

# Family-to-work spillover and appraisals of caregiving by employed women caring for their elderly parents in Japan

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**Abstract:** We examined the differences in family-to-work spillover between employed women who did and did not have caregiving responsibilities for elderly parents and the relationship between family-to-work spillover and negative and positive appraisals of caregiving using moderation analysis. A cross-sectional survey was conducted with middle-aged employed women (age  $\geq 40$  years) from four large companies. Negative and positive family-to-work spillover (FWNS and FWPS, respectively) and negative and positive appraisals of caregiving were measured. Data from 386 non-caregivers and 82 caregivers were analyzed using Fisher's exact tests, Welch's t-tests, and hierarchical multiple regression. Results showed that FWNS was higher in caregivers than in non-caregivers, while there was no significant difference in FWPS. Caregiver "fulfillment from the caregiving role" (a subscale of positive appraisal) buffered the effects of caregiver "feelings of social restriction" (a subscale of negative appraisal) on FWNS. On the other hand, caregiver "commitment to caregiving tasks" (another positive subscale) intensified the effects of "feelings of social restriction" on FWNS. However, there was no relationship between negative and positive appraisals of caregiving and FWPS. These findings suggest that both negative and positive appraisals of caregiving are important contributors to FWNS among employed women caring for their parents.

**Key words:** Appraisal of caregiving, Employment, Family caregivers, Family-to-work spillover, Female

## Introduction

The aging of the population has led to an increase in the number of persons who need care. Seventy percent of the primary caregivers of the elderly in Japan are women, and 70% of these women are between 40 and 60 years of age<sup>1</sup>.

The number of women in the labor force has also increased considerably, with 70% of women in their 40 s and 60% of those in their 50 s being employed<sup>2</sup>. A proportion of these employees may resign to care for their parents. Recently, 80% of workers who resigned for reasons associated with caregiving were women, and as most of them were between 40 and 60 years of age<sup>3</sup>, they could have filled higher management positions given their years of experience. Therefore, the resignation of employees to care for aging parents could become a major issue for companies. Middle-aged

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employed women may face significant problems balancing work and caregiving, and this potential challenge requires investigation. We propose that care tasks may affect and spillover into their work, so it is important to investigate how the subjective stress experienced by caregivers (i.e., appraisal of caregiving) carries over into work experiences for middle-aged employed women.

As work and family domains are interconnected despite their physical and temporal boundaries, emotions and behaviors in each sphere carry over to the other. This phenomenon is known as *spillover theory*<sup>4)</sup>. This definition implies a bi-directional relationship between the work and family domains, that is, work may carry over to family (work-to-family spillover) and family may carry over to work (family-to-work spillover)<sup>5, 6)</sup>. In this study, we focused on caregiver roles in the family domain and how they both positively and negatively influence the work domain (i.e., *family-to-work spillover*). Family-to-work spillover has two aspects: *family-to-work positive spillover* (FWPS) and *family-to-work negative spillover* (FWNS). The enrichment hypothesis<sup>7)</sup>, which proposes that multiple roles bring rewards, such as income, opportunities for social relationships, and the experience of success, is the basis for FWPS. FWNS is based on the role scarcity hypothesis<sup>8)</sup>, which proposes that there is a limited amount of cognitive resources, time, and energy; too many responsibilities may result in strain, negative effects, and frustration due to the inability to meet competing demands.

Previous studies reporting on the negative consequences of caregiving on work<sup>9, 10)</sup> suggested that a caregiving role associated with more family stress may spillover to work<sup>11)</sup>. However, few studies have investigated how caregiving is associated with the work-family dynamics of these caregivers<sup>11)</sup>. Although researchers have reported that caregivers have a high rate of absences and low work performance<sup>12)</sup>, or are focused on quitting their jobs altogether<sup>13)</sup>, the mechanisms triggering these effects and the conditions enabling them are not fully understood. Boumans *et al.*<sup>14)</sup> found that providing more hours of family care was associated with a greater amount of work-family negative spillover as well as work-family positive spillover among caregivers for the elderly. Boumans *et al.*<sup>14)</sup> attributed the positive spillover to the expanded role of individuals, which allowed them to benefit from balancing multiple roles by accumulating resources, such as mastery, social support, and personal accomplishment. Indeed, caregivers of the elderly who are also employed have identified recognition, self-esteem, and opportunities for personal and family growth as rewards of family caregiving in qualitative interviews<sup>15)</sup>. Previous

studies of caregivers have suggested that negative family-to-work spillover is associated with the long hours of care required<sup>16)</sup>, high care demands of the ill person<sup>17)</sup>, and low allowances for alternative work arrangements<sup>18)</sup>.

Family caregivers in Japan play a critical role in helping patients maintain day-to-day routines and their physical and emotional health. Providing care to the elderly can have both positive and negative effects on the caregiver. Previous studies have found a moderate relationship between the negative and positive aspects of caregiving; these opposite effects may coexist and be related to different aspects of the caregiver's situation, such as the higher age of a caregiver, having other duties, or being the primary care giver, which relates to a higher care burden (negative aspects of caregiving).<sup>19, 20)</sup>

Lawton and colleagues<sup>19)</sup> defined the appraisal of caregiving as a subjective assessment of the degree of stress experienced by caregivers. Several assessments were developed that measure aspects of caregivers' appraisal, such as stressfulness or fulfillment from care tasks. Therefore, to examine the degree of support for employed caregivers, attention must be focused on their negative and positive appraisals of caregiving. Previous studies have suggested that the positive emotions experienced by caregivers (e.g., *fulfillment from the caregiving role*) through helping someone in need<sup>21)</sup>, offers a sense of purpose in life<sup>22)</sup>. Lin, Chen, and Li<sup>23)</sup> suggested that the quality of the relationship between the caregiver and the care recipient is an important factor influencing caregiver's behavior and caregiving. Another study suggested that the negative effects of caregiving included feelings of isolation<sup>24)</sup>, financial problems<sup>12)</sup>, and relationship problems at home<sup>25)</sup>. Therefore, understanding factors such as fulfillment from the caregiving role, quality of the relationship, feelings of isolation, and relationship problems at home are important when interpreting caregiving situations. Although the negative appraisal of caregiving has received much attention as a domain-specific stressor in the research literature, it is still unclear what kind of moderators might serve as a buffer against the weight of this burden. The theory of conservation of resources (COR)<sup>26)</sup> points to one possible solution for understanding the relationship between the negative appraisal of caregiving and outcome<sup>27)</sup>. The COR theory has been widely applied to work settings and organizational psychology to examine how employees are influenced by stress, including spillover between work and family roles<sup>27)</sup>. The COR theory posits that people are motivated to gain and maintain resources, and that stress arises when resources are threatened or lost, or when new resource

acquisition is obstructed. People who possess and invest in additional resources are able to compensate for losses, prevent further losses, and gain additional resources<sup>26)</sup>. In contrast, people who lack additional resources are more vulnerable to further losses and less capable of obtaining new resources. These resources are not only exterior influences such as support from family or colleagues, but also personal characteristics, such as satisfaction with performing caregiver tasks for older adults, which may also be valuable resources. These characteristics affect how employees deal with the potential or actual loss of resources and whether they are able to capitalize on existing resources and gain new resources<sup>28)</sup>. In the context of the COR theory, personal resources are important for buffering stress<sup>28)</sup>. Pinquart and Sorensen showed that positive appraisal of caregiving is one such personal resource<sup>20)</sup> given previous studies suggesting that positive appraisal of caregiving may moderate the negative effects. Lin, *et al.*<sup>23)</sup> found that the relationship between a caregiver's burden and depression was weaker when the caregiver experienced a higher level of satisfaction from the caregiver-recipient relationship. Thus, we thought that positive appraisal of caregiving might represent a personal resource mitigating the negative relationship between the negative appraisal of caregiving and FWNS. These positive appraisals should help employees with high satisfaction for eldercare tasks to protect themselves against the loss of resources from the high demands of caring for an older person. Positive appraisals of caregiving should also help employees to recover more quickly from actual resource losses, and to gain additional resources, which they can invest into their eldercare and work roles<sup>29)</sup>.

Therefore, this study examined the relationships between negative and positive appraisals of caregiving and positive and negative family to work spillover. The purpose of this study was twofold: (1) to examine the differences in family-to-work spillover between middle-aged women who were or were not caring for their parents, and (2) to investigate the relationship between family-to-work spillover and positive and negative appraisals of caregiving, specifically how positive appraisals of caregiving may buffer the effect of negative ones to family-to-work spillover. We tested three sets of hypotheses in this study: (1) negative appraisals of caregiving would be positively related to FWNS and positive appraisals of caregiving would be negatively related to FWNS; (2) positive appraisals of caregiving would moderate the effect of negative appraisals of caregiving on FWNS; and (3) positive appraisals of caregiving would be positively related to FWPS, while negative

appraisals of caregiving would be negatively related to FWPS.

## Methods

### *Study design and settings*

A cross-sectional survey was conducted with employed middle-aged women (aged  $\geq 40$  years) from four large companies in the surrounding Tokyo area. Two of the companies were selected to represent the pharmaceutical industry and the other two represented the manufacturing and information technology industries; this was done with the intent to eliminate selection bias of industry types. In Japan, small or medium-sized enterprises (SME) and large companies differ with respect to their working conditions; large companies usually employ industrial nurses and doctors whereas SMEs do not. Industrial nurses and doctors support employees and monitor their health and work conditions closely. In this study, we focused on family factors and their employment arrangements and controlled for available work resources by approaching large companies. The healthcare providers of these companies were contacted by mail and informed of this study's aims, procedures, and ethical considerations. The questionnaires were mailed to the companies' employees from August to September 2013 through the companies' healthcare providers. A letter was sent to the employees with the questionnaire that consisted of information about the study's aim and the voluntary nature of their participation. The returned questionnaire was considered evidence of informed consent.

The employees were asked to complete and return the questionnaire in a self-addressed envelope to the researchers. Of the 696 questionnaires distributed, 509 were returned (response rate: 72%). Thirty-five surveys had missing data for a dependent, independent, or demographic variable, and six of the respondents were caring for someone other than their parents (e.g., children, siblings). These respondents were excluded from the analysis. Thus, complete data from 468 respondents (82 caregivers and 386 non-caregivers) were analyzed (response rate: 69%).

The Ethics Committee of the Graduate School of Medicine at the University of Tokyo approved this study (#10201).

### *Measures*

The participants were asked if they were caring for anyone at the time of the survey and if they were primary or secondary caregivers. In this study, we defined caregiving as the provision of any type of help to one's parents or par-

ents-in-law<sup>30</sup>).

Family-to-work spillover was measured with the FWNS and FWPS subscales of the Japanese version of the Survey Work-home Interaction NijmeGen (SWING-J)<sup>31</sup>. The three items of the FWNS subscale measure the negative impact of a family's situation on one's functioning at work (e.g., "You have difficulty concentrating on your work because you are worried about domestic matters"), and the four items of the FWPS subscale measure the positive impact of a family's situation on one's functioning at work (e.g., "After spending a pleasant weekend with your spouse/family/friends, you have more fun in your job"). Items are scored on a 4-point Likert scale ranging from 1 (*never*) to 4 (*always*). A score was calculated for each of the subscales. The Cronbach's alpha coefficient ( $\alpha$ ) in this study (previous study<sup>32</sup>) was 0.68 (.78) for FWNS and .80 (.88) for FWPS. The content validity and the reliability of the scale were confirmed in a previous study<sup>31</sup>.

Participants' negative and positive appraisals of caregiving were measured using the four subscales of the Cognitive Caregiving Appraisal Scale<sup>33</sup>. The negative appraisals of caregiving are measured on two subscales: (1) *feelings of social restriction* with 5 items (e.g., "You are worried about not having enough time for your hobbies and social activities") and (2) *distress in relationships with others* with 3 items (e.g., "You are resentful of other relatives who cannot understand your feelings"). The positive appraisals of caregiving are measured on two subscales: (1) *fulfillment from the caregiving role* subscale with 6 items (e.g., "You feel satisfied that you are giving care by yourself") and (2) *the quality of relationships* with 4 items (i.e., the quality of the caregiver's and care recipient's relationship; e.g., "The care recipient shows gratitude for what you did for her/him"). All of the items are scored on a 4-point Likert scale, ranging from 1 (*never*) to 4 (*always*). A score is calculated for each of the subscales. The Cronbach's  $\alpha$ 's in this study (previous study<sup>33</sup>) were 0.89 (.87), 0.67 (.75), 0.78 (.79), and 0.76 (.82) for the *social restriction*, *distress in relationships*, *fulfillment from the caregiving role*, and *the quality of relationships* subscales, respectively. The content validity and the reliability of the instrument were confirmed in a previous study.

Perceived family support was measured with the Family APGAR<sup>34</sup>, which is composed of five items that address family functioning (e.g., "I am satisfied with the help that I receive from my family when something is troubling me"). Items are rated on a 3-point Likert scale, ranging from 1 (*never*) to 3 (*always*). The total score was calculated by summing the scores on all of the items. The Cronbach's  $\alpha$

in this study was 0.86.

The demographic variables in this study included the following: age; marital status (0=No, 1=Yes); economic status (1=very good to 5=very bad); education (High school, Junior college/Vocational college, or University and above); work hours per day; changes to work habits to accommodate caregiving, such as working from home, refusing overtime, and transferring to a different department (0=No, 1=Yes); and how many, if any, other family members helped with caregiving activities. In addition, the care recipients' demographic variables, such as age, gender, diagnoses, and living arrangements (living together, living apart from participants, or institutionalized), were collected.

### Statistical analyses

Fisher's exact tests and Welch's t-tests were performed to analyze the differences between the caregivers and non-caregivers on the demographic variables. Welch's t-tests were performed to analyze the differences in FWNS and FWPS between caregivers and non-caregivers. Our primary aim was to investigate the relationship between the negative and positive appraisals of caregiving and family-to-work spillover. Hierarchical multiple regression analyses were conducted to investigate what factors predicted FWNS and FWPS. The independent variables were entered into the equation in Step 1: caregiver status (0=primary or 1=secondary); economic status (1=very good to 5=very bad); having a preschool child (0=yes or 1=no); the number of family members who helped with caregiving; any changes to work habits to accommodate caregiving responsibilities (0=yes or 1=no); managerial status (0=yes or 1=no); and satisfaction with family support. In Step 2, scores on the subscales of negative and positive appraisals of caregiving were entered. Finally, in Step 3, the negative and positive subscale interactions were entered. When an interaction was significant, we created a graph of these subscales, highlighting the groups with the high and low scores. Because this study was a non-clinical study, we used FWNS and "distress in relationships with others" despite the low Alpha value.

All data were analyzed using IBM SPSS Statistics 21 for Windows (Chicago, Illinois). A two-tailed significance level of  $p < .05$  was set for this study.

## Results

### Participants' characteristics

The mean age of caregivers was 48.9 years, and the mean

**Table 1.** Characteristics of the Study Sample (N=468)

Variables		Non-caregiver <sup>a</sup> (n=386)	Caregiver <sup>a</sup> (n=82)	<i>p</i>
Age (years)		46.8±4.2 [40–60]	48.9±4.6 [40–61]	<.001 <sup>b</sup>
Marital status	Married	248 (64.2)	46 (56.1)	.209 <sup>c</sup>
Education				.083 <sup>c</sup>
	High school	49 (12.7)	12 (14.6)	
	Junior college/Vocational college	69 (17.9)	15 (18.3)	
	≥ University	268 (69.4)	55 (67.1)	
Chronic disease	Yes	64 (16.6)	19 (23.2)	.153 <sup>c</sup>
Presence of children	At least one child	196 (50.1)	37 (45.1)	.377 <sup>c</sup>
Economic status				.049 <sup>c</sup>
	Very good	92 (23.8)	12 (14.6)	
	Good	188 (48.7)	37 (45.1)	
	Neither good nor bad	73 (18.9)	20 (24.4)	
	Bad	24 (6.2)	7 (8.5)	
	Very bad	9 (2.4)	6 (7.4)	
House tasks (hours/day)		2.1±1.2 [0.25–6]	2.0±1.2 [1–6]	.873 <sup>c</sup>
Job contract				.209 <sup>c</sup>
	Regular	365 (94.6)	77 (93.9)	
	Part-time/Contract/Temporary	21 (5.4)	4 (4.9)	
	Other	0	1 (1.2)	
Duration of daily work (hours/day) <sup>d</sup>		9.0±1.6 [6–12]	9.4±1.7 [6–15]	.061 <sup>b</sup>
Satisfaction with family support (Family-APGAR)		6.1±2.8 [1–10]	5.0±2.8 [0–10]	.002 <sup>b</sup>
Managerial position	Yes	69 (17.9)	17 (20.7)	.261 <sup>c</sup>
Changed work habits to accommodate caregiving	Yes	—	13 (15.3)	
Primary caregiver	Yes	—	45 (54.9)	
The number of family members who help with caregiving <sup>e</sup>		—	1.4±1.0 [0–5]	

Note. <sup>a</sup> n (%) or mean±standard deviation [range]; <sup>b</sup> Welch's t test; <sup>c</sup> Fisher's exact test; <sup>d</sup> does not include commuting time; <sup>e</sup> includes living and not living with the caregiver

age of non-caregivers was 46.8 years. Caregivers had a significantly higher mean age, lower economic status, and lower satisfaction with family support compared to non-caregivers. There were no significant differences in work-related characteristics between the two groups, such as the duration of daily work or managerial positions (Table 1). The care recipients' mean age was 80.3 years, and the mean number of hours of care received per week was 8.2 (Table 2).

#### *Differences between caregivers and non-caregivers in family-to-work spillover*

Table 3 presents the comparison of the FWNS and FWPS scores for the caregivers and non-caregivers. The FWNS scores for caregivers were significantly higher than for non-caregivers; no significant difference in FWPS scores was found between caregivers and non-caregivers.

#### *Predictors of family-to-work spillover*

Table 4 presents the results of the hierarchical multiple regressions. The increase in the adjusted  $R^2$  was significant

in all steps for FWNS; the final regression model accounted for a significant amount of variation in FWNS (adjusted  $R^2=.387$ ). Being a primary caregiver ( $\beta=.341$ ,  $p<.001$ ), having a higher number of family members who helped with caregiving ( $\beta=-.245$ ,  $p=.031$ ), and having lower economic status ( $\beta=.267$ ,  $p=0.24$ ) predicted FWNS. With reference to negative and positive appraisals of caregiving, *feelings of social restriction* ( $\beta=.258$ ,  $p=.017$ ), *fulfillment from the caregiving role* ( $\beta=-.269$ ,  $p=0.22$ ) and *the quality of relationships* ( $\beta=.371$ ,  $p=.011$ ) also predicted FWNS. A positive appraisal of caregiving, *fulfillment from the caregiving role*, was a predictor of FWNS only for caregivers with high scores on *feelings of social restriction* and high *fulfillment from the caregiving role* ( $\beta=-.289$ ,  $p=.0497$ ) (Fig. 1). Another positive appraisal of caregiving, *quality of relationships*, was a predictor of FWNS only for caregivers with high scores on *feelings of social restriction* and a high *quality of relationship* ( $\beta=.327$ ,  $p=.020$ ) (Fig. 2). Thus, our first hypothesis that negative appraisals of caregiving would be positively related to FWNS, and positive appraisals of caregiving would be negatively

**Table 2. Characteristics of the Care Recipients (N=82)**

Variables		<i>n</i> (%) or mean±SD [range]
Age (years)		80.3±4.6 [70–92]
Gender	Women	47 (57.3)
Relationship to the caregiver	Parents	61 (74.4)
	Parents-in-law	21 (25.6)
Diagnosis <sup>a</sup>	Dementia	34 (41.5)
	Cerebrovascular disease	25 (30.5)
	Hypertension	23 (28.0)
	Arthropathy/Fracture	16 (19.5)
	Cancer	6 (7.3)
	Neuropathy	5 (6.1)
	Undiagnosed	10 (11.9)
	Other	9 (10.7)
Living arrangement	Living with participants	27 (32.9)
	Living apart from participants	29 (35.4)
	Institutionalized	26 (31.7)
Duration of receiving care <sup>b</sup>		35.8±33.0 [2–144]
Weekly hours of receiving care		8.2±8.2 [1–30]
Nursing level	None	16 (19.5)
	Needed support level 1–2	8 (9.8)
	Nursing care level 1–3	31 (37.8)
	Nursing care level 4–5	27 (32.9)

Note. SD=Standard deviation. <sup>a</sup> Multiple answers were allowed; <sup>b</sup> in months.

**Table 3. Comparison of the Family-To-Work Spillover between Non-Caregivers and Caregivers (N=468)**

	Non-caregiver ( <i>n</i> =82)	Caregiver ( <i>n</i> =386)	<i>p</i> <sup>a</sup>
Family-to-work negative spillover	3.71±1.04	4.73±1.31	<.001
Family-to-work positive spillover	10.16±3.15	9.76±3.18	.300

Note. Values are expressed as mean±standard deviation. <sup>a</sup>Welch’s t-test.

related to FWNS was partially supported. Our second hypothesis, that positive appraisals of caregiving would moderate the effect negative appraisals of caregiving has on FWNS, was also partially supported.

Having a preschool child ( $\beta = .323, p = .025$ ), and *satisfaction with family support* ( $\beta = .351, p = .013$ ) were significant predictors of FWPS, whereas none of the other negative or positive appraisals of caregiving predicted FWPS. The increase in the adjusted  $R^2$  was not significant in any of the steps. (adjusted  $R^2 = .267$ ). Thus, our third hypothesis, that positive appraisals of caregiving would be positively related to FWPS, while negative appraisals of caregiving would be negatively related to FWPS, was not supported.

**Discussion**

This study examined differences between caregivers and

non-caregivers and the relationship between negative and positive appraisals of caregiving and family-to-work spillover among employed middle-aged women caring for their parents. Whereas the FWNS scores were significantly higher for caregivers than non-caregivers, there was no significant difference between caregivers and non-caregivers in FWPS scores. Moreover, hierarchical multiple regression showed that both positive and negative appraisals of caregiving were related to FWNS, but not FWPS.

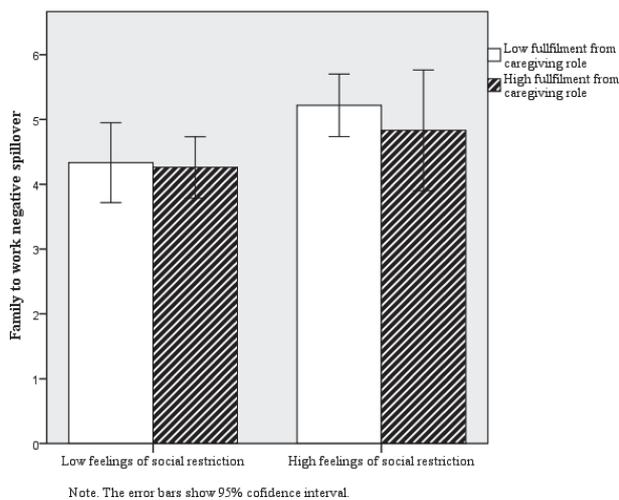
As noted earlier, FWNS is based on the role scarcity hypothesis<sup>8</sup>), which proposes that individuals have limited cognitive resources, time, and energy. Negative effects and frustration may develop due to an individual’s inability to meet competing demands from the family and work domains. For the middle-aged employed women in this study, the added role of being a caregiver may have created more challenges in daily life, such as time constraints, and perhaps added a psychological burden that those without family caregiver roles did not face. In previous studies, caregivers reported a lower level of general well-being and more feelings of depression than non-caregivers<sup>35</sup>). Our findings revealed that employed female caregivers experienced a great burden.

The concept of FWPS is based on the role enrichment hypothesis<sup>7</sup>), which proposes that multiple roles bring

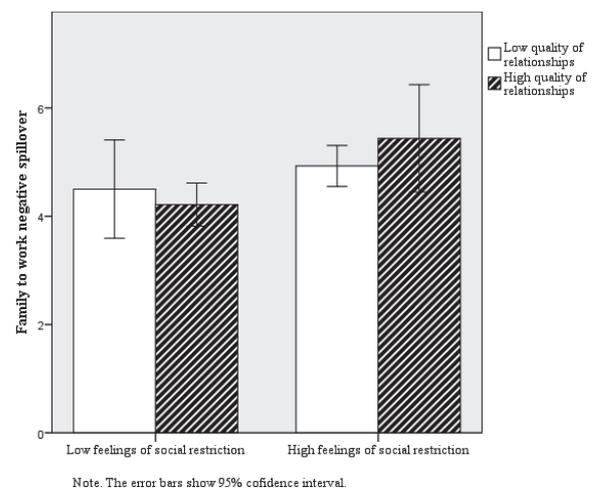
**Table 4. Hierarchical Multiple Regression Analyses Predicting Family-To-Work Spillover (N=82)**

Variables	Family to work negative spillover			Family to work positive spillover		
	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3
<i>Step 1</i>						
Primary caregiver <sup>a</sup>	.384**	.338**	.341**	.220*	.189	.192
Economic status <sup>b</sup>	.228*	.235*	.267*	.036	-.018	-.078
Having a preschool child <sup>a</sup>	.074	.033	.030	.264	.248*	.323*
Number of family members who help with caregiving	-.268*	-.250*	-.245*	.159	.139	.121
Changed work habits to accommodate caregiving <sup>a</sup>	.105	.083	.053	.254*	.231	.211
Managerial status <sup>a</sup>	.171	.169	.176	-.199	-.224	-.180
Satisfaction with family support (Family APGAR)	.134	.134	.197	.358*	.387*	.351*
<i>Step 2</i>						
Feelings of social restriction		.281*	.258*		.107	.147
Distress in relationships with others		-.008	-.025		.121	-.002
Fulfillment from the caregiving role		-.277*	-.269*		.047	.143
Quality of relationships		.289*	.371*		-.047	-.125
<i>Step 3</i>						
Fulfillment from the caregiving role × Feelings of social restriction			-.289*			-.113
Fulfillment from the caregiving role × Distress in relationships with others			.118			.187
Quality of relationships × Feelings of social restriction			.327*			-.199
Quality of relationships × Distress in relationships with others			-.021			-.195
<i>R</i> <sup>2</sup>	.348	.445	.500	.319	.349	.403
Adjusted <i>R</i> <sup>2</sup>	.286**	.358**	.387**	.254**	.246**	.267**
$\Delta R^2$		.097*	.055		.030	.054

Note. Standardized regression coefficients ( $\beta$ s) are reported;  $R^2$ : Coefficient of determination;  $\Delta R^2$ : Change in coefficient of determination; <sup>a</sup> 1 = Yes or 0 = No; <sup>b</sup> 1 = very good to 5 = very bad; \* $p < .05$ , \*\* $p < .01$



**Fig. 1. Interaction effect of fulfillment from the caregiving role and feelings of social restriction on family-to-work negative spillover. (N=82)**



**Fig. 2. Interaction effect of quality of relationships and feelings of social restriction on family-to-work negative spillover. (N=82)**

rewards, such as income, opportunities for social relationships, and the experience of success. In this study, the difference in FWPS between caregivers and non-caregivers was not significant. Pinquart *et al.*<sup>20)</sup> and Lin *et al.*<sup>23)</sup> suggested that caring for elderly parents is a stressful experience. In this context, the findings of the present study indicate that middle-aged women with caregiving roles

experience constraints and conflict rather than rewards. A previous study suggested that the provision of family care was associated with greater work-family negative spillover as well as work-family positive spillover among caregivers of elderly<sup>14)</sup>. However, in our study no differences were found between caregivers and non-caregivers. In this study, other family factors rather than whether caregiving or not

might have influence on FWPS. This finding needs more investigation in future study.

The results of the hierarchical multiple regression analysis of FWNS indicated that negative and positive appraisals of caregiving are important predictor for FWNS among middle-aged caregivers.

The results showed that on the subscale of negative appraisals of caregiving, *feelings of social restriction* were positively related to FWNS. Mazanec D *et al.*<sup>35)</sup> found that caregiving burdens resulted in disrupted schedules, which influenced work productivity. Similarly, in the present study, it seemed that the responsibility of increased caregiving demands in the family domain makes it difficult for the caregivers to take time for themselves, and thus they have less time to accomplish their own things. Such temporal constraints in the family domain would likely carry over into the work domain, and thus, *feelings of social restriction* were positively related to FWNS.

On the subscale of positive appraisals of caregiving, *fulfillment from the caregiving role* was negatively related to FWNS, and a positive appraisal of caregiving, *fulfillment from the caregiving role*, was a predictor of FWNS only for caregivers with high scores on the *feelings of social restriction* and *high fulfillment from the caregiving role*. Previous studies suggested that positive appraisals of caregiving were negatively related to depression or strain<sup>23)</sup>. Thus, this study supported the idea that positive appraisal of caregiving was negatively related to negative outcomes, such as FWNS. In addition, this result showed that an increase in positive appraisals of caregiving resulted in less work carry over for some of the negative effects. A study by Zacher *et al.*<sup>36)</sup> found that satisfaction with eldercare tasks was a predictor of work performance only for caregivers with high scores on eldercare demand and high satisfaction with eldercare tasks. A high burden associated with caring for elderly parents claims caregivers' time, often leaving them with an insufficient amount of free time. From the above reason, satisfaction with care (i.e., *fulfillment from the caregiving role*) was an important factor in reducing the negative effects of family stress on work among caregivers who felt a high degree of social restriction in this study. Some studies suggested that the use of in-home eldercare services and daycare services increased the *fulfillment from the caregiving role* and reduced the *feelings of social restriction*<sup>33, 37)</sup>. It might be important to use eldercare services to reduce FWNS.

Participants' *quality of relationship* level was a significant predictor of FWNS, which was unexpected and contrary to our hypothesis. Lin *et al.*<sup>23)</sup> suggested that the qual-

ity of the relationship between the caregiver and the care recipient positively affected the caregiver's behavior and caregiving. In other words, caregivers who are close to the care recipient may wish to concentrate on the caregiving role. In this study, caregivers who are committed to the caregiver role (i.e., high ratings on *the quality of relationships*) appear more likely to experience negative spillover at work. Moreover, a positive appraisal of caregiving, *quality of relationships*, was a predictor of FWNS only for caregivers with high scores on *feelings of social restriction* and *high quality of relationship*. Thus, persons who feel that they have less time to accomplish their own tasks might have not enough time to care for elderly parents. With a greater *quality of relationship*, persons may wish to commit to more care tasks, but lack enough time to do so. For this reason, they may prioritize care over work, causing time-conflicts to occur and spillover into work. This situation has the potential to contribute to the negative effects on work.

The negative appraisal of caregiving, *distress in relationships with others*, was not associated with FWNS. In Japan, elder care tasks involve many relatives. Relatives are included in "*distress in relationships with others*", however, the distress within these relationships occurs more widely than just in the home, and may therefore not be measured when recording daily stresses from routine family roles at home. For the reason there might be no apparent relationship between *distress in relationships with others* and FWNS.

None of the negative or positive appraisals of caregiving predicted FWPS. Previous studies have suggested that eldercare is a stressful event<sup>24)</sup>. This suggestion might indicate that the appraisal of caregiving in this study should not show positive, but only negative carry over effects on work. The number of hours spent in caregiving by the participants in this study was shorter than that of the participants in the previous study<sup>16)</sup>. This may be one reason our appraisals did not predict FWPS. However, satisfaction with family support predicted FWPS, which is similar to Wayne, Randel, and Stevens<sup>38)</sup> finding that the emotional support received from one's family strongly predicted FWPS among employees. Further, having a preschool child predicted FWPS. A previous study suggested that an older age of the mother positively affected happiness during childcare<sup>39)</sup>. This study's participants were over 40 years old, and they might feel their satisfaction with childcare duties carry over into their work roles, regardless of eldercare at home.

#### *Limitations and future directions*

Although this study's findings extend the knowledge

from previous studies of employed, middle-aged women who were caregivers, there are several limitations. Since the study relied on a cross-sectional design, causal inferences are limited, and the findings should be interpreted carefully. It is possible that participants who had little or no interest in the problems associated with caregiving did not participate in this survey, as they did not feel the need to do so. This study was of a self-questionnaire design, and this might lead to a source bias. Although all psychological measures of reliability and validity were verified, we used the measure for analysis in spite of the low Alpha. This might be the reason why the results only partially supported our initial hypotheses. Since it was not possible to know how many individuals in these companies also had caregiving roles, it was difficult to anticipate the sample size of caregivers and non-caregivers. This may have led to insufficient statistical power due to small sample size. The statistical power analysis was conducted using G\*Power, 120 people were required for the analysis among caregivers, but only 82 respondents had caregiving roles. This might cause low reliabilities for some measures. Future research should include a larger number of companies and participants. Finally, there were no relationships between the positive and negative appraisals of caregiving and FWPS. In this study, we investigate caregiving factors in the family domain. Future study should investigate other factors in the family domain.

#### *Study implications*

The results of this study have several implications for health service providers. Our findings suggest that when caregivers have both caregiving and work habits, their appraisals of *feelings of social restriction*, *quality of relationships*, and *fulfillment from the caregiving role* are important factors in determining their FWNS. However, satisfaction with family support and changes in caregivers' work habits are also important in determining their FWPS. Our results suggest that supervisors and organizations need to be aware that employees with high *feelings of social restriction* may experience more FWNS, but that those with high *fulfillment from the caregiving role* may weaken these effects. Thus, it is important that organizational practitioners find ways to increase caregivers' positive appraisals of caregiving, such as *fulfillment from the caregiving role*. One method of doing this would be to increase advertisements of eldercare services. Thus, it would be important to provide support and information, such as an introduction to the community general support center that allows caregivers to choose the health care services they need. These ser-

vices may be especially beneficial for caregivers expressing a more negative appraisal of caregiving. Moreover, it may be important to understand that they have responsibilities associated with several roles (e.g., caregiving, employment). Thus, it may be important to offer flexible employment options, such as flextime and working from home for caregivers who report high *quality of relationships*. Such options are necessary for caregivers to balance work and caregiving.

In conclusion, for the middle-aged, employed women in this study who cared for their aging parents, their subjective assessments of the caregiving role was a significant predictor of FWNS. Future studies should investigate the factors affecting FWPS.

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