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**Original Article**

# The association between burnout and multiple roles at work and in the family among female Japanese nurses: a cross-sectional study

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**Abstract: Female nurses experience work-family conflict due to performing multiple roles, leading to burnout. Thus, this study aimed to verify the association between burnout and the multiple work and family roles performed among Japanese female nurses. The data for 2,255 nurses at 23 Japanese hospitals obtained from the Work Environment for Nurses Study in Japan were used. The variables included burnout, demographic information, additional work roles, and child-rearing or caregiving. Half of the nurses were categorized under the "no-role" group (NRG), approximately a quarter under the "work-role" group (WRG), 16% under the "family-role" group (FRG), and 7.3% under the "multiple-role" group (MRG). Compared to the NRG, the FRG and MRG showed statistically lower emotional exhaustion (B=−0.79, $p<0.05$; B=−0.94, $p<0.05$, respectively) and depersonalization (B=−0.80, $p<0.05$; B=−1.09, $p<0.05$, respectively). Personal accomplishment was not statistically different among the four groups. Burnout was relatively low among nurses with family roles, suggesting that family roles may have a positive spillover effect on work-related emotions.**

**Key words:** Multiple roles, Work, Burnout, Female nurses, Japan

## Introduction

Burnout is a psychological response resulting from a chronic stress reaction and is frequently observed in healthcare workers[1, 2]. To illustrate, several studies conducted on nurses' burnout identified similar outcomes among healthcare workers (e.g., job satisfaction, organizational commitment, turnover intention, quality of care, patient safety, and so forth)[3–10]. Therefore, preventing burnout among nurses is an important and general theme in nursing administration.

Employees perceive stressors in both the workplace and professional contexts; these stressors lead to psychological stress[11]. Similarly, occupational factors (work environment, working role, and so forth), demographic factors (age, experience years, marriage status, and so forth), and other factors are also related to nurses' burnout[4, 12, 13]. For most individuals, the two dominant aspects of life are

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work and family[14]. In this regard, work-life balance (WLB) is considered important for mental health globally and in Japan. Due to the increasing number of dual-earner households, to nontraditional gender roles, and, partially, to individuals' increasing working hours[15, 16], juggling work and family has become a part of the routine of millions of adults[14].

Work-life balance is important for preventing burnout among nurses. Work-family conflict (WFC) or imbalance between work and family affects burnout in nurses[16–18]. Therefore, how to balance work and family roles is an important issue. Previous studies have focused on each of these two roles. Demir et al. report that childcare and housework affect nurses' burnout[19]. Maruyama *et al.* also report factors associated with burnout in female nurses with preschool-aged children[20]. Hence, for female nurses, family roles (especially childcare) are an important factor affecting burnout.

In Japan, the average age of first childbirth for women is 30.4 yr old[21], and nurses in this age group are the center of the organization, with additional work roles beyond routine nursing practice. In a study reporting on stressors related to the work roles of mid-career nurses, leadership roles within teams, student teaching, and participation in committees and nursing research teams were reported as stressors[22]. These additional work roles may further increase burnout in female nurses with family roles; however, few studies have considered both roles.

Therefore, it is not surprising that nurses face conflicts between their work and family roles or that they experience psychological stress. However, the concept of WFC centered on the concept of WLB measures conflicts by assessing perceptions of work and family, which is based on the individual's thinking of WLB. Therefore, it is important to verify the effects of work- and family-related roles on burnout. Thus, the aim of this study was to identify the relationship between multiple work and family roles and burnout. We hypothesized that nurses with both work and family roles would show higher burnout compared to those with no roles.

## Subjects and Methods

*Study subjects and design*

This study was a secondary analysis that used cross-sectional data provided by the work environment for hospital nurses in Japan (WENS-J) conducted from 2013 to 2014[23]. This was a cohort study comprising two investigations; the first phase was in 2013, and the second was in 2014. For the present study, we used the cross-sectional data from the second phase.

In this phase, 638 hospitals with more than 200 beds in Japan's urban areas were listed, and 23 hospitals (7,849 staff nurses, 371 nurse managers, 23 nurse administrators) participated. The inclusion criteria for our study were data from female and staff nurses. Nurse managers, male nurses, and unregistered nurses were excluded from the study. The final sample included 2,255 female staff nurses. The study protocol was approved by the Medical Research Ethics Committee of the Tokyo Medical and Dental University (No. M2017-219). The data for participating individuals and hospitals were anonymized.

*Burnout*

We used the scale developed for Japanese nurses by Kubo and Tao to measure burnout syndrome[24]. This scale was developed for Japanese nurses in situations similar to the one described in this study and measures similar constructs as the Maslach Burnout Inventory subscales: emotional exhaustion, depersonalization, and personal accomplishment. This scale consists of 17 items: five items measuring emotional exhaustion, six measuring depersonalization, and six measuring personal accomplishment. All items were measured on a five-point Likert scale (0=not at all, 4=frequently). Higher scores for emotional exhaustion and depersonalization and lower scores for personal accomplishment indicate a higher burnout state.

The reliability and validity of the scale were verified by Kubo[25]. To verify the reliability and validity of the scale in this study, we calculated Cronbach's α and conducted exploratory and confirmatory factor analyses. The Cronbach's α for all items (17 items) was 0.780, that for emotional exhaustion (five items) was 0.779, that for depersonalization (six items) was 0.838, and that for personal accomplishment (six items) was 0.774. Thus, this scale had good reliability in this study. Additionally, the exploratory factor analysis results showed the same factor structure as the original scale. Confirmatory factor analysis was also performed to test the validity of the scale ($\chi^2$ value=1,685.257 (df=116, $p$<0.000), GFI=0.917, AGFI=0.891, RMSEA=0.077). These values were good; therefore, we assessed the original model as valid.

*Multiple work and family roles*

In this study, the stressors related to the additional work roles of mid-career nurses reported by Sano *et al*. were used as a reference and defined as the job contents for each unit or organization[22]. In this prior study, leadership

roles within the team, student teaching, and participation in committees and nursing research teams were reported as stressors. We determined that an additional work role was present if the respondent responded to one or more of the applicable roles in the WENS-J questionnaire. Therefore, because such nurses face additional workload due to these roles, we adopted these as work role variables. That is, a group performing more than one of these roles was considered to have a work role (work role +).

Family-related roles include "child-rearing" and "caregiving." These roles are particularly evident in Japan among women and female nurses. Furthermore, many female nurses also work while rearing children. Recently, due to the increasing number of elderly people and people with dementia, "caregiving turnover" has become a domestic problem. "Child-rearing" implies that the youngest child is under nine years old, while "caregiving" implies having someone who needs to be cared for. Those performing both or either role was considered to have a family role (family role +).

We categorized individuals based on which roles they carried out: the group without work- or family-related roles was categorized as the "no-role" group (NRG), those having only work-related roles as the "work-role" group (WRG), those having only family related roles as the "family-role" group (FRG), and those having both work- and family-related roles as the "multiple-role" group (MRG).

*Other covariates*

Data on age, nursing experience (yr), education, marital status, work style (full time or part time), night shift, and desired current workplace (i.e., whether it is the desired current workplace) were used.

*Statistical analysis*

First, to investigate the relationship between the dependent and independent variables, analysis of variance (ANOVA) was conducted. Second, to determine the demographics to be included in the multivariate analysis, Pearson's correlation analysis was performed for quantitative variables, and *t*-tests were performed for qualitative variables. Third, to identify the relationship between burnout and role groups based on the adjusted demographics, we conducted multiple regression analysis that used selected variables from the Pearson's correlation and *t*-test to determine significant relationships with the independent variables. As a statistical relationship existed between age and experience, work style, and night shift, we used experience and night shift as the adjustment variables. Statistical analyses were conducted using SPSS ver. 23 for Mac (IBM, 2016).

## Results

*Participant characteristics*

A total of 2,255 registered nurses were included in the study, and their characteristics are presented in Table 1. The average age was 33.74 (standard deviation [SD] 8.85), and the average total nursing experience was 10.49 years (SD 8.26). A total of 1,354 nurses (60.0%) were unmarried, 901 nurses were married, 1,794 nurses had night shifts, and 461 nurses had only day shifts. Among the four

**Table 1. Characteristics of all participants (n=2,255)**

| | Mean or n | SD or % |
|---|---|---|
| Age (yr) | 33.74 | 8.85 |
| Total nursing experience (yr) | 10.49 | 8.26 |
| Education | | |
| Non-bachelor | 1,867 | 82.8 |
| Bachelor | 388 | 17.2 |
| Marital status | | |
| Married | 901 | 40 |
| Unmarried/Other | 1,354 | 60 |
| Work style | | |
| Full time | 2,086 | 92.5 |
| Part time | 169 | 7.5 |
| Desired current workplace | | |
| Desired | 1,372 | 60.8 |
| Not desired | 883 | 39.2 |
| Night shift | | |
| Works night shift | 1,794 | 79.4 |
| Day shift only | 461 | 20.4 |
| Role at work | | |
| Have roles | 777 | 34.5 |
| Don't have roles | 1,478 | 65.5 |
| Role in family | | |
| Have roles | 526 | 23.3 |
| Don't have roles | 1,729 | 76.7 |
| Role at work/in family | | |
| No role group (NRG) | 1,117 | 49.5 |
| Work role group (WRG) | 613 | 27.2 |
| Family role group (FRG) | 361 | 16 |
| Multiple role group (MRG) | 164 | 7.3 |
| Burnout | | |
| Emotional exhaustion | 16.73 | 4.74 |
| Depersonalization | 12.96 | 5.01 |
| Personal accomplishment | 14.63 | 4.16 |

SD: Standard deviation.

role groups, NRG included 1,117 nurses (49.5%), WRG included 613 (27.2%), FRG included 361 (16.0%), and MRG included 164 (7.3%). Regarding the burnout scale, emotional exhaustion was 16.73 points (SD 4.74), depersonalization was 12.96 points (SD 5.01), and personal accomplishment was 14.63 points (SD 4.16).

*ANOVA*

The results of the ANOVA for burnout and the four groups of work/family roles are presented in Table 2. There was a statistical difference among the four groups for emotional exhaustion and depersonalization. There was no statistical difference among the four groups for personal accomplishment.

*Multiple regression analysis*

Table 3 shows the relationship between demographic variables as control variables and emotional exhaustion, depersonalization. Pearson's correlation analysis and *t*-tests showed that age, total nursing experience, marital status, work style, and night shift were associated with emotional exhaustion and depersonalization. Regarding the association among the independent variables were related. Therefore, to consider the variance inflation factor, we used total nursing experience and night shift as covariates in the multivariate analysis; Total nursing experience was selected because burnout is a stress response in interpersonal relationships including clients[1)] and because experience as a health care provider is more important. Night shift was selected because shift work is a strong predictor related to physical and mental stress reactions[10)].

The multiple regression analysis results for emotional exhaustion and depersonalization are shown in Table 4. Compared to the NRG, the FRG and MRG showed sta-

**Table 2. ANOVA of burnout and four groups of roles at work/in family (n=2,255)**

| | Group of roles at work/in family | | | | *p*-value |
|---|---|---|---|---|---|
| | NRG | WRG | FRG | MRG | |
| Emotional exhaustion | 17.12 | 17.25 | 15.36 | 15.29 | <0.01 |
| Depersonalization | 13.32 | 13.31 | 11.88 | 11.69 | <0.01 |
| Personal accomplishment | 14.85 | 14.85 | 14.66 | 14.88 | 0.27 |

ANOVA: analysis of variance; NRG: no-role group; WRG: work-role group; FRG: family-role group; MRG: multiple-role group.

**Table 3. Bivariate analysis with demographic variables and emotional exhaustion and depersonalization (n=2,255)**

| | | Emotional exhaustion | | Depersonalization | |
|---|---|---|---|---|---|
| | | *r* | *p*-value† | *r* | *p*-value† |
| Age (yr) | | −0.24 | <0.01 | −0.15 | <0.01 |
| Total nursing experience (yr) | | −0.22 | <0.01 | −0.13 | <0.01 |
| | | Mean | *p*-value‡ | Mean | *p*-value‡ |
| Education | Non-bachelor | 17.02 | 0.15 | 12.92 | 0.36 |
| | Bachelor | 17.27 | | 13.18 | |
| Marital status | Married | 15.66 | <0.01 | 12.00 | <0.01 |
| | Unmarried/ other | 17.45 | | 13.10 | |
| Work style | Full time | 16.9 | <0.01 | 13.10 | <0.01 |
| | Part time | 14.56 | | 11.17 | |
| Desired current workplace | Desired | 16.64 | 0.24 | 12.84 | 0.14 |
| | Not desired | 16.88 | | 13.16 | |
| Night shift | Works night shift | 17.15 | <0.01 | 13.27 | <0.01 |
| | Day shift only | 15.11 | | 11.76 | |

Personal accomplishment was not correlated with the four role groups and was not tested.

*r*: Pearson's correlation coefficient.

†: Pearson's correlation analysis was conducted.

‡: *t*-test was conducted.

**Table 4. Multiple regression analysis of emotional exhaustion and depersonalization (n=2,255)**

| | Emotional exhaustion | | | | Depersonalization | | | |
|---|---|---|---|---|---|---|---|---|
| | B | 95% CI | | *p*-value | B | 95% CI | | *p*-value |
| | | LL | UL | | | LL | UL | |
| Intercept | 16.92 | 16.35 | 17.49 | <0.01 | 13.02 | 12.41 | 13.64 | <0.01 |
| Total nurse experience | −0.11 | −0.13 | −0.09 | <0.01 | −0.06 | −0.09 | −0.04 | <0.01 |
| Have night shifts† | 1.3 | 0.79 | 1.82 | <0.01 | 0.97 | 0.41 | 1.53 | <0.01 |
| Role at work/in family‡ | | | | | | | | |
| work-role group (WRG) | 0.44 | −0.02 | 0.91 | 0.06 | 0.14 | −0.36 | 0.65 | 0.58 |
| family-role group (FRG) | −0.79 | −1.37 | −0.20 | <0.01 | −0.80 | −1.44 | −0.17 | 0.01 |
| multiple-role group (MRG) | −0.94 | −1.71 | −0.17 | 0.02 | −1.09 | −1.92 | −0.26 | 0.01 |
| Adjusted $R^2$ | 0.08 | | | <0.01 | 0.03 | | | <0.01 |

CI: confidence interval; LL: lower limit; UL: upper limit.

†: Reference category is the "day shift only" group. ‡: Reference category is the "no-role group (NRG)".

tistically significant difference for emotional exhaustion (B=−0.79, 95% confidence interval [CI]: −1.37 to −0.20; B=−0.94, 95% CI: −1.71 to −0.17, respectively). Regarding depersonalization, compared to the NRG, the FRG and MRG showed statistically difference for depersonalization (B=−0.80, 95% CI: −1.44 to −0.17; B=−1.09, 95% CI: −1.92 to −0.26, respectively).

## Discussion

Nurses face WFC; however, previous studies have focused on WFC in terms of measuring the extent to which people feel that they are not able to balance work and family, regardless of the presence or absence of family or work roles and the level of workload involved. In other words, the actual presence or absence of a role is not taken into account. Therefore, this study focused on the presence or absence of an actual role rather than an individual's perception of the role.

In this study, the sample was younger than that of the national survey[26]. This was because younger Japanese nurses tend to work at medium- to large-scale hospitals, and this study used data from hospitals with more than 200 beds. For the same reason, there were more unmarried nurses in this sample than in the national survey (married nurses: 68.8%). Because the sample was younger, there may have been fewer nurses than in the population, particularly those with family roles. In addition, burnout is negatively related to age[27]; thus, the sample may have reflected a high burnout state.

From the research reporting a relationship between psychological stress, burnout, and workload as well as the effect of conflicts between work- and family-related roles on stress reactions and burnout, we hypothesized that the MRG would show higher burnout compared to the NRG. This was not supported in the present study. Our findings showed statistically significantly lower burnout level in the FRG and MRG compared to the NRG for both emotional exhaustion and depersonalization. The results contradicted other research results in which burnout resulted from WFC[28]. Additionally, these findings were inconsistent with the stress model wherein increased stress due to familial demands added to work-related stressors. WRG was not associated with burnout. For participants, factors related to daily nursing care may be more important than role overload in increasing burnout. In addition, this may have been due to other personal characteristics related to stress (resilience, sense of coherence, coping strategies) or other factors such as support, resources, and coping skills to keep working even if they have additional roles that may have influenced the burnout levels in this study's sample. According to a survey by Strachota *et al.*, one reason for nurses leaving or changing their work roles was rearing young children and caring for older parents[29]. That is, nurses with family- or work-related roles experienced higher burnout and may have already quit their jobs.

Comparatively, according to the concept of positive spillover, having multiple work- and family-related roles positively influences both work and family roles. The concept was developed from the expansionist theory propounded by Barnett and Hyde[30] and stated that as roles increase, human beings experience an increase in time, income, and social support and, thus, an increase in their self-complexity[30, 31]. A study of front-line nurses and physicians during the COVID-19 pandemic reported that the additional role of helping COVID-19 patients connect

online with their families contributed to lower nurse burnout[32]. Therefore, this study's participants who performed multiple or family roles may have experienced increased positive spillover that extended from their family to their work roles, resulting in lower burnout levels. In particular, interpersonal support professionals are required to have a relationship with clients that respects their personalities. Nurses with multiple roles may experience positive spillover to their work roles due to their roles at home, such as child rearing and elderly care, and depersonalization without respect for the client may be significantly lower.

Regarding personal accomplishment, which is the competence and accomplishment experienced in performing healthcare-service-related duties[2], no statistically significant differences between burnout and the four role-based groups were found. This differs from the other two aspects of burnout. Psychological reactions related to ethical and moral considerations regarding nurses' jobs and duties might have been minimally affected by family-related roles outside the workplace. Thus, this could explain why no statistical significance was found in this analysis, which focused on the existence of work- and family-related roles. Even for nurses who were given additional work roles, this was not associated with a sense of personal accomplishment. The additional work roles focused on in this study may have been duty roles assigned in the workplace, regardless of the participants' professional goals and objectives. Hence, the individual's professional accomplishment and additional work role may not have been related.

Previous studies have reported many nurses' WFC, and it has been demonstrated that nurses with positions above mid-level need to have work or organizational roles in clinical settings, even if they have family-related roles[20, 23]. In this study, nurse administrators and managers of the participating institutions might have been interested in the professional environment because the participating nurses were from hospitals that participated in the healthy work environment study. Therefore, by assigning roles to nurses, nurse managers assign appropriate work roles and support, thus, preventing psychological stress. To illustrate, supervisors' support and leadership attributes decrease psychological stress and burnout[33, 34]. Additionally, support for female employees with family-related roles is maintained by policies that focus on WLB in Japan. Therefore, in participating hospitals, organizational support for nurses with such roles may have decreased their psychological stress.

In contrast, nurses who experience life events (such as pregnancy and child-rearing) are relatively younger with fewer years of experience, are unmarried and tended to experience burnout, as in previous studies[4, 11, 12]. When younger nurses facing psychological stress experience major life events, such as pregnancy and child-rearing, they are reluctant to perform additional work and may quit their jobs to focus on those events. Hence, it is important not only to consider organizational support and the work environment for nurses with family-related roles but also to consider those who will have multiple roles in the future to ensure that turnover is reduced.

*Limitations and future directions*

Although this study yielded important findings, it also had several limitations that should be considered when interpreting these findings. First, due to the sample being younger than in the national data, selection bias may have occurred, thus limiting generalizability to organizations that are interested in the work environment in urban settings. Second, this was a cross-sectional study of working nurses and did not include nurses who quit their jobs. Previous literature defined nurses' characteristics according to those who continue to work alongside child-rearing and recognized child-rearing as "I divide work and child-rearing" and "child-rearing needs support from someone"[35]. Furthermore, we did not identify whether the sample nurses received support from their workplace or in their private lives. Their low burnout despite family-related roles and their ability to keep working without experiencing an unmanageable amount of psychological stress may have been due to this support. In terms of individual abilities, nurses who can cope with conflicts arising from performing multiple roles at work and from family stressors (e.g., sense of coherence) show higher psychological resilience and continue working despite many duties. It is thus important to identify the influence of personal and professional resources on a healthy work environment for nurses in future studies to extend the present study's findings.

*Conclusion*

This study verified the association between work- and family-related roles and burnout syndrome. Multiple roles were not significantly associated with burnout. However, this study suggested that nurses who experience burnout while carrying out multiple roles may have already quit their jobs. Alternatively, they may have continued to work because of positive spillover and social support. Thus, it was demonstrated that, depending on the work environment, it is possible for nurses to keep working without

psychological stress and to hone their individual abilities. This emphasizes that maintaining a balance between work and family is vital and should be a focus in organizations to reduce turnover and ensure a healthier workforce overall.

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## Conflicts of Interest

The authors declare that no conflicts of interest exist.

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