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Exploring the mediating role of social support and self-efficacy in the relationship between work family conflict and mental health outcomes in China

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Abstract

This study aimed to investigate the impact of work-family conflict (WFC) and family-work conflict (FWC) on depression and anxiety among Chinese professionals, with a specific focus on the mediating roles of perceived social support (PSS) and general self-efficacy (GSE). Using nationwide data from the 2021 China Residents' Psychology and Behavior Survey, a sample of 4,579 employed individuals aged 18 to 60 was analyzed. Descriptive statistics, Spearman correlation analysis, and mediation analysis were conducted to systematically examine the effects of WFC and FWC on depression and anxiety levels. A bootstrap procedure with 5,000 resamples was applied to assess the stability and significance of the mediation effects. The analysis revealed a significant positive correlation between WFC and FWC ($r=0.715$, $p<0.01$). Both WFC and FWC were negatively associated with PSS (r = -0.166 and −0.285, respectively) and GSE (r = -0.127 and −0.239, respectively), while showing positive associations with depression ($r=0.398$ and 0.468, respectively) and anxiety ($r=0.403$ and 0.479, respectively) (all $p<0.01$). Mediation analysis further demonstrated that PSS and GSE significantly mediated the relationships between WFC/FWC and mental health outcomes ($p<0.001$). The study reveals the mechanisms through which WFC and FWC affect mental health, proposing a new perspective that integrates external resources (PSS) and internal resources (GSE), while addressing a critical gap in research within the Chinese cultural context. It highlights the significant negative impact of WFC and FWC on the mental health of Chinese professionals and underscores the key mediating roles of PSS and GSE in these relationships. The findings provide important insights into the mental health challenges associated with high-intensity work environments and offer an empirical basis for developing targeted intervention strategies to mitigate these effects.

Keywords Work-family conflict · Family-work conflict · Depression · Anxiety · Perceived social support · Self-efficacy

Introduction

Depression and anxiety are among the most prevalent mental health disorders worldwide, placing a significant burden on individual well-being and socioeconomic development. According to a report by the World Health Organization (WHO, 2022), over 300 million people globally suffer from these conditions. Among professional populations, the risk of mental health issues is particularly pronounced due to job-related stress, occupational burnout, and the challenges of balancing multiple roles (Nexø et al., 2018; Maslach & Leiter, 2016; Schaufeli et al., 2009). Beyond diminishing individual quality of life, depression and anxiety also hinder broader economic and social progress (Ferrari et al., 2013; Baxter et al., 2013). In China, rapid economic growth and social transformation have exacerbated mental health challenges within the workforce. The 2021–2022 National Mental Health Development Report revealed that 10.6% of Chinese adults were at risk of depression, and 15.8% faced an elevated risk of anxiety, with work-related stress identified as a primary contributing factor (Fu et al., 2023). High-pressure occupations—such as those in healthcare, education, and finance—often involve long-term, high-intensity responsibilities, placing workers at heightened

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risk for mental health issues. For instance, a study of 50,000 healthcare professionals in China reported that over 40% experienced symptoms of depression and anxiety (Yang et al., 2021). Similarly, precarious employment arrangements, such as contract or part-time work, have been strongly linked to increased mental health risks. These findings highlight the complexity of mental health challenges among professional populations and underscore the need to identify specific determinants and effective coping mechanisms within the Chinese context (Fan, 2024; Tang et al., 2001).

Work family conflict is defined as the strain that arises when the time, energy, and psychological resources required by one's work and family roles are incompatible and compete with one another (Greenhaus & Beutell, 1985). This concept represents a pervasive challenge in modern work environments and has significant implications for individuals' quality of life and mental health (Allen et al., 2000; Frone et al., 1997). As China's economy continues to grow and urbanization accelerates, work family conflict has become increasingly common. High-intensity work practices, such as the "996" schedule (working from 9 a.m. to 9 p.m., six days a week), further complicate efforts to balance professional and family commitments (Tingting & Pasitpakakul, 2023). Research has identified two main forms of work family conflict: work-to-family conflict (WFC), where job demands interfere with family responsibilities, and family-to-work conflict (FWC), where family demands disrupt work performance (Greenhaus & Beutell, 1985). For example, a study of healthcare professionals in China found that WFC was more strongly associated with anxiety and burnout, while FWC had a greater impact on life satisfaction (Wang et al., 2012). These findings underscore the critical role of work family conflict in influencing mental health outcomes and provide a foundation for further exploration of its underlying mechanisms (Allen et al., 2000; Frone et al., 1997).

Despite these insights, current research leaves important gaps in understanding how work family conflict affects mental health, particularly within the Chinese cultural context. The roles of social support and self-efficacy in this process remain underexplored. Social support, as a vital resource for alleviating stress, may buffer the harmful effects of work-family conflict on mental health (Cohen & Wills, 1985; Thoits, 2011; Cobb, 1976). Similarly, self-efficacy—defined as an individual's belief in their ability to manage challenges—may shape coping strategies in conflict situations (Bandura, 1997; Schwarzer & Hallum, 2008).

This study addresses two key gaps in the existing literature. First, most research on work family conflict and mental health has been conducted in Western contexts, highlighting the need for systematic investigation in China. Second, limited attention has been paid to the simultaneous roles of perceived social support (PSS) and general self-efficacy (GSE) in the relationship between work family conflict and mental health. By examining how WFC and FWC influence mental well-being—focusing on the mediating roles of PSS and GSE, and situating the analysis within China's distinct cultural environment—this study aims to clarify the underlying mechanisms and provide both theoretical and practical strategies for improving mental health among professionals.

Literature review and research hypotheses

Work family conflict and mental health

WFC and FWC are two typical manifestations of work-family conflict, and their negative impacts on mental health have emerged as key research concerns in the fields of psychology and organizational behavior (Kalliath et al., 2014). WFC primarily arises from excessive work demands (e.g., overtime, scheduling conflicts), thereby impeding individuals' ability to fulfill family roles. Studies have shown that WFC is significantly associated with adverse psychological outcomes such as mental fatigue, anxiety, and depression, and notably diminishes life satisfaction and overall well-being (Nora & Anggraeni, 2020; Jaramillo et al., 2022). In contrast, FWC stems from family responsibilities (e.g., childcare, household chores) interfering with work performance. FWC increases psychological stress, reduces work efficiency, and exerts a notable impact on family satisfaction (Michel et al., 2011). Despite the different sources of these conflicts, research indicates that both WFC and FWC adversely affect mental health, manifesting as psychological fatigue, emotional distress, and a comprehensive decline in life satisfaction (Mesmer-Magnus & Viswesvaran, 2005).

Further research reveals that WFC tends to have a more pronounced impact in the work domain, leading to issues such as job burnout and decreased job satisfaction, while FWC predominantly affects the family domain, lowering the quality of family relationships and family cohesion (Nohe et al., 2015). Nevertheless, WFC and FWC exhibit similar mechanisms in triggering mental health problems, underscoring the critical role of the bidirectional interplay between work and family domains on individual psychological states. According to Conservation of Resources (COR) Theory, both WFC and FWC originate from resource competition pressures, where resource depletion (e.g., time and energy) renders balancing work and family roles increasingly difficult (Byron, 2005). The matching hypothesis further emphasizes that the alignment between the source of supportive resources and the direction of conflict is of paramount importance. For example, workplace support significantly alleviates WFC, while family support is more

effective in mitigating the negative impacts of FWC (Nohe et al., 2015). Moreover, cross-domain resource support (e.g., the indirect alleviation of WFC by family support) has also been shown to have positive effects (Haar & Roche, 2010).

In summary, the dual conflict effects of WFC and FWC, resource competition, and the lack of supportive systems together form a multifaceted framework that explains their impact on mental health. Based on the above literature, the following hypotheses are proposed for further verification:

Hypothesis H1a: WFC negatively affects mental health by increasing the risk of depression and anxiety.

Hypothesis H1b: FWC negatively affects mental health by increasing the risk of depression and anxiety.

Mediating role of perceived social support

WFC is a critical factor negatively influencing mental health. Support from the workplace (e.g., assistance from leaders and colleagues) substantially diminishes the encroachment of work-related stress on family responsibilities, thereby effectively alleviating the severity of WFC (Kossek et al., 2011). Moreover, social support serves to alleviate the effects of WFC on anxiety and depression by reducing individuals' perceived stress (Selvarajan et al., 2013; French et al., 2018). For specific groups, such as migrants, a lack of perceived social support exacerbates mental health challenges caused by WFC, underscoring the vital importance of social support (Rudolph et al., 2014).

FWC refers to the interference of family responsibilities with work roles. Research has shown that family support (e.g., emotional support from a spouse) is of paramount importance in mitigating the detrimental effects of family affairs on work (Md-Sidin et al., 2010). When workplace support (e.g., organizational care and leadership support) is insufficient, the negative repercussions of FWC on anxiety and depression intensify considerably (Hao et al., 2016). Among specific occupational groups, such as healthcare workers, social support functions as a critical buffer by alleviating emotional exhaustion and mitigating the relationship between FWC and mental health (Zhang et al., 2020).

Overall, the sources and mechanisms of social support in WFC and FWC differ significantly. The alleviation of WFC relies more on workplace support, while FWC is more influenced by family support (Kossek et al., 2011; Md-Sidin et al., 2010). Both WFC and FWC notably elevate the risks of anxiety and depression by exacerbating emotional exhaustion and perceived stress. However, social support can effectively reduce these adverse effects (Hao et al., 2016; Zhang et al., 2020). Studies targeting specific groups, such as migrants and high-intensity workers (e.g., healthcare professionals), reveal that insufficient social support magnifies the negative impact of WFC and FWC on mental health.

Based on the above literature, the following hypotheses are proposed for verification:

Hypothesis H2a: Perceived social support mediates the relationship between WFC and mental health, thereby reducing the risk of depression and anxiety.

Hypothesis H2b: Perceived social support mediates the relationship between FWC and mental health, thereby reducing the risk of depression and anxiety.

Mediating role of general self-efficacy

General self-efficacy is a key mediator in the relationship WFC and mental health. Studies have shown that WFC can lead to mental health challenges including anxiety and depression. For instance, Hao et al. (2015) found that WFC significantly increased depressive symptoms among Chinese nurses, while psychological capital acted as both a moderator and mediator, thus mitigating its adverse impacts (Hao et al., 2015). Furthermore, Smoktunowicz et al. (2017) emphasized that self-efficacy mediates the impact of work and family demands on stress, thereby alleviating individual anxiety (Smoktunowicz et al., 2017).

In the context of FWC, self-efficacy also exhibits noteworthy mediating effects. Küçükkaya and Kahyaoğlu Süt (2022) reported that during the COVID-19 pandemic, Turkish women's self-efficacy in coping with FWC substantially alleviated anxiety and depression symptoms (Küçükkaya & Kahyaoğlu Süt, 2022). Additionally, Huang et al. (2024) found that FWC indirectly affects mental health through pathways such as job burnout and psychological resilience, with self-efficacy effectively reducing the associated risks throughout this process (Huang et al., 2024).

Overall, self-efficacy acts as a crucial intermediary connecting WFC, FWC, and mental health. By enhancing individuals' capacity to cope with work and family conflicts, self-efficacy can significantly alleviate anxiety and depression triggered by such conflicts. Based on existing literature, the following hypotheses are proposed:

Hypothesis H3a: General self-efficacy mediates the relationship between WFC and mental health, thereby reducing the risk of depression and anxiety.

Hypothesis H3b: General self-efficacy mediates the relationship between FWC and mental health, thereby reducing the risk of depression and anxiety.

Based on the aforementioned theories and empirical findings, this study introduces a conceptual framework (refer to Fig. 1). In this model, WFC and FWC are the independent

variables, while PSS and GSE function as mediators. Depression and anxiety represent the dependent variables. This framework explains the relationship between work-family conflict and mental health through the mediating roles of PSS and GSE, offering a theoretical basis for comprehending the underlying dynamics of these relationships.

Methods

Participants

The data for this study were derived from the 2021 "Psychology and Behavior Investigation of Chinese Residents" (PBICR) (Wu et al., 2024b). PBICR is a nationally representative large-scale survey aimed at exploring factors related to the psychology and behavior of Chinese residents through the periodic collection of high-quality microdata covering the general population, specific groups, and patients with particular conditions. This survey provides critical data support for interdisciplinary research on health across the lifespan. The 2021 PBICR data included samples from 34 provinces and 120 cities across China, making it highly representative of various regions, age groups, and genders.

PBICR data underwent ethical review and were approved under protocols JKWH-2021-01 and JNUKY-2021-018, adhering strictly to the ethical principles of the Declaration of Helsinki. Participants were required to have the cognitive ability to comprehend the survey content (either independently or with assistance) and to participate voluntarily. The survey covered a wide range of topics, including sociodemographic characteristics, family features, and mental health status. A total of 11,031 valid responses were collected. For this study, we selected employed participants aged 18–60 years. After excluding cases with logical inconsistencies and missing data, the final sample consisted of 4,579 valid responses, including 2,375 women and 2,204 men.

Measures

Sociodemographic variables

Ten sociodemographic variables were included: age, gender, marital status, educational attainment, current occupation, monthly household income per capita, household registration type, residence location, smoking status, and drinking status. Age was categorized into four groups: 19–30 years, 31–40 years, 41–50 years, and 51–60 years. Gender was classified as female or male. Marital status was divided into married and unmarried (including single, divorced, or widowed). Educational attainment was categorized as middle school or below, high school/vocational school, associate degree/bachelor's degree, and master's/doctoral degree. Occupation was divided into four categories: decision-making and technical professions (e.g., leadership or technical roles), service and support occupations (e.g., service industry or administrative support roles), production and operational occupations (e.g., manual labor or technical operation), and special occupations (e.g., military personnel or roles not classified elsewhere). Monthly household income per capita was divided into ≤3,000 CNY,

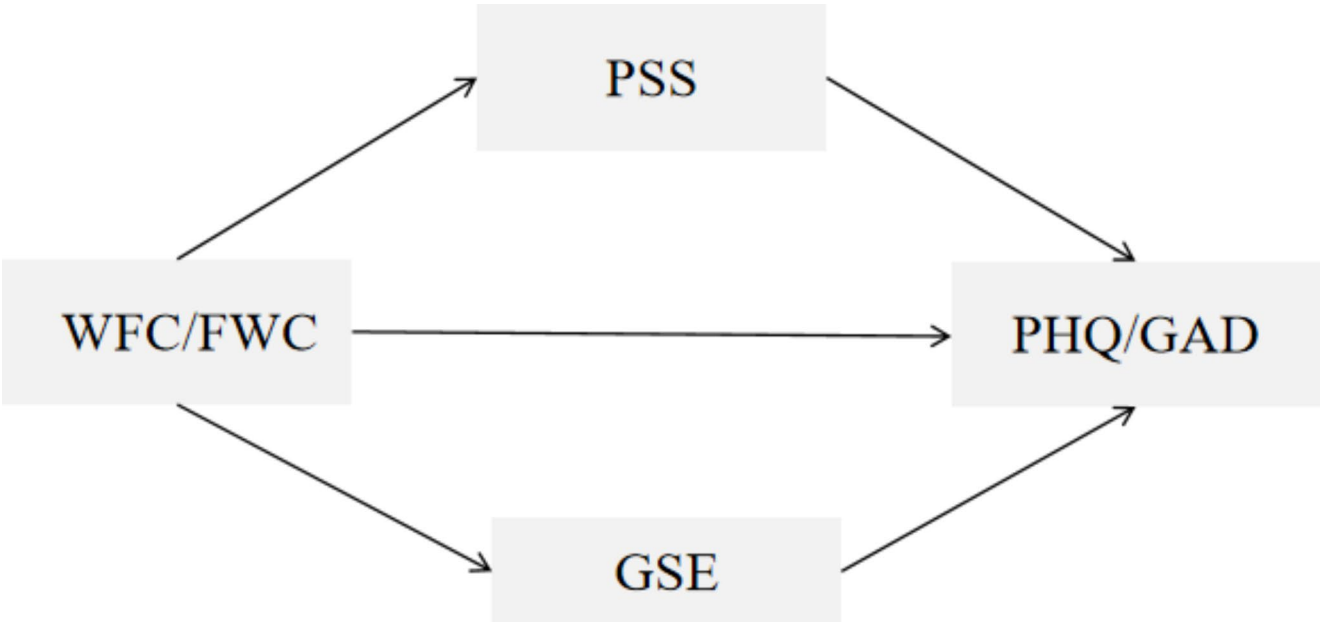

Fig. 1 Hypothetical pathways of the effects of work family conflict on depression and anxiety

3,001–7,500 CNY, and ≥7,501 CNY. Household registration type was categorized as agricultural or non-agricultural. Residence location was classified as rural or urban. Smoking and drinking status were classified as yes or no.

Work family conflict

Work-family conflict was assessed using the Work and Family Conflict Scale (WAFCS) (Greenhaus & Beutell, 1985; Frone, 2000). This scale includes 10 items divided into two dimensions: Work-to-Family Conflict (WFC) and Family-to-Work Conflict (FWC). WFC measures the impact of work on family life (e.g., "My work prevents me from spending enough time with my family"), while FWC evaluates the interference of family responsibilities with work (e.g., "Family responsibilities exhaust me, making it difficult to concentrate on work"). Responses were rated on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree), with lower scores indicating higher levels of conflict. In this study, the internal consistency (Cronbach's alpha) for WFC was 0.910, and for FWC, it was 0.935.

Perceived social support

The Perceived Social Support Scale was used to measure participants' perceived levels of PSS (Zimet et al., 1988). This scale includes 12 items divided into three subscales assessing support from family, friends, and significant others. Each item is rated on a seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree), with higher total scores indicating greater perceived social support. The internal consistency (Cronbach's alpha) for this study was 0.958.

Self-efficacy

The General Self-Efficacy Scale was used to evaluate participants' levels of GSE (Schwarzer & Jerusalem, 1995). This eight-item scale measures individuals' beliefs in their ability to cope with challenges and achieve goals. Each item is rated on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree), with higher scores indicating greater self-efficacy. The internal consistency (Cronbach's alpha) for this study was 0.942.

Depressive symptoms

Depressive symptoms were measured using the Patient Health Questionnaire-9 (PHQ-9) (Kroenke et al., 2001). This widely used self-report scale assesses the severity of depressive symptoms based on the nine diagnostic criteria for major depression in the DSM-IV. Each item is rated on a four-point scale ranging from 0 (not at all) to 3 (nearly every day), with a total score ranging from 0 to 27. Higher scores indicate greater severity of depressive symptoms. The Cronbach's alpha for this scale was 0.938.

Anxiety symptoms

Anxiety symptoms were measured using the Generalized Anxiety Disorder Scale-7 (GAD-7) (Spitzer et al., 2006). This seven-item self-report scale is designed to screen for generalized anxiety disorder and assess its severity. Each item is rated on a four-point scale ranging from 0 (not at all) to 3 (nearly every day), with total scores ranging from 0 to 21. Higher scores indicate greater anxiety severity. The Cronbach's alpha for this scale was 0.955.

Statistical analysis

Descriptive statistics were used to examine the sociodemographic characteristics of the sample and to compare the distribution of depression and anxiety symptoms across different groups. WFC and FWC were treated as independent variables, while depression and anxiety symptoms served as the dependent variables. PSS and GSE were included as mediating variables.Bivariate correlation analysis was performed to evaluate the relationships between variables. To assess the mediation effects, a bootstrap method with 5,000 resamples was employed. This approach provided estimates of the standard errors, tested the significance of the mediation effects, and generated 95% bias-corrected confidence intervals (CIs).All models were adjusted for potential covariates, including age, gender, marital status, educational attainment, current occupation, monthly household income per capita, household registration type, residence location, smoking, and drinking, to minimize confounding effects. All statistical analyses were conducted using Stata 17 software, with the significance level set at $p<0.05$.

Results

Descriptive analysis

Table 1 provides the descriptive statistics of the study variables. The mean scores for WFC and FWC were 13.117 (±4.473) and 11.633 (±4.406), respectively, indicating moderate levels of work-family conflict within the sample. The mean PSS score was 61.178 (±12.684), while the mean GSE score was 29.359 (±5.112), suggesting overall high levels of perceived social support and self-efficacy among participants.

Table 1 Descriptive statistics of study variables

Variable	Mean (SD)	*n* (%)
Work-Family Conflict (WFC)	13.117 (4.473)	
Family-Work Conflict (FWC)	11.633 (4.406)	
Perceived Social Support (PSS)	61.178 (12.684)	
General Self-Efficacy (GSE)	29.359 (5.112)	
PHQ (Depression Severity)	5.651 (5.356)	
GAD (Anxiety Severity)	4.089 (4.359)	
Depression Severity		
None		2258 (49.31)
Mild		1552 (33.89)
Moderate		411 (8.98)
Moderately Severe		281 (6.14)
Severe		77 (1.68)
Anxiety Severity		
Normal		2714 (59.27)
Mild		1367 (29.85)
Moderate		401 (8.76)
Severe		97 (2.12)
Age Group		
19–30 years		1171 (25.57)
31–40 years		1244 (27.17)
41–50 years		1645 (35.92)
51–60 years		519 (11.33)
Gender		
Female		2375 (51.87)
Male		2204 (48.13)
Marital Status		
Married		3637 (79.43)
Single		942 (20.57)
Educational Attainment		
Middle School or Below		539 (11.77)
High School/Vocational		736 (16.07)
Associate/Bachelor's Degree		2816 (61.50)
Master's/Doctorate		488 (10.66)
Current Occupation		
Decision-Making/Technical		2084 (45.52)
Service/Support		1018 (22.24)
Production/Operation		375 (8.19)
Monthly Household Income per Capita		
≤3000 CNY		787 (17.19)
3001–7500 CNY		2453 (53.57)
≥7501 CNY		1339 (29.24)
Household Registration Type		
Agricultural		1304 (28.48)
Non-Agricultural		3275 (71.52)
Residence Location		
Rural		737 (16.10)
Urban		3842 (83.90)
Smoking		
Yes		3825 (83.53)
No		754 (16.47)
Alcohol Consumption		
Yes		2436 (53.20)
No		2143 (46.80)

Table 2 Correlation matrix of observed variables

Variable	WFC	FWC	PSS	GSE	PHQ
WFC	-				
FWC	0.715**	-			
PSS	−0.166**	−0.285**	-		
GSE	−0.127**	−0.239**	0.561**	-	
PHQ	0.398**	0.468**	−0.222**	−0.232**	-
GAD	0.403**	0.479**	−0.199**	−0.222**	0.817**

*$p<0.01$

Regarding mental health, 49.31% of participants reported no depressive symptoms, 33.89% exhibited mild depressive symptoms, and 16.8% experienced moderate to severe depression. For anxiety, 59.27% of participants reported no symptoms, 29.85% had mild anxiety, and 10.88% experienced moderate to severe anxiety, indicating that a significant proportion of participants faced mental health challenges.

In terms of demographic characteristics, the majority of participants were aged 31–50 years (63.09%), female (51.87%), and married (79.43%). Most participants had attained an associate degree or bachelor's degree (61.50%). Occupationally, decision-making and technical professions accounted for 45.52% of the sample, followed by special occupations at 24.05%. Monthly household income per capita predominantly ranged from 3,001 to 7,500 CNY (53.57%). Additionally, 71.52% of participants had non-agricultural household registrations, 83.90% lived in urban areas, 83.53% were smokers, and 53.2% consumed alcohol.

Correlation analysis

Table 2 presents the results of the Spearman correlation analysis, examining the relationships between WFC, FWC, PSS, GSE, PHQ, and GAD. Table 2 shows a significant positive correlation between WFC and FWC ($r=0.715$, $p<0.01$). WFC was significantly negatively correlated with PSS and GSE ($r = -0.166$ and $r = -0.127$, $p<0.01$). Additionally, WFC exhibited significant positive correlations with PHQ and GAD ($r=0.398$ and $r=0.403$, $p<0.01$).

FWC showed stronger negative correlations with PSS and GSE ($r = -0.285$ and $r = -0.239$, $p<0.01$) compared to WFC. It also showed stronger positive correlations with PHQ and GAD ($r=0.468$ and $r=0.479$, $p<0.01$). Furthermore, a significant positive correlation was found between PSS and GSE ($r=0.561$, $p<0.01$).

These findings support H1a and H1b, indicating that WFC and FWC negatively impact mental health by increasing the risk of depression and anxiety.

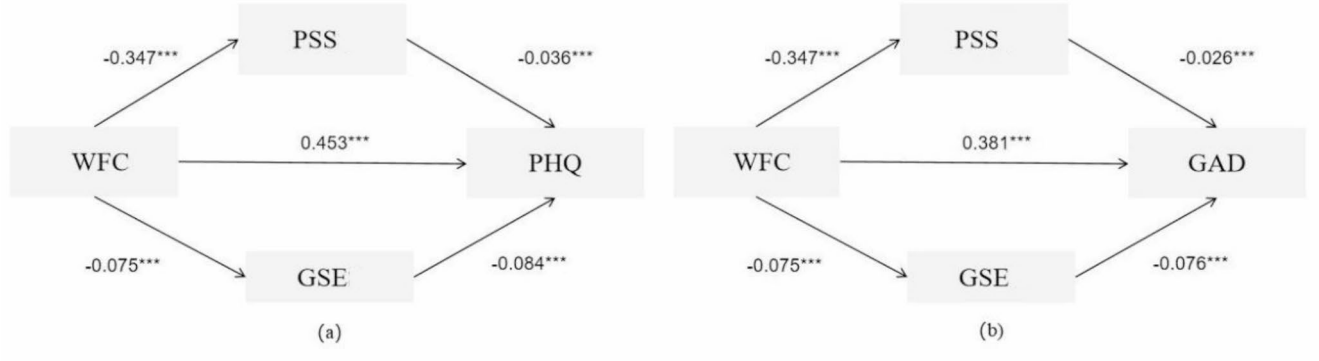

Fig. 2 Mediation Pathways of WFC on Depression (**a**) and Anxiety (**b**)

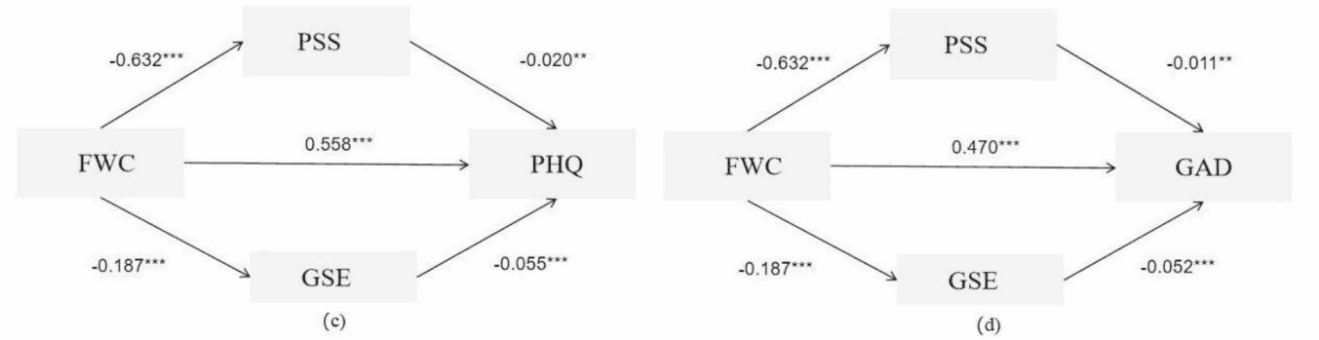

Fig. 3 Mediation pathways of FWC on depression (**c**) and Anxiety (**d**)

Mediation analysis

Mediation effects of WFC on PHQ and GAD

Table 3 displays the mediation analysis results for WFC on PHQ and GAD. The analysis revealed that PSS and GSE significantly mediated the relationships between WFC and these mental health outcomes. Specifically, WFC indirectly influenced PHQ through PSS and GSE, with indirect effects of 0.013 and 0.006, respectively (both $p<0.001$). Path analysis indicated that WFC significantly negatively predicted PSS ($\beta= -0.347$, 95% CI [−0.429, −0.265], $p<0.001$) and GSE ($\beta=-0.075$, 95% CI [−0.108, −0.042], $p<0.001$). Both PSS and GSE significantly negatively predicted PHQ (PSS: $\beta = -0.036$, 95% CI [−0.050, −0.023], $p<0.001$; GSE: $\beta = -0.084$, 95% CI [−0.117, −0.050], $p<0.001$).

For GAD, the indirect effects of WFC through PSS and GSE were 0.009 ($p=0.003$) and 0.006 ($p=0.001$), respectively, both significant. WFC had strong direct effects on PHQ ($\beta=0.453$, 95% CI [0.421, 0.485], $p<0.001$) and GAD ($\beta=0.381$, 95% CI [0.355, 0.407], $p<0.001$). Although the indirect effects were smaller, they significantly contributed to the total effects (PHQ: total effect $\beta = 0.472$, $p<0.001$; GAD: total effect $\beta= 0.396$, $p<0.001$).

These findings (see Fig. 2) provide empirical support for hypotheses H2a and H3a, as well as H3a and H3b.

Mediation effects of FWC on PHQ and GAD

Table 4 presents the mediation analysis results for FWC on PHQ and GAD. The findings indicate that PSS and GSE significantly mediated the effects of FWC on mental health. Specifically, FWC indirectly influenced PHQ through PSS and GSE, with indirect effects of 0.012 (95% CI [0.003, 0.023], $p=0.002$) and 0.010 (95% CI [0.001, 0.015], $p=0.001$), respectively. Path analysis showed that FWC significantly negatively predicted PSS ($\beta = -0.632$, $p<0.001$) and GSE ($\beta=-0.187$, $p<0.001$), while PSS and GSE significantly negatively predicted PHQ ($p=0.003$ and $p=0.001$, respectively). Additionally, the direct effect of FWC on PHQ was strong ($\beta=0.558$, $p<0.001$), with a total effect of 0.581 ($p<0.001$). Although the indirect effects were smaller, they significantly enhanced the overall impact.

In the pathways to GAD, FWC had an indirect effect through GSE of 0.010 ($p=0.001$), indicating that GSE plays a significant mediating role in mitigating anxiety. However, the indirect effect of FWC through PSS ($\beta=0.007$, $p=0.091$) did not reach statistical significance. The direct effect of

Table 3 Mediation Analysis of WFC on PHQ and GAD

Path	Meaning	*β*	95% CI		SE	*p*
WFC→PSS→PHQ	Indirect Effect	0.013	0.006	0.020	0.003	<0.001
WFC→PSS	X→M	−0.347	−0.429	−0.265	0.042	<0.001
PSS→PHQ	M→Y	−0.036	−0.05	−0.023	0.007	<0.001
WFC→PHQ	Direct Effect	0.453	0.421	0.485	0.016	<0.001
WFC→PHQ	Total Effect	0.472	0.440	0.504	0.016	<0.001
WFC→GSE→PHQ	Indirect Effect	0.006	0.001	0.009	0.002	<0.001
WFC→GSE	X→M	−0.075	−0.108	−0.042	0.017	<0.001
GSE→PHQ	M→Y	−0.084	−0.117	−0.050	0.017	<0.001
WFC→PHQ	Direct Effect	0.453	0.421	0.485	0.016	<0.001
WFC→PHQ	Total Effect	0.472	0.440	0.504	0.016	<0.001
WFC→PSS→GAD	Indirect Effect	0.009	0.005	0.019	0.003	0.003
WFC→PSS	X→M	−0.347	−0.429	−0.265	0.042	<0.001
PSS→GAD	M→Y	−0.026	−0.037	−0.015	0.006	<0.001
WFC→GAD	Direct Effect	0.381	0.355	0.407	0.013	<0.001
WFC→GAD	Total Effect	0.396	0.370	0.422	0.013	<0.001
WFC→GSE→GAD	Indirect Effect	0.006	0.002	0.009	0.002	0.001
WFC→GSE	X→M	−0.075	−0.108	−0.042	0.017	<0.001
GSE→GAD	M→Y	−0.076	−0.103	−0.049	0.014	<0.001
WFC→GAD	Direct Effect	0.381	0.355	0.407	0.013	<0.001
WFC→GAD	Total Effect	0.396	0.370	0.422	0.013	<0.001

X represents the independent variable, *Y* represents the dependent variable, and *M* represents the mediating variable. The analysis controlled for age, gender, marital status, educational attainment, current occupation, monthly household income per capita, household registration type, residence location, smoking, and alcohol consumption

Table 4 Mediation Analysis of FWC on PHQ and GAD

Path	Meaning	*β*	95% CI		SE	*p*
FWC→PSS→PHQ	Indirect Effect	0.012	0.003	0.023	0.004	0.002
FWC→PSS	X→M	−0.632	−0.713	−0.551	0.041	<0.001
PSS→PHQ	M→Y	−0.020	−0.033	−0.006	0.007	0.003
FWC→PHQ	Direct Effect	0.558	0.527	0.590	0.016	<0.001
FWC→PHQ	Total Effect	0.581	0.550	0.612	0.016	<0.001
FWC→GSE→PHQ	Indirect Effect	0.010	0.001	0.015	0.003	0.001
FWC→GSE	X→M	−0.187	−0.221	−0.154	0.017	<0.001
GSE→PHQ	M→Y	−0.055	−0.088	−0.023	0.016	0.001
FWC→PHQ	Direct Effect	0.558	0.527	0.590	0.016	<0.001
FWC→PHQ	Total Effect	0.581	0.550	0.612	0.016	<0.001
FWC→PSS→GAD	Indirect Effect	0.007	0.000	0.020	0.004	0.091
FWC→PSS	X→M	−0.632	−0.713	−0.551	0.041	<0.001
PSS→GAD	M→Y	−0.011	−0.022	−0.001	0.005	0.036
FWC→GAD	Direct Effect	0.470	0.445	0.496	0.013	<0.001
FWC→GAD	Total Effect	0.487	0.463	0.512	0.013	<0.001
FWC→GSE→GAD	Indirect Effect	0.010	0.003	0.015	0.003	0.001
FWC→GSE	X→M	−0.187	−0.221	−0.154	0.017	<0.001
GSE→GAD	M→Y	−0.052	−0.078	−0.026	0.013	<0.001
FWC→GAD	Direct Effect	0.470	0.445	0.496	0.013	<0.001
FWC→GAD	Total Effect	0.487	0.463	0.512	0.013	<0.001

X represents the independent variable, *Y* represents the dependent variable, and *M* represents the mediating variable. The analysis controlled for age, gender, marital status, educational attainment, current occupation, monthly household income per capita, household registration type, residence location, smoking, and alcohol consumption

FWC on GAD was 0.470 ($p<0.001$), and the total effect was 0.487 ($p<0.001$).

These findings (see Fig. 3) provide empirical support for hypotheses H2b and H3b.

Discussion

Significant impact of work family conflict on mental health

The findings confirm that both WFC and FWC significantly affect mental health outcomes, such as scores on the Patient Health Questionnaire (PHQ) and Generalized Anxiety Disorder (GAD) scale, underscoring their roles as major sources of psychological stress. Both WFC and FWC were positively associated with PHQ and GAD, with FWC demonstrating a stronger impact. This disparity may arise from the unique nature of family roles. Families are often viewed as primary sources of emotional support and psychological comfort. When family responsibilities interfere with work obligations, individuals may perceive a loss of support and experience heightened psychological imbalance. This observation aligns with Michel et al. (2010), who found that FWC is more likely to elicit feelings of helplessness and isolation, thereby exacerbating mental health issues. Similarly, Greenhaus and Beutell's (1985) theory emphasizes that an imbalance between work and family roles intensifies psychological stress.

Empirical evidence further supports these findings. For instance, Byron (2005), in a meta-analysis, demonstrated that both WFC and FWC contribute to psychological stress and long-term emotional disorders, such as GAD and depression. Additional studies have expanded on these results. Rahman & Ali (2021) observed that FWC, in particular, amplifies feelings of isolation and helplessness due to the irreplaceable role of family in providing daily emotional support. Furthermore, Allen et al. (2000) suggested that the impact of WFC may vary by gender and cultural context. In cultures that place a strong emphasis on family responsibilities, the negative effects of WFC may outweigh those of FWC, as WFC challenges traditional societal expectations regarding work and family roles. These findings suggest that interventions should consider cultural and gender-specific differences when addressing the mental health effects of WFC and FWC.

The mediating role of PSS and GSE

This study highlights the critical mediating roles of PSS and GSE in the relationships between WFC, FWC, and mental health outcomes. These results align with the Conservation of Resources (COR) theory, which posits that resource depletion or the perceived threat to resources, such as PSS and GSE, significantly affects mental health (Hobfoll, 1989). Specifically, higher levels of WFC and FWC reduce perceptions of PSS and GSE, thereby exacerbating psychological stress.

As an external resource, PSS alleviates psychological pressure by providing emotional, informational, and instrumental support (Cohen & Wills, 1985; Seiger & Wiese, 2009). For example, Williams et al. (2007) found that PSS significantly reduced the prevalence of PHQ and GAD symptoms among high-stress professional groups. Additional research highlights the role of PSS in promoting resource conservation (Van Daalen et al., 2006). House et al. (1988) observed that a strong social support network can significantly lower anxiety and depression in high-pressure environments by facilitating problem-solving and emotional regulation.

Similarly, GSE mitigates the adverse effects of conflict on mental health by enhancing individuals' confidence and proactive coping strategies (Bandura, 1997). Schwarzer and Hallum (2008) noted that GSE not only directly influences coping strategies but also indirectly reduces psychological stress by increasing individuals' sense of control over future situations. Furthermore, Luszczynska et al. (2005) found that cultural differences in GSE significantly moderate its effects on mental health. For example, in cultures that emphasize personal achievement, higher GSE can substantially buffer the negative influence of WFC and FWC on mental health.

The unique role of FWC

Interestingly, FWC exhibited a stronger negative predictive effect on PSS and GSE compared to WFC. This may be attributed to the central role of family in individuals' lives. Family is often seen as a primary source of emotional support, and when family obligations intrude on work responsibilities, individuals may experience a significant reduction in support and doubt their ability to cope effectively (Voydanoff, 2005). Lapierre and Allen (2006) found that FWC exerts a more profound influence on mental health by disrupting emotional support and perceptions of GSE.

Grzywacz et al. (2002) further observed that when FWC leads to the breakdown of close relationships, its negative impact on mental health becomes even more severe. These findings underscore the importance of strengthening family support systems and fostering emotional communication. Policy intervention studies also highlight the effectiveness of such measures. For example, Duxbury and Higgins (1991) demonstrated that flexible work arrangements and family-supportive policies significantly reduce FWC and

indirectly enhance PSS and GSE, thereby alleviating mental health issues. McNall et al. (2023) noted that the impact of FWC varies across life stages. For instance, in midlife, the dual burdens of work and child-rearing intensify the adverse effects of FWC.

These findings offer practical insights for designing interventions. Strategies such as improving emotional communication within families, strengthening family support networks, and promoting GSE through mental health education may prove effective (Hammer et al., 1997). Employers can also implement flexible work arrangements and family-friendly policies to alleviate FWC and indirectly improve mental health.

It is important to note that other potential variables may influence these findings. For example, individual personality traits (e.g., neuroticism and extraversion) may moderate the relationships between WFC, FWC, and mental health outcomes. Socioeconomic status could also amplify or mitigate these effects by shaping individuals' access to resources and the breadth of their support networks (Quick, 1990). Additionally, the temporal perspective is critical for understanding the effects of WFC and FWC. Long-term conflict may lead to chronic mental health problems, while short-term conflict might be more easily buffered by existing resources. Sensitivity to conflict may also vary by life stage. For example, individuals in midlife often face heavier family and work responsibilities, whereas younger adults may be more vulnerable to the instability of work roles. These observations suggest that future research should explore how time dynamics and individual differences shape the impact of WFC and FWC.

Strengths and limitations

This study has several notable strengths. First, it adopts a bidirectional perspective by separately examining the pathways through which WFC and FWC influence mental health. This approach provides a comprehensive framework for understanding both the similarities and differences between these two forms of conflict (Frone, 2000; Michel et al., 2011). Second, the study incorporates PSS and GSE as mediators, integrating both external and internal resources. This allows for a deeper understanding of how WFC and FWC contribute to depression (PHQ) and anxiety (GAD) (Cohen & Wills, 1985; Bandura, 1997). For instance, Schwarzer and Hallum (2008) highlight that GSE mitigates the negative effects of role conflict on mental health by enhancing coping abilities. Third, the study is based on a large-scale, representative Chinese sample. This design not only strengthens the statistical power of the findings but also enhances their relevance and applicability within the Chinese sociocultural context. Fourth, the study focuses on a specific professional group. While this scope is somewhat narrow, it increases the practical relevance of the findings and provides actionable recommendations for mental health interventions in high-stress occupations (Williams et al., 2007). Finally, the study bridges theoretical and practical perspectives by outlining concrete strategies to improve mental health through enhanced PSS and GSE, highlighting its applied significance.

However, several limitations should be acknowledged. First, the cross-sectional design limits causal inferences. Future studies should adopt longitudinal designs to capture changes over time (Nohe et al., 2015). Second, the focus on a specific professional group may restrict the generalizability of the findings. Future research should expand the sample to include diverse occupations and cultural contexts. Third, this study only includes PSS and GSE as mediating variables. Future research could explore additional mechanisms, such as emotion regulation and psychological resilience, to develop a more comprehensive theoretical model. Furthermore, cultural and gender differences in the relationship between conflict and mental health remain underexplored (Voydanoff, 2005; Eby et al., 2005). Finally, reliance on self-report data may introduce social desirability or recall bias. Future studies should incorporate multi-source data to validate these findings (Kossek et al., 2011). These limitations provide avenues for further investigation.

In addition, the parameters used in this analysis (including indirect and direct effects) were carefully selected based on theoretical frameworks and prior empirical evidence. For instance, the inclusion of PSS and GSE as mediating variables aligns with the Conservation of Resources theory, which highlights the importance of external and internal resources in mitigating stress. However, the sensitivity of these parameters to variations in the model warrants further investigation. For example, the operationalization of PSS and GSE (e.g., using different scales or thresholds) or the inclusion of additional covariates (e.g., demographic factors such as work stress) could potentially influence the magnitude and significance of the mediation effects. Future research should conduct robustness checks and sensitivity analyses to ensure the stability and reliability of these findings under different model specifications.

Conclusion

This study demonstrates the significant negative impact of WFC and FWC on PHQ and GAD from a bidirectional perspective, emphasizing the critical buffering roles of PSS and GSE as mediators. Using a large-scale, representative Chinese sample, the findings not only enhance the cultural relevance of the results but also contribute new insights to

global research on work-family conflict. The study enriches the theoretical framework of this field and extends the application of the Conservation of Resources theory by illustrating how resource depletion affects mental health.

On a theoretical level, this study uncovers the mechanisms through which WFC and FWC influence mental health, offering a fresh perspective that integrates external resources (PSS) and internal resources (GSE). It also addresses a key gap in the literature by providing evidence grounded in the Chinese sociocultural context, which has been underrepresented in previous research.

On a practical level, the study provides actionable recommendations. Organizations can mitigate the effects of work-family conflict by fostering PSS networks, offering mental health training, and establishing employee assistance programs (EAPs). Policymakers can reduce role conflicts by promoting flexible work arrangements and family-friendly policies. At the individual level, enhancing GSE through psychological education and skills training can strengthen coping abilities and improve overall mental health.

In summary, this study advances theoretical understanding while offering a culturally relevant and practical framework. It provides clear and actionable guidance for organizations, policymakers, and individuals to effectively address the challenges posed by WFC and FWC.

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Author contributions The author was responsible for drafting the manuscript, conceptualization, data analysis, visualization, and writing.

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Data availability The dataset from the 2021 China Resident Psychology and Behavior Survey is not publicly available due to privacy and ethical concerns. The survey data contains sensitive personal information and responses from individual participants, which cannot be shared openly.
The dataset can be accessed upon reasonable request from the China Resident Psychology and Behavior Survey research team, subject to signing appropriate data use agreements. Researchers interested in accessing the data should contact the corresponding author or the research team directly to discuss the application and approval process.

Declarations

Ethics statement The 2021 China Resident Psychology and Behavior Survey research project has been reviewed and approved by the Ethics Review Committees of the Shaanxi Provincial Health Culture Research Center (JKWH-2021-01) and Jinan University (JNUKY-2021-018).

Informed consent All participants have provided written informed consent and voluntarily participated in the survey. Participants were informed about the purpose, methods, expected benefits, and potential risks of the research. Participants have the right to withdraw from the research at any time and request the deletion of their own data. The research team ensures strict protection of participants' privacy and personal information, and will not disclose any individually identifiable data.

Conflict of interest The research team members have no conflicts of interest with this research project. The research team members will not receive any additional financial benefits for participating in this study. The research findings will be used solely for academic exchange and publication, and not for any commercial or non-academic purposes. As an authorized data user, the authors of this research have obtained permission to use the survey data.

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