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Full Length Research Paper

The impact of work-family conflict on work engagement of female university teachers in China: JD-R perspective

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This paper takes work-family conflict as the independent variable, work engagement as the dependent variable, and perceived organizational support and emotional exhaustion as the mediating variables, and studies the influence of work-family conflict on work engagement and the mechanism of perceived organizational support and emotional exhaustion of female university teachers in China, based on the job demand-resource model (JD-R). The results of the questionnaire survey of 518 female university teachers revealed a significant negative relationship between work-family conflict and work engagement, with a direct effect accounting for 31.88%. The indirect effect of work-family conflict on work engagement through perceived organizational support was significant, accounting for 63.19%, while the mediating effect of emotional exhaustion was not notable and the chain mediating influence of perceived organizational support and emotional exhaustion was not significant.

Key words: Work-family conflict, work engagement, emotional exhaustion, perceived organizational support.

INTRODUCTION

With the development of the times, the society's expectations of education are getting higher and higher, which also puts forward higher requirements for teachers' teaching involvement (Filho et al., 2021). High-level teaching requires teachers' full input of emotion, energy and time. The amount of teachers' input in teaching directly determines the level of school teaching and the quality of classroom effect (Watts and Robertson, 2011). In addition to daily teaching, female university teachers also need to complete scientific research, social services, promotion of professional titles, promotion of academic qualifications and other pressures. In modern society, the requirements for female university teachers are no less than those for male workers. At the same time, influenced by the traditional division of labor, cultural concepts and role expectations, it is regarded as a natural responsibility and obligation for female university teachers to take care of their husbands and children and do housework (Okpara et al., 2005). The society's expectation of the double roles of work and life of university female teachers makes the work-family conflicts faced by female university teachers increasing. Unbalanced work-family conflict is the main problem of female university teachers' work engagement (Fox et al., 2011). The study of the

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current situation of female university teachers' work engagement would deepen the understanding and understanding of female university teachers, so as to take positive measures to help female university teachers improve their work engagement enthusiasm (Wang et al., 2011).

Schaufeli et al. (2006) job demand-resource model tells us that job demands (high job stress, role conflict, etc.) can predict job burnout; resources (self-efficacy, organizational support, etc.) can predict work engagement. Employees vary in their level of work engagement because of differences in the resources they can consume while working (Kwon and Kim, 2020). Abundant work and personal resources contribute to employees' work engagement, and resources are the boundary condition that regulates the relationship between work requirements and job engagement. Existing research has proved that organizational support can alleviate the negative effects of stress and provide individuals with the capital to cope with stress and challenges (Loi et al., 2014).The higher the perceived organizational support, the more personal resources an employee has (Fox et al., 2011). However, previous studies on the adverse influence of work-family conflict on work involvement only focus more on the moderating influence of job resources rather than personal resources. In addition, under Chinese cultural background, the study found a widespread and strong social norm of work priority, a stronger tolerance of work interfering with family, and it is a traditional virtue to work hard at the expense of personal family (Gao, 2021; Lin et al., 2013).Therefore, in order to find a new boundary, this study will start from the job demand-resource model (JD-R) to explore whether personal resources and organizational resources are important trade-offs for female university teachers in the face of work-family conflict affecting work engagement under Chinese cultural background.

Research models and hypothesis

Research model

The JD-R model holds that there are two paths for work to affect employees: loss and gain. The attrition path, or health attrition process, is defined as job burnout caused by excessive job demands and lack of job resources, which in turn leads to negative organizational results, like sick leave, low job performance, and low organizational commitment (Schaufeli et al., 2006).When job demands (negative factors) continue to be high and are not compensated by job resources (positive factors), employees' energy will continue to be depleted in the process of work, which may eventually lead to emotional exhaustion, which will have an adverse influence on individuals (such as health issues) and organizations (like job performance). Gain path, namely motivation process, is triggered by abundant work resources, and has a positive influence by improving staff's work engagement, such as high organizational commitment, high intention to stay, high job performance and so on. Increasing work resources (like social support, work autonomy and feedback) has the effect of "killing two birds with one stone": inhibiting burnout and growing work engagement (Kwon and Kim, 2020).Therefore, based on the JD-R model, the research explores the connection among work-family conflict, emotional exhaustion, perceived organizational support and work engagement of female university teachers, and constructs a research model of work-family conflict on work engagement of female university teachers. It’s shown as Figure 1.

Research hypothesis

The connection between work-family conflict and emotional exhaustion

Greenhaus and Beutell (1985) define work-family conflict as "an inter-role conflict that arises between pressures within the work and family domains and is irreconcilable in some ways ". Relevant research shows that work-family conflict has an adverse influence on health (mental and physical), satisfaction, performance and commitment (Frone et al., 1992).The role load and stress brought by work-family conflict will cause individuals to have negative psychological and physical symptoms such as tension and burnout, thus reducing job satisfaction and life satisfaction, affecting job performance and quality, and also reducing organizational commitment, leading to exit behaviors such as absenteeism and turnover (Bowen and Zhang, 2020). Emotional exhaustion is a mental manifestation of pressures, which is section of work burnout. It usually appears when people use out emotional and psychological resources, and may result in higher turnover rates and lower performance levels (Maslach et al., 2001). According to the JD-R model, any job’s traits can be divided into job demands and job resources, in which job demands are the "negative aspects" that deplete personal work energy, like work-family conflict in this study (Bakker et al., 2014). On the contrary, work resources are "positive aspects" in work, like psychological and physiological costs. One of the core assumptions of the model is that there is a work attrition path for employees, that is, the health attrition process, which is caused by job burnout caused by excessive job requirements and lack of work resources, and then leads to negative organizational outcomes. In the basis of the above theoretical results, the research proposes the below hypotheses:

Hypothesis 1: Work-family conflict positively affects emotional exhaustion

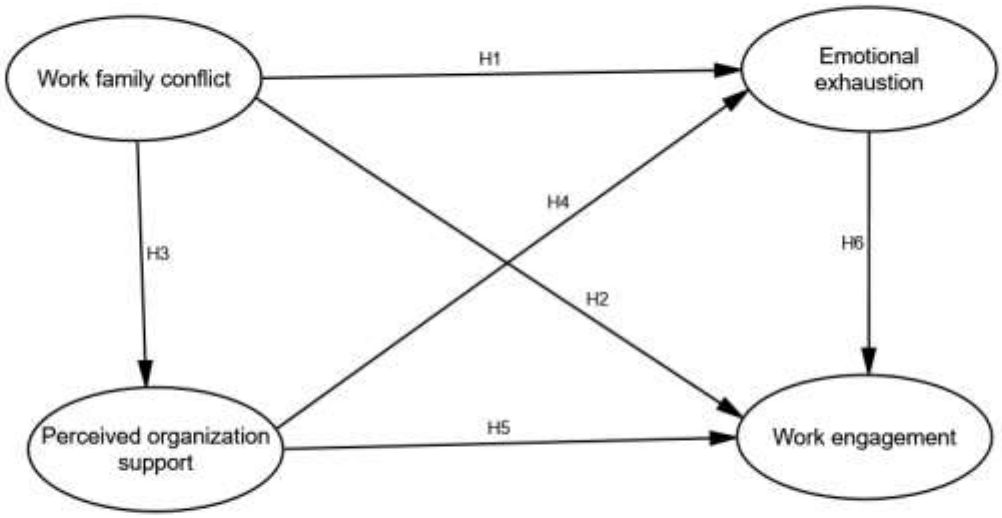

Figure 1. Author Theoretical framework model.
Source: Author.

The connection between work-family conflict and work engagement

Many factors influence work engagement, like individual emotion, organization and so on (Lyu and Fan, 2020). Family and work conflict will affect personal mood and state, consume personal energy, lead to the generation of negative emotions and the increase of pressure, and employees will bring negative emotions to work will affect work engagement (Schaufeli et al., 2006). Based on the JD-R model, individuals play multiple roles with different needs and uneven distribution of resources. Individuals have their own cognition and evaluation of resource input, and make choices in the trade-off of obtaining, preserving resources and effective stop-loss (Bakker et al., 2014). For female employees, it is difficult to balance family roles and work roles. In the face of serious work-family conflicts, they tend to increase their investment in family and reduce their investment in work because of the realistic trade-off between the demand for family roles and the poor availability of work resources (Bakker and Xanthopoulou, 2013). Women are commonly associated with the role of caring for children, and are less committed to their careers because of their parenting responsibilities (Bezuidenhout and Cilliers, 2010). Accordingly, the following assumptions are proposed:

Hypothesis 2: Work-family conflict negatively affects work engagement

Connection between work-family conflict and perceived organizational support

Based on previous studies, it can be concluded that perceived organizational support is negatively correlated with work-family conflict, that is, the more perceived organizational support an individual feels, the less work-family conflict he faces. Goff et al. (1990) proposed that the more employees are understood and concerned by the organization, the less work-family conflicts they encounter. Friedman and Podolny (1992) proposed that the more support staff get from the organization, the less time and energy they spend at home, and the less pressure they have at work. Ray and Miller (1994) proposed that in the organizational culture, there is a significant correlation between the recognition of employees' family primacy and work-family conflict. Some measures adopted by the organization that have a positive influence on the family can better alleviate the conflict between work and family of employees. Zheng and Wu (2018) found that each dimension of perceived organizational support is negatively correlated with work-family conflict. Accordingly, the study proposed assumptions as followed:

Hypothesis 3: Work-family conflict negatively affects perceived organizational support

Connection between perceived organizational support and emotional exhaustion

The most direct external manifestation of emotional exhaustion is the feeling of lack of energy and interest in something, which leads to depression and irritability, and then reduces the effort and involvement in work (Chang, 2009).The psychological state of employees' emotional exhaustion is a gradual process. Only when they are in a high-pressure environment for a long time and unable to cope with it, can employees feel the exhaustion of psychological and emotional resources. The JD-R model

shows that the lack of resources weakens the ability of employees to meet job demands, which further leads to withdrawal behavior and job burnout (Bakker and Demerouti, 2017). Organizational support, as a work resource, increases the willingness of employees to put their efforts and abilities into their work, and reduces the threat of employees coping with stressful processes (Crawford et al., 2010). Allen et al. (2012) concluded that high perceived organizational support can greatly improve employees' gratitude behavior, increase employees' emotional investment in the organization, and alleviate emotional exhaustion. Accordingly, the following assumptions are proposed:

Hypothesis 4: Perceived organizational support negatively affects emotional exhaustion

Connection between perceived organizational support and work engagement

Perceived organizational support is the acknowledgement and admiration of staff from the key departments of the organization, which indicates a level that the organization hopes staff to achieve (Loi et al., 2014).Therefore, with the growth of staff's perceived organizational support, staff will realize more cognitive, emotional and work resources given by the organization, thus generating more intention to work (Côté et al., 2021).The social exchange theory holds that if employees think that the policies of the organization are biased towards themselves and get a sense of belonging from the organization, they will work harder and make more beneficial actions for the organization, which is conducive to the long-term development of the company (Bakker et al., 2014). Previous studies have shown that, as a work resource, perceived organizational support has a good predictive effect on employee work engagement, and it is an important antecedent variable. This predictive result not only shows that perceived organizational support significantly directly affects the level of employee work engagement, but also shows an indirect relationship (Attridge, 2009). Accordingly, the following assumptions are proposed:

H5: Perceived organizational support has a positive influence on work engagement.

Relationship between emotional exhaustion and work engagement

Previous research have shown that the three dimensions of job engagement, vitality, dedication and focus, all require individuals to maintain a good energy in the work, and in the case of energy, individual resources can meet the conditions of work engagement (Attridge, 2009). However, the occurrence of emotional exhaustion leads to the exhaustion of employees, so that individuals do not have more energy to work (Bezuidenhout and Cilliers, 2010). In the basis of the view of job demand-resource model, the higher the degree of work engagement is, the higher the job demand is, which means that in order to maintain better job performance, employees need to improve their psychological, physical, family, organizational and social needs. In this process, individuals often need to sacrifice their other resources, such as time and energy, in order to maintain better job performance. High-intensity efforts may further affect the physical and psychological aspects of individuals, which will affect the work engagement of employees (Bakker and Demerouti, 2017). Emotional exhaustion is the process of energy consumption, which means that employees' energy is gradually exhausted. The individual's time and energy are limited, sustained emotional exhaustion is based on the premise of high-intensity energy consumption, and this consumption will always be exhausted, resulting in employees do not have more energy to work, that is to say, the higher the degree of emotional exhaustion, the lower the level of work engagement (Nair et al., 2020). Accordingly, the following assumptions are proposed:

H6: Emotional exhaustion negatively affects work engagement.

METHOD

Participants

The research adopted a convenient sampling way to conduct an online questionnaire investigation among Chinese female university teachers. A total of 550 questionnaires were collected, and 518 valid questionnaires were retained, with an effective rate of 94.18%, excluding invalid questionnaires with too short answer time and obviously unreasonable answers. Among them, there were 136 people under 30 years old, accounting for 26.25%, 284 people aged 30 to 40, accounting for 54.83%, 79 people aged 41 to 50, accounting for 15.25%, and 19 people over 50, accounting for 3.67%; Fertility: 82 (15.83%) have not yet given birth, 311 (60.04%) have one child, 123 (23.75%) have two children, and 1 (0.19%) has three children; 131 (25.29%) hold bachelor's degree, 295 (56.95%) hold master's degree, and 90 (17.37%) hold doctor's degree; There are 63 respondents with ungraded professional titles, accounting for 12.16%, 192 respondents with junior professional titles, accounting for 37.07%, 158 respondents with intermediate professional titles and accounting for 30.50%, 105 respondents with senior professional titles and accounting for 20.27%; 117 persons (22.59%) have worked for less than 5 years, 246 persons (47.49%) have worked for 5 to 10 years, 119 persons (22.97%) for 11 to 20 years and 36 persons (6.95%) for more than 20 years.

Tools

Work-family conflict scale

Netemeyer et al. (1996) developed the Work-Family Conflict Scale

(WFCS) to assess the extent of work-family conflict among Chinese university female teachers in China (Wang et al., 2011). The scale consists of 10 items, with two dimensions of work-family conflict and family-work conflict, and it uses a Likert scale of 5 ranging from "1" for "strongly disagree" to "5" for "strongly agree". The higher the score, the higher the work-family conflict (Yang et al., 2021). The Cronbach's alpha coefficient of the scale in this study was 0.928.

Work engagement scale

The simple Work Engagement Scale developed by Schaufeli and Bakker was used to test the working status of female university teachers. The scale consists of nine items, covering three aspects of vitality, dedication and concentration, and is scored on a Likert scale from 1 to 5, where 1 represents never, 2 represents occasionally, 3 represents often, 4 represents frequently, and 5 represents every day. The higher the score, the higher the level of work engagement of female university teachers. The Cronbach's alpha coefficient of the scale in this research was 0.922.

Emotional exhaustion scale

The Maslach Burnout Inventory (MBI) scale was developed by Maslach and Jackson (1981) to assess the emotional exhaustion of female university teachers. The scale consists of five items that use a Likert 5-point scale ranging from "1" for "strongly disagree" to "5" for "strongly agree", with higher scores indicating higher levels of emotional exhaustion. In a recent study, the Cronbach's alpha coefficient for this scale was found to be 0.918 (Moussa et al., 2023).

Perceived organizational support scale

The Perceived Organizational Support Scale (POSS) was developed by Settoon et al. (1996) to assess the perceived organizational support of female university teachers in China. The scale contains seven items, scored on a five-point Likert scale ranging from "1" for "strongly disagree" to "5" for "strongly agree", with higher scores indicating stronger organizational support. In this research, the Cronbach's alpha coefficient of the scale was 0.939.

Control variables

Research have shown that demographic variables like age, education level, income, job title, number of children in the family and so on have an impact on individual work-family conflict (Kwon and Kim, 2020). In the basis of it, for the sake of ensuring the validity of the study, this study selects age, education level, job level, the number of children in the family, working years and so on as the control variables of this study.

Statistical processing

SPSS 25.0, PROCESS and Amos statistical software were adopted to input and analyze the statistics, and Pearson correlation analysis, Harman single factor test, mediating effect analysis and other statistical methods were used.

RESULTS AND DISCUSSION

Common method bias test

In terms of statistical tests, the researchers first employed Harman's single-factor test method to conduct exploratory factor analysis on the main items involved in the study with SPSS 25 software. The results of the dimensionality reduction showed that the variance explanation rate of the first unrotated factor was 43.798%, which is lower than the critical value of 50.00%, indicating that there was no significant common method bias in the research data.

Reliability and validity of the scale

The factor loading coefficients of the measurements in the study were all greater than 0.6. Therefore, the measurement index variables of each dimension can effectively prove the potential characteristics of its corresponding dimension. The Cronbach's α coefficient of each dimension is greater than 0.7, which means that the sample data has good reliability.

The composite reliability (CR) of each dimension was greater than 0.7, indicating that the measurement items of each latent variable had internal consistency. The average variance extracted (AVE) value of each dimension was greater than 0.5, implying that each dimension of the measurement model had good convergent validity (Table 1).

Discriminant validity test

Discriminant validity means that there is a low correlation or significant difference between the latent trait represented by a latent variable and the traits represented by other latent variables. For work-family conflict, the square root of AVE is 0.751, which is greater than the maximum absolute value of the correlation coefficient between factors 0.707, which means that it has good discriminant validity. For emotional exhaustion, the square root of AVE was 0.833, which was greater than the maximum absolute value of the correlation coefficient between factors (0.707), indicating that it had good discriminant validity. For perceived organizational support, the square root of AVE was 0.813, which was less than the maximum absolute value of the inter-factor correlation coefficient 0.873, indicating that the discriminant validity was not good. For work engagement, the square root of AVE was 0.756, which was less than the maximum absolute value of the inter-factor correlation coefficient 0.873, indicating that the discriminant validity was not good. Consequently, the measurement model has good discriminant validity (Table 2).

Hypothesis testing

Direct effect test

According to the results in Table 3 and Figure 2,

Table 1. Reliability and convergence validity examination.

Factor	Indicator	Coef.	Std. error	*z*	*p*	Std. estimate	Cronbach's α	CR	AVE
WFC	WFC1	1	-	-	-	0.820	0.928	0.928	0.564
	WFC10	0.965	0.049	19.580	0	0.754			
	WFC2	1.035	0.049	20.915	0	0.790			
	WFC3	0.993	0.048	20.752	0	0.786			
	WFC4	1.015	0.046	21.867	0	0.814			
	WFC5	0.704	0.044	15.907	0	0.644			
	WFC6	0.912	0.046	19.774	0	0.759			
	WFC7	0.878	0.049	18.052	0	0.710			
	WFC8	0.868	0.051	17.131	0	0.682			
	WFC9	0.958	0.051	18.866	0	0.734			
EE	EE1	1	-	-	-	0.880	0.918	0.919	0.693
	EE2	0.956	0.041	23.485	0	0.804			
	EE3	1.005	0.041	24.795	0	0.828			
	EE4	0.941	0.041	23.164	0	0.797			
	EE5	0.987	0.038	26.013	0	0.850			
POS	POS1	1	-	-	-	0.808	0.939	0.939	0.662
	POS2	1.220	0.055	22.173	0	0.825			
	POS3	1.173	0.052	22.671	0	0.838			
	POS4	1.188	0.048	24.591	0	0.884			
	POS5	0.940	0.050	18.859	0	0.734			
	POS6	1.265	0.051	24.680	0	0.886			
	POS7	1.198	0.051	23.705	0	0.863			
	POS8	0.746	0.047	15.729	0	0.637			
WE	WE1	1	-	-	-	0.778	0.922	0.923	0.571
	WE2	0.967	0.056	17.417	0	0.716			
	WE3	1.072	0.057	18.681	0	0.758			
	WE4	1.060	0.053	19.969	0	0.799			
	WE5	1.136	0.059	19.207	0	0.775			
	WE6	1.069	0.063	16.957	0	0.700			
	WE7	1.046	0.056	18.657	0	0.757			
	WE8	1.045	0.054	19.507	0	0.785			
	WE9	0.962	0.054	17.758	0	0.727			

Source: Author.

assuming that the standardized path coefficients of H1, H2, H3, H4 and H5 are 0.686, -0.162, -0.347, -0.248 and 0.886 separately, the P values are all less than 0.05, and the hypothesis is established. Only the influence of emotional exhaustion on work engagement (β = 0.009, P > 0.05) did not reach the prominent level, and the hypothesis H6 was not valid.

Mediating effect test

For this research, hierarchical regression method is adopted to measure the main influence and mediating effect of hypotheses 1 to 6 respectively. First, we test the negative influence of work-family conflict on work engagement of female university teachers; Second, we test the positive influence of work-family conflict on emotional exhaustion of female university teachers, and the negative influence of work and family conflict on perceived organizational support of female college teachers, and the positive influence of perceived organizational support on emotional exhaustion of female college teachers; Finally, work-family conflict, emotional exhaustion and perceived organizational support were put into the regression equation at the same time to verify that the effect of work-family conflict on work engagement

Table 2. Mean, standard deviation and correlation coefficient of each variable.

	Mean	Std. E.	AGE	BIRTH	EDU	TITLE	LS	WE	POS	EE	WFC
AGE	1.963	0.749	1								
BIRTH	2.089	0.643	0.336**	1							
EDU	1.929	0.662	0.295**	0.042	1						
TITLE	2.589	0.945	0.572**	0.289**	0.364**	1					
LS	2.143	0.845	0.753**	0.386**	0.139**	0.556**	1				
WE	3.686	0.793	-0.151**	-0.177**	-0.130**	-0.197**	-0.165**	0.756			
POS	3.423	0.912	-0.197**	-0.137**	-0.166**	-0.202**	-0.215**	0.873**	0.813		
EE	2.911	1.083	-0.014	0.107*	0.113**	0.077	0.001	-0.500**	-0.457**	0.833	
WFC	2.938	0.953	-0.005	0.188**	0.133**	0.107*	-0.009	-0.431**	-0.330**	0.707**	0.751

Source: Author.

Table 3. The test results of path relationship.

Hypothesis	Path	Unstd.	S.E.	Z	P	Std.
H1	WFC→EE	0.741	0.045	16.313	***	0.686
H2	WFC→WE	-0.129	0.031	-4.195	***	-0.162
H3	WFC→POS	-0.350	0.047	-7.462	***	-0.347
H4	POS→EE	-0.266	0.037	-7.179	***	-0.248
H5	POS→WE	0.701	0.039	18.204	***	0.886
H6	EE→WE	0.006	0.030	0.210	0.834	0.009

Source: Author.

of female university teachers disappeared or weakened. The outcomes of the measurement are shown in Table 4 and Table 5.

After controlling age, child-rearing situation, education, working years and professional title, model 1 shows that work-family conflict of university female teachers can significantly and negatively predict their perceived organizational support ($\beta = -0.307$, $p < 0.01$), and hypothesis H3 is verified again; Model 2 showed that work-family conflict was a significant positive predictor of emotional exhaustion ($\beta = 0.711$, $p < 0.01$), and perceived organizational support was a significant negative predictor of emotional exhaustion ($\beta = -0.314$, $p < 0.01$). Hypotheses H1 and H4 were verified again; Model 3 showed that work-family conflict of university female teachers had a significant negative predictive effect on work engagement ($\beta = -0.345$, $p < 0.01$), and hypothesis H2 was verified again; Model 4 showed that the perceived organizational support of female university teachers had a significant positive predictive effect on work engagement ($\beta = -0.711$, $p < 0.01$), and emotional exhaustion had no significant predictive effect on work engagement ($\beta = -0.021$, n. s.). Hypothesis H5 was verified again, and hypothesis H6 was not verified.

In an effort to measure the mediating effect more accurately, the Bootstrap method recommended by Hayes was used to judge the importance of indirect effect. Combined with the structural equation model method, the indirect effect was more scientifically shown by repeated sampling and confidence interval. Bootstrap sampling test was used to study the mediating effect, and the number of samples was 1000. The outcomes in Table 6 showed that the 95% interval did not include the number 0 (95% CI: -0.333, -0.188) for the mediating path of "WFC→POS→WE", which indicated the existence of this mediating path. For the mediating path of "WFC→EE→WE", the 95% interval includes the number 0 (95% CI: -0.061, 0.021), indicating that this mediating effect path does not exist. Then the chain mediation effect path was analyzed. For the mediation path of "WFC→POS→EE→WE", the 95% interval included the number 0 (95% CI: -0.009, 0.003), which indicated that this mediation effect path did not exist.

Research conclusion

This study introduced JD-R model into the study of work-family conflict, and explored the connection and mechanism between work-family conflict, emotional exhaustion, perceived organizational support and work engagement.

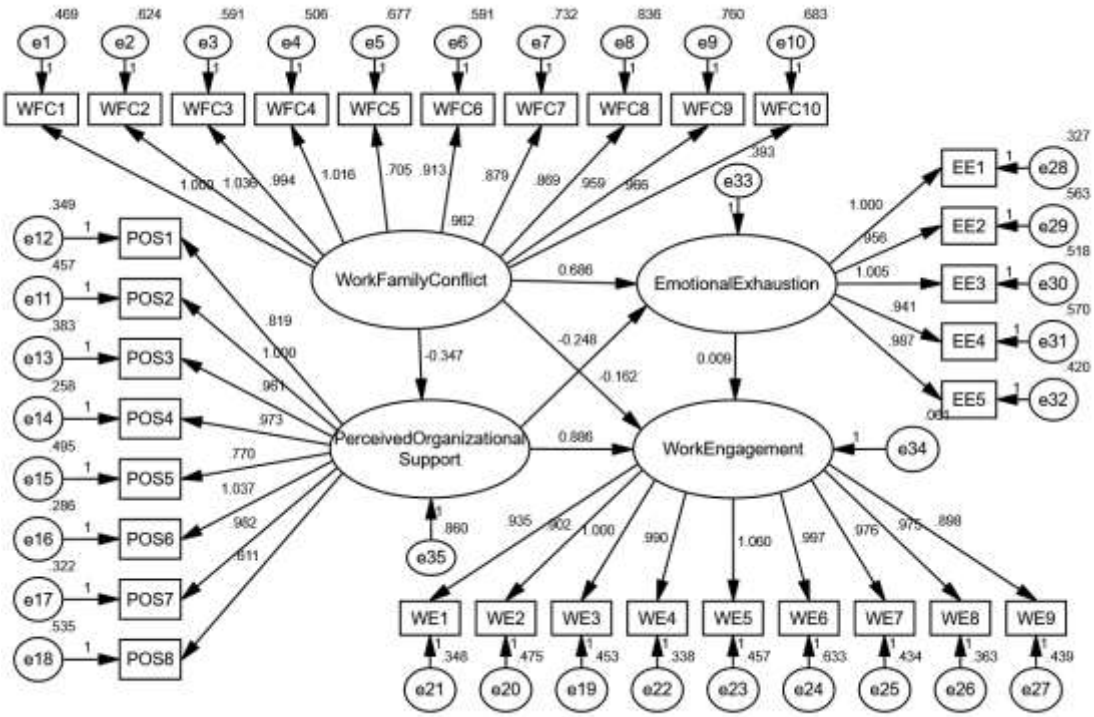

Figure 2. Author Model path diagram and normalized estimates.
Source: Author.

First, the study confirmed the negative impact of work-family conflict on work engagement. According to the JD-R model, job demand is a negative factor that consumes personal work energy, and job overburden, role conflict and time stress in work-family conflict will consume individual energy (Bakker et al., 2014; Lyu and Fan, 2020). At the same time, China advocates "collectivism" and "harmony" in Confucianism, believing that work is for a good family life, and the traditional concept that women should be more "husband and children". So when there is less conflict between work and family, women will put more resources into the family (Kwon and Kim, 2020). Faced with the role conflict between family and work, female university teachers actively or unconsciously devote most of their energy to the family, and the change of family structure leads to the need for children to bear the life care of the previous and next generations, resulting in increased family pressure, thus neglecting the role of work and having no time and energy to devote to teaching. Role conflict will inevitably lead to a decline in work engagement (Filho et al., 2021).

This research also found that the perceived organizational support of female university teachers plays a partial mediating role between work-family conflict and work engagement: that is, the work-family conflict of female university teachers can indirectly affect work engagement through the perceived organizational support. According to the JD-R model, perceived organizational support is a job resource, which can stimulate employees' work motivation, improve work engagement, and then have a positive impact (Bakker et al., 2014). Perceived organizational support, as a positive variable, weakens the negative impact of work-family conflict on female university teachers to a certain extent. Foreign scholars have found that perceived organizational support can inhibit the negative impact of adverse factors on female university teachers after combing many literatures and studies (Dai et al., 2021).When female university teachers have a higher level of organizational support, they will devote themselves to their work.

Work-family conflict will bring stress, tension, burnout and other adverse psychological and physical symptoms to employees. Similarly, according to the attrition path hypothesis of the JD-R model, excessive job demands (such as work-family conflict in this study) can also trigger the energy exhaustion of female university teachers, which in turn has a negative impact on female teachers and universities (Bakker and Demerouti, 2017). However, in this study, the mediating role of emotional exhaustion between work-family conflict and work engagement of female university teachers is not significant.

Management inspiration

This research shows certain guiding importance for the practice of university management. Administrators should

Table 4. Regression analysis results of main effect, mediating effect.

	POS（Model 1）	EE（Model 2）	WE（Model 3）	WE（Model 4）
Constant	5.046** -26.972	2.143** -8.528	5.241** -33.341	1.667** -12.217
AGE	-0.042 (-0.519)	-0.078 (-1.124)	-0.02 (-0.303)	0.008 -0.222
BIRTH	0.017 -0.273	-0.048 (-0.862)	-0.041 (-0.771)	-0.055 (-1.959)
EUDCATION	-0.11 (-1.774)	0.011 -0.197	-0.036 (-0.685)	0.043 -1.592
TITLE	-0.027 (-0.528)	-0.013 (-0.282)	-0.054 (-1.257)	-0.035 (-1.558)
LS	-0.184** (-2.600)	0.008 -0.134	-0.095 (-1.596)	0.037 -1.192
WFC	-0.307** (-7.645)	0.711** -19.444	-0.345** (-10.242)	-0.110** (-4.508)
POS		-0.314** (-8.227)		0.711** -34.437
EE				-0.021 (-0.931)
Sample	518	518	518	518
R^2	0.166	0.561	0.221	0.789
Adjust R^2	0.157	0.555	0.212	0.786
F value	*F* (6,511)=17.008 *p*=0.000	*F* (7,510)=92.992 *p*=0.000	*F* (6,511)=24.192 *p*=0.000	*F* (8,509)=237.829 *p*=0.000

* $p<0.05$ ** $p<0.01$ T value in brackets.
Source Author.

Table 5. Effect analysis.

Effect	Path	Effect	*SE*	*t*	*p*	LLCI	ULCI
Direct effect	WFC→WE	-0.110	0.024	-4.508	0.000	-0.158	-0.062
	WFC→POS	-0.307	0.040	-7.645	0.000	-0.385	-0.228
	WFC→EE	0.711	0.037	19.444	0.000	0.639	0.782
Indirect effect	POS→EE	-0.314	0.038	-8.227	0.000	-0.389	-0.239
	POS→WE	0.711	0.021	34.437	0.000	0.670	0.751
	EE→WE	-0.021	0.022	-0.931	0.352	-0.065	0.023
Total effect	WFC→WE	-0.345	0.034	-10.242	0.000	-0.411	-0.279

Source: Author.

focus on the coordination between work and family of university women teachers. When university women teachers spend too much time to complete their work, their work performance and project performance will be improved in a short time, but their long-term consumption of internal and emotional resources will lead to emotional exhaustion of female university teachers, which may reduce their work performance and affect their work engagement (Lyu and Fan, 2020). In order to reduce the interference and trouble of work-family conflict on female university teachers and improve their work engagement, on the one hand, universities should actively focus on the career growth of female university teachers and the work-family conflict behind it, provide organizational support resources from various aspects, implement family-friendly policies, improve incentive mechanisms, and help them effectively balance the relationship between family and work (Dai et al., 2021). When employees feel strong

Table 6. Mediation effect analysis.

Item	Effect	Boot SE	BootLLCI	BootULCI	*z*	*p*
WFC→POS→WE	-0.218	0.037	-0.333	-0.188	-5.828	0
WFC→EE→WE	-0.015	0.021	-0.061	0.021	-0.709	0.478
WFC→POS→EE→WE	-0.002	0.003	-0.009	0.003	-0.682	0.495

Source: Author.

work-family conflict, they should take appropriate intervention strategies, such as providing leave, flexible work arrangements, workplace social support, psychological counseling, work-family conflict coping strategy training, to help employees reduce work-family conflict, reduce job burnout and improve work engagement (Zeng and Xu, 2020). On the other hand, female university teachers themselves should actively deal with the negative impact of work-family conflict on themselves. We should rationally plan our career, actively seek help, alleviate work-family conflicts, better adapt to the workplace, improve work input, and help our career growth (Watts and Robertson, 2011).

Research limitations and future research

First of all, although there is no serious common method bias in this research through Harman's one-way test, the data obtained in this study are only obtained by female university teachers themselves filling in questionnaires, and the cross-sectional data at a certain time point are selected, so it may still be affected by common method bias. In future research, we can collect questionnaires from different evaluation subjects such as superiors, colleagues and subordinates or at two different time points to relieve the impact of common method bias from the procedure. Secondly, in order to focus on the existing problems, this study uses demographic variables, like age, education, professional title, fertility and years of working as control variables, and only focuses on the two mediating variables of emotional exhaustion and perceived organizational support. However, the empirical research on the connection between individual differences, psychological characteristics and work engagement, as well as the position of different types of resources in the JD-R model is of great value, and follow-up studies should be more in-depth discussion and analysis on these issues.

CONFLICT OF INTERESTS

The authors have not declared any conflicts of interests.

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