

Work-family conflict and depressive symptoms among working couples: a spillover-crossover process

Nurfazreen Aina Muhamad Nasharudin¹, Zhao Rui²

¹Department Professional Development and Continuing Education, Faculty of Educational Studies, Universiti Putra Malaysia, Seri Kembangan, Malaysia

²Institute for Social Science Studies, Universiti Putra Malaysia, Seri Kembangan, Malaysia

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ABSTRACT

The study aimed to examine the effect of work-family conflict (WFC) and family-work conflict (FWC) on the level of depressive symptoms among working husbands and wives. First, the study proposed that wife's WFC influences the husband's level of depressive symptoms via the mediation of the husband's FWC. Second, the study predicted that the husband's WFC leads to the wife's level of depressive symptoms through the mediation of the wife's FWC. The study utilized a cross-sectional design that involved 330 teachers and their spouses (N=660) as a study sample. The results show wife's WFC of strain-based leads to the husband's depressive symptoms via the husband's FWC of strain-based. WFC behavior-based of the husband influences the degree of the wife's depression symptoms via the wife's behavior-based FWC, whereas WFC time-based of the husband causes the wife to experience depressive symptoms through the wife's FWC. The current findings provide crucial knowledge to the literature as they discover the specific aspects of WFC and FWC that affect individuals' psychological health.

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Corresponding Author:

Nurfazreen Aina Muhamad Nasharudin
Department Professional Development and Continuing Education, Faculty of Educational Studies,
Universiti Putra Malaysia
Serdang-43400, Selangor, Malaysia
Email: fazreenasha2@gmail.com

1. INTRODUCTION

Modern culture presents a difficult existence for working couples because employment conflicts with family obligations, resulting in work-family conflict. Work-family conflict (WFC) occurs as an inter-role conflict, arising when competing demands between work responsibilities and home obligations clash [1]. Scholars indicated that WFC can influence others through the "spillover" and "crossover" processes [2]–[4]. In the spillover-crossover model, it is highlighted that "spillover" refers to the transfer of stress or strain from one area to another, whereas "crossover" describes the process through which an individual's stress or strain is transmitted to others [5]. For example, when individuals experience high work demands, they will actively do their work even when they are at home. It shows work has spilled over into non-work domains. This situation will increase an individual's stress while at home, and the stress may cross over to the spouse or other family members.

Globally, issues related to WFC have shown a year-over-year rise. The World Health Organization (WHO) reported that almost 34% of workers in 2012, 40% in 2015, 47% in 2017, 48.8% in 2020, and 53% in 2022 experienced conflicting roles between work and family [6]. The number of people suffering WFC is rising, and this has led to mental health issues. Work-family conflict has been linked to detrimental

psychological health outcomes including anxiety, according to earlier research [7], emotional disturbance [8], and depression [9]. Similar situations have occurred in Malaysia. A report by NIOSH showed that 50-70% of Malaysian workers experience stress and psychological health problems due to the high WFC [10]. Moreover, the report indicated that WFC is becoming a serious issue when it could affect other individuals' health through "crossover" [10]. Because of this urgency, the present study must look more closely at how WFC affects employees' psychological well-being to improve both work and family life.

The current study has provided several contributions to the literature. First, to date, the spillover-crossover studies have been investigated across countries, for instance, in Germany [2], [11], Austria [12], Japan [13], China [14], and Chile [15]. Nevertheless, these studies have used individual-level data to investigate the "spillover effects" of work-family conflict [11]–[15]. Thus, to fill the study's gap, our current study applies multi-source data consisting of both husband-and-wife samples. Using the couple's data, an in-depth examination of the crossover process can be tested from husband to wife and vice versa. By using multi-source data, our study has diminished the self-bias report data to test the crossover relationship. Thus, our current study has extended the methodology approach that was not applied by the other studies. Second, while the majority of WFC research has been undertaken in Europe or Western countries [2], [11], [16]–[17], our current research has extended the existing literature by investigating the spillover-crossover study in Eastern countries, specifically in Muslim-dominated countries such as Malaysia. Even though Eastern countries are collectivist while Western countries are more individualistic [18], our current findings also support the literature by reporting that WFC in an individual could cross over to a spouse's psychological health. By extending the WFC study in Malaysia, our present study has added new knowledge to the existing literature in order to understand the process of spillover and crossover across many countries. The result should be applicable to the organizations' concerns about psychological health among their workers. The variations in the prevalence of psychological health might serve as a guide for creating more psychological health-related services.

WFC is defined as an inter-role conflict experienced by an individual, occurring when negative experiences spill over from the work domain into the family domain [2], [5]. Beutell proposed three categories of WFC: conflict based on time, conflict arising from strain, and conflict related to behavior [19]. Conflict based on time emerges when an individual is required to allocate time to both work and family responsibilities simultaneously. An example of this is having a work meeting coincide with an appointment to meet a teacher at a children's school. Conflicting demands between work and family result in work-family conflict. Conflict based on strain arises when stress from one area hampers functioning in another domain. For example, if an individual engages in a workplace argument, they may carry a negative mood home, potentially leading to disagreements with their spouse or child. Behavior-based conflict occurs when transitioning behaviors between different domains presents a challenge for the individual. For instance, an individual may treat his/her spouse like a co-worker or client. In this context, the three types of conflict may pose difficulties when the demands for time, energy, and behavior in work roles conflict with family responsibilities at home.

For example, when individuals spend more time at work, they have no time for family activities. Moreover, individuals need to spend more energy to fulfil demands at work, which results in energy exhaustion while with the family. Likewise, family-work conflict (FWC) occurs as a type of inter-role conflict when negative experiences in the family domain spill over into the work domain [20]. For example, a husband who needs to fulfil the family responsibilities would feel tired which makes them unable to perform excellently when at the workplace. Therefore, both WFC and FWC represent situations that exacerbate the conflict between family and work roles when these roles are incompatibly aligned.

The conditions of WFC may also influence the family-work roles of partners. A study by Al-Hammouri and Rababah revealed that a husband's WFC leads to a wife's health behavior through the husband's psychological distress [21]. A study by Song *et al.* found that WFC and FWC were crossover from husband to wife and vice versa [22]. Based on previous studies, job and family stressors increase WFC and FWC among working couples. The conflict roles may affect each other's responsibilities which results in experiencing stress and other's psychological health problems. Hence, in the current study, we are interested to examine an individual's WFC cross-over to a spouse's depressive symptoms through a spouse's FWC. According to actor-partner interdependence model, spouses complement each other to support their household roles [23]. As partners play a crucial role at work, he/she must be exhausted to involve in the family domain. On the other way around, the spouse must give more attention to household responsibilities which leads to their FWC, which in turn increases their level of depressive symptoms. As a result, we expanded the research in the current study by looking at the crossover of WFC and FWC between working husband and wife. Thus, we predict that:

H1: Wife's WFC leads to the husband's level of depressive symptoms via the mediation of the husband's FWC.

H2: Husband's WFC leads to wife's level of depressive symptoms through the mediation of the wife's FWC.

Stressors in one domain can cause strain that spills over into another, impacting an individual's general well-being. This phenomenon is known as spillover [24]. While crossover refers to stress/strain experienced

by an individual is transferred to another individual that living in the same social environment [24]. After a few years, Brough *et al.* extended this view by suggesting the concept of the “spillover-crossover” process [25]. The spillover-crossover model highlights that stress or strain transferring from one domain to another can also cross over to a different individual via social interactions. For example, the interaction between husband and wife can create the “empathy” process which can transmit stress/strain among them [25].

Individuals, especially those in close relationships such as with family members or spouses, often exhibit interdependence due to their regular social interactions [25]. Through communication, spouses can affect each other’s thoughts, emotions, and behaviors [2]–[3]. This occurs as closely connected individuals often share a significant part of their lives and exhibit care for one another. Spouses feel with and feel the other when they are attentive to one another and believe that they are interconnected [25]. According to the spillover-crossover model [25], this form of “empathy” initiates the process where negative emotions are contagiously transmitted. According to a study by Hermann *et al.* emotional contagion and “empathy” cause work-family conflict to affect spouses as well [26]. Hence, conflict between work and family can also transfer to spouses.

Studies exploring the link between conflict in work and family have revealed a connection between work-family conflict and shortages in both energy and time [27]. Energy deficits due to work demands make individuals feel tired to be involved in family matters, thus affecting their spouse’s family-work roles. Consistent with the assumptions of the spillover-crossover model, the work demands of individuals indirectly disrupt the work-life balance of their spouses. This occurs as increased work-family conflict in individuals subsequently heightens their partners’ family-work conflict, potentially leading to depressive symptoms.

2. METHOD

2.1. Participants and procedure

We collected the data of 330 working spouses from 15 secondary schools located in Malaysia. The participants were female teachers and their spouses (N=660). Spouse occupations were from various groups such as manager, engineer, executive, public staff, police officer, and medical officer. The data was collected from January to June 2023. In the first stage, the participants were approached through the management school office. The researcher explained this study to the management and to collect information about married teachers. The criteria for selected participants were based on gender and marital status. About 10 to 15 female teachers (with working spouses) were randomly selected from each school. In the second stage, all participants have been given two separate questionnaires that were inserted in two sealed envelopes, and they must bring them to their homes. Both participants and spouses must complete the questionnaire within seven days and after that, teachers (wife) should return it to the management school office. Afterward, the schools contacted the researcher to collect the questionnaire from the school. Only female teachers with married status and their spouses were selected for this study. The consent form has been given to all participants and the ethical clearance number is JKEUPM-2021-330.

Among the 330 respondents, all female teachers, a significant majority (214, 64.84%) were aged between 31 and 40 years, and 223 (67.57%) possessed a first-degree level of education. Most of them were Muslim and Malays (298, 90.30%). For male (spouse) respondents, most (277, 83.93%) worked in the private sector; 257 (77.87%) were aged between 41-50 years old; 302 (91.51%) had a first-degree education; and the majority were Muslim and Malays (298, 90.30%).

2.2. Survey instrument

The survey instrument was translated into Malay using the back-translation method [28]. Following the depression scale proposed by Bianchi and Schonfeld, we measured depressive symptoms using the occupational depression inventory (ODI) instrument with nine items [29]. The scale for the items ranged from “1” (never or rarely) to “4” (Nearly every day). An example item was, “My work was so stressful that I could not enjoy the things that I usually like doing.” The reliability values for the female and male samples were 0.89 and 0.90, respectively.

Using the work-family conflict scale with 18 items by Carlson *et al.* [30] the three sub-dimensions of WFC and FWC were measured: Time-based work interference with family (3 items), strain-based work interference with family (3 items), and behaviour-based work interference with family (3 items). Examples of items were: “I have to miss family activities due to the amount of time I must spend on work responsibilities.” (Time-based); “I am often so emotionally drained when I get home from work that it prevents me from contributing to my family.” (Strain-based); and “Behavior that is effective and necessary for me at work would be counterproductive at home.” (Behaviour-based). For the three sub-dimensions of FWC that were measured: Time-based family interference with work (3 items), strain-based family interference with work (3 items), and behaviour-based family interference with work (3 items). Examples of items were: “The time I spend with my family often causes me to not spend time in activities at work that could be helpful to my career.” (Time-

based); “Due to stress at home, I am often preoccupied with family matters at work.” (Strain-based); and “Behavior that is effective and necessary for me at home would be counterproductive at work.” (Behaviour-based). The scales ranged from “1” (strongly disagree) to “5” (strongly agree). The reliability value of WFC for female samples was 0.87 while for male samples was 0.85. The reliability value of FWC for both female and male samples were 0.84 and 0.83, respectively.

2.3. Statistical analysis

The mediation analysis was carried out using structural equation modeling (SEM) via AMOS software. We evaluate the hypotheses following the mediation steps recommended by MacKinnon *et al.* [31]. In the mediation model, work-family conflict is a direct predictor of depressive symptoms (Path c, $X \rightarrow Y$), and it also predicts them indirectly via family-work conflict (Path a and b, $X \rightarrow M \rightarrow Y$). According to mediation principles, partial mediation is identified when significant mediation is present, and the c' coefficient remains statistically significant [32]. Conversely, full mediation is evidenced when significant mediation is observed, and the c' coefficient becomes statistically insignificant.

3. RESULTS AND DISCUSSION

3.1. Descriptive statistics and confirmatory factor analysis (CFA)

Descriptive statistics comprising means, standard deviations, and correlations of the studied variables were presented in Tables 1 and 2. Table 1 presents the results for the female's sample. While Table 2 showed the results for the male's sample.

Table 1. Means (M), standard deviations (SD) and correlations between study variables (female's sample)

Variables	M	SD	1	2	3	4	5	6	7	8	9
1. Age	2.58	0.66									
2. Gender	2.38	0.90	0.03								
3. Education	3.09	0.37	0.08	0.05							
4. Time-based (WFC)	2.80	0.73	0.04	0.01	0.04						
5. Strain-based (WFC)	2.67	0.75	0.07	0.02	0.07	0.32**					
6. Behaviour-based (WFC)	2.66	0.65	0.09	0.10	0.13*	0.14*	0.11				
7. Time-based (FWC)	2.31	0.70	0.13*	0.11	0.10	0.13*	0.24*	0.28*			
8. Strain-based (FWC)	2.10	0.73	0.17*	0.12	0.09	0.41**	0.39**	0.33**	0.23*		
9. Behaviour-based (FWC)	2.47	0.65	0.12	0.03	0.09	0.34**	0.34**	0.35**	0.33**	0.40**	
10. Depressive symptom	2.05	0.43	0.10	0.06	0.11	0.17*	0.38**	0.22*	0.31**	0.35**	0.21*

Note: 330 teacher's sample; M=Mean; SD=Standard Deviation; $p < 0.001 = ***$; $p < 0.01 = **$; $p < 0.05 = *$

Table 2. Means (M), standard deviations (SD) and correlations between study variables (male's sample)

Variables	M	SD	1	2	3	4	5	6	7	8	9
1. Age	2.57	0.76									
2. Gender	1.35	0.54	0.31**								
3. Education	2.44	0.77	0.10	0.10							
4. Time-based (WFC)	2.56	0.78	0.09	0.01	0.26*						
5. Strain-based (WFC)	2.60	0.80	0.05	0.13	0.19*	0.29**					
6. Behaviour-based (WFC)	2.71	0.82	0.05	0.01	0.10	0.37**	0.24*				
7. Time-based (FWC)	2.44	0.76	0.14	0.09	0.03	0.25*	0.17*	0.15*			
8. Strain-based (FWC)	2.10	0.85	0.10	0.10	0.06	0.37**	0.11*	0.32**	0.34**		
9. Behaviour-based (FWC)	2.35	0.78	0.03	0.11	0.06	0.21*	0.39**	0.22*	0.23*	0.35**	
10. Depressive symptom	1.92	0.65	0.04	0.12	0.10	0.34**	0.37**	0.45**	0.15*	0.19*	0.20*

Note: 330 spouse's sample; M=Mean; SD= Standard Deviation; $p < 0.001 = ***$; $p < 0.01 = **$; $p < 0.05 = *$

Tables 3 and 4 illustrate that a confirmatory factor analysis (CFA) was conducted to verify the empirical distinctiveness among the variables under study, particularly for female samples as indicated in Table 3, the confirmatory factor analysis showed that the seven-factor model has the best fit (GFI=.90, CFI=.94, TLI=.93, RMSEA=.06, and CMIN/df=2.31) which indicated that all the measurements were distinctive. For male samples as shown in Table 4, the seven-factor model of WFC of time-based, strain-based, and behavior-based, FWC of Time-based, strain-based, and behavior-based, and depressive symptoms has the best fit (GFI=.91; CFI=.94; TLI=.93; RMSEA=.07; CMIN/df=2.86). Detailed information on CFA results shown in Tables 3 and 4.

Table 3. Confirmatory factor analysis (CFA) test for measurement models (female's sample)

Models	χ^2	df	GFI	CFI	TFI	RMSEA	AIC	CMIN/df
1. Three-factor model (WFCT, WFCS, WFCB)	80.63	24	0.95	0.97	0.96	0.06	122.63	3.36
2. Three-factor model (FWCT, FWCS, FWCB)	62.91	24	0.95	0.98	0.97	0.07	104.91	2.62
3. Six-factor model (WFCT, WFCS, WFCB, FWCT, FWCS, FWCB)	330.24	120	0.90	0.95	0.94	0.07	432.24	2.75
4. Seven-factor model (WFCT, WFCS, WFCB, FWCT, FWCS, FWCB, DEP)	759.02	329	0.90	0.94	0.93	0.06	913.02	2.31

Table 4. Confirmatory factor analysis (CFA) test for measurement models (male's sample)

Models	χ^2	df	GFI	CFI	TFI	RMSEA	AIC	CMIN/df
1. Three-factor model (WFCT, WFCS, WFCB)	76.49	24	0.94	0.98	0.97	0.08	118.49	3.12
2. Three-factor model (FWCT, FWCS, FWCB)	102.65	24	0.93	0.97	0.96	0.08	144.65	3.27
3. Six-factor model (WFCT, WFCS, WFCB, FWCT, FWCS, FWCB)	349.59	120	0.92	0.96	0.95	0.07	451.59	2.91
4. Seven-factor model (WFCT, WFCS, WFCB, FWCT, FWCS, FWCB, DEP)	939.65	329	0.91	0.94	0.93	0.07	1049.65	2.86

Note for Tables 3 and 4: DEP=depressive symptom; WFC=work-family conflict; FWC=family-work conflict; WFCT=work-family conflict time; WFCS=work-family conflict strain; WFCB=work-family conflict behaviour; FWCT=family-work conflict time; FWCS=family-work conflict strain; FWCB=family-work conflict behaviour; χ^2 =chi-square; df=degrees of freedom; GFI=goodness-of-fit index; CFI=comparative fit index; TLI=Tucker-Lewis index; RMSEA=root-mean-square error of approximation; AIC=Akaike information criterion; CMIN/df=chi-square divided by the df value.

3.2. Main effects

For the female sample, the analysis showed males' FWC of strain-based mediates the relationship between females' WFC of strain-based and males' depressive symptoms ($\beta=0.20$, $p=0.000$). With the inclusion of males' WFC of strain-based as a mediator, the association between females' WFC of strain-based and men's depressive symptoms is no longer significant ($\beta=0.15$, $p=0.64$). Thus, the full mediation occurred for males' FWC in relation to strain-based. But the analysis showed that no mediation effect was found for the time-based WFC ($\beta=0.03$, $p=0.68$) and behavior-based WFC ($\beta=0.05$, $p=0.40$) to males' depressive symptoms through males' FWC. Therefore, H1 was partially supported.

In male samples (Spouse), the analysis found that females' FWC of time-based mediates the relationship between males' WFC of time-based and females' depressive symptoms ($\beta=0.12$, $p=0.00$). But, the direct effect between males' WFC (time-based) and females' depressive symptoms is no longer significant ($\beta=0.02$, $p=0.79$) with the inclusion of females' FWC (time-based) as a mediator. Thus, a complete mediation was found for females' FWC of time-based. The analysis found no mediation effect for the association between males' WFC of strain-based ($\beta=0.04$, $p=0.32$) to females' depressive symptoms through females' FWC of strain-based. Hence, H2 was partially supported. Detailed information on mediation results shown in Table 5.

Table 5. Test for mediation using a Bootstrap analysis with 90% confidence interval

Hypothesis/Relationship	Direct effect (X→Y)	Indirect effect (X→M→Y)	Result
Female (Wife)			
WFC (Time) → FWC spouse (Time) → DEP spouse	0.14 (0.085)	0.03 (0.684)	No mediation
WFC (Strain) → FWC spouse (Strain) → DEP spouse	0.15 (0.064)	0.20 (0.000) ***	Full mediation
WFC (Behaviour) → FWC spouse (Behaviour) → DEP spouse	0.04 (0.135)	0.05 (0.405)	No mediation
Male (Husband)			
WFC (Time) → FWC wife (Time) → DEP wife	0.02 (0.795)	0.12 (0.003) **	Full mediation
WFC (Strain) → FWC wife (Strain) → DEP wife	0.08 (0.273)	0.04 (0.325)	No mediation
WFC (Behaviour) → FWC wife (Behaviour) → DEP wife	0.19 (0.018) *	0.24 (0.000) ***	Partial mediation

Notes: WFC=work-family conflict; FWC=family-work conflict; DEP=depressive symptom; N=330; levels of significance are denoted as * $p<.05$; ** $p<.01$; *** $p<.001$. The coefficients reported are unstandardized. Values within parentheses represent the estimated value. The bootstrap sample size is set at 1,000, with replacement. The analysis was controlled by age, gender, and education.

3.3. Discussion

The current study has investigated the association between WFC and FWC on depressive symptoms among working couples. The findings provide new insights by examining the specific WFC and FWC (i.e., Time-based, strain-based, and behavior-based) that cross over to a spouse's psychological health. The current study's findings generally revealed that family-work conflict mediated the relationship between work-family conflict and depressive symptoms for working spouses.

For the female sample, the study found female WFC of strain-based leads to male depressive symptoms through male FWC of strain-based. This finding supported the crossover theory, which emphasizes the transference of strain from one individual to another through the crossover process [25]. In the present study, when a wife gets home from work, she often feels physically exhausted to participate in family activities and responsibilities. Hence, the spouse must take over the family responsibilities, which could increase the experience of stress and strain. In other words, the spouse or husband must execute his own family responsibilities and the wife's family responsibilities at the same time, which definitely increases the experience of depressive symptoms.

Previous findings showed that WFC of strain-based leads to the wife's psychological health problems [33]–[35]. On the contrary, for our male sample, the study revealed that WFC of time and behavior-based leads to the wife's depressive symptoms via the wife's FWC. In line with the spillover-crossover theory, an individual's working time demands might indirectly impair his or her spouse's family-work balance because spouses need to invest their time in family roles rather than work roles [25]. In the present study, when a male experienced working-time demands, he was unable to spend time with family. Thus, the spouse must take over the role and spend her time in family roles, which increases her FWC time-based. These circumstances increase the spouse's level of stress because she cannot balance the time that needs to be invested between family and work, indirectly increasing the level of depressive symptoms.

Our current study uses teachers and their spouses as a study sample. Thus, our findings are focused on teachers' perspectives in order to determine the interference between work and family roles. Future studies should investigate the spillover and crossover of work-family conflict using various and wide occupations. In that case, the findings can generalize the whole population of the study.

Subsequently, the present study used a cross-sectional design. Using a cross-sectional design can lead to common method variance (CMV) issues in social science studies. However, as we used a multi-source sample, it can reduce the issues of CMV [36]. In the future study, the researcher should apply a longitudinal design because it can explore the pattern of behavioral/psychological change through time. In addition, a longitudinal design can diminish bias or CMV that provides more precise findings [36].

4. CONCLUSION

Overall, most working spouses struggle to strike a balance between their duties in the family and at work. Work role possibly leads to an individual's stress and strain which make them feel exhausted to involve family responsibilities. Moreover, the individual's stress or strain that spill over from work to home domain is also cross over to a spouse at home. Thus, work and family conflicts are not only affecting individual's psychological health, but the family members too. Practitioners and organizations must identify the work factors that may trigger work-family conflict. In these circumstances, the conflict between work and family could be reduced, which would indirectly diminish the depressive symptoms among workers. The organizations should design a work practice that does not lead to conflict between employees' work and family roles.

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BIOGRAPHY OF AUTHOR

Nurfaizreen Aina Muhamad Nasharudin     Senior lecturer in Work and Organizational Psychology, Department of Professional Development and Continuing Education, Universiti Putra Malaysia, Malaysia. She is also a speaker for several international training programs. Her research focus includes job stress, burnout and depression, work engagement, spillover-crossover, and job performance. She publishes papers in ISI/Scopus publications, and also a reviewer for some ISI journals such as Scandinavian Journal of Psychology, Personnel Review, PsyCH, BMC Psychology, and International Journal of Manpower. She can be contacted at email: fazreenasha2@gmail.com.



Zhao Rui     is a doctoral candidate at the Institute for Social Science Studies, Universiti Putra Malaysia, Malaysia. She has obtained her Master's degree from the Macau University of Science and Technology, majoring in Management. Her current research focus includes human resource development and management, occupational health, leadership studies, and psychosocial safety climate. She can be contacted at email: megan.zhao-ruirui@outlook.com.