

# Work–family conflict as a mediator between occupational stress and psychological health among mental health nurses in Japan

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**Background:** Occupational stress among mental health nurses may affect their psychological health, resulting in reduced performance. To provide high-quality, sustainable nursing care, it is necessary to identify and control the factors associated with psychological health among mental health nurses. The purpose of this study was to examine the role of work–family conflict (WFC) in the well-known relationship between occupational stress and psychological health among mental health nurses in Japan.

**Methods:** In this cross-sectional study, data were gathered from 180 mental health nurses who had a coresident child or were married. Data from the Work–Family Conflict Scale, the Generic Job Stress Questionnaire, the Maslach Burnout Inventory-General Survey, and the Center for Epidemiologic Studies for Depression Scale were obtained via self-report questionnaires. The effects of occupational stress and WFC on psychological health were explored by hierarchical linear regression analysis.

**Results:** The relationship between emotional exhaustion and occupational factors, including quantitative workload and the variance in workload, disappeared with the addition of WFC (each work interference with family [WIF] or family interference with work [FIW]). The relationship between emotional exhaustion and mental demands disappeared only with the addition of WIF. The relationship between depressive symptoms and variance in workload disappeared with the addition of WFC (each WIF or FIW).

**Conclusion:** Our findings may encourage hospital administrators to consider the risks of medical staff WFC. Furthermore, longitudinal investigations into the factors associated with WFC are required for administrative and psychological interventions.

**Keywords:** burnout, depression, occupational stress, work–family conflict

## Introduction

Mental health nurses frequently encounter such multidimensional stressors as demanding or difficult patients,<sup>1</sup> inadequate staffing,<sup>2</sup> physically threatening patients, and potential suicides.<sup>3,4</sup> Mental health nursing has been recognized as a highly stressful occupation, and previous studies have demonstrated the relationship between occupational stressors and psychological health, resulting in depression or burnout.<sup>5,6</sup> To provide high-quality, sustainable nursing care, it is necessary to identify and control the factors associated with psychological health among mental health nurses.

Recently, in addition to the established work stress measures, work–family conflict (WFC) has been recognized as an important factor in organizational behavior and occupational health. WFC has been defined as “a form of inter-role conflict in which the role pressures from the work and family domains are mutually incompatible in

some respects.<sup>7</sup> Participation in one role makes it difficult to participate in the other. This definition of WFC implies bidirectional relationships between work and family life, and previous factor analysis studies identified two types of WFC: work interference with family (WIF) conflict and family interference with work (FIW) conflict.<sup>8</sup> Theoretically, the definition of WFC implies mediation; WFC can mediate the way we experience demands over a prolonged period of time.<sup>9</sup>

Several studies have shown that WFC is associated with a wide range of occupational, family, and psychological outcomes.<sup>10–13</sup> Medical staff who devote a large amount of time and energy to their work,<sup>14,15</sup> may experience higher WFC.<sup>16</sup> More than half of Japanese family households consist of the nuclear family, that is, the father, mother, and child.<sup>17</sup> Compared to extended families, nuclear families might be more sensitive to stressful events.<sup>18</sup> However, there has been limited evidence of WFC among medical staff in Japan. Thus, research is required to evaluate the relationship between WFC, occupational stress, and psychological health among Japanese mental health nurses.

The objective of the current investigation was to examine the role of WFC in the association between occupational stress and psychological health among mental health nurses who had a coresident child or were married in Japan. To our knowledge, this study is the first to examine WFC in Japanese mental health nurses.

## Materials and methods

### Participants

This study was conducted between September and November 2012. Self-report questionnaire packages were mailed to 7 randomly selected hospitals that are affiliated with Hirosaki University School of Medicine, and the surveys were then distributed to 318 nurses. Three of the hospitals were psychiatric hospitals, and 4 of the hospitals were general hospitals. All respondents provided their verbal informed consent to participate in this study, and no incentives were offered for participation. The anonymous questionnaire was the only research instrument, and the following statement was included: “completion of the attached questionnaire will be considered your consent to participate.” In total, 20 or 30 minutes were needed to answer the questionnaires. Before the questionnaires were distributed, nurses were well informed about the study and the potential risks and benefits of their participation by the research team. Questionnaires were distributed to nurses who showed willingness to participate in the study. Subsequently, nurses had the right to not submit the questionnaires if they wished to withdraw from the study.

To avoid common method variance, the participants were allowed to answer the questionnaire at places of their choosing. Of the 318 distributed surveys, responses were received from 240 nurses, and 238 questionnaires (response rate 74.8%) were completed. The questionnaires were collected by collaborators in a sealed envelope. The characteristics of the study population have been reported previously.<sup>5</sup> In this study, we reanalyzed the 180 mental health nurses who had a coresident child or were married from the same study population. The study protocol was approved by the Ethics Committee of the Hirosaki University School of Medicine (2012–2013). All of the respondents participated in the study without any incentive.

### Assessment of WFC

We used the 18 items of the Japanese version of the Work–Family Conflict Scale in this study.<sup>19,20</sup> This scale covers two types and three dimensions of conflicts, namely, time-based, strain-based, and behavior-based WIF and time-based, strain-based, and behavior-based FIW. Responses were provided on a 5-point Likert scale ranging from 1= “strongly disagree” to 5= “strongly agree.” Higher scores indicate greater WFC. In this study, we employed two subscales: the WIF scale and the FIW scale. The two scales included 18 items, and each of the two subscales included nine items. The WIF scale measured the extent to which work demands interfere with family-related obligations, whereas the FIW scale measured the extent to which family demands interfere with work-related obligations.

### Assessment of occupational factors

Job-related stress was assessed with the Generic Job Stress Questionnaire (GJSQ),<sup>21</sup> which was developed by the National Institute for Occupational Safety and Health. The Japanese version of the GJSQ has demonstrated sufficient reliability and validity.<sup>22</sup> The original authors of the GJSQ permit the use of their independent subscales for assessing occupational stress,<sup>21</sup> and we focused on 3 subscales to assess occupational stress: quantitative workload, variance in workload, and mental demands.

### Assessment of burnout

Burnout was assessed using the Japanese version of the Maslach Burnout Inventory-General Survey (MBI-GS).<sup>23,24</sup> This questionnaire consisted of three subscales: exhaustion (five items), cynicism (five items), and professional efficacy (six items). For each item, respondents used a 7-point Likert-type scale ranging from 0 (never) to 6 (every day). Higher

scores on the emotional exhaustion and cynicism dimensions and lower scores on the professional efficacy dimension indicated higher levels of burnout.

## Assessment of depressive symptoms

The Japanese version of the Center for Epidemiologic Studies for Depression Scale (CES-D) was administered to all of the participants to measure their depressive status.<sup>25,26</sup> This questionnaire has been widely used to measure depressive symptoms in community populations and to screen individuals for probable depression. The CES-D is a 20-item self-report instrument that focuses on depressive symptoms during the week prior to the administration of the questionnaire. The maximum score on this scale is 60, and higher scores are associated with depression.

## Statistical analysis

The data are presented as the mean  $\pm$  standard deviation. A value of  $P < 0.05$  was considered to be statistically significant. To compare the characteristics between genders, the unpaired Student's *t*-test was performed to analyze continuous variables, and the chi-square test was performed to analyze categorical variables. Pearson's correlation was used to explore the relationships between the psychological and occupational variables. To assess 1) occupational stress once demographic characteristics were controlled and 2) WFC (each the two directions of WIF and FIW conflicts) after demographic characteristics and occupational stress were controlled, we performed hierarchical linear regression analysis for psychological variables (depression and each of the three dimensions of burnout). In step 1 of the hierarchical linear regression analysis, the control variables, namely, age and gender were used as predictors. In step 2, occupational

factors (quantitative workload, variance in workload, and mental demands) were added. In step 3, WIF or FIW was added. WIF and FIW were added individually to models 3a and 3b. According to Baron and Kenny,<sup>27</sup> the following conditions should be satisfied to establish mediation: 1) the independent variable (occupational factors) is significantly associated with the dependent variable (depression and each of the three dimensions of burnout); 2) the independent variable is significantly associated with the mediator (WIF/FIW); and 3) the mediator is significantly associated with the dependent variable, and the effect of the independent variable on the dependent variable decreases with the addition of the mediator to the model. If the independent variable does not affect the dependent variable when the mediator is added to the model, full mediation is established. We assessed multicollinearity using the variance inflation factor (VIF), and all independent variables in our linear regression models showed VIFs  $< 5$ . The data were analyzed using PASW Statistics PC software for Windows, Version 18.0.0 (SPSS Inc., Chicago, IL, USA).

## Results

Table 1 contains the sociodemographic and occupational characteristics of the participants. According to the optimal CES-D cutoff point of 19 that was determined by Wada et al to identify possible cases of depression among working individuals,<sup>28</sup> the frequency of probable depression in the current sample was 34.1% for males ( $n=14$ ) and 34.5% for females ( $n=48$ ;  $P > 0.05$ ). Table 2 indicates Pearson correlations among psychological and occupational variables in mental health nurses.

Table 3 shows the results of the hierarchical linear regression analysis used to assess the effects of occupational factors

**Table 1** Characteristics of participants

Variables	Total (n=180)	Male (n=41)	Female (n=139)	P-value
Age	48.6 $\pm$ 11.5	42.7 $\pm$ 10.6	50.4 $\pm$ 11.2	<0.001
Married	84.4% (152/180)	95.1% (39/41)	81.3% (113/139)	0.032
Having a coresident child	76.1% (137/180)	78.0% (32/41)	75.5% (105/139)	0.741
Work interference with family	23.4 $\pm$ 8.1	23.2 $\pm$ 8.5	23.9 $\pm$ 6.9	0.606
Family interference with work	18.7 $\pm$ 6.2	19.8 $\pm$ 5.6	18.4 $\pm$ 6.4	0.202
<b>Occupational stress</b>				
Quantitative workload	11.9 $\pm$ 4.0	12.5 $\pm$ 3.7	11.7 $\pm$ 4.1	0.235
Variance in workload	8.4 $\pm$ 3.3	8.9 $\pm$ 3.2	8.2 $\pm$ 3.3	0.214
Mental demands	14.9 $\pm$ 2.7	14.3 $\pm$ 3.0	15.1 $\pm$ 2.7	0.127
Emotional exhaustion	14.0 $\pm$ 8.0	13.3 $\pm$ 8.1	14.2 $\pm$ 8.0	0.535
Cynicism	10.1 $\pm$ 7.3	10.7 $\pm$ 7.3	9.9 $\pm$ 7.3	0.571
Professional efficacy	11.6 $\pm$ 6.1	12.3 $\pm$ 6.1	11.4 $\pm$ 6.1	0.421
CES-D score	16.7 $\pm$ 10.5	15.7 $\pm$ 10.5	17.0 $\pm$ 10.6	0.485

**Abbreviation:** CES-D, Center for Epidemiologic Studies for Depression Scale.

**Table 2** Pearson correlations between psychological and occupational variables

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	Cronbach's $\alpha$
Work interference with family (1)									0.892
Family interference with work (2)	0.699***								0.829
Quantitative workload (3)	0.508***	0.288***							0.864
Variance in workload (4)	0.477***	0.281***	0.825***						0.913
Mental demands (5)	0.345***	0.089	0.450***	0.423***					0.761
Emotional exhaustion (6)	0.707***	0.503***	0.524***	0.517***	0.372***				0.940
Cynicism (7)	0.585***	0.501***	0.307***	0.359***	0.159*	0.695***			0.898
Professional efficacy (8)	-0.065	-0.022	-0.026	0.066	-0.022	0.006	-0.099		0.812
CES-D score (9)	0.497***	0.446***	0.377***	0.392***	0.167*	0.586***	0.548***	-0.212**	0.901

Notes: \* $P < 0.05$ ; \*\* $P < 0.01$ ; \*\*\* $P < 0.001$ .

Abbreviation: CES-D, Center for Epidemiologic Studies for Depression Scale.

and WFC on burnout. The relationship between emotional exhaustion and occupational factors, including quantitative workload and the variance in workload disappeared with the addition of WFC (each WIF or FIW). The relationship between emotional exhaustion and mental demands disappeared only with the addition of WIF. Table 4 presents the results of the hierarchical linear regression analysis used to assess the effects of occupational factors and WFC on depressive symptoms. The relationship between depressive symptoms and variance in workload disappeared with the addition of WFC (each WIF or FIW).

## Discussion

This study identified significant associations between occupational stress and psychological health among Japanese mental health nurses in the model, which did not include WFC factors. Our results were consistent with those of an earlier investigation in which hours of overtime work and job control, assessed by the Brief Job Stress Questionnaire, were correlated with depressive symptoms in a cross-sectional study of 706 female general nurses in Japan.<sup>29</sup> In a study of 141 Taiwanese female mental health nurses, Lin et al identified

a significant interaction between social support and job stress using a multiple linear regression model, which suggested that the ascending trend of depression with elevated job stress, as assessed by the Taiwanese Nurse Stress Checklist, was accelerated in subjects who had a low level of social support.<sup>30</sup> Among 877 Finnish nurses, there was a linear trend toward increasing workload with increasing absenteeism because of sickness.<sup>31</sup> Occupational factors and psychological health may affect both job outcomes and quality of care.<sup>32</sup>

Our findings demonstrated the mediating role of WFC in the effect of occupational stress on depression, emotional exhaustion, and cynicism. Although several studies have primarily focused on the direct effect of WFC on both burnout<sup>9,33</sup> and depression,<sup>10,13,34</sup> other studies have investigated the mediating effect of WFC on psychological health. Among Greek doctors, Montgomery et al showed that work–family interference partially mediated the relationship between emotional job demands and depersonalization.<sup>35</sup> In a German *leben in der Arbeit* (lidA) study ( $n=5,906$ ),<sup>36</sup> cross-sectional evidence for the mediating effect of WFC in the association between occupational stress and depression among full- and part-time employed, middle-aged females and males

**Table 3** Effects of demographic characteristics, work-related factors, and work–family conflict on burnout

Variables	Emotional exhaustion				Cynicism				Professional efficacy			
	Model 1	Model 2	Model 3a	Model 3b	Model 1	Model 2	Model 3a	Model 3b	Model 1	Model 2	Model 3a	Model 3b
Age, years	-0.14	-0.12	-0.04	-0.07	-0.25**	-0.22**	-0.14*	-0.17**	0.09	0.11	0.10	0.11
Gender	-0.09	-0.11	-0.09	-0.12*	-0.03	-0.04	-0.03	-0.06	0.09	0.08	0.08	0.08
Quantitative workload		0.27*	0.09	0.19		0.03	-0.14	-0.05		-0.25	-0.22	-0.24
Variance in workload		0.22*	0.15	0.18		0.29*	0.22*	0.24*		0.30*	0.30*	0.30
Mental demands		0.16*	0.07	0.17**		0.05	-0.04	0.06		-0.04	-0.03	-0.05
Work interference with family			0.57***				0.55***				-0.07	
Family interference with work				0.38***				0.42***				-0.02
n	180	180	180	180	180	180	180	180	180	180	180	180
R <sup>2</sup>	0.02	0.33	0.56	0.46	0.06	0.17	0.38	0.33	0.01	0.04	0.04	0.04

Notes: Values are standardized regression coefficients. \* $P < 0.05$ ; \*\* $P < 0.01$ ; \*\*\* $P < 0.001$ .

**Table 4** Effects of demographic characteristics, work-related factors, and work–family conflict on depressive symptoms

Variables	Depression			
	Model 1	Model 2	Model 3a	Model 3b
Age, years	−0.14	−0.10	−0.04	−0.05
Gender	−0.09	−0.12	−0.11	−0.13
Quantitative workload		0.19	0.06	0.12
Variance in workload		0.25*	0.19	0.20
Mental demands		−0.02	−0.09	−0.01
Work interference with family			0.40***	
Family interference with work				0.36***
n	180	180	180	180
R <sup>2</sup>	0.02	0.18	0.29	0.30

**Notes:** Values are standardized regression coefficients. \* $P < 0.05$ ; \*\*\* $P < 0.001$ .

in full-time positions was obtained. Furthermore, Vignoli et al observed that job demands affected absenteeism by the subsequent mediation of WFC and emotional exhaustion in 245 Italian workers.<sup>37</sup> These findings should encourage hospital administrators to maintain awareness of WFC. To promote the psychological health of medical staff, efforts should be made to develop strategies to decrease both WIF and FIW. To reduce WIF, hospital administrators could increase staff to reduce quantitative workload and provide opportunities to enhance skills to keep up with progress in medical technology. In addition, hospitals could provide childcare services for child-rearing female workers or arrange schedules to allow parents to work flexible hours. By reducing FIW, hospital administrators may prevent the detrimental effect of spillover.

In contrast to our expectations, we did not identify a relationship between WFC and professional efficacy. Previous studies showed that professional efficacy is positively associated with WIF and negatively associated with FIW. One possible explanation is the differences in the mean age of the participants. WFC among individuals with preschool-aged children may be different from WFC among parents with older children. Another explanation is that the nature of professional efficacy, which is different from the other two dimensions of the MBI-GS, may reflect a personal characteristic rather than a genuine burnout component.<sup>38</sup>

## Limitations

Our study has several limitations. First, we simultaneously measured WFC, occupational factors, and psychological variables. The cross-sectional nature of this study did not allow causal assumptions; thus, our results should be confirmed by a longitudinal study. Second, our data were obtained by self-report questionnaires, which could cause reporting bias. Personality factors, response styles, and social desirability

may have affected our results. Third, some important occupational factors, such as irregular work schedules, overtime work, personal income, shift work, and working position, were not included in this analysis. Fourth, selection bias may exist because the characteristics of the excluded subjects may differ from those of the study participants. Fifth, our sample was limited to only the Hirosaki University School of Medicine and its affiliated hospitals, which could limit the generalizability of our results.

## Conclusion

Our study revealed that occupational stress affected psychological health and that WFC was a mediator in this relationship in Japanese mental health nurses. Our results have important implications for the management of WFC by administrators in hospitals. In addition, the promotion of an adequate work-life balance among nurses may aid in the prevention of depression. However, the interpretation of our results was hampered by the lack of data on personal income, working hours, and organizational commitment. Furthermore, longitudinal investigation of the factors associated with WFC may yield practical information that is useful for administrative and psychological interventions.

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## Disclosure

The authors report no conflict of interest in this work.

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