Job Demands and the Effects on Quality of Life of Employed Family Caregivers of Older Adults With Dementia: A Cross-Sectional Study

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ABSTRACT

Background: Employed family caregivers are affected by job demands, which can affect quality of care provided to recipients. However, it is important to understand how job demands and the ability to reconcile employment and caregiving influence family caregivers’ quality of life.

Purpose: The aim of this study was to examine the extent to which job demands influenced quality of life for employed family caregivers of older adults with dementia in Taiwan.

Methods: This cross-sectional study analyzed secondary data from self-completed questionnaires collected from December 2010 to December 2011. Participants were 214 employed family caregivers of older adults with dementia in Taiwan. How job demands and caregiving influence quality of life was determined with hierarchical multiple regression analysis. Job demands included working hours, workplace inflexibility, work inefficiency, and difficulty in reconciling work and family caregiving.

Results: After controlling for demographics, caregiving resources, and caregiving role demands, employed family caregivers of older adults with dementia who had fewer working hours and greater work efficiency reported significantly better quality of life (β = −.130, p = .049; β = −.263, p < .001) than those with more working hours and less work efficiency.

Conclusions/Implications for Practice: Employed family caregivers of older adults with dementia who had more working hours and less work efficiency had a greater likelihood of poorer quality of life than other employed family caregivers. Clinicians could use these findings to identify groups at high risk for poor quality of life. We suggest developing policies and interventions to help employed family caregivers of older adults with dementia to reduce working hours and improve work efficiency in order to improve quality of life, which could also improve quality of care for recipients.

Key Words: dementia, family caregivers, job demands, older adults, quality of life.

Introduction

The risk of developing dementia increases with age. The increasing life span of the world population will result in an increase in the percentage of older adults diagnosed with dementia. This has been demonstrated in Taiwan, where the incidence of dementia among those 65 years of age and older increased from 5.44% in 2004 to 7.86% in 2018 and is anticipated to continue to increase significantly along with the increase in the aging population (Taiwan Alzheimer’s Disease Association, 2019; Taiwan Dementia Society, 2016). Family and friend primary caregivers are crucial components of care for persons with cognitive impairment worldwide (The National Alliance for Caregiving and the AARP Public Policy Institute, 2015; Vecchio, Fitzgerald, Radford, & Fisher, 2016). In Taiwan, approximately 80% of adults with dementia dwell in the community, and most caregivers are family members (Taiwan Dementia Society, 2016). The increase in the aging population of Taiwan has also increased the number of adult children who have expanded traditional breadwinner roles to assume the responsibility of caregiving for family members (Wang et al., 2011); in fact, 50% of family caregivers of parents with dementia are employed (Wang, Shyu, Chen, & Yang, 2011; Wang, Shyu, Tsai, Yang, & Yao, 2013).

Family caregivers of persons with dementia experience stress as a result of the challenges of disruptive behaviors and unpredictable moods exhibited by persons with dementia (Huang et al., 2013; Vecchio et al., 2016; Yang, Liu, & Shyu, 2014). This stress can increase caregiver burden and reduce quality of life (QoL) for family caregivers (Koyama et al., 2017; Kuo, Huang, Hsu, & Shyu 2014). Family caregivers must...
constantly monitor behavioral and psychological symptoms of dementia, which include wandering, delusions, anxiety, depression, and aggression (Kuo et al., 2014). This constant monitoring of behavioral and psychological symptoms of dementia, the challenge of managing activities of daily living (ADL) and caregiving tasks, and time dedicated to caregiving contributes to poor QoL for family caregivers (Koyama et al., 2017; Kuo et al., 2014; van der Linde, Stephan, Savva, Dening, & Brayne, 2012).

Employed family caregivers provide the same amount of care as those who are unemployed and are no more likely to rely on formal support services (Bauer & Sousa-Poza, 2015). In addition to caregiver stresses, employed family caregivers’ job demands are also significantly associated with caregivers’ health outcomes (Wang et al., 2011, 2013, 2018). Employment reduces the time available for rest, recreation, and personal healthcare (Ducharme et al., 2014), which may reduce QoL. The potential impact of employment on QoL for family caregivers of older adults with dementia draws attention to the importance of understanding the demands not only of caregiving but also employment. These include excess workload, additional time at work, workplace inflexibility, and work inefficiency (Wang et al., 2011). In this study, we sought to determine to what extent the QoL of employed family caregivers of older adults with dementia can be predicted by job demands, including working hours, workplace inflexibility, work inefficiency, and difficulty in reconciling work and family caregiving. Understanding how the demands on caregivers influence QoL could provide a basis for the development of interventions and policy for employed family caregivers of older adults with dementia.

Background and Significance
The struggle to reconcile caregiving and job demands can affect physical and mental health for employed family caregivers. Availability of internal and external resources can help meet caregiving demands (Archbold, Stewart, Greenlick, & Harvath 1990); however, when resources are not adequate, they can negatively affect caregiver QoL (Koyama et al., 2017; Kuo et al., 2014). Therefore, it is important to assess available resources to understand caregiver QoL. Internal resources involve the relationship between caregiver and recipient (mutuality), understanding what is involved in providing care (preparedness), anticipating needs and activities of the recipient, and variability of the caregiving situation (predictability; Archbold et al., 1990; Yang et al., 2014). Yang et al. demonstrated that family caregivers in Taiwan moderated high role strain by increasing mutuality and preparedness, even in circumstances of high caregiving demand. Family caregivers who are better prepared have higher QoL (Wen, 2006), and those whose caregiving situation varies little have less role strain (Yang et al., 2014).

External resources, such as help from others and the availability of information and referral services, can also improve caregiver QoL (Ndikuno, Namutebi, Kuteesa, Mukunya, & Olwit, 2016). However, many family caregivers cannot afford the home care these services provide (Ducharme et al., 2014). In Taiwan, the national health insurance system provides support for family caregivers; however, home service support is not sufficient for older adults with dementia (Huang et al., 2015). As a result, more than one third of family caregivers hire a foreign aid to assist in care activities (Huang et al., 2013). For employed family caregivers of older adults with dementia, this additional financial burden could result in reductions in QoL.

The demands of the caregiving role also affect family caregivers (Wang et al., 2011, 2013, 2018), and these are often modulated by job demands. As an employed family caregiver’s time at work increases, work inflexibility and inefficiency increase, and the ability to balance work and caregiving demands decreases; the result is a greater likelihood of role strain, an increase in the number of symptoms of depression, more work/caregiving conflict, and poorer physical and mental health (Wang et al., 2013, 2018). For employed family caregivers who work full-time, caregiving and job demands are significantly related to greater role strain, and workplace inflexibility is significantly related to depressive symptoms (Wang et al., 2011). Reducing job demands can be achieved with more flexible work schedules, paid time off, or unpaid leave; these accommodations have been implemented by employers. However, a report from the Organisation for Economic Co-operation and Development (OECD, 2011) showed the amount of paid time off or unpaid leave varies by country; leave can be as short as 3 months to as long as 1 year, with between 40% and 100% of salary compensation.

Hypothesized Framework
How the multiple roles of caregiving and employment affect QoL for caregivers of a family member with dementia can be examined through “role theory” (Goode, 1960). Role theory can be used to explain the effects of role conflict, which is the stress of multiple roles on a person’s well-being. As the number of obligations increases, there is an increased inability to meet commitments and responsibilities and a concomitant inclination toward role conflict (Goode, 1960; Wang et al., 2011). To our knowledge, few studies have examined the relationship of job demands and QoL for employed family caregivers of older adults with dementia, independent of caregiving resources and demands, from a role theory perspective. We hypothesized, based on Goode’s role theory model (Goode, 1960) that job demands would independently influence QoL of employed family caregivers of older adults with dementia beyond the influence of demographic characteristics and the resources for and demands of caregiving (Goode, 1960; Wang et al., 2011, 2013, 2018; Wen, 2006; Yang et al., 2014). Thus, the purpose of this cross-sectional correlational study was to evaluate the influence of job demands on QoL from a role theory perspective, controlling for the variables of demographic characteristics, caregiving resources, and caregiving role demands (Figure 1). Understanding the impact of job demands on QoL could expand
our knowledge of caregiver role conflict; comparing our findings to Western employed family caregivers could improve our understanding of cultural influences for employed family caregivers.

Methods

Design
A cross-sectional, correlational study design was used.

Participants
A purposive sample of dyads of older adults with dementia and their family caregivers from a previous study participated (N = 214). Dyads were recruited from neurological clinics of a 3,700-bed medical center of northern Taiwan, where outpatients diagnosed with dementia are treated. The inclusion criteria for care recipients were as follows: (a) diagnosed with Alzheimer’s disease, vascular type dementia, or both by a neurologist; (b) a clinical dementia rating (CDR) of ≥ 0.5; (c) aged 65 years or older; and (d) living at home. We chose family caregivers who were the adult children of patients with dementia (including in-laws) to explore the influence of job demands on QoL because most would likely be employed. We assumed spousal caregivers were more likely to be older and more likely to be retired; therefore, they were excluded. Inclusion criteria for participants were as follows: (a) a son, daughter, son-in-law, or daughter-in-law of the recipient; (b) currently employed; (c) the primary person responsible for providing direct care or supervising the care of the patient with dementia; (c) age 18 years or older; and (d) able to read and write Chinese. Dyads of employed family caregivers and patients who met the inclusion criteria were identified by neurologists at the clinics, who obtained permission for a researcher to contact them. The researcher explained the purpose of the study to potential participants; if they expressed interest, a signed consent form indicating they completely understood the study procedures was obtained.

Data Collection Procedures
Participants were given a packet of self-report, confidential questionnaires to complete at home and return by mail. To minimize attrition, the researcher followed up by contacting participants via telephone to answer questions, remind them to return the questionnaire, and arrange home visits for those who had trouble completing the questionnaire.

Ethical Considerations
The institutional review board of the medical center (No. 98-2073C) where the study was conducted approved the study. Participants were informed of the aim and details of the study,
their right to withdraw from the study at any time for any reason, and their right to refrain from answering any questions.

**Measures**

Data were collected from December 12, 2010, to December 30, 2011. The questionnaires included characteristics of the dyads, resources for and demands of caregiving, job demands, and caregivers’ QoL. Instruments used to measure these variables are described below.

**Characteristics of the dyads**

Characteristics of dyads were collected with a sociodemographic questionnaire and recorded as control variables. The sociodemographics of caregiving participants were age, gender, marital status, education level, relationship with care recipient, employment status, personal health status, duration of caregiving, and financial burden. Sociodemographics of participating recipients included age, gender, marital status, education level, duration of the disease, and dementia severity. Severity of dementia was measured with the Mini-Mental State Examination (MMSE; Folstein, Folstein, & McHugh, 1975) and the CDR scale (Lin & Lin, 2003). These demographics are significant factors that can affect QoL for family caregivers (Abdollahpour, Nedjat, Salimi, Noroozian, & Majdzadeh, 2015; Feinberg & AARP Policy Institute, 2017).

**Caregiving resources**

Caregiving resources of employed family caregivers include internal and external resources (Wang et al., 2011). Internal resources were operationally defined by the Chinese version of the Family Caregiving Inventory (FCI), which includes three scales: mutuality (caregiver’s understanding of what is involved in providing care), and predictability (caregiver’s ability to anticipate needs and activities of the recipient and the variability of the caregiving situation; Archbold et al., 1990; Yang et al., 2014). Mutuality is a 15-item scale; each item is scored from 0 (not at all) to 4 (a great deal); scores range from 0 to 60. Cronbach’s α of .91–.92 have been reported (Archbold et al., 1990; Yang et al., 2014). In this study, Cronbach’s α was .93. Preparedness is an eight-item scale; each item is scored from 0 (least prepared) to 4 (most prepared); scores range from 0 to 32. Cronbach’s α of .72–.93 have been reported (Archbold et al., 1990; Yang et al., 2014). In this study, Cronbach’s α was .92. Scores for the seven-item predictability scale range from 3 to 29; Cronbach’s α of .85 have been reported (Yang et al., 2014). In this study, Cronbach’s α was .85. For all three scales, higher scores indicate more internal resources. External resources were operationally defined by three items of the FCI to assess caregivers’ perceived amount of help available from others, including relatives, friends and neighbors, and paid assistants. Each item was scored from 0 (not at all) to 4 (a great deal). The total score was the sum for the three items; scores range from 0 to 12; a higher score indicated a greater amount of available help.

**Caregiving role demands**

Caregiving role demands were operationally defined by using measures for caregivers and their family members. Three scales determined caregiving demand: the recipient’s scores on the Chinese versions of the Barthel index of ADL and instrumental activities of daily living (IADL; Dai & Lou, 1996) and the caregiver’s score on the caregiving activities scale, which measures tasks caregivers perform for the patient with dementia (Shyu et al., 2010; Yang et al., 2014). The ADL is scored from 0 to 100; lower scores indicate greater demands of the caregiving role. The IADL is scored from 0 to 8; higher scores indicate greater demands. We obtained ADL and IADL scores from the clinic records of the recipients, therefore Cronbach’s α was not determined for this study. Each item of the 87-item caregiving activities scale is scored 0 (no) or 1 (yes); higher scores indicate more caregiving tasks performed, thus greater demand. The Chinese caregiving activities scale has good internal consistency (Cronbach’s α = .91–.96) for caregivers of persons with dementia in Taiwan (Shyu et al., 2010; Yang et al., 2014). In this study, Cronbach’s α was .96.

A fourth assessment was role demand overload (Goode, 1960), which can result from additional demands and obligations of employed family caregivers. Three variables relevant to role demand overload were assessed using three questions from the FCI (Archbold et al., 1990) related to caregiving demands: “How long have you personally been involved in providing the needed extra help to your family member because of their health or memory problems?” determined length of caregiving (months); “On the days that you help your family member, about how many hours per day (including the time you get up at night) do you spend in helping them?” determined time spent in caregiving (hours/day); and “Do you have children under 18 years of age living in your household or for whom you have caregiving responsibilities? If yes how many?” determined number of children under the age of 18 years.

**Job demands**

Participants answered four self-assessment questions regarding job demands: hours of work, workplace inflexibility, work inefficiency, and difficulty in reconciling work and caregiving. These questions were based on questions from the FCI (Neal & Hammer, 2007). The question “Approximately how many hours per week do you work?” evaluated the number of hours worked per week. The question “How much flexibility do you have in your work schedule to handle family responsibilities?” evaluated work schedule inflexibility: 1 = a lot of flexibility to 4 = no flexibility. The question “How often have you worked less effectively at your job because you were worried or upset about your family member?” determined the effect of caregiver responsibilities on...
work inefficiency: 1 = never to 5 = most or all of the time. The fourth question assessed the difficulty to reconcile employment and family caregiving and was preceded by a statement, “Circumstances differ and some people find it easier than others to combine working with family responsibilities. In general, how easy or difficult is it for you?”: 1 = very easy

TABLE 1.
Characteristics of Dyads (N = 214)

| Characteristic                  | n   | %  |
|--------------------------------|-----|----|
| Caregivers                     |     |    |
| Gender                         |     |    |
| Male                           | 114 | 53.3|
| Female                         | 100 | 46.7|
| Marital status                 |     |    |
| Married                        | 179 | 83.6|
| Unmarried                      | 19  | 8.9 |
| Divorced                       | 11  | 5.1 |
| Widowed and others             | 5   | 2.4 |
| Educational level              |     |    |
| ≤ Elementary school            | 12  | 5.6 |
| Junior high school             | 25  | 11.7|
| Senior high school             | 69  | 32.2|
| ≥ College                      | 108 | 50.5|
| Relationship to care receiver  |     |    |
| Son                            | 112 | 52.3|
| Daughter                       | 53  | 24.8|
| Daughter-in-law                | 47  | 22.0|
| Son-in-law                     | 2   | 0.9 |
| Employment status              |     |    |
| Full-time                      | 151 | 70.6|
| Part-time                      | 63  | 29.4|
| Job position                   |     |    |
| Administrative supervisor      | 57  | 26.6|
| Professional staff             | 27  | 12.6|
| Technician                     | 15  | 7.0 |
| Administrative personnel       | 34  | 15.9|
| Service industry               | 35  | 16.4|
| Horticulture                   | 2   | 0.9 |
| Technical worker               | 25  | 11.7|
| Manual labor                   | 19  | 8.9 |
| Impact of financial burden     |     |    |
| None                           | 83  | 38.8|
| Minimal                        | 47  | 22.0|
| Moderate                       | 42  | 19.6|
| Considerable                   | 27  | 12.6|
| Severe                         | 15  | 7.0 |
| Care receivers                 |     |    |
| Gender                         |     |    |
| Male                           | 65  | 30.4|
| Female                         | 149 | 69.6|
| Marital status                 |     |    |
| Married                        | 97  | 45.3|
| Widowed                        | 112 | 52.3|
| Divorced/separated             | 5   | 2.4 |
| Educational level              |     |    |
| ≤ Elementary school            | 173 | 80.8|
| Junior high school             | 17  | 8.0 |
| Senior high school             | 15  | 7.0 |
| ≥ College                      | 9   | 4.2 |
| Memory problems (MMSE; M and SD) | 10.58 | 7.71 |
| Clinical dementia rating (score)| 0   | 10.3|
|                                | 1   | 40.2|

(continues)

TABLE 1. Continued

| Characteristic                  | n | %  |
|--------------------------------|---|----|
| 2                              | 78 | 36.4|
| 3                              | 22 | 10.3|
| 4                              | 6  | 2.8 |

Note. MMSE = Mini-Mental State Examination.

TABLE 2.
Variables of Caregiving Characteristics for Employed Family Caregivers (N = 214)

| Variable                        | Mean | SD  | Range |
|---------------------------------|------|-----|-------|
| Caregiver resources             |      |     |       |
| Internal resources              |      |     |       |
| Mutuality (quality of relationship) | 26.6  | 11.58 | 0–60 |
| Preparedness                    | 17.33| 5.54| 0–32 |
| Predictability                  | 18.71| 4.32| 3–29 |
| External resources              |      |     |       |
| Perceived available help from others | 4.30 | 2.56 | 0–12 |
| Caregiving role demands         |      |     |       |
| Care-receiver demands           |      |     |       |
| ADL score                       | 66.36| 30.66| 0–00 |
| IADL                            | 4.70 | 2.94| 0–8  |
| Caregiving activities           | 45.46| 17.93| 0–87 |
| Role demand overload            |      |     |       |
| Duration of caregiving (months) | 62.67| 63.36|       |
| Time spent in caregiving (hours/day) | 5.90 | 6.45 |       |
| Number of children under age    |      |     |       |
| 18 years (n and %)              |      |     |       |
| 0                               | 107  | 50.00|       |
| 1                               | 44   | 20.56|       |
| 2                               | 38   | 17.76|       |
| 3                               | 18   | 8.41 |       |
| 4                               | 5    | 2.34 |       |
| ≥ 5                             | 2    | 0.93 |       |
| Job demands                     |      |     |       |
| Working hours (hours/week)      | 44.39| 19.49|       |
| Workplace inflexibility         | 1.93 | 0.75| 1–4  |
| Work inefficiency               | 2.57 | 0.87| 1–5  |
| Difficulty in reconciling work and family caregiving | 3.08 | 1.37 | 1–6 |
| Quality of life (SF-36 score)   | 50.00| 14.59| 1–100|

Note. ADL = Barthel’s index of activities of daily living; IADL = instrumental activities of daily living; SF-36 = Medical Outcomes Study Short Form-36 Scale.
to 6 = very difficult. For all variables, a higher score indicated a greater job demand.

Quality of life
QoL was operationally defined by the Taiwan version of the Medical Outcomes Study Short Form-36 Scale (SF-36; Tseng, Lu, & Tsai, 2003). The score is calculated by using a norm-based scoring method with Taiwan-specific SF-36 algorithms. Scores range from 0 to 100; higher scores indicate a better QoL. The Taiwanese SF-36 has good reliability and validity (Tseng et al., 2003; Wang et al., 2013). In this study, the Taiwanese SF-36 had a Cronbach’s α of .93.

Data Analysis
Data were analyzed with IBM SPSS Statistics Version 20.0 (IBM, Inc., Armonk, NY, USA). Prior to analysis, the data set was examined for data accuracy, amount and pattern of missing responses, and outliers. Sociodemographic characteristics and the variables of QoL and its predictors were analyzed with descriptive statistics. Pearson’s correlation coefficient analyzed the relationship between participant QoL and variables of sociodemographics, resources for and demands of caregiving, and job demands.

Hierarchical regression model analysis was used to identify determinants of QoL for participants. Variance inflation factors (VIFs) were used to examine collinearity among variables (Neter et al., 1985). In order to determine how job demands uniquely influenced QoL, we entered variables in the following order: first, sociodemographic variables of dementia severity, marital status, and financial burden as controls (Model 1) because they have temporal precedence; second, caregiving role demands (Model 2) because the effect of caregiving role demands on QoL may be moderated by internal and external resources (Wang et al., 2013); third, caregiving role demands related to both recipient and demand overload (Model 3); and fourth, job demands (Model 4).

Results
Characteristics of Participants
Sociodemographics of the 214 dyads are shown in Table 1. Participants who provided care had a mean age of 48.34 years,
were mostly married (83.64%), were employed full-time (70.6%), and were related as sons (52.34%). Most were either administrative supervisor (26.6%), employed in the service industry (16.4%), or administrative personnel (15.9%). Participants who received care had a mean age of 78.66 years, were mostly female (69.63%), and widowed (52.34%). Most (80.84%) had a primary education or less, and 76.64% had mild-to-moderate dementia (CDR score of 1–2). The mean length of time with dementia was 5.01 years ($SD = 4.40$), and cognitive impairment was moderate (mean MMSE = 10.58, $SD = 7.71$).

### Caregiving Characteristics

Variables of caregiving characteristics for participants are shown in Table 2. Scores for internal resources were near the midpoint of the range, suggesting levels were moderate. However, the mean score for the external resource of perceived available help (4.30, $SD = 2.56$) was at the low end of the range. The mean ADL score for participants who received care was 66.36 ($SD = 30.66$), and the mean score for caregiving activities was 45.46 ($SD = 17.93$). The job demand of hours worked per week was high; the mean number of hours worked was 44.39 hours ($SD = 19.49$). However, mean scores for workplace inflexibility, work inefficiency, and difficulty in reconciling work and family caregiving were 1.93 ($SD = 0.75$), 2.57 ($SD = 0.87$), and 3.08 ($SD = 1.37$), respectively; all were near the midpoint of the range, suggesting these other job demands were moderate. Participants’ SF-36 scores for QoL were moderate (mean = 50.00, $SD = 14.59$).

### Correlations and Regressions Among Predictor and Outcome Variables for Quality of Life

Pearson’s correlations among predictor and outcome variables for employed family caregivers of older adults with dementia (N = 214), continued.
Hierarchical multiple regression models (Table 4) explored possible predictors for participant QoL. To ascertain whether a hierarchical multiple regression model could be used, we determined the VIF for predictors of demographic characteristics (dementia severity, marital status, and financial burden), internal and external caregiving resources, demands of the caregiving role, and job demands. VIFs demonstrated none of the predictor variables showed collinearity (Neter, Wasserman, & Kutner, 1985).

Model 1 showed a significant relationship between higher scores for impact of financial burden and lower QoL for participants. In addition, characteristics explained 13.3% of the variance in QoL. Model 2 indicated that participants who had higher levels of preparedness and predictability had significantly better QoL; after controlling for demographic characteristics, caregiving resources explained 17.5% of the variance in QoL. Model 3 indicated participants with fewer caregiving tasks had a significantly better QoL, and when we controlled for demographics and caregiving resources, role demand overload explained 5.8% of the variance in QoL. In the last regression (Model 4), $R^2$ indicated total variance in QoL explained by all predictors was 45.7%. Model 4 indicated that participants had significantly better QoL if severity of dementia was greater ($\beta = .181$, $p = .033$) and levels of preparedness were higher ($\beta = .224$, $p = .002$). Participants reported a significantly better QoL if they had fewer working hours ($\beta = -.130$, $p = .049$) and increased work efficiency ($\beta = -.263$, $p < .001$). The variable of job demand explained 9% ($p < .001$) of the variance in QoL, after controlling for demographic characteristics, caregiving resources, and the demands of caregiving.

**TABLE 4. Hierarchical Regression Models between Variables of Employed Family Caregivers and Quality of Life (N = 214)**

| Predictor Variable | Model 1 | Model 2 |
|--------------------|---------|---------|
|                    | $B$ | $\beta^a$ | $t$ | $B$ | $\beta^a$ | $t$ |
| **Demographic characteristics** | | | | | | |
| Care receivers’ dementia severity | 2.116 | .122 | 1.634 | 1.002 | .058 | 0.829 |
| Caregivers’ marital status (married) | 3.749 | .093 | 1.270 | 2.451 | .061 | 0.886 |
| Impact of financial burden | −3.915 | −.356 | −4.809*** | −2.552 | −.232 | −3.255** |
| **Caregiving resources** | | | | | | |
| Internal resources | | | | | | |
| Mutuality | −0.167 | −.122 | −1.714 |
| Preparedness | 0.599 | .221 | 3.105** |
| Predictability | 1.123 | .323 | 4.403*** |
| External resources | | | | | | |
| Available help from others | 0.437 | .070 | 0.985 |
| **Caregiving role demands** | | | | | | |
| Number of caregiving tasks | | | | | | |
| Duration of caregiving (months) | | | | | | |
| Time spent in caregiving (hours/day) | | | | | | |
| Number of children under age 18 | | | | | | |
| ADL | | | | | | |
| IADL | | | | | | |
| **Job demands** | | | | | | |
| Working hours | | | | | | |
| Workplace inflexibility | | | | | | |
| Work inefficiency | | | | | | |
| Difficulty in reconciling work and family caregiving | | | | | | |
| $R^2$ | .133 |.308 |
| Adjust $R^2$ | .117 | .278 |
| $R^2$ change | .133 | .175 |
| $F$ change | 8.417*** | 10.208*** |

Note. VIF = variance inflation factor; ADL = activities of daily living; IADL = instrumental activities of daily living.

*Standardized regression coefficients.

* $p < .05$; ** $p < .01$; *** $p < .001$.

**Discussion**

This exploratory study is the first to evaluate the association among multiple variables associated with job demands and
QoL for employed family caregivers of older adults with dementia. Job demands included working hours, work inflexibility, work inefficiency, and difficulty in reconciling work and caregiving. Our findings demonstrate job demands affect not only role strain and depressive symptoms for employed family caregivers (Wang et al., 2011) but also QoL.

Fewer working hours and increased work efficiency were significantly associated with better QoL, confirming previous research showing the greater the demands of caring for a family member and employment, the poorer their physical and emotional health outcomes (Ducharme et al., 2014; Wang et al., 2013, 2018). However, our results differ from a study reporting more time at work resulted in increased well-being for caregivers (Martire, Stephens, & Atienza, 1997). This discrepancy could be due to differences in situational factors such as recipient status or cultural settings. Chinese culture values unlimited self-sacrifice, filial piety, order and social hierarchy, and interdependence; in contrast, Western cultures regard individuality as important; behaviors requiring self-sacrifice are not necessarily expected (Dai & Dimond, 1998). Therefore, our findings should be interpreted with caution, until additional studies are conducted.

Participants who provided care to family members with more severe dementia, higher levels of preparedness, fewer working hours, and increased efficiency at work had a significantly better QoL. Although the relationship between QoL and reconciling work and caregiving for a family member with severe dementia may seem counterintuitive, it is not surprising. Studies have found the severity of dementia does not negatively affect a caregiver’s psychological health (Brodaty & Donkin, 2009; Wang et al., 2011) and patient-related variables are not necessarily related to poorer QoL for caregivers of persons with dementia (Takai, Takahashi, Iwamitsu, Oishi, & Miyaoka, 2011). Furthermore, recipients with more severe dementia may exhibit fewer incidences of risky wandering behavior, which may have a positive influence on QoL; a study

### TABLE 4.
Hierarchical Regression Models between Variables of Employed Family Caregivers and Quality of Life (N = 214), Continued

|        | Model 3 |        |        | Model 4 |        |        | VIF |
|--------|---------|--------|--------|---------|--------|--------|-----|
|        | $B$     | $\hat{\beta}$ | $t$    | $B$     | $\hat{\beta}$ | $t$    |     |
| 3.544  | .204    | 2.296* | 3.139  | .181    | 2.157* | 1.947  |     |
| 2.763  | .068    | 1.014  | 2.090  | .052    | 0.813  | 1.127  |     |
| −1.821 | −.165   | −2.279*| −1.369 | −.124   | −1.745 | 1.413  |     |
| −.092  | −.067   | −.095  | −.126  | −.092   | −1.255 | 1.499  |     |
| 0.713  | .264    | 3.445**| .605   | .224    | 3.091**| 1.456  |     |
| 0.788  | .227    | 2.871**| .357   | .103    | 1.280  | 1.790  |     |
| 0.546  | .087    | 1.210  | .517   | .082    | 1.206  | 1.294  |     |
| −.160  | −.200   | −2.427*| −.113  | −.142   | −1.812 | 1.703  |     |
| 0.014  | .062    | 0.913  | .012   | .052    | 0.812  | 1.151  |     |
| −.064  | −.027   | −0.376 | .007   | .003    | 0.043  | 1.274  |     |
| −.0544 | −.042   | −0.635 | −.341  | −.027   | −0.423 | 1.099  |     |
| 0.082  | .069    | 1.642  | .069   | .143    | 1.446  | 2.711  |     |
| −.196  | −.038   | −0.440 | −.271  | −0.53   | −0.632 | 1.966  |     |
| −.097  | −.130   | −1.987*| −.844  | −.044   | −0.556 | 1.755  |     |
| −4.554 | −.263   | −3.614***| −.505  | −.048   | −0.521 | 2.313  |     |
| .366   | .457    |        | .313   | .396    |        |       |     |
| .058   | .090    |        | 2.372* | 6.285***|        |       |     |
in Taiwan showed when patients exhibited increased wandering behavior, family caregivers were more likely to experience mental exhaustion and disturbances in sleep (Peng, Chiu, Liang, & Chang, 2018).

Our findings regarding job demands and work efficiency provide support for reducing working hours and promoting work efficiency to improve the well-being of employed family caregivers (OECD, 2011). Our results could help nurses and other healthcare professionals identify caregivers whose employment situation increases the risk of poor QoL. Healthcare providers should evaluate work hours and efficiency when assessing risks for employed family caregivers. Developing training programs, such as those focused on helping caregivers better manage time and job demands to reduce the sense of burden, could improve work efficiency (Bauer & Sousa-Poza, 2015). Improving workplace policy with job sharing, working from home, part-time hours, respite care, and employer support for flexible working hours could further enhance work efficiency and improve employed family caregivers’ QoL (OECD, 2011).

Limitations and Suggestions

Our findings support and expand other community-based studies regarding family caregivers of persons with dementia conducted with patients and caregivers in Taiwan (Ko, Yip, Liu, & Huang, 2008; Wang et al., 2011); however, there are some limitations. First, scale scores for job and caregiving demands for the participants in our purposive sample showed demands were moderate; therefore, our findings may not be generalizable to employed family caregivers with increased demands of employment or caregiving. We suggest random sampling be used to obtain data from a broad spectrum of employed family caregivers of older adults with dementia. Second, our cross-sectional study limits understanding how changes in variables of employment and caregiving situations might influence QoL over time; we suggest a longitudinal study to accomplish this. Third, no data were collected regarding how many hours per week were expended on caregiving activities. Quantitative measures for caregiving demands are recommended. Fourth, caregiver data were obtained only from self-report questionnaires. Interviews with family members, job supervisors, and colleagues could expand perspectives of the effects of job demands on employed family caregivers’ QoL (Neal & Wagner, 2002). Fifth, these data were collected 8 years ago; the portion of Taiwan’s aging population has increased to 14.56%, with 269,725 older adults with dementia (Ministry of the Interior, Taiwan, ROC, 2018; Taiwan Alzheimer’s Disease Association, 2019). These increases will result in healthcare challenges (The National Alliance for Caregiving and the AARP Public Policy Institute, 2015). Identifying how the ongoing struggle to balance caregiving and job demands influences caregiver QoL could provide a basis for the development of interventions and policy to reconcile these demands with the goal of increasing QoL for employed family caregivers of older adults with dementia.

Conclusions

Drawing on 1960 Goode’s role theory, we found job demands, including working hours, inflexibility and inefficiency in the workplace, and difficulty in reconciling work and family caregiving, influenced employed family caregivers’ QoL. Working more hours and being less efficient at work resulted in poor QoL for employed family caregivers who provided care for older adults with dementia. Our study contributes to understanding to what extent QoL for employed family caregivers of older adults with dementia can be explained by job demands. Our findings could help nurses and clinicians identify groups of family caregivers at high risk of poor QoL. We suggest developing policies and interventions that address working conditions to help family caregivers reduce working hours and improve work efficiency in order to improve their QoL. These improvements could also indirectly benefit the quality of care for employed family caregivers of older adults with dementia.

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Author Contributions

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Data collection: YNW and WCH
Data analysis and interpretation: All authors
Drafting of the article: All authors
Critical revision of the article: All authors

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