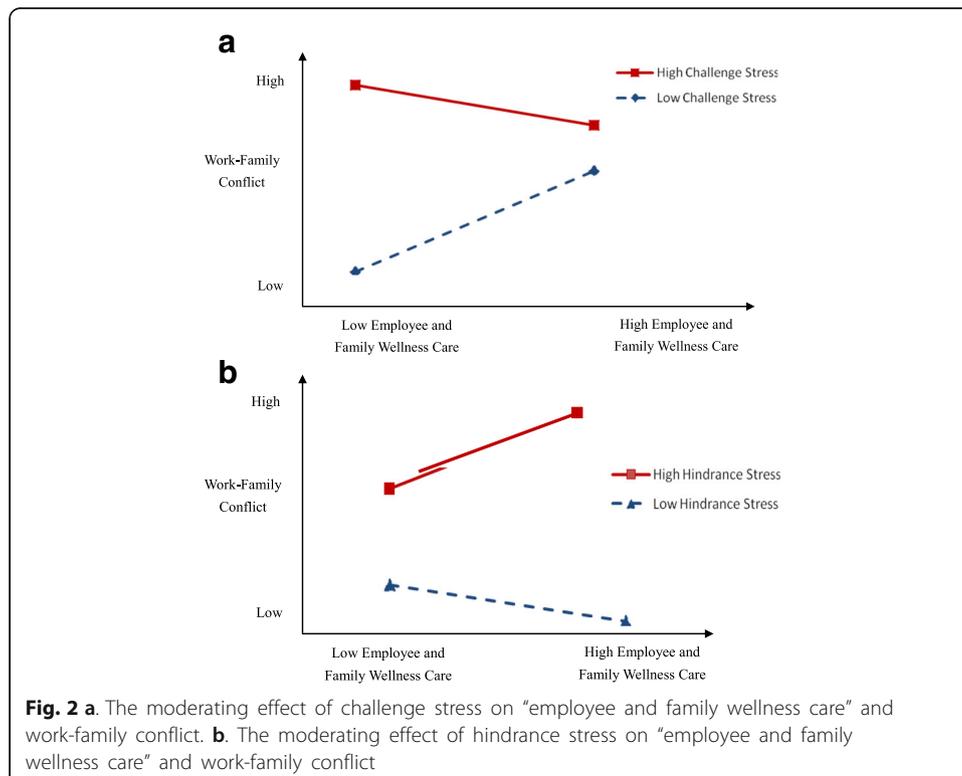
⁺ p < 0.10; *p < 0.05; **p < 0.01; ***p < 0.001

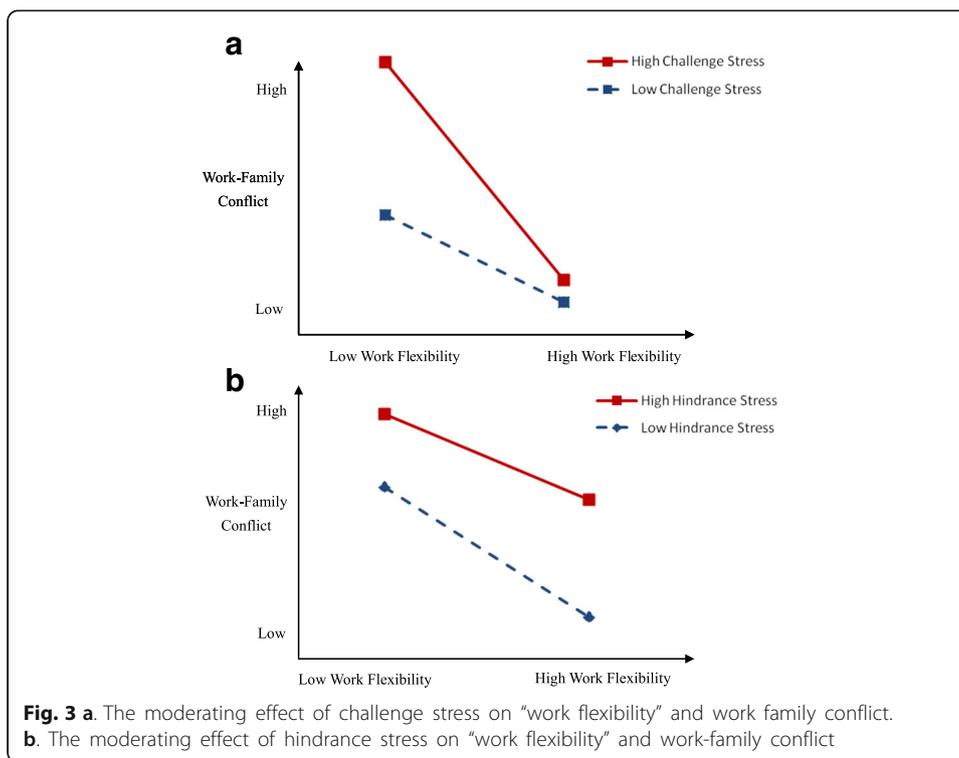
Additionally, across Tables 4, 5 and 6, the moderation models with the same predictors and number (from Model 3 to Model 5) are also quietly consistent across different dependent variables (time-based, strain-based and behavior-based work-family conflicts). As a result, we drew the figures (Figs. 2a and b, 3a and b) to respectively illustrate the converging trend of moderating effects with the same predictors on general work-family conflict.

In Model 3 of each regression (Tables 4, 5 and 6), the interaction between employee and family wellness care, and challenge stress are significantly and positively related to work-family conflict ($\beta = -.13, -.1, \text{ and } -.07; p < .001, p < .001, p < .05; \Delta R^2 = .02, .01, .01$, respectively). Figure 2a illustrates the nature of interaction between care and challenge stress on work-family conflict. Individuals with high challenge stress experience a stronger decrease of work-family conflict when they perceive more care for themselves and their family than individuals with low challenge stress. This provides support for Hypothesis 3, which expected that challenge stress can enhance the attenuating effect of work-family balance practices on work-family conflict.

The interactions between work flexibility and challenge stress are shown in Model 4 of each regression, which are significantly and negatively related to work-family conflict ($\beta = -.11, p < .001; \beta = -.05, p < .05; \text{ and } \beta = -.06, p < .05; \Delta R^2 = .01, .00, \text{ and } .00$, respectively). Figure 3a shows the positive interaction between work flexibility and challenge stress on work-family conflict. When individuals experience high challenge stress, the relation between work flexibility and work-family conflict is more negative than when individuals perceive low challenge stress. This again provides support for Hypothesis 3.

Model 3 of each regression (Tables 4, 5 and 6) shows the interactions between “employee and family care” and hindrance stress. The interactions are strongly and





negatively related to work-family conflict ($\beta = .11, .09, \text{ and } .1; p < .001; \Delta R^2 = 0.02, 0.01, \text{ and } 0.01$, respectively). Figure 2b shows the reversing nature of interaction between “employee and family care” and hindrance stress on work-family conflict. It shows that when hindrance stress varies from low to high, “employee and family care” will accentuate work-family conflict. This indicates the more sensitive moderation effect of hindrance stress on the relationship between “employee and family care” and work-family conflict. With high hindrance stress, high levels of employee and family wellness care will increase work-family conflict. This finding supports and goes further than Hypothesis 4. This predicted that the moderation of hindrance stress would no longer reduce the negative impact of employee and family wellness care on work-family conflict, but would accelerate employee and family wellness care to increase work-family conflict.

In addition, the interactions between work flexibility and hindrance stress on work-family conflict are also significant ($\beta = .07, .07, \text{ and } .1; p < .05, p < .05, p < .01; \Delta R^2 = .01, .00, \text{ and } .00$, respectively). Figure 3b illustrates the negative interaction between work flexibility and hindrance stress on work-family conflict. Compared with low hindrance stress, work flexibility contributes less to the reduction of work-family conflict when hindrance stress is high. This, again, supports Hypothesis 4, which predicted that hindrance stress would reduce the negative relationship between work flexibility and work-family conflict.

Discussion

Theoretical implications

The results of the present research make a few contributions to the literature. Firstly, the results demonstrate the link between employees’ perception of work-family

practices and work-family conflict. Previously, research on work-family interfaces tended to take two approaches: on the one hand, human resource management literature focused on the relationship between work-family practices and organizational performance; on the other hand, organizational behavior researchers studied more extensively the individual antecedents and consequences of work-family conflict.

However, there has been little research on the linkage between work-family balance practices and work-family conflict (Kelly et al., 2008). Unlike the general perspective of resource loss in COR, our research is based upon the perspective of resource building. By combining organizational management resources with individual resources, our study focuses on the effect of the perception of work-family practices in reinforcing individual resources so as to reduce employee work-family conflict. This study achieves the integration of the HRM field, work-family interface and COR theory.

Secondly, based on COR, we further analyzed organizational resources, and divided work-family balance practices into two dimensional factors. Previous research has either treated work-family practices as a bundle, or focused on only one or two specific practices. For instance, Perry-Smith and Blum (2000) studied “work-family human resource bundles”, and Christensen and Staines (1990) focused on flextime and examined whether it was a viable solution to work-family conflict. Our factor analyses identify two specific dimensions of work-family balance practices: “*employee and family wellness care (material resources)*” and “*work flexibility (non-material resources)*”.

Both of these dimensions have generated informative results regarding their relationships with work-family conflict. Specifically, we found that work flexibility demonstrated a consistent and significant effect in reducing employee time-based, strained-based, and behavior-based work-family conflict, whereas the effect of employee and dependent care was not significant. Flexibility-related work-family balance practices may be most effective because they can help reduce the competition of resources between work and family life, and ensure individuals’ resources are invested in family life. Obviously, according to the results, different types of resource-building may vary in their reduction of work-family conflict, and non-material resources have been demonstrated to have a more intrinsic and significant impact.

Thirdly, according to COR, losing resources is closely related to individual stress. Therefore, we examined work stress as moderators between work-family balance practices and work-family conflict, uncovering how the effectiveness of work-family balance practices may depend on the degree to which individuals experience challenge or hindrance stress. Previous studies that investigated the moderations between work-family practices and work-family conflict tended to focus on organizational characteristics or individual demographics, while efforts to examine individual work contexts have been sparse. Although previous research has suggested that challenge stress and hindrance stress are differentially related to employee work attitudes and intentions (Cavanaugh et al., 2000; LePine et al., 2004), our results suggest that, as both types of stress require individuals to invest more resources at work, both increased employee work-family conflict.

Furthermore, challenge and hindrance stress differentially influence how individuals utilize work-family balance practices to reduce work-family conflict. When individuals

experience high challenge stress, the effects of work-family balance practices in reducing employee time-based, strain-based and behavior-based work-family conflict were more prominent than when individuals experienced low challenge stress. On the contrary, when individuals experienced high hindrance stress comparing to low hindrance stress, the power of work-family balance practices became weaker in reducing employee work-family conflict, or further increased work-family conflict when it came to employee and family care. This suggests that high challenge stress may enable individuals to actively seek intervention (employer provided work flexibility and employee and dependent care) to change the status quo (reduce work-family conflict).

However, high hindrance stress developed by perceived constraints at work may cultivate a “learned helplessness” in individuals, which prevents them from effectively utilizing work-family balance practices to alleviate their work-family conflict. These results provide additional insight into understanding the relationships among stress, work-family practices and work-family conflict.

Managerial implications

Existing research on work-family balance practices and work-family conflict has mainly focused on Western countries. For many years, there have been well-established policies and practices in both government and private sector organizations aimed at addressing work-family balance. Moreover, employees in these nations prioritize work-family balance when considering their choice of job and workplace (Hobson, 2014). However, it is only in recent years that Chinese researchers have started to work in this field. Besides the theoretical implications, our study results also offer several managerial implications for organizations striving to minimize employee work-family conflict through utilizing work-family balance practices effectively and economically.

We found that work flexibility had a more salient effect on employee work-family conflict than providing care to both employees and their family. This provides implications for managers contemplating the most effective interventions to reduce employee work-family conflict. With limited resources, managers may try to enhance work flexibility, so that the role conflicts between employee work and life could be most effectively reduced.

However, although employee and family wellness care provides additional financial resources for employees to take care of dependents, it does not fundamentally tackle the conflict between an employee’s work and life. It could be because employees with family-friendly caring benefits may be less considerate of their families while putting more effort into their jobs, which might lead to ineffectiveness and even the reverse effect of “employee and family care” practices.

In addition, our findings of the moderation of stress on the relationship between perceived work-family practices and work-family conflict provide an additional insight for managers striving to maximize their return on investments in work-family balance practices. Truthfully, the findings of this research are somewhat counter-intuitive. Specifically, enhancing employee challenge stress by optimizing job design and development opportunities can cultivate a sense of confidence in employees, which will augment their receptiveness to work-family balance practices.

Likewise, reducing hindrance stress by removing constraints and obstacles at work also helps employees to effectively utilize work-family balance practices to manage their work-family conflict.

Limitations and future extensions

The study results should be interpreted in the light of several limitations. One of the limitations is the potential common method variance in the measurements. Although we measured the perception of work-family practices and work-family conflict at the individual level, as perceived by employees, employees are indeed the best informants of the actual work-family practices in use, and their own work-family conflict. In addition, to minimize the common variance, we tested the discriminant validity of the independent and dependent variables in the same measure model. All the variables' square of correlation coefficients was smaller than the corresponding AVE, which provide modest support for the discriminant validity of the variables. Thus, common variance may not have caused the differences in the final results (Conway and Lance, 2010). That being said, we call for more studies in the future to use cross-level analysis in order to understand the work-family interface.

In addition, although we have attempted to clarify the internal structure of work-family practices and identified the two factors of "*employee and family wellness care*" and "*work flexibility*", the field of work-family practices will still benefit from a more consistent conceptualization of the constructs. The terms used in the previous research have included "FFWP" and "work-family programs" (e.g. de Bloom et al., 2010; Konrad and Mangel, 2000). We urge future research to form a more synthetic and clear definition for "work-family practices".

Finally, testing the hypotheses in the Chinese context has both its merits and drawbacks. China is a fast developing country in which many individuals are pressured to work long hours and suffer from a substantial amount of work-family conflict. Thus, it is most fruitful to understand the impact of work-family practices on reducing work-family conflict in this context. This study also provides a cross validation of the constructs that were previously used in the Western context. Nonetheless, the specific contextual differences between China and Western countries may restrict the generalizability of the findings. Thus, a cross-cultural comparative study is called upon.

Conclusion

This current research investigates the relationship between employees' perceived work-family practices (including two dimensional configurations of "*employee and family care*" and "*work flexibility*") and employee work-family conflict. It also examines the role of challenge stress and hindrance stress as moderators. By surveying 841 civil servants in Beijing, we found that practices of work flexibility have a more salient effect in reducing work-family conflict, and that both types of work stress increased work-family conflict. In addition, challenge and hindrance stress differentially moderated the relationship between perceived work-family practices and work-family conflict. High challenge stress consistently helped to strengthen the effectiveness of work-family balance practices in reducing work-family conflict, while high hindrance stress constrained the effectiveness of work-family practices on work-family conflict. This provides additional insight into the management of work-family interface and ideas for future research.

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Authors' contributions

XC carried out model building and drafted the manuscript. YZ participated in the theory construction and designed the study. CW participated in the design and performed the statistical analysis. CPH participated in implication construction and coordination. All authors read and approved the final manuscript.

Competing interests

The authors declare that they have no competing interests.

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