

Research Article

Antecedents and Outcomes of Enrichment Among Working Family Caregivers of People With Dementia: A Longitudinal Analysis

Hiroshi Morimoto, PhD^{1,*} and Yoshitake Takebayashi, PhD^{2,•}

¹Faculty of Psychology, Meiji Gakuin University, Tokyo, Japan. ²School of Medicine, Fukushima Medical University, Japan.

*Address correspondence to: Hiroshi Morimoto, PhD, Faculty of Psychology, Meiji Gakuin University, Tokyo 108-8636, Japan. E-mail: hmori@psy.meijigakuin.ac.jp

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Abstract

Objectives: Despite evidence of negative aspects of the work–caregiving interface (e.g., work–family conflict) among family caregivers of people with dementia (PWD), little is known about the positive aspects (e.g., enrichment). We examined antecedents and outcomes of family-to-work enrichment (FWE) and work-to-family enrichment (WFE) among working family caregivers of PWD. In terms of antecedents, we investigated whether factors that alleviated work–family conflict increased enrichment.

Method: We conducted a 3-wave 6-month-interval longitudinal online survey of Japanese working family caregivers of PWD ($N = 747$). We examined the mediational effects of WFE and FWE on associations between participants' work resources (job control, supervisor support, co-worker support, and organizational support) and caregiving support and their well-being (psychological distress and quality of life). We also examined the moderating effect of caregiving self-efficacy on the relationships between caregiving support/caregiving demands and FWE.

Results: Our longitudinal analysis confirmed supervisor support had a positive effect on WFE. FWE had no significant longitudinal mediating effect on the association between caregiving support and well-being, and self-efficacy had no longitudinal moderating effect on FWE.

Discussion: Supervisor support is important for WFE, but greater enrichment does not necessarily improve family caregiver well-being. Caregiving experience (i.e., caregiving demands and caregiving support) has little effect on the work–caregiving interface. Policy makers should focus on supporting companies to create family-friendly work environments. More research is needed on factors that increase FWE and moderate the relationship between enrichment and working family caregivers' well-being.

Keywords: Caregiving self-efficacy, Job control, Social support, Well-being, Work–caregiving interface

Increasing longevity means more people worldwide have dementia (Prince et al., 2016). In Japan, the number of people with dementia (PWD) is projected to increase to 7 million by 2025 (from 4.62 million in 2012) (Ministry of Health, Labour and Welfare [MHLW], 2016). Dementia symptoms (e.g., cognitive function decline, behavioral and psychological symptoms) mean PWD require dedicated care, and their family

caregivers are prone to poor health (Chiao et al., 2015; Feast et al., 2016). Traditionally, female spouses play the primary caregiver role in Japan; however, more men and adult children are now filling this role (MHLW, 2017). Consistent with international employment trends among younger family caregivers of PWD (Neubert et al., 2019), over half of the adult children caregivers in Japan are employed (MHLW, 2017).

Although balancing work and caregiving is challenging, some working family caregivers experience positive effects from their dual role (Neubert et al., 2019). Conceptualizations regarding such positive experiences include positive spillover (Kirchmeyer, 1992), enhancement (Sieber, 1974), facilitation (Grzywacz, 2002), and enrichment (Greenhaus & Powell, 2006). Carlson and colleagues (2006) suggested enrichment focuses on enhanced performance/affect in each role (not resource acquisition; i.e., enhancement) at the individual level (not system level; i.e., facilitation) as a result of successful application of the transferred resources obtained (not the transference itself; i.e., positive spillover). Enrichment is bidirectional: work-to-family enrichment (WFE) and family-to-work enrichment (FWE) (Carlson et al., 2006). As improvements in the work-caregiving interface can improve working family caregivers' well-being, this study considered enrichment a positive aspect of the work-caregiving interface.

Previous studies focused on negative aspects of the work-caregiving interface (i.e., work-family conflict) because of the adverse effects on family caregivers' psychosocial adjustment (Boumans & Dorant, 2014; DePasquale et al., 2016). Enrichment has received limited attention, particularly among family caregivers of PWD. The difficulty of dementia caregiving (Chiao et al., 2015; Feast et al., 2016) means findings concerning family caregivers of people with other conditions may not be directly applicable to caregivers of PWD. As research on the work-caregiving interface among family caregivers of PWD is limited, we considered this interface broadly based on work-family literature concerning family caregivers.

The work-home resources (W-HR) model (ten Brummelhuis & Bakker, 2012) describes the work-family interface as a process whereby contextual demands and resources in one domain influence outcomes in another domain through gaining or losing personal resources (e.g., personal traits and energies). Enrichment occurs when contextual resources (those outside individual but within social contexts) in one domain improve outcomes in another via gain in personal resources. In the context of this study, work resources relate to WFE and home resources to FWE. The W-HR model assumes that certain types of personal resources (e.g., self-efficacy) strengthen the association between contextual resources and enrichment (i.e., moderating effect). For example, individuals with high self-efficacy may experience greater enrichment than those with low self-efficacy because they optimally use contextual resources. The work-family literature (e.g., Hara, 2018; Kacmar et al., 2014) divides enrichment into three components: antecedents (i.e., contextual resources), enrichment, and outcomes. Enrichment is assumed to mediate the relationship between antecedents and outcomes. Therefore, we considered enrichment as mediating the association between antecedents and outcomes in our models (Figure 1). This hypothesized model related work resources to WFE and caregiving resources to FWE. Personal resources are included as antecedents, because they are thought to

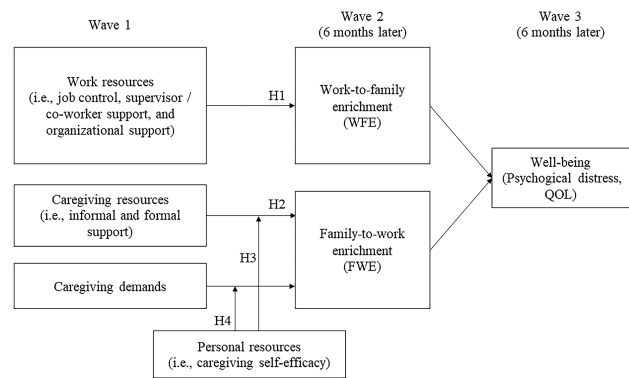


Figure 1. Hypothesized model for antecedents and outcomes of enrichment among family caregivers of people with dementia. QOL = quality of life.

strengthen the relationship between contextual resources and enrichment in the W-HR model.

Antecedents of Enrichment

DePasquale et al. (2018) found high perceived job control (i.e., schedule control) as a work resource was linked to high work-to-family positive spillover among double-duty older adult caregivers. However, that study did not focus on family caregivers of PWD. Fujihara and colleagues (2019) discussed work-family conflict and suggested high co-worker support attenuated the negative effect of caregiving burden on work performance among family caregivers of PWD. Although not focused on family caregivers of PWD, other studies indicated that instrumental caregiving support, workplace supervisor/co-worker support, and organizational support (e.g., flexible work options) reduced work-family conflict and improved family caregivers' psychosocial adjustment (Brown & Pitt-Catsouphes, 2013, 2016; Gordon et al., 2012; Matijaš et al., 2018). Therefore, job control and workplace support (i.e., supervisor, co-worker, and organizational support) as work resources and caregiving support as a caregiving resource may be antecedents of enrichment among family caregivers of PWD.

Caregiving self-efficacy has been highlighted as an important personal resource for psychological and physical health among family caregivers of PWD (Crellin et al., 2014; Harmell et al., 2011; Steffen et al., 2002). Although caregiving self-efficacy may not attenuate the amplification effect of caregiving demands on work-family conflict among family caregivers of PWD (Morimoto et al., 2018), its moderating effect on the relationship between caregiving support and enrichment has not been examined.

Enrichment Outcomes

Consistent with the W-HR model, Neubert et al. (2019) reported managing both roles can enhance family

caregivers' well-being. However, few studies have examined enrichment outcomes in this population. The W–HR model considers production (e.g., performance), behavioral (e.g., withdrawing), and attitudinal (e.g., well-being) outcomes in the work and home domains (ten Brummelhuis & Bakker, 2012). Another study (Moniz-Cook et al., 2008) argued that psychological distress (e.g., depression and anxiety), quality of life (QOL), and burden were important indicators for psychosocial intervention among family caregivers of PWD. Therefore, we considered psychological distress and QOL as enrichment outcomes (i.e., well-being).

The Present Study

Dementia caregiving is difficult and improving the work–caregiving interface is important to maintain family caregiver well-being. We conducted a longitudinal survey examining enrichment antecedents and outcomes among working family caregivers of PWD. In particular, we examined the mediating effect of WFE and FWE on associations between work resources (i.e., job control, supervisor/co-worker support, and organizational support) and caregiving resources (i.e., caregiving support) and well-being. We also evaluated the moderating effect of caregiving self-efficacy on the relationship between caregiving support and FWE. Additionally, we examined whether factors shown to alleviate work–family conflict increased enrichment. Our hypotheses were as follows (Figure 1).

Hypothesis 1. WFE mediates the association between work resources (i.e., job control, supervisor/co-worker support, and organizational support) and well-being.

Hypothesis 2. FWE mediates the association between caregiving support and well-being.

Hypothesis 3. Caregiving self-efficacy strengthens the positive relationship between caregiving support and FWE.

The W–HR model assumes no explicit relationship exists between work/home demands and enrichment but suggests work/home demands erode personal resources (ten Brummelhuis & Bakker, 2012). This indicates work and caregiving demands are negatively associated with enrichment. However, Boumans and Dorant (2014) found that high informal care provision (i.e., caregiving demands) was related to high family-to-work positive spillover among double-duty caregivers. This was interpreted using effort-recovery theory (Geurts et al., 2005; Meijman & Mulder, 1998), which posits that positive family-to-work spillover develops if individuals successfully manage caregiving demands and their recovery needs. Conversely, negative family-to-work spillover occurs if individuals fail to cope with these demands. The influence of caregiving demands on enrichment may therefore differ depending on personal resources. Participants in Boumans and Dorant's (2014) study were professional caregivers who presumably had substantial knowledge and caregiving skills; therefore,

caregiving self-efficacy may have a moderating effect on the association between caregiving demands and FWE.

Hypothesis 4. Caregiving self-efficacy weakens the negative relationship between caregiving demands and FWE.

Method

Participants and Procedure

We conducted a three-wave 6-month-interval longitudinal online survey of Japanese working family caregivers of PWD. Inclusion criteria were: (a) providing care for a co-resident family member with dementia; (b) working; (c) providing regular home care (>5 days/week); and (d) no psychiatric disorder at the time of participation. Participants were recruited through Cross Marketing Inc., a Japanese online survey company. All participants meeting the inclusion criteria were registered with that company. The first survey included a questionnaire and informed consent form and was distributed to potential participants via a listserv. Participants who agreed to participate and returned the first survey were invited to complete the second and third surveys. Participants received a redeemable token from Cross Marketing Inc. for their participation. Participants had to respond to all survey items. The local ethics committee of Meiji Gakuin University approved this study.

In total, 764 family caregivers completed the first survey, 393 completed the second survey, and 250 completed the third survey. Potentially unreliable responses were identified through a seriousness check (Aust et al., 2013), which involved asking participants to evaluate the seriousness of their responses at the end of the survey. After excluding these responses, we analyzed data for 747 participants in the first survey, 391 in the second survey, and 246 in the third survey. Antecedents of the work–caregiving interface have previously been reported to have small-to-medium effect sizes (e.g., Boumans & Dorant, 2014; Fujihara et al., 2019). Therefore, a sample size of approximately 395 participants for cross-sectional analysis and at least 200 participants for longitudinal analysis (Wu et al., 2018) was considered to provide adequate power.

Participants' mean age was 51.37 ± 10.76 years, and 75.90% worked full-time. These characteristics were comparable to a representative sample of working family caregivers of frail relatives in Japan where most were in their 40s or 50s (Ministry of Internal Affairs and Communications [MIC], 2018) and about 90% worked full-time (MHLW, 2013). There were no significant differences in sociodemographic characteristics between individuals who completed all surveys and those who dropped out, except that those completing all surveys were older (53.83 ± 9.36 vs 50.16 ± 11.20 years, $|t| = 4.70$, $p < .01$) and cared for older relatives (84.01 ± 7.59 vs 82.25 ± 9.85 years, $|t| = 2.52$, $p = .01$) who more commonly had Alzheimer's dementia (63.41% vs 55.09%, $\chi^2 = 4.69$, $df = 1$, $p = .03$).

Measures

Sociodemographic variables

Participants reported their sex, age, marital status, caregiver status (primary or secondary), relationship to the care recipient, caregiving hours/day and days/week, duration of caregiving, occupation, and employment status (full-time or part-time). We multiplied the number of caregiving hours/day by the number of days/week spent caregiving to obtain the number of caregiving hours/week. Participants also reported the care recipient's sex, age, and dementia type, and whether they used public long-term care insurance (LTCI) and the care level needed.

Caregiving demands

Caregiving demands were measured with the Caregiver Burden Scale (Niina et al., 1992), which assesses daily care stressors experienced by family caregivers of PWD. This 26-item scale comprises seven subscales: support for daily life (i.e., activities of daily living), handling of dementia symptoms (i.e., burden of behavioral and psychological symptoms), concern about future caregiving burden, interpersonal problems (i.e., lack of informal support), constraints on personal and social activities (i.e., caregiving interference with other roles), lack of social services (i.e., lack of formal support), and economic cost (i.e., financial burden of caregiving). Responses are on a 4-point scale (0: *not at all*, 1: *a little*, 2: *quite a bit*, 3: *extremely*), with higher scores indicating greater caregiving demands. The interpersonal problems, constraints on personal and social activities, and lack of social services subscales were excluded because they partially overlapped with other scales used in this study. Mean subscale scores were used in our analyses ($\alpha = .80$).

Caregiving support

Caregiving support was assessed with 10 items covering informal and formal support (five items each; Hyodo et al., 2003). For informal support, participants stated the number of family members, friends, and neighbors providing emotional (two items), instrumental (two items), and informational (one item) support. The degree of satisfaction with each support type was rated using a 3-point scale (1: *not very satisfied*, 2: *slightly satisfied*, 3: *very satisfied*). For formal support, participants stated the average number of public services (e.g., day care, short stay, home-visit nursing) used per month, and rated their degree of satisfaction on the 3-point scale. We used the average number and satisfaction scores for informal and formal support in our analyses (informal support: number, $\alpha = .72$, satisfaction, $\alpha = .88$; formal support: number, $\alpha = .52$, satisfaction, $\alpha = .86$). Higher scores indicated more support and greater satisfaction with support.

Work resources

Job control, supervisor support, and co-worker support were measured with the Brief Job Stress Questionnaire (BJSQ) Job Resources Scale (Shimomitsu et al., 2000). This scale comprises 15 items on seven subscales that assess workplace resources: job control (i.e., schedule control), suitable job (i.e., individual suitability of the work), skill utilization (i.e., use of skills and knowledge), meaningfulness of work (i.e., recognizing the work's significance), supervisor support, co-worker support, and informal support (i.e., from family/friends). The supervisor and co-worker support subscales measure general support, including family support. We did not use the suitable job, skill utilization, and meaningfulness of work subscales because these were outside the focus of this study. The support from family and friends subscale was also omitted because it partially overlapped other scales used in this study (i.e., informal support). Organizational support (e.g., flexible work options) was evaluated by two items: "I have the schedule flexibility needed at work to manage family responsibilities" (Brown & Pitt-Catsouphes, 2013) and "I have a support system available that balances care and work (e.g., allows care leave)" (Saito, 2011). Responses are on a 4-point scale (0: *disagree*, 1: *slightly disagree*, 2: *slightly agree*, 3: *agree*) and higher scores indicate greater work resources. Mean subscale scores were used in our analyses (job control, $\alpha = .82$; supervisor support, $\alpha = .91$; co-worker support, $\alpha = .90$; organizational support, $\alpha = .64$).

Caregiving self-efficacy

We used the Japanese version of the Revised Scale for Caregiving Self-efficacy (Maruo & Kono, 2014), which comprises 15 items on three subscales: obtaining respite, responding to disruptive behaviors, and controlling upsetting thoughts. Items are rated on a scale from 0 = *cannot do at all* to 100 = *can definitely do* and higher scores indicate higher self-efficacy. Mean subscale scores were used in our analyses ($\alpha = .93-.96$).

Enrichment

We measured enrichment with the Japanese version of the Work-Family Enrichment Scale (Hara, 2018), which comprises 18 items on six subscales: three subordinate WFE concepts (work-to-family development, work-to-family affect, and work-to-family capital) and three subordinate FWE concepts (family-to-work development, family-to-work affect, and family-to-work efficiency). Items were reworded to reflect the caregiving situation (e.g., "My involvement in my work helps me to understand different viewpoints, and this helps me to be a better caregiver," "My involvement in caregiving helps me to gain knowledge, and this helps me to be a better worker"). All items were rated on a 5-point scale (1 = *strongly disagree* to 5 = *strongly agree*), with higher scores indicating greater enrichment. Mean subscale scores were used in our analyses ($\alpha = .87-.94$).

Well-being

Psychological distress was measured using the Japanese version of the Hospital Anxiety and Depression Scale (Hiroiyuki et al., 1998), which comprises two 7-item subscales (anxiety and depression). Higher scores indicate greater anxiety or depression. Mean subscale scores were used in our analyses (anxiety, $\alpha = .86$; depression, $\alpha = .72$). QOL was measured using the Japanese version of the WHOQOL 26 (Tazaki & Nakane, 1997), which comprises 26 items on five subscales: physical domain, psychological domain, social relationships, environment, and general health/QOL. Higher scores indicate higher QOL. We used all subscales except general health/QOL, which partially overlapped with the other subscales. Mean subscale scores were used in our analyses ($\alpha = .76-.87$).

Covariates

To control for the potential effect of work demands on enrichment (Kacmar et al., 2014), we measured work demands using the BJSQ Job Demands Scale (Shimomitsu et al., 2000). This comprises 11 items on five subscales: quantitative job overload, qualitative job overload, physical demands, interpersonal conflict, and poor physical environment. Responses are on a 4-point scale (0: *disagree*, 1: *slightly disagree*, 2: *slightly agree*, 3: *agree*), and higher scores indicate greater work demands. Mean subscale scores were used in our analyses ($\alpha = .75$).

Statistical Analysis

To test the hypothetical mediational relationships (H1 and H2), we used structural equation modeling (SEM) for both the cross-sectional (Wave 1 only) and time series (three waves) data. The mediational (WFE and FWE) and dependent (psychological distress and QOL) variables were set as latent factors loaded by the corresponding subscale scores. Before examining longitudinal mediational effects, potential indicators were examined using cross-sectional data (psychological distress and QOL examined separately). The SEM assumed latent WFE and FWE were regressed by independent variable scores (work resources and informal/formal caregiving support), and latent psychological distress or QOL was regressed by latent WFE/FWE and the independent variables. We set a correlation between latent WFE and FWE and included work demands and caregiving demands scores as covariates (Supplementary Figure S1). Model fit was assessed using the comparative fit index (CFI), root mean square error of approximation (RMSEA), and standardized root mean square residual (SRMR). The criteria for judging good model fit were: CFI $\geq .90$ for acceptable fit and $> .95$ for good fit, RMSEA $< .10$ for acceptable fit and $< .06$ for good fit, and SRMR $< .10$ for acceptable fit and $< .08$ for good fit (Kline, 2015).

The longitudinal mediational effect of enrichment was examined using significant indicators from the

cross-sectional SEM. A random-effects cross-lagged panel model (RE-CLPM; Wu et al., 2018) was used to examine four parameters: Wave 1 independent variable on Wave 2 mediational variable ("a1"); Wave 2 mediational variable on Wave 3 dependent variable ("b2"); direct effect of Wave 1 independent variable on Wave 3 dependent variable when the mediational variable effect was partialled out ("c"); and the product of the "a1" and "b2" path ("a1b2"), which represented the indirect effect of Wave 1 independent variable on Wave 3 dependent variable. Significance of "a1b2" indicated a longitudinal mediational effect. We used SEM with ML estimation using the EM algorithm to estimate the RE-CLPM parameters (see Wu et al., 2018 for detailed estimation procedure and code).

A series of moderated regression analyses were performed to test the moderation effect of caregiving self-efficacy (H3 and H4). Scores for caregiving demands, informal/formal caregiving support, caregiving self-efficacy, and their product term were entered as predictors of Wave 2 FWE. We controlled for Wave 1 FWE and work demands and work resources scores, which have been linked to FWE (Kacmar et al., 2014). Caregiving self-efficacy and FWE scores were derived from factor scores using confirmatory factor analysis. Simple slope analysis was conducted if the product term was significant. Based on Jaccard and colleagues (2006), the main effect of the independent variables and the product term were entered simultaneously in a nonhierarchical manner. Mean-centered scores were obtained before creating the product term and entered into the model.

RE-CLPM was estimated using Mplus 8 (L. K. Muthén & B. O. Muthén, 1998–2017). The lavaan R package was used for the SEM analysis (Rosseel, 2012). Other analyses used R version 3.6.2 (R core Team, 2019). The *lm* base function in R was used for the moderated regression analysis.

Results

Participant and Care Recipient Demographic Characteristics

Participants' Wave 1 sociodemographic characteristics indicated that most caregivers were men ($n = 471$, 63.05%) and the most common caregiver/care recipient relationship was son/parent ($n = 375$, 50.20%). Most participants were primary caregivers ($n = 553$, 74.03%), and the mean caregiving hours/week was 32.67 ± 32.53 hr. The mean caregiving duration was 52.44 ± 42.79 months. Approximately half of the participants were married and living with their spouses ($n = 367$, 49.13%). Most worked full-time ($n = 567$, 75.90%), and the most common occupation was office worker ($n = 285$, 38.15%). The majority of care recipients were women ($n = 462$, 61.85%; mean age: 82.80 ± 9.23 years); most suffered from Alzheimer's dementia ($n = 432$, 57.83%) and were LTCI-certified in the

middle care requirement ($n = 184, 24.63\%$; [Supplementary Table S1–S3](#)).

Mediational Effect of Enrichment on Well-being (H1 and H2)

The cross-sectional mediational model showed acceptable model fit (CFI = .98; RMSEA = .06, 95% confidence interval [CI]: .05–.07; SRMR = .02). The mediation effects of WFE were significant for the effects of job control and supervisor support on QOL (H1; [Table 1](#)). Therefore, a longitudinal analysis was conducted for these mediations. The RE-CLPM results showed that although greater Wave 1 supervisor support was related to higher Wave 2 (after 6 months) WFE, the longitudinal mediational effect

of Wave 2 WFE on Wave 3 (after 12 months) QOL was nonsignificant ([Table 2](#)). The cross-sectional analysis showed no significant associations between any informal/formal caregiving support and FWE (H2), meaning no longitudinal analysis was conducted.¹

Moderation Effect of Caregiving Self-efficacy (H3 and H4)

Although there was no significant interaction for any informal/formal caregiving support (H3), the interaction between caregiving demands and caregiving self-efficacy (H4) was significant ($\beta = .06, 95\% \text{ CI: } .01\text{--}.10$; [Table 3](#)). However, higher Wave 1 caregiving demands were not related to Wave 2 FWE for either higher (+1 *SD*, $b = .07$,

Table 1. Estimates of Cross-sectional Mediational Effects of Enrichment on Well-being

Model	IV → M	M → DV	IV → DV	Indirect effect	Total effect
Hypothesis 1: effect of work resources on well-being mediated by WFE					
DV: QOL					
Job control	.12 [.02, .21]		.16 [.10, .23]	.03 [.00, .05]	.19 [.12, .26]
Supervisor support	.16 [.04, .28]		.07 [-.03, .16]	.03 [.00, .06]	.10 [.00, .20]
Co-worker support	-.01 [-.14, .11]	.21 [.12, .31]	.06 [-.03, .15]	-.00 [-.03, .02]	.05 [-.04, .15]
Organizational support	.13 [.04, .22]		.02 [-.04, .09]	.03 [.00, .05]	.05 [-.02, .12]
Work demands	.14 [.05, .23]		-.13 [-.21, -.06]	.03 [.01, .05]	-.11 [-.18, -.03]
DV: psychological distress					
Job control	.12 [.04, .20]		-.15 [-.23, -.08]	-.02 [-.04, .00]	-.17 [-.25, -.10]
Supervisor support	.16 [.05, .26]		.02 [-.08, .12]	-.03 [-.05, -.00]	-.01 [-.11, .09]
Co-worker support	-.01 [-.12, .09]	-.16 [-.28, -.05]	-.08 [-.18, .02]	.00 [-.02, .02]	-.08 [-.18, .02]
Organizational support	.13 [.05, .21]		-.01 [-.09, .07]	-.02 [-.04, -.00]	-.03 [-.11, .05]
Work demands	.14 [.06, .22]		.19 [.11, .27]	-.02 [-.04, -.00]	.17 [.09, .25]
Hypothesis 2: effect of caregiving support on well-being mediated by FWE					
DV: QOL					
Informal support: uses	.04 [-.04, .12]		.03 [-.05, .11]	-.00 [-.01, .00]	.03 [-.05, .11]
Informal support: satisfaction	.08 [-.02, .17]		.22 [.14, .29]	-.01 [-.01, .00]	.21 [.14, .29]
Formal support: uses	.03 [-.05, .11]	-.07 [-.16, .03]	-.05 [-.11, .01]	-.00 [-.01, .00]	-.05 [-.11, .01]
Formal support: satisfaction	.08 [-.00, .17]		.10 [.03, .16]	-.01 [-.02, .00]	.09 [.02, .16]
Caregiving demands	-.06 [-.15, .04]		-.32 [-.40, -.25]	.00 [-.00, .01]	-.32 [-.39, -.25]
DV: psychological distress					
Informal support: uses	.04 [-.04, .12]		-.12 [-.12, -.04]	.01 [-.01, .02]	-.12 [-.19, -.04]
Informal support: satisfaction	.08 [-.02, .17]		-.12 [-.20, -.03]	.01 [-.01, .02]	-.11 [-.20, -.02]
Formal support: uses	.03 [-.05, .11]	.12 [.01, .24]	.09 [.02, .16]	.00 [-.01, .01]	.09 [.02, .16]
Formal support: satisfaction	.08 [-.01, .17]		-.03 [-.11, .05]	.01 [-.00, .02]	-.02 [-.10, .06]
Caregiving demands	-.06 [-.14, .03]		.48 [.40, .55]	-.01 [-.02, .01]	.47 [.40, .55]

Note: DV = dependent variable; FWE = family-to-work enrichment; IV = independent variable; M = mediator variable; QOL = quality of life; WFE = work-to-family enrichment. Estimates in bold indicate statistically significant values ($\alpha = .05$). Numbers in brackets are 95% confidence intervals.

Table 2. Estimates of Longitudinal Mediational Effects of WFE on QOL

Model	a1 (IV1 → M2)	b2 (M2 → DV3)	c (IV1 → DV3)	a1b2 (IV1 → M2 → DV3)
IV: job control	.14	.02	.05	.00
IV: supervisor support	.08	.02	.01	.00

Note: DV = dependent variable; IV = independent variable; M = mediator variable; QOL = quality of life; WFE = work-to-family enrichment. Estimates in bold indicate statistically significant values ($\alpha = .05$).

Table 3. Results of the Moderated Regression Analysis

		FWE at Wave 1				FWE at Wave 2			
		B	95% CI	β	95% CI	B	95% CI	β	95% CI
FWE at Wave 1		.68	.63, .74	.68	.63, .74	.69	.63, .74	.68	.62, .73
WD		.00	-.06, .06	.00	-.06, .06	.00	-.06, .06	.00	-.06, .06
JC		.02	-.04, .08	.02	-.04, .08	.02	-.04, .08	.02	-.03, .08
SS		.02	-.03, .08	.02	-.03, .08	.02	-.03, .08	.02	-.03, .08
CS		-.04	-.11, .04	-.03	-.11, .04	-.03	-.11, .04	-.03	-.11, .05
OS		.06	-.02, .13	.06	-.02, .13	.06	-.02, .13	.05	-.02, .13
CD		.05	-.01, .11	.06	.00, .12	.06	.00, .12	.06	-.00, .11
IS: uses		.01	-.06, .08	.01	-.06, .07	.01	-.06, .07	.01	-.06, .08
IS: satisfaction		-.04	-.09, .02	-.04	-.09, .02	-.03	-.09, .02	-.04	-.09, .02
FS: uses		.06	-.00, .12	.06	-.00, .12	.05	-.01, .11	.06	-.01, .12
FS: satisfaction		.06	.00, .12	.06	.01, .12	.06	.01, .12	.06	-.00, .12
SE		.03	-.03, .10	.03	-.03, .09	.03	-.03, .09	.03	-.03, .09
Interaction term		SE x IS: uses	SE x IS: satisfaction	SE x FS: uses	SE x FS: satisfaction	SE x FS: uses	SE x FS: satisfaction	SE x CD	
		.03	-.02, .08	.00	-.05, .04	-.02	-.06, .03	.06	.01, .10
R ² / adjusted R ²		.55 / .54		.55 / .54		.55 / .54		.55 / .55	

Note: CD = caregiving demands; CI = confidence interval, CS = co-worker support; FS = formal support; FWE = family-to-work enrichment; IS = informal support; JC = job control; OS = organizational support; SE = caregiving self-efficacy; SS = supervisor support; WD = work demands. Estimates in bold indicate statistically significant values ($\alpha = .05$).

$|t| = 1.54, p = .12$) or lower ($-1 SD, b = -.07, |t| = 1.45, p = .15$) caregiving self-efficacy (Figure 2).²

Discussion

This study examined the antecedents and outcomes of enrichment among working family caregivers of PWD for improving the work–caregiving interface. These factors are important for maintaining family caregiver well-being but have rarely been examined. Among the work resources and informal/formal caregiving support examined in this study, only higher supervisor support was longitudinally associated with higher WFE. A longitudinal mediational effect of enrichment on well-being was not confirmed. Caregiving self-efficacy had no significant moderation effect. Therefore, H1 was partially supported, but the remaining hypotheses were not supported. Working family caregivers in Japan expressed concerns about long working hours and declining personnel evaluations because caregiving interfered with work (MHLW, 2013). More supervisor support (e.g., expressing understanding of caregiving and arranging subordinates’ work to suit their caregiving needs) could alleviate family caregivers’ concerns and increase their work commitment, potentially leading to a greater sense of accomplishment, more positive affect at work, and higher WFE.

The lack of significant associations between job control or caregiving self-efficacy and enrichment may be attributable to the focus on enrichment and to participants’ characteristics. For example, even if positive spillover occurs from one domain (e.g., work) to another (e.g., caregiving), such experiences must be successfully integrated to increase enrichment. Given that participants in previous studies showing positive spillover (Boumans & Dorant, 2014; DePasquale et al., 2018) were double-duty caregivers, work and caregiving experiences may be related when skill and knowledge requirements are similar across domains (Boumans & Dorant, 2014). However, the most common occupation among our participants was office worker, and the skill and knowledge requirements across the two domains fundamentally differed. Therefore, even if participants spent more time caregiving because they had higher job control or successfully managed caregiving

demands (i.e., higher caregiving self-efficacy), experiences were difficult to apply to the other domain. This may be particularly evident in dementia caregiving because understanding of dementia symptoms and caregiving skills are difficult to apply to non-caregiving work.

Co-worker support and formal and informal caregiving support may provide family caregivers with emotional and instrumental support and may prevent poor work performance (Fujihara et al., 2019) and caregiving burden (Hyodo et al., 2003). However, this may not provide family caregivers with skills that improve their performance in another domain given the specificity of dementia caregiving. Although greater organizational support led to continued employment over 2 years among female caregivers, it had relatively little effect on female caregivers’ depression (Pavalko & Henderson, 2006) or work–family conflict for regular (rather than intermittent) family caregivers (Brown & Pitt-Catsouphes, 2013). Our participants were regular caregivers, meaning organizational support provided the opportunity to continue working but was less relevant to WFE.

Finally, contrary to the W–HR model, our results showed enrichment had no longitudinal effects on well-being. Dementia is a progressively worsening condition, and caring for PWD can be highly stressful for family caregivers (Chiao et al., 2015; Feast et al., 2016). Given the 1-year study period, difficulties inherent in dementia caregiving might have offset the long-term positive effect of enrichment on well-being.

Strengths and Limitations

This study used a longitudinal analysis to comprehensively examine and expand understanding of the antecedents and outcomes of enrichment among Japanese working family caregivers of PWD. However, there were several limitations. First, the sample was limited and not necessarily representative of working family caregivers in Japan (e.g., more male caregivers compared with the broader population), although the care recipients’ demographic characteristics were comparable with the general Japanese population. In Japan, the employment rate among caregivers of frail relatives is higher for men than for women (65.26% vs 49.26%), which was comparable with the male/female ratio in this study, although female working caregivers still outnumber their male counterparts (approximately 1.9 vs 1.5 million; MIC, 2018). Our study participants might reflect recent changes in the demographic characteristics of working family caregivers in Japan, although differences in sociodemographic characteristics might have affected our findings. Second, the dropout rate (67.07%) in this study was high. Given the nature of dementia and length of the study period, the increased caregiving burden associated with worsening dementia symptoms might have prevented some participants from continuing in this study. Therefore, generalization of the findings is limited.

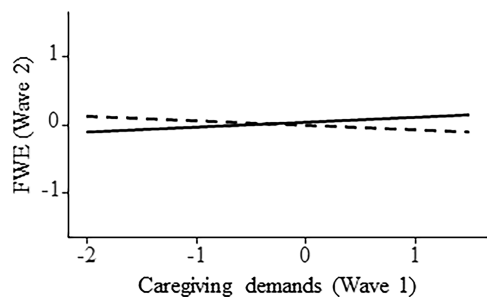


Figure 2. Moderation effects of caregiving self-efficacy on FWE. Higher caregiving self-efficacy (+1 SD) is depicted by a solid line, and lower caregiving self-efficacy (–1 SD) is depicted by a dashed line. FWE = family-to-work enrichment.

Third, the relatively low reliability of some independent variables (formal support use and organizational support) might have affected our results. Japan's LTCI system specifies types of formal support depending on the care recipient's required care level. Our cross-sectional results were comparable to previous organizational support findings (e.g., Brown & Pitt-Catsouphes, 2013), suggesting our measure of organizational support had validity; however, the relatively low reliability of this organizational support scale might have affected the longitudinal results. Fourth, we asked participants about perceived availability of organizational support, but did not measure their use of this support. Brown and Pitt-Catsouphes (2016) found that perceived workplace flexibility was associated with work–family conflict, whereas use of flexible work options was not. Therefore, we believe that measuring perceived availability of organizational support was appropriate for examining the work–caregiving interface. However, further investigation of the effect of flexible work options on enrichment is needed.

Fifth, we included nondomain-specific psychological distress and QOL as outcome variables. The W–HR model postulates a cross-domain effect (ten Brummelhuis & Bakker, 2012), and further studies should investigate domain-specific outcomes (e.g., work satisfaction, caregiving satisfaction). Finally, we only examined one personal resource factor (i.e., caregiving self-efficacy), whereas the W–HR model includes several personal resources (e.g., optimism; ten Brummelhuis & Bakker, 2012). Therefore, the moderating role of other personal resources on the enrichment process among family caregivers of PWD requires investigation.

Conclusion

This study suggests supervisor support is important for WFE among family caregivers of PWD. Although the importance of supervisor support for improving the work–family interface has previously been noted (ten Brummelhuis & Bakker, 2012), understanding of dementia is not widespread in the workforce (Egdell et al., 2019). With the recent increase in the numbers of PWD and their working family caregivers, companies may benefit from increasing managers' understanding of dementia caregiving and supervisor support for subordinates who care for PWD. Although the Japanese government has promoted family-friendly work environments in the Japanese dementia strategy (New Orange Plan; MHLW, 2015), few companies in Japan have a family-friendly work environment (MS&AD InterRisk Research & Consulting, 2018). Policy makers and experts should help companies create family-friendly work environments. Experience in the caregiver role (i.e., caregiving demands and caregiving support) has a relatively small effect on the work–caregiving interface. More research is needed on factors that increase FWE

and those that moderate the relationship between enrichment and working family caregivers' well-being.

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Conflict of Interest

None declared.

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Author Notes

¹To test the sensitivity of the mediational model, the same analysis was conducted with only primary caregivers. The results were generally the same, and any differences did not affect the longitudinal analysis (Supplementary Table S4).

²The results of the same analysis using the self-efficacy subscale scores showed no significant interaction effect.

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