



Title	The Impact of Multiple Roles on Psychological Distress among Japanese Workers
Author(s)	Honda, Ayumi; Abe, Yasuyo; Date, Yutaka; Honda, Sumihisa
Citation	Safety and Health at Work, 6(2), pp.114-119; 2015
Issue Date	2015-06
URL	<a href="http://hdl.handle.net/10069/35780">http://hdl.handle.net/10069/35780</a>
Right	© 2015 Published by Elsevier Korea LLC. This is an Open Access article distributed under the terms of the Creative Commons Attribution Non-Commercial License ( <a href="http://creativecommons.org/licenses/by-nc/3.0">http://creativecommons.org/licenses/by-nc/3.0</a> ) which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

This document is downloaded at: 2019-09-18T07:47:41Z



## Original Article

# The Impact of Multiple Roles on Psychological Distress among Japanese Workers



Ayumi Honda<sup>1</sup>, Yasuyo Abe<sup>1</sup>, Yutaka Date<sup>1</sup>, Sumihisa Honda<sup>2,\*</sup>

<sup>1</sup> Department of Public Health, Nagasaki University Graduate School of Biomedical Sciences, Nagasaki, Nagasaki, Japan

<sup>2</sup> Department of Nursing, Nagasaki University Graduate School of Biomedical Sciences, Nagasaki, Nagasaki, Japan

## ARTICLE INFO

## Article history:

Received 23 August 2014

Received in revised form

2 December 2014

Accepted 30 December 2014

Available online 12 January 2015

## Keywords:

Japanese workers

multiple roles

psychological distress

gender differences

## ABSTRACT

**Background:** There has been considerable interest in Japanese society in the problem of work-related stress leading to depressive symptoms, and an increasing number of primary houseworkers maintain paid employment. The purpose of this study was to examine the differential impact of multiple roles associated with psychological distress among Japanese workers.

**Methods:** We studied 722 men and women aged 18–83 years in a cross-sectional study. The K10 questionnaire was used to examine psychological distress.

**Results:** The proportion of participants with psychological distress was higher in women (17.8%) compared with men (11.5%). Having three roles significantly decreased the risk of psychological distress [women: odds ratio (OR), 0.37-fold; men: OR, 0.41] compared with only one role. In working married women, there was significantly less psychological distress (OR, 0.27), and those with childrearing or caregiving responsibilities for elderly parents had significantly less psychological distress (OR, 0.38) than those with only an employment role. Similarly, working married men who had childrearing or caregiving responsibilities for elderly parents had significantly less psychological distress (OR, 0.41) than those who had only an employment role.

**Conclusion:** The present study demonstrated that participants who had only an employment role had an increased risk of psychological distress. The degree of psychological distress was not determined solely by the number of roles. It is important to have balance between work and family life to reduce role conflict and/or role submersion, which in turn may reduce the risk of psychological distress.

© 2015, Occupational Safety and Health Research Institute. Published by Elsevier. All rights reserved.

## 1. Introduction

In recent years, the number of primary houseworkers who maintain paid employment has increased in Japan [1]. There has been considerable interest in Japanese society in the problems of work-related stress leading to depressive symptoms [2]. The individual experience of psychological distress is associated with employment status. Previous studies have shown that stressful experiences are more frequent among women compared with men, due to discrimination and interrupted employment history owing to family caregiving responsibilities [3,4]. Consequently, as increasing numbers of women enter the paid labor force, the conditions of work, both in the home and at work, may contribute to greater risk of depression.

Having multiple roles, such as worker, mother/father, and caregiver for elderly parents, may lead to role conflict [5,6]. Goode [7] found that people engaged in several roles experience role conflict, overload, and strain, resulting in poor well-being. On the other hand, several studies have shown that having one role or none also has adverse effects on employee well-being and can lead to increased psychological distress. Sugihara et al [8] examined the relationship between productive roles and depressive symptoms in middle-aged Japanese men and women and found that there was no significant link between productive roles and depressive symptoms in men, and that women engaging in unpaid work at home were more likely to have depressive symptoms compared to women with multiple productive roles. Conversely, Takeda et al [9] reported that benefit from multiple roles is associated with

\* Corresponding author. Department of Nursing, Nagasaki University Graduate School of Biomedical Sciences, 1-7-1 Sakamoto, Nagasaki, Nagasaki 852-8520, Japan.  
E-mail address: [honda@nagasaki-u.ac.jp](mailto:honda@nagasaki-u.ac.jp) (S. Honda).

health-related behaviors. Rodin and Ickovics [10] also reported that multiple roles were linked to positive mental and physical health benefits in women.

Role overload and role captivity are important predictors of how much distress workers experience. Workers who experience greater role-related stress and role demands are more likely to have depressive symptoms than those who do not [11]. Particularly, in the case of single-parent families, parents undertake diverse roles. Weissman et al [12] reported that single mothers were more likely to report being in poorer health than other mothers. Being married is associated with a higher level of well-being [13], although the subjective experience of the wife role or an unequal division of labor within the household may also affect marital satisfaction [14].

In Japan, married men with paid work are almost always the primary breadwinners and have the responsibility of supporting dependent family members. Sugihara et al [8] reported that having paid work is associated with reduced depressive symptoms in men but not women. Multiple roles have been linked to mental and physical health among both genders, however the effects of the same role combinations may be different for men and women [15,16]. Gender is closely related to the norms governing behavior.

Some studies have reported that caregiving has a detrimental effect on emotional well-being [17,18] and social activity [19] among caregivers. In addition, caregivers of the elderly are more likely to experience physical burden and depression than non-caregivers [20–22]. Workers who have the role of family caregiver may bear greater psychological burdens. Consequently, having a family caregiver role may be the heaviest burden for those with multiple roles.

Problems related to multiple roles, such as decreased work performance, imbalance between work and family life, and depression, which develop gradually as a consequence of prolonged role conflict or role-related stress, are a pressing problem for many workers. Many of the prior studies on multiple roles focused mainly on the relationship between the number of roles and psychological distress and did not take into account the impact of combinations of roles. Therefore, evidence that workers who held multiple roles reported less psychological distress according to the number of roles did not paint a complete picture. The purpose of this study was to examine the differential impact of multiple roles associated with psychological distress among Japanese workers, taking into account the number and combinations of roles.

## 2. Materials and methods

### 2.1. Participants

A self-administered questionnaire survey targeting all employees of three workplaces in Nagasaki Prefecture, Japan, was conducted from December 2009 to February 2010. First, a letter was sent to the directors of the workplaces. The letter explained the aims, procedures, and ethical considerations of the study. The directors agreed to participate. The questionnaire was distributed to 844 employees; 787 employees returned the questionnaire (response rate, 93.2%). After eliminating respondents whose sex or age were unknown and those who did not complete all questions of the K10, 721 participants (355 men and 366 women) were selected for analysis. The present study was reviewed and approved in October 2009 by the institutional ethics committee of Nagasaki University School of Medicine. The purpose and ethical aspects of this study were described at the beginning of the questionnaire, and only employees who agreed to participate and who provided informed consent were enrolled as study participants.

### 2.2. Measures

Participants completed anonymous questionnaires that asked about their sociodemographic background (sex, age, marital status, the presence of children, and elderly persons in need of care) and type of employment. The type of employment included full-time job, part-time job, and other job. Mental health condition was assessed using the K10.

### 2.3. Psychological distress

Psychological distress was assessed using the K10 scale developed by Kessler and colleagues [23]. The K10 is a 10-item scale. Participants were asked to indicate how frequently they had experienced psychological distress or negative feelings during the past month using a 5-point Likert scale with the following responses: none of the time (0), a little of the time (1), some of the time (2), most of the time (3), and all of the time (4). The total score was the sum of all responses, and ranged from 0 to 40. Higher scores reflect more severe psychological distress. A score of 15 or higher on the K10 indicates increased risk for psychological distress [24]. Screening performance of the Japanese version of the K10 is essentially equivalent to that of the original English version [25].

### 2.4. Definition of multiple roles

In this study, individual role was defined by a linear summation of four different kinds of roles: (1) marital role (married vs. never married, widowed, divorced, or separated); (2) parenting role (the presence of children in the household vs. the absence of children); (3) caregiver role (the presence of elderly people in need of care in the family vs. the absence of elderly people in need of care); and (4) employment role (all participants who had a full-time job, part-time job, or other job). Each respondent was assigned an individual role score ranging from 1 (single role) to 4 (quadruple roles). In addition, we defined six kinds of role combinations: (1) employment role only, (2) employment and marital roles, (3) employment and family caregiving (parenting or elderly caregiver) roles, (4) employment, marital, and family caregiving (parenting or elderly caregiver) roles, (5) employment and family caregiving (parenting and elderly caregiver) roles, and (6) employment, marital, and family caregiving (parenting and elderly caregiver) roles.

### 2.5. Data analysis

The associations between the frequency of participants with high K10 scores and number of individual roles and combination of individual roles were analyzed. The chi-square test was used for nominal scale data, such as sex, whereas the Cochran-Armitage test was used for ordinal scale data, such as number of individual roles. We conducted separate multivariate logistic regression analyses to calculate the odds ratios (ORs) and 95% confidence intervals (95% CIs) for psychological distress, according to the number of individual roles or role combinations.

## 3. Results

### 3.1. Characteristics of participants

Table 1 shows the characteristics of the participants. The mean age was 42.1 [standard deviation (SD), 10.6] years in men and 38.7 (SD 10.4) years in women. The proportion of full-time workers was higher in men (97.7%) than in women (55.5%), whereas the proportion of part-time workers was overwhelmingly higher in women (39.3%) than in men (1.1%). The proportion of participants

**Table 1**  
Distribution of demographics, mental health conditions, and number of individual roles

	Women (n = 366)	Men (n = 355)
	N (%)	N (%)
<b>Age</b>		
Mean age, (SD), y	38.7 (10.4)	42.1 (10.6)
Age range, y	20–73	18–83
<b>Marital status</b>		
Married	213 (58.2)	275 (77.5)
Never married	120 (32.8)	65 (18.3)
Divorced or separated	21 (5.7)	13 (3.7)
Widowed	10 (2.7)	1 (0.3)
Unknown	2 (0.6)	1 (0.3)
<b>Children in household</b>		
Yes	188 (51.4)	196 (55.2)
No	177 (48.4)	158 (44.5)
Unknown	1 (0.3)	1 (0.3)
<b>Caring for elderly persons in the family</b>		
Yes	61 (16.7)	51 (14.4)
No	305 (83.3)	304 (85.6)
<b>Type of employment</b>		
Full-time	203 (55.5)	347 (97.7)
Part-time	144 (39.3)	4 (1.1)
Other	18 (4.9)	4 (1.1)
Unknown	1 (0.3)	0 (0)
<b>K10</b>		
Good	301 (82.2)	314 (88.5)
Poor	65 (17.8)	41 (11.5)
<b>Number of individual roles</b>		
Single	108 (29.5)	65 (18.3)
Double	76 (20.8)	81 (22.8)
Triple	154 (42.1)	182 (51.3)
Quadruple	26 (7.1)	25 (7.0)
Unknown	2 (0.5)	2 (0.6)
<b>Combination of individual roles</b>		
Employment role	108 (29.5)	65 (18.3)
Employment and marital roles	36 (9.8)	68 (19.2)
Employment and family caregiving roles*	40 (10.9)	13 (3.7)
Employment, marital, and family caregiving roles <sup>†</sup>	151 (41.3)	181 (51.0)
Employment and family caregiving roles <sup>‡</sup>	3 (0.8)	1 (0.3)
Employment, marital, and family caregiving roles <sup>‡</sup>	26 (7.1)	25 (7.0)
Unknown	2 (0.5)	2 (0.6)

SD, standard deviation.

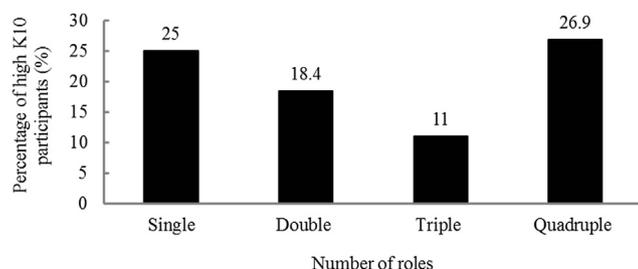
\* The family caregiving role includes parenting or elderly caregiver.

<sup>†</sup> The family caregiving roles include parenting and elderly caregiver roles.

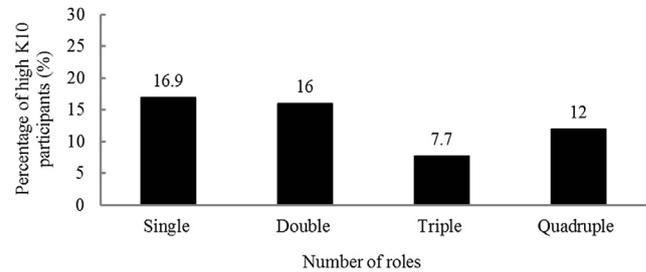
with psychological distress was higher in women (17.8%) compared with men (11.5%).

### 3.2. Proportion of participants with psychological distress according to number of roles

Fig. 1 shows the proportion of female participants with psychological distress by the number of roles. Workers with a single role experienced significantly higher psychological distress (25.0%) compared with other workers ( $p = 0.021$ ). Conversely, the workers



**Fig. 1.** The proportion of psychological distress by the number of roles among women.



**Fig. 2.** The proportion of psychological distress by the number of roles among men.

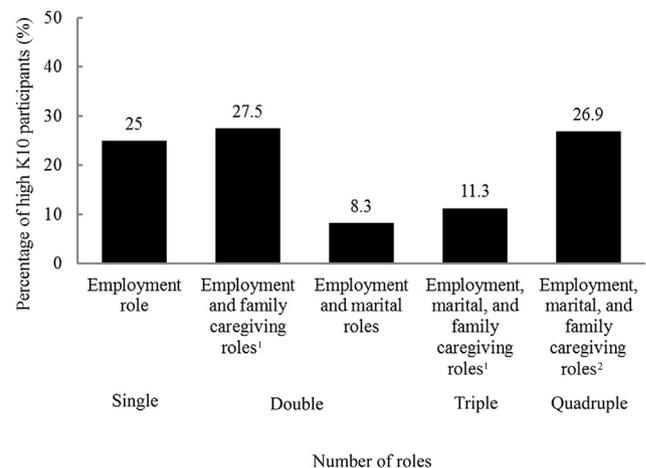
who had triple roles (11.0%) had significantly less psychological distress compared with the others ( $p = 0.004$ ). Fig. 2 shows that the proportion of psychological distress in men was 16.9% among those with only an employment role, 16.0% among those with double roles, 7.7% among those with triple roles, and 12.0% among those with quadruple roles. In working men, having triple roles was associated with less psychological distress compared with the others ( $p = 0.018$ ).

### 3.3. Proportion of participants with psychological distress according to combination of roles

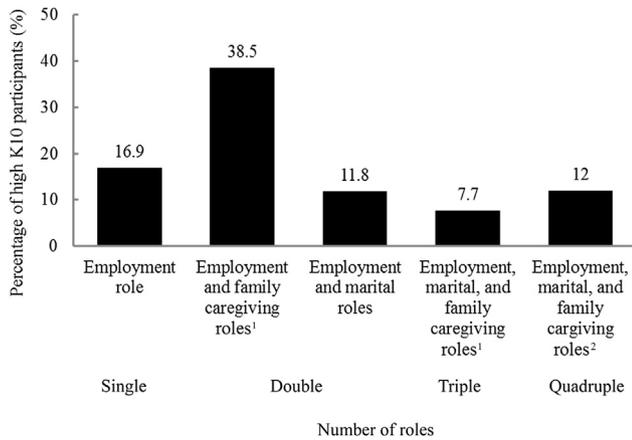
The associations between psychological distress and combination of roles are shown in Fig. 3, 4. For both genders, participants who had “employment and family caregiving (parenting or elderly caregiver) roles” were more likely to be psychologically distressed compared with those who had “employment and marital roles” in the same number of role differed for combination. The proportion of workers who experienced psychological distress in the “employment and family caregiving (parenting or elderly caregiver) roles” differed for men (38.5%) and women (27.5%). In addition, the proportion of workers with quadruple roles who experienced psychological distress was higher in women (26.9%) than in men (12.0%). The proportion of workers who experienced psychological distress in the same role combinations differed for men and women.

### 3.4. Risk of psychological distress

Table 2 shows the ORs and 95% CIs of the associations between psychological distress and number of and combination of



**Fig. 3.** The proportion of psychological distress by combination of roles among women. There were no participants who had a combination of “employment and family caregiving roles” and psychological distress. For that reason, we excluded the item of “employment and family caregiving roles” from this figure. <sup>1</sup> The family caregiving role includes parenting or elderly caregiver role. <sup>2</sup> The family caregiving roles include parenting and elderly caregiver roles.



**Fig. 4.** The proportion of psychological distress by combination of roles among men. There were no participants who had a combination of “employment and family caregiving roles” and psychological distress. For that reason, we excluded the item of “employment and family caregiving roles” from this figure. <sup>1</sup> The family caregiving role includes parenting or elderly caregiver role. <sup>2</sup> The family caregiving roles include parenting and elderly caregiver roles.

individual roles. The risk of psychological distress was significantly lower in women (OR, 0.37; 95% CI, 0.19–0.72) and in men (OR, 0.41; 95% CI, 0.18–0.95) who had triple roles compared to those with only an employment role. Working married women had significantly less psychological distress (OR, 0.27; 95% CI, 0.08–0.96), and those with childrearing or elder parent caregiving roles had significantly less psychological distress (OR, 0.38; 95% CI, 0.20–0.74) compared to women with only an employment role. Similarly, working men who had childrearing or elder parent caregiving responsibilities and were married also had significantly less psychological distress (OR, 0.41; 95% CI, 0.18–0.96) than those with only an employment role. Although the OR was not statistically significant, the risk of psychological distress tended to be higher in working men who had childrearing or caregiving responsibilities for an elderly parent and were not married (OR, 3.07; 95% CI, 0.84–11.17) compared to those with only an employment role.

**4. Discussion**

The results of the present study revealed that participants with only an employment role had a higher risk of psychological distress than the others. Conversely, having triple roles was associated with

a lower risk of psychological distress. In general, having multiple roles are confronted with role conflict, and tended to increased risk of depression [5]. We considered that workers with only an employment role may have had a high level of role submersion compared to other workers. High immersion in work and overcommitment to work predicted fatigue [26,27], and the idea that fatigue is one of risk factors for depression is widely held. Another study reported that the quality of role experiences (i.e., the problems and rewards that occur within roles) is more important to well-being than the number of roles [28]. Stephens and Townsend [29] showed that the most frequently endorsed type of spillover in both directions was being in a good mood in one role because of positive experiences in the other role. Consistent with prior research findings, we considered that the harms and benefits in a role cannot be separated. Thus, the effects of role conflict and role submersion are not determined solely by the number of roles, rather that role conflict may contribute to the degree of role submersion of defining oneself, or how long term of fulfill one’s role.

In this study, participants who had childrearing or elder caregiving responsibilities and were not married tended to be at higher risk of psychological distress compared with those who had only an employment role. A reason for this may be that workers who were divorced, separated, or widowed at least once were more likely to have both employment and family caregiving roles compared to workers with only an employment role. Divorce, separation, and loss of a spouse have been identified as some of the most stressful and disruptive events in the family life cycle. Being married is associated with prevention of psychological distress. This, however, does not take into account the subjective experience of workload at home, including housework, childrearing, and marital satisfaction. This may be consistent with a recent study reporting an association between higher level of well-being and being married [13]. A prior study has shown that the quality of marital and parent-child relationships are linked to the quality of both work and life [30]. Perhaps employed single parents feel a more intense sense of responsibility with respect to their childrearing.

The present results indicate that the proportion of workers who experience psychological distress in the same role combinations differed for men and women. The association between work/family role stress and psychological distress may be different for men and women. Schwartzberg and Dytell [11] found that among women, family role stressors were more strongly tied to psychological distress and physical illness outcomes than were work-related stressors. Among men, workplace stressors were more strongly related to psychological distress than were family

**Table 2**  
Odds ratios and 95% confidence intervals for psychological distress with number and combination of individual roles

Variables	Psychological distress			
	Women		Men	
	Odds ratio estimate	95% CI	Odds ratio estimate	95% CI
<b>Number of individual roles</b>				
Single	1.00	Referent	1.00	Referent
Double	0.68	0.33–1.40	0.94	0.39–2.26
Triple	0.37	0.19–0.72	0.41	0.18–0.95
Quadruple	1.11	0.42–2.92	0.67	0.17–2.63
<b>Combination of individual roles</b>				
Employment role	1.00	Referent	1.00	Referent
Employment and marital roles	0.27	0.08–0.96	0.65	0.25–1.75
Employment and family caregiving roles*	1.14	0.50–2.58	3.07	0.84–11.17
Employment, marital, and family caregiving roles*	0.38	0.20–0.74	0.41	0.18–0.96
Employment and family caregiving roles <sup>†</sup>	Not calculated		Not calculated	
Employment, marital, and family caregiving roles <sup>†</sup>	1.11	0.42–2.92	0.67	0.17–2.63

95% CI, 95% confidence interval.

\* The family caregiving role includes parenting or elderly caregiver role.

† The family caregiving roles include parenting and elderly caregiver roles.

role stressors. The men in our study may have been at increased risk of psychological distress because of the combination of family caregiving roles without married than women. Traditionally, women have been assigned household chores as their core duties in the family [31]. Consequently, many men are inexperienced in family-life-related tasks and may feel psychological distress more frequently than women who are accustomed to taking on family-life-related roles. It is important to have balance between work and family life to reduce role conflict between men and women, which in turn may enable them to prevent psychological distress.

The present results did not find that having a caregiver role was associated with psychological distress because the number of participants in this study were limited after considering the combination and number of roles. A previous study had shown that employees who cared for elderly relatives were significantly more likely to be depressed [32]. Recently, the number of workers who leave work to care for elderly relatives has increased. In Japan, 2,399,000 workers were caring for elderly relatives, and 101,000 workers (4.2%) retired in 2012 to care for elderly relatives [33]. A total of 487,000 workers retired to care for elderly relatives during the past 5 years [33]. Perhaps workers who have a caregiver role may be more likely to experience psychological distress despite the number of roles when the analytic model included social network, and individual and care recipient characteristics.

It has been widely held in recent years that work-life balance and quality of life indirectly influence the mental health problems and well-being of workers. Also, job satisfaction, work-related stress, and relationship with others in the workplace intersect with quality of life. Although this study did not research the balance between work and family life, the majority of work-life balance research focuses on employee's work-life conflict, which can have negative repercussions on employee's performance [34–36]. Both work-to-life and life-to-work conflict have also been associated with increased stress and burnout [37,38], and reduced levels of general health and energy [39]. By contrast, Premeaux et al [34] reported no effect of work-life practices on employee's work-life conflict levels. A previous study has shown that role transition suggests workers have different preferences for integration versus segmentation of work and family roles depending on a worker's particular values, needs, or preferences for managing multiple roles [40]. It is important for work-life balance to think of views how to spend time and feeling of satisfaction than share of the time.

Our study had several limitations. First, because the design was cross-sectional, the relationships found in the present study cannot be interpreted as causal. And, these results may reflect the healthy worker effect. If the workers with triple roles who are more distressed quit their work, then those left will be the ones with less distress. Second, the study is also limited with regard to the number of roles, and therefore, could not take into account a general level of demand and role quality. Future data-collection efforts that carefully assess a more extensive repertoire of worker's roles along with associated levels of demands and quality of experiences would be welcome. Finally, the K10 scale only reflects psychological distress. The degree of role satisfaction and well-being has emerged as an important variable in role-related health research; however, this was not assessed in the present study.

In this study, the participants who had only an employment role had an increased risk of psychological distress compared to those with multiple roles. We considered that the workers who have only an employment role may have a higher level of role submersion into that one role. The effect of role submersion may be associated with psychological distress. The degree of psychological distress is not determined solely by the number of roles. It is important to have balance between work and family life to reduce role conflict and/or role submersion, which in turn may help prevent psychological distress.

## Conflicts of interest

All authors declare no conflicts of interest.

## Acknowledgments

We are grateful to all participants for their valuable contribution to the study. This was part of a study that was sponsored by the Yuumi Memorial Foundation for Home Health Care.

## References

- Ministry of Health, Labour and Welfare. White Paper on Working Women 2011 [Internet]. Tokyo (Japan): Equal Employment, Children and Families Bureau, Ministry of Health, Labour and Welfare. 2012 [cited 2013 Jul 22]. Available from: <http://www.mhlw.go.jp/bunya/koyoukintou/josei-jitsujo/11.html> [In Japanese].
- Ministry of Health, Labour and Welfare. Survey on state of employees' health 2007 [Internet]. Tokyo (Japan): Ministry of Health, Labour, and Welfare. 2007 [cited 2013 Aug 5]. Available from: <http://www.mhlw.go.jp/toukei/itiran/roudou/saigai/anzen/kenkou07/dl/kenkou07.pdf> [In Japanese].
- Keita GP. Psychosocial and cultural contributions to depression in women: considerations for women midlife and beyond. *J Manag Care Pharm* 2007;13: S12–5.
- Muller C, Volkov O. Older women: work and caregiving in conflict? A study of four countries. *Soc Work Health Care* 2009;48:665–95.
- Coty MB, Wallston KA. Roles and well-being among healthy women and women with rheumatoid arthritis. *J Adv Nurs* 2008;63:189–98.
- Gignac MA, Backman CL, Kaptein S, Lacaille D, Beaton DE, Hofstetter C, Badley EM. Tension at the borders: perceptions of role overload, conflict, strain and facilitation in work, family and health roles among employed individuals with arthritis. *Rheumatology (Oxford)* 2012;51:324–32.
- Goode WJ. A theory of role strain. *Am Sociol Rev* 1960;25:483–96.
- Sugihara Y, Sugisawa H, Shibata H, Harada K. Productive roles, gender, and depressive symptoms: evidence from a national longitudinal study of late-middle-aged Japanese. *J Gerontol B Psychol Sci Soc Sci* 2008;63:227–34.
- Takeda Y, Kawachi I, Yamagata Z, Hashimoto S, Matsumura Y, Oguri S, Okayama A. The impact of multiple role occupancy on health-related behaviours in Japan: differences by gender and age. *Public Health* 2006;120:966–75.
- Rodin J, Ickovics JR. Women's health. Review and research agenda as we approach the 21st century. *Am Psychol* 1990;45:1018–34.
- Schwartzberg NS, Dytell RS. Dual-earner families: the importance of work stress and family stress for psychological well-being. *J Occup Health Psychol* 1996;1:211–23.
- Weissman MM, Leaf PJ, Bruce ML. Single parent women. A community study. *Soc Psychiatry* 1987;22:29–36.
- Ross CE, Mirowsky J. Explaining the social patterns of depression: control and problem solving—or support and talking? *J Health Soc Behav* 1989;30: 206–19.
- Glass J, Fujimoto T. Housework, paid work, and depression among husbands and wives. *J Health Soc Behav* 1994;35:179–91.
- Baruch GK, Biener L, Barnett RC. Women and gender in research on work and family stress. *Am Psychol* 1987;42:130–6.
- Cleary PD, Mechanic D. Sex differences in psychological distress among married people. *J Health Soc Behav* 1983;24:111–21.
- Andrén S, Elmståhl S. The relationship between caregiver burden, caregivers' perceived health and their sense of coherence in caring for elders with dementia. *J Clin Nurs* 2008;17:790–9.
- Salin S, Kaunonen M, Astedt-Kurki P. Informal carers of older family members: how they manage and what support they receive from respite care. *J Clin Nurs* 2009;18:492–501.
- Tooth L, Russell A, Lucke J, Byrne G, Lee C, Wilson A, Dobson A. Impact of cognitive and physical impairment on carer burden and quality of life. *Qual Life Res* 2008;17:267–73.
- Hirst M. Carer distress: a prospective, population-based study. *Soc Sci Med* 2005;61:697–708.
- Molloy GJ, Johnston DW, Witham MD. Family caregiving and congestive heart failure. Review and analysis. *Eur J Heart Fail* 2005;7:592–603.
- Waite A, Bebbington P, Skelton-Robinson M, Orrell M. Social factors and depression in carers of people with dementia. *Int J Geriatr Psychiatry* 2004;19:582–7.
- Kessler RC, Andrews G, Colpe LJ, Hiripi E, Mroczek DK, Normand SL, Walters EE, Zaslavsky AM. Short screening scales to monitor population prevalences and trends in non-specific psychological distress. *Psychol Med* 2002;32:959–76.
- Schmitz N, Lesage A, Wang J. Should psychological distress screening in the community account for self-perceived health status? *Can J Psychiatry* 2009;54:526–33.
- Furukawa TA, Kawakami N, Saitoh M, Ono Y, Nakane Y, Nakamura Y, Tachimori H, Iwata N, Uda H, Nakane H, Watanabe M, Naganuma Y, Hata Y,

- Kobayashi M, Miyake Y, Takeshima T, Kikkawa T. The performance of the Japanese version of the K6 and K10 in the World Mental Health Survey Japan. *Int J Methods Psychiatr Res* 2008;17:152–8.
- [26] Preckel D, von Känel R, Kudielka BM, Fischer JE. Overcommitment to work is associated with vital exhaustion. *Int Arch Occup Environ Health* 2005;78:117–22.
- [27] Akerstedt T, Knutsson A, Westerholm P, Theorell T, Alfredsson L, Kecklund G. Mental fatigue, work and sleep. *J Psychosom Res* 2004;57:427–33.
- [28] Barnett RC, Baruch GK. Women's involvement in multiple roles and psychological distress. *J Pers Soc Psychol* 1985;49:135–45.
- [29] Stephens MA, Townsend AL. Stress of parent care: positive and negative effects of women's other roles. *Psychol Aging* 1997;12:376–86.
- [30] Wheeler LA, Updegraff KA, Crouter A. Work and Mexican American parent-adolescent relationships: the mediating role of parent well-being. *J Fam Psychol* 2011;25:107–16.
- [31] Chan CL, Chui EW. Association between cultural factors and the caregiving burden for Chinese spousal caregivers of frail elderly in Hong Kong. *Aging Ment Health* 2011;15:500–9.
- [32] Honda A, Date Y, Abe Y, Aoyagi K, Honda S. Work-related stress, caregiver role, and depressive symptoms among Japanese workers. *Saf Health Work* 2014;5:7–12.
- [33] Ministry of Internal Affairs and Communications. The 2012 employment status Survey [Internet]. Tokyo (Japan): Ministry of Internal Affairs and Communications. 2013 [cited 2014 Mar 1]. Available from: <http://www.stat.go.jp/data/shugyou/2012/pdf/kgaiyou.pdf> [In Japanese].
- [34] Premeaux SF, Adkins CL, Mossholder KW. Balancing work and family: a field study of multi-dimensional, multi-role work-family conflict. *J Organ Behav* 2007;28:705–27.
- [35] Hamilton EA, Gordon JR, Whelan-Berry KS. Understanding the work-life conflict of never-married women without children. *Women Manage Rev* 2006;21:393–415.
- [36] Tausig M, Fenwick R. Unbinding time: alternate work schedules and work-life balance. *J Fam Econ Issues* 2001;22:101–19.
- [37] Anderson SE, Coffey BS, Byerly RT. Formal organizational initiatives and informal workplace practices: links to work-family conflict and job-related outcomes. *J Manage* 2002;28:787–810.
- [38] Kinnunen U, Mauno S. Antecedents and outcomes of work-family conflict among employed women and men in Finland. *Hum Relat* 1998;51:157–77.
- [39] Frone MR, Russell M, Barnes GM. Work-family conflict, gender, and health-related outcomes: a study of employed parents in two community samples. *J Occup Health Psychol* 1996;1:57–69.
- [40] Ashforth BE, Kreiner GE, Fugate M. All in a day's work: boundaries and micro role transitions. *Acad Manage Rev* 2000;25:472–91.