

Work and Family Life of Childrearing Women Workers in Japan: Comparison of Non-Regular Employees with Short Working Hours, Non-Regular Employees with Long Working Hours, and Regular Employees

Masako SETO^{1,3}, Kanehisa MORIMOTO¹ and Soichiro MARUYAMA²

¹Department of Social and Environmental Medicine, Osaka University Graduate School of Medicine, ²Department of Human Sciences, Faculty of Literature, Kobe Shinwa Women's University and ³Akebonokai Medical Corporation, Akebono GM Clinic, Japan

Abstract: Work and Family Life of Childrearing Women Workers in Japan: Comparison of Non-Regular Employees with Short Working Hours, Non-Regular Employees with Long Working Hours, and Regular Employees: Masako SETO, et al. Department of Social and Environmental Medicine, Osaka University Graduate School of Medicine—

This study assessed the working and family life characteristics, and the degree of domestic and work strain of female workers with different employment statuses and weekly working hours who are rearing children. Participants were the mothers of preschoolers in a large Japanese city. We classified the women into three groups according to the hours they worked and their employment conditions. The three groups were: non-regular employees working less than 30 h a week ($n=136$); non-regular employees working 30 h or more per week ($n=141$); and regular employees working 30 h or more a week ($n=184$). We compared among the groups the subjective values of work, financial difficulties, childcare and housework burdens, psychological effects, and strains such as work and family strain, work-family conflict, and work dissatisfaction. Regular employees were more likely to report job pressures and inflexible work schedules and to experience more strain related to work and family than non-regular employees. Non-regular employees were more likely to be facing financial difficulties. In particular, non-regular employees working longer hours tended to encounter socioeconomic difficulties and often lacked support from family and friends. Female

workers with children may have different social backgrounds and different stressors according to their working hours and work status.

(*J Occup Health* 2006; 48: 183–191)

Key words: Women worker, Mother, Non-regular employee, Regular employee, Working life, Family life, Childrearing

In 2003, 41% of labor force in Japan was female. The number of women quitting their jobs because of pregnancy or childcare is decreasing¹⁾, and there are many women who continue to work while raising children. Previous studies have shown that women with preschool age children show a higher risk of developing mental health problems^{2,3)}. Working women with very young children may have to cope with a heavy workload at home, including both housework and childcare. The role conflicts women experience between work and family may be related to psychological distress⁴⁾. It is imperative to understand the cause of stress among working women and to find ways to support them.

More than 40% of women workers in Japan are employed for less than 35 h a week¹⁾. There are a variety of employment statuses among non-regular employees⁵⁾. Especially for working mothers with young children, their reasons for working, commitment to work, and their perceptions of the subjective value of work may vary^{6,7)}. The Japanese government has recently been focusing on changes in the working patterns of women during the periods before and after childbirth. More than half of the women who were in regular employment one year before childbirth were working at 18 months postpartum; for part-timers the figure was less than one third⁸⁾. Compared to women who were continuing in the same

Received Jan 14, 2005; Accepted Feb 13, 2006

Correspondence to: K. Morimoto, Department of Social and Environmental Medicine F1, Osaka University Graduate School of Medicine, 2-2 Yamada-oka, Suita, Osaka 565-0871, Japan (e-mail: morimoto@envi.med.osaka-u.ac.jp)

job or career one year before childbirth and at 18 months postpartum, those women who began working after childbirth, and who did not experience working or resigning during pregnancy were likely to have lower family income, to be single mothers, and to be engaged in part-time jobs. The report implied that various factors, such as financial necessity, family support, workplace support, and intention to work, might have an influence on the working life of women with very young children.

In Western countries, the different effects full-time and part-time work have on maternal health have been studied. Work, in general, has positive effect on maternal mental health because it increases social resources and enhances self-esteem^{5, 9-11}). However, full-time working mothers with children aged 5 yr or younger have shown to be vulnerable to psychological stress²). Mothers with part-time jobs may receive the positive benefits gained from employment, without experiencing role overload¹²). In Japan, however, the legal status of a "part-time employee" does not necessarily mean a worker with short working hours: indeed, about one third of Japan's so-called "part-time employees" work 35 h or more a week¹³). Non-regular employees, including part-time employees, have much less job security, fewer fringe benefits, and lower hourly rates of pay than regular employees^{5, 13}). Thus, the findings of the studies conducted in Western countries may not directly apply to working mothers in Japan.

Previous studies have shown that for women workers with children, support from family and friends is important for working life and health. Working mothers who are unable to rely on significant support from their spouses, or who have no spouse, are more prone to psychological disorder^{7, 14}). A recent study of working life and family support among married women in Japan has reported that most full-time women workers whose youngest child is aged 6 or younger were getting childcare assistance from relatives¹⁵). The authors suggested that women who were unable get this kind of help might have ceased work. Unfortunately, that study did not give specific details about those women who were unsupported, nor did it include women who were in non-regular employment.

Few previous studies in Japan have described the working and family life of female employees with children and their different modes of working or hours of employment. Consequently, the factors affecting women's lives at home and at work, including stressors and supports, remain unclear. Also, work satisfaction, work-family conflict, and the actual strain of dealing with work and family life have not been investigated, even though these might be important factors when formulating guidance strategies to support working mothers.

In this study, we focused on working mothers with preschool children and investigated the working and family lives of a range of female workers with varied

employment statuses and working hours. The women were categorized into one of three groups depending on their employment status and their weekly working hours. The three categories were: non-regular employees working less than 30 h; non-regular employees working 30 or more hours; and regular employees working 30 or more hours. Using data from these three groups, we compared the women's demographic characteristics, reasons for working, commitment to work, level of financial difficulty, support with childcare and housework, and the psychological characteristics of their working situations. We also compared the overall work and family strains, relative work-family conflict, and work satisfaction.

Methods

Study design and participants

We designed a questionnaire to examine the relationship between socio-environmental factors and well-being, and invited the mothers of preschoolers from eight private preschools in a large city in the Kansai region of Japan to participate. In 2001, along with the questionnaire, a letter that explained the aim of the survey was distributed to the parents of all preschoolers at those eight schools ($n=871$). In the letter we explained that participation was voluntary, and that the survey was anonymous. We also assured potential respondents that their privacy would be guaranteed.

Of the 871 questionnaires distributed, 688 were returned. We excluded 43 incomplete questionnaires and 9 questionnaires that were either filled out by a father, a grandmother, or a mother who was not living with the preschool child ($n=636$). Of the valid questionnaires, 563 women were engaged in paid work; there were 136 non-regular employees who worked less than 30 h per week, 141 non-regular employees who worked 30 or more hours, and 184 regular employees (*seishain* in Japanese) who worked 30 h or more. We used the data of these 461 women for the analyses. We classified women who specified that they were regular employees in the questionnaire accordingly. Non-regular employees included part-time, contract, and contracted-out (*haken* in Japanese) workers. We excluded regular employees who worked for less than 30 h per week ($n=5$), self-employed women ($n=10$), family employees ($n=68$), those working at home ($n=10$: piece workers, *naishoku* in Japanese), and women who did not provide information about working hours ($n=9$) from the analyses. In this article, we refer to non-regular employees who work less than 30 h a week as non-regular employees with short working hours, and to non-regular employees who work 30 h or more per week as non-regular employees with long working hours. This definition is based on the cut-off levels defined by the OECD (Organization for Economic Co-operation and Development) for part-time

work, which the OECD describes as 30 working hours or less per week¹⁶).

The questionnaire included questions on work characteristics such as job classification, work style, and weekly hours of work (less than 10 h, 10–20, 20–29, 30–39, 40–49, 50–59, 60 h or more). Other items sought information on demographics and the family environment such as maternal age (age 24 or under, 25–29, 30–34, 35–39, 40 or more); marital status; monthly personal income (JPY99,999 or less, JPY100,000–199,999, JPY200,000–299,999, JPY300,000–399,999, JPY400,000 or more); monthly family income (JPY99,999 or less, JPY100,000–199,999, JPY200,000–299,999, JPY300,000–399,999, JPY400,000–499,999, JPY500,000 or more); educational attainment (4 levels: non-high-school graduate; high-school graduate; junior college or vocational school graduate; bachelor's degree or higher). We classified two women who were not married but who were cohabiting with a man along with those married women living with a partner. The remaining women, who were divorced, separated, widowed, or unmarried were classified as living without a partner. The questionnaire also delved into family composition, such as the number and age of children and whether the household included parents or parents-in-law.

Variables

To investigate work characteristics, we asked questions about the women's daily and weekly working hours, and their job classification. We also inquired about their job history around the birth of the first child, and the perceived value of the work they did—whether the respondent worked for job satisfaction or just for money. To investigate how the respondent prioritized their work and family roles, we included questions concerning role commitment. Following Napholz, we gave the women a choice of three answers¹⁷. We also included two questions about financial hardship in the questionnaire (Appendix 1).

We tried to estimate the assumable stressors in family life, such as the burden of housework, childcare, picking up the child from the daycare center, care for a sick child, emergency childcare, and unsatisfactory support from family and friends. The questions and the cut-off points are shown in Appendix 2. We then investigated the following psychological characteristics of the women's working situation: job pressure, the underutilization of their personal skills, dissatisfaction with personal income, inflexibility of work schedule, bad relationships in the workplace, poor support from supervisor, and poor support from colleagues. The questions and the cut-off points are shown in Appendix 3.

Finally, we compared the women's perceived level of strain related to work and family across the groups: work

and family strain¹⁸, work-family conflict¹⁹, and work dissatisfaction. The questions and the cut-off points are shown in Appendix 4.

Analyses

For dichotomized variables and nominal variables, statistical differences among groups were detected by χ^2 analyses. A p value of less than 0.05 was considered significant. Further, in inter-group comparisons using χ^2 analysis, we used p value of 0.02 (0.05/3 rounded) taking into account multiple comparisons. For ordinal variables, statistical group differences were detected using the Kruskal-Wallis non-parametric test. Inter-group comparisons were made with the Mann-Whitney test using the p value of 0.02.

Statistical analyses were done using SPSS 10.0J for Windows.

Results

Table 1 shows the group demographic and work characteristics. Regular employees tended to be older and to have higher educational qualifications and more family income than non-regular employees. Most of the non-regular workers earned less than 200,000 yen per month. Compared to regular employees, non-regular employees with long working hours had a lower socioeconomic status, were less likely to live with a partner, and had more children. More than three quarters of the regular employees were engaged in clerical, technical, or managerial jobs. Half of the non-regular employees with shorter working hours worked in sales or service jobs. The non-regular employees with long working hours had the highest percentage of manufacturing or transportation jobs among the three groups.

Table 2 shows the women's perinatal job histories prior to having children, and their stated role commitment, the personal value of their work, and the reasons for working for each group. Most of the current regular employees were working when they became pregnant with their first child and, after maternity leave, most of them returned to the same job. On the other hand, fewer of the non-regular employees were working when they became pregnant with the first child. Most of those who were working quit their job before childbirth and did not return to the same job afterwards. About two in three of both the non-regular employees with long working hours and the regular employees gave dual priority to both work and family. By contrast, non-regular employees with short working hours were more likely to emphasize family over work. Compared with non-regular employees who worked short hours, regular employees were less likely to say they worked only for money. The responses of non-regular employees with long working hours fell between these two groups.

Table 1. Demographic characteristics of occupational groups (%)

	1. Non-regular employees who worked for less than 30 h a week (n=136)	2. Non-regular employees who worked for 30 or more hours a week (n=141)	3. Regular employees (n=184)	p	Significant contrasts
Age ¹⁾	n (%)	n (%)	n (%)		
≤24	7 (5.1)	11 (7.8)	5 (2.7)	0.008	1:3, 2:3
25–29	38 (27.9)	30 (21.3)	33 (17.9)		
30–34	47 (34.6)	54 (38.3)	61 (33.2)		
35–39	28 (20.6)	33 (23.4)	61 (33.2)		
≥40	16 (11.8)	13 (9.2)	24 (13.0)		
Education ¹⁾					
Lower than high school graduate	20 (14.7)	24 (17.0)	6 (3.3)	<0.001	1:3, 2:3
High school graduate	60 (44.1)	68 (48.2)	65 (35.3)		
Junior college/vocational school graduate	46 (33.8)	44 (31.2)	79 (42.9)		
Bachelor's degree or higher	10 (7.4)	5 (3.5)	34 (18.5)		
Living with a partner ²⁾	108 (79.4)	98 (69.5)	156 (84.8)	0.004	2:3
Living with parents or parents-in-law ²⁾	19 (14.0)	28 (19.9)	23 (12.6)	0.750	
Number of children (mean) ¹⁾	1.9	2.1	1.7	0.007	2:3
Number of children age 6 or less (mean) ¹⁾	1.4	1.4	1.3	0.913	
Personal income (yen/month) ¹⁾					
≤99,999	112 (84.8)	68 (49.6)	4 (2.2)	<0.001	1:2, 1:3, 2:3
100,000–199,999	19 (14.4)	60 (43.8)	61 (33.3)		
200,000–299,999	–	7 (5.1)	84 (45.9)		
300,000–399,999	–	1 (0.7)	27 (14.8)		
≥400,000	1 (0.8)	1 (0.7)	7 (3.8)		
Family income (yen/month) ¹⁾					
≤99,999	17 (13.1)	11 (8.1)	–	<0.001	1:3, 2:3
100,000–199,999	12 (9.2)	24 (17.8)	11 (6.1)		
200,000–299,999	35 (26.9)	32 (23.7)	20 (11.1)		
300,000–399,999	36 (27.7)	41 (30.4)	26 (14.4)		
400,000–499,999	19 (14.6)	19 (14.1)	59 (32.8)		
≥500,000	11 (8.5)	8 (5.9)	64 (35.6)		
Working hours (h/wk) ¹⁾					
< 10	13 (9.6)	–	–	<0.001	1:2, 1:3, 2:3
10–19	26 (19.1)	–	–		
20–29	97 (71.3)	–	–		
30–39	–	91 (64.5)	23 (12.5)		
40–49	–	42 (29.8)	124 (67.4)		
50–59	–	4 (2.8)	31 (16.8)		
≥60	–	4 (2.8)	6 (3.3)		
Working hours (h/d) ¹⁾					
≤7	131 (96.3)	87 (61.7)	7 (3.8)	<0.001	1:2, 1:3, 2:3
8	5 (3.7)	45 (31.9)	126 (68.5)		
9	–	4 (2.8)	33 (17.9)		
10	–	3 (2.1)	9 (4.9)		
≥11	–	2 (1.4)	9 (4.9)		
Job Classification ²⁾					
Manufacturing, transportation	12 (9.2)	30 (22.7)	5 (2.8)	<0.001	1:2, 1:3, 2:3
Sales, service	66 (50.4)	48 (36.4)	33 (18.4)		
Clerical, technical, managerial	53 (40.5)	54 (40.9)	141 (78.8)		

1) The *p* values of are based on Kruskal-Wallis non-parametric test. The contrasts are based on the group comparisons using Mann-Whitney test. A *p*-value of less than 0.02 was defined as a significant difference.

2) The *p* value is based on χ^2 analysis. *Post hoc* group comparisons were done using the χ^2 test. A *p*-value of less than 0.02 was defined as a significant difference.

Table 2. Job history and job attitude among occupational groups

Variable	1. Non-regular employees who worked for less than 30 h a week	2. Non-regular employees who worked for 30 or more hours a week	3. Regular employees	<i>p</i>	Significant contrasts
	n (%)	n (%)	n (%)		
Working when first pregnancy was detected	91 (66.9)	91 (64.5)	164 (89.1)	<0.001	1:3, 2:3
Returned to the same job after the birth of the first child	14 (15.7)	16 (18.0)	134 (80.7)	<0.001	1:3, 2:3
Role commitment				<0.001	1:3
Work first	5 (3.7)	9 (6.4)	22 (12.0)		
Family first	81 (59.6)	39 (27.9)	42 (22.8)		
Both work and family	50 (36.8)	92 (65.7)	120 (65.2)		
Perceiving value in the job				0.061	
Yes	50 (37.0)	66 (47.1)	98 (53.6)		
No	23 (17.0)	21 (15.0)	27 (14.8)		
Neither "yes" or "no"	62 (45.9)	53 (37.9)	58 (31.7)		
Working for money				0.018	1:3
Yes	54 (40.0)	51 (36.4)	43 (23.5)		
No	49 (36.3)	54 (38.6)	91 (49.7)		
Neither "yes" or "no"	32 (23.7)	35 (25.0)	49 (26.8)		

The *p* values are based on χ^2 analysis.

Table 3. Financial hardship among occupational groups

Variable	1. Non-regular employees who worked for less than 30 h a week	2. Non-regular employees who worked for 30 or more hours a week	3. Regular employees	<i>p</i>	Significant contrasts
	n (%)	n (%)	n (%)		
Perceived financial difficulty	38 (28.1)	52 (37.1)	26 (14.1)	<0.001	1:3, 2:3
No personal spending money	40 (29.9)	49 (35.0)	24 (13.3)	<0.001	1:3, 2:3
Personal income and family income are in the same category	17 (12.5)	36 (25.5)	23 (12.5)	0.002	1:2, 2:3

The *p* values are based on χ^2 analysis. The questions for each item and the cut-off points are shown in Appendix 1. Income categories are shown in Table 1.

Table 3 shows the level of financial hardship among the groups. Non-regular employees were more likely to report economic difficulties than regular employees. Among the non-regular employees who worked long hours, the raw rate of those perceiving financial hardship was more than one third, and more than 25% of the women in this group placed personal income and family income in the same category in the questionnaire. Without personal income, these women had household monthly income of less than 100,000 yen. Women in the regular employee group were less likely to perceive financial difficulties than the women in non-regular employment,

and this reflects their higher family incomes and a higher proportion of spousal cohabitation.

About half the women in both non-regular employee groups were doing most of the housework (Table 4), whereas the women in the regular employee group tended to report lighter domestic workloads. Both non-regular employee groups reported that they bore most of the responsibility for taking care of a sick child (Table 4). Regular employees were likely to have some other person on whom they could depend when a child was sick. In each of the three groups, more than 60% indicated that they thought they needed more help with childcare. Non-

Table 4. Family life stress among occupational groups

	1. Non-regular employees who worked for less than 30 h a week	2. Non-regular employees who worked for 30 or more hours a week	3. Regular employees	<i>p</i>	Significant contrasts
	n (%)	n (%)	n (%)		
Housework burden	69 (53.9)	67 (49.3)	61 (33.7)	0.001	1:3, 2:3
Childcare burden	25 (19.4)	26 (19.1)	23 (12.9)	0.216	
Burden of picking up child from preschool	91 (67.9)	81 (57.9)	85 (46.4)	0.001	1:3
Burden of caring for a sick child	83 (61.9)	82 (60.7)	45 (25.0)	<0.001	1:3, 2:3
Requiring additional help with childcare	80 (61.5)	85 (62.0)	106 (60.2)	0.943	
Anxiety about emergency childcare	101 (77.7)	96 (70.1)	114 (64.8)	0.051	
Unsatisfactory support from family and friends	56 (43.1)	61 (44.5)	55 (31.4)	0.032	2:3

The *p* values are based on χ^2 analysis. The questions for each item and cut-off points are shown in Appendix 2.

Table 5. Psychological work characteristics among occupational groups

Variable	1. Non-regular employees who worked for less than 30 h a week	2. Non-regular employees who worked for 30 or more hours a week	3. Regular employees	<i>p</i>	Significant contrasts
	n (%)	n (%)	n (%)		
Job pressure	27 (19.9)	96 (31.9)	102 (55.4)	<0.001	1:3, 2:3
Skill underutilization	98 (72.1)	87 (62.6)	97 (53.0)	0.002	1:3
Income dissatisfaction	118 (86.8)	119 (85.6)	136 (73.9)	0.004	1:3, 2:3
Inflexibility of work schedule	38 (28.4)	44 (31.2)	90 (48.9)	<0.001	1:3, 2:3
Negative relationships at work	50 (37.0)	42 (29.8)	70 (38.0)	0.264	
Poor support from supervisor	44 (32.4)	42 (29.8)	87 (47.3)	0.002	1:3, 2:3
Poor support from colleagues	34 (25.2)	38 (27.5)	67 (36.4)	0.067	

The *p* values are based on χ^2 analysis. The questions for each item and the cut-off points are shown in Appendix 3.

Table 6. Perceived strain related to work and family

	1. Non-regular employees who worked for less than 30 h a week	2. Non-regular employees who worked for 30 or more hours a week	3. Regular employees	<i>p</i>	Significant contrasts
Incidence of each strain (%)					
Work and family strain	65/135 (48.1)	78/141 (55.3)	133/183 (72.7)	<0.001	1:3, 2:3
Work-family conflict	36/132 (26.2)	49/137 (35.8)	97/181 (53.6)	<0.001	1:3
Work dissatisfaction	78/133 (58.6)	75/141 (53.2)	96/183 (52.5)	0.515	–

The *p* values are based on χ^2 analysis. The questions for each item and the cut-off points are shown in Appendix 4.

regular employees with long working hours perceived significantly more unsatisfactory support from family and friends than regular employees (Table 4).

Job pressure increased from non-regular employees

with short working hours through to regular employees (Table 5), and regular employees were more likely to have an inflexible work schedule and to be more satisfied with their income than non-regular employees. In both

non-regular employee groups, more than 85% indicated dissatisfaction with their personal income. On the other hand, non-regular employees were more likely to indicate good support from supervisors than regular employees.

Regular employees had significantly more strain from work and family than non-regular employees (Table 6). Nearly half of regular employees indicated that they experienced work-family conflict. Non-regular employees with short working hours generally indicated a lower frequency of work-family conflict than regular employees. The three groups did not statistically differ in job satisfaction.

Discussion

Working mothers in different types of employment and with different working hours were likely to have different socioeconomic backgrounds, work and family lives, and strains, although not all factors had statistical significance.

Non-regular employees were more likely to be affected by budgetary constraints than regular employees. In particular, non-regular employees with long working hours were likely to encounter difficulties in daily life. They tended to have more children and less support from family and friends than regular employees. Even though they worked more than 30 h a week, they were less likely to have a satisfactory personal income, possibly because of lower hourly wages. Since women with lower personal income and less educational history are shown to display more depressive symptoms⁴⁾, we should explore the actual psychological distress among non-regular employees with long working hours.

Compared to regular employees, mothers currently working as non-regular employees were more likely to have discontinuities in their employment history. In fact, most respondents who were non-regular employees began working or started new jobs after the birth of their first child out of economic necessity, possibly due to a change in their family or economic situation. This pattern matches governmental statistics⁸⁾. However, as our demographic data showed, even if non-regular workers work long hours, it is not easy for them to earn a satisfactory income. During the recent economic recession, Japanese companies were trying to reduce personnel overheads and labor costs by substituting regular employees with non-regular employees⁵⁾. For mothers who are less educated, unskilled, and who do not have sufficient social support in family matters, the chance of becoming a regular employee with a higher income is rare. As earlier Western research highlighted^{20, 21)}, the disadvantaged socioeconomic status among certain groups of mothers with young children requires careful attention.

Regular employees were more likely to report job pressure and inflexible work schedules than non-regular employees; they also reported less support in their

workplace from supervisors. Overall, they indicated more work and family strain than non-regular employees. Although they report more positive factors in their work, such as the utilization of their skills, satisfactory income, or valuing the work, the dual demands of family and work, and conflicts arising from dual responsibilities may harm their health or make them more likely to leave work or change jobs.

This study is limited in several ways. Preliminary interviews indicated that the mothers of preschoolers were too busy to spend much time filling in the questionnaire, so we decided to use single-item questions regarding psychological work characteristics, perceived strain, job attitude, financial hardship, and family life stress. Many items originated with us. Thus, we were unable to determine the validity and reliability of the responses. Respondents were recruited from preschools in a large city. The findings cannot be generalized to working women with daytime childcare support from their relatives or who are living in a different social environment. In the survey, we did not inquire about company size, fringe benefits, and instrumental support at the workplace, such as childcare leave, or about child benefits or welfare allowances. Informational bias may result from the mode used to inquire about family or personal income. Since the study design is cross-sectional, we were unable to explore the causal relationship between the status of employment or working hours and the family environment. Finally, because the groups tended to show differences in socioeconomic status and job classification, the features of the groups may not have originated solely from differences in employment status or working hours. In the future, we need longitudinal studies using established instruments that can offer a more thorough examination into work and family stress among working mothers.

In summary, among women workers with preschool children, regular employees were more likely to experience greater strains due to work and family obligations. Non-regular employees tended to experience greater financial hardship. Notably, our findings also show the difficult situation faced by non-regular employees, especially those employees with long working hours. In exploring a support system for female employees rearing children, it will be necessary to gain an understanding of the features of these groups.

Acknowledgments: We appreciate the support from Dr. Hiroshi Fujimori, the staff of the preschools, and all of the participants in the study.

References

- 1) Equal Employment, Children and Families Bureau, Ministry of Health, Labour and Welfare. Working situation in Japan. In: White Paper on Working Women,

2003. Tokyo: Japan Institute of Workers' Evolution, 2004: 1–32 (in Japanese).
- 2) BJ Elliott and FA Huppert: In sickness and in health: associations between physical and mental well-being, employment and parental status in a British nationwide sample of married women. *Psychol Med* 21, 515–524 (1991)
 - 3) SE Romans-Clarkson, VA Walton, GP Herbison and PE Mullen: Marriage, motherhood and psychiatric morbidity in New Zealand. *Psychol Med* 18, 983–990 (1988)
 - 4) M Seto, K Morimoto and S Maruyama: Effects of work-related factors and work-family conflict on depression among Japanese working women living with young children. *Environ Health Prev Med* 9, 220–227 (2004)
 - 5) M Morishima: Contingent workers in Japan: New developments and unexpected consequences. *Japan Labor Bulletin* [serial on the Internet] 40 (3), 10 (2001). Available from: <http://www.jil.go.jp/bulletin/year/2001/vol40-03/05.htm> (Accessed May 11, 2003)
 - 6) RE Anderson-Kulman and MA Paludi: Working mothers and the family context: Predicting positive coping. *J Vocat Behav* 28, 241–253 (1986)
 - 7) P Romito: Work and health in mothers of young children. *Int J Health Serv* 24, 607–628 (1994)
 - 8) Statistics and Information Department, Ministry of Health, Labour and Welfare. Statistics concerning change of employment before and after childbirth. Available from: <http://www.mhlw.go.jp/toukei/saikin/hw/jinkou/tokusyuu/04/index.html> (in Japanese) (Accessed May 15, 2004)
 - 9) RL Repetti, KA Matthews KA and I Waldron: Employment and women's health. *Am Psychol* 44, 1394–1401 (1989)
 - 10) RC Barnett, NL Marshall and A Sayer: Positive-spillover effects from job to home: A closer look. *Women Health* 19, 13–41 (1992)
 - 11) G Baruch, L Beiner and R Barnett: Women and gender in research on work and family stress. *Am Psychol* 42, 130–136 (1987)
 - 12) AL Olson and LA DiBrigida: Depressive symptoms and work role satisfaction in mothers of toddlers. *Pediatrics* 94, 363–367 (1994)
 - 13) K Ogura: A comparison of atypical employment. *Nihon Rodo Kenkyu Zasshi* 505, 3–17 (2002) (in Japanese)
 - 14) G Parry: Paid employment, life events, social support and mental health in working-class mothers. *J Health Soc Behav* 27, 193–208 (1986)
 - 15) A Inaba. Why do full-time female employees have low strain? In: Ishihara K, ed. *Life stress and support among married women*. Tokyo: Center of Urban Science Tokyo Metropolitan University, 1999: 53–86 (in Japanese).
 - 16) Van Bastelaer A, Lemaitre G and Marianna P. The definition of part-time work for the purpose of international comparisons. *Labour Market and Social Policy Occasional Papers No. 22, OECD/GD (97) 121*. Paris: Organization for Economic Co-operation and Development, 1997.
 - 17) L Napholz: Indexes of psychological well-being and role commitment among working women. *J Employment Counseling* 32, 22–31 (1995)
 - 18) S Yogeve and JM Brett: Patterns of work and family involvement among single and dual-earner couples. *J Appl Psychol* 70, 754–768 (1985)
 - 19) KA Oster and ED Scannell: Change in role perception, role conflict, and psychological health of working mothers. *Psychol Rep* 84, 221–230 (1999)
 - 20) D Belle. *Lives in stress: women and depression*. Beverly Hills: Sage Publications, 1982.
 - 21) RS Kahn, PH Wise, BP Kennedy and I Kawachi: State income inequality, household income, and maternal mental and physical health: Cross sectional national survey. *Br Med J* 321, 1311–1315 (2000)

Appendix 1. Factors that indicate financial hardship

Level in the parentheses shows cut-off points.

1. Perceived financial difficulty. Do you think you have enough family income for your life? Five alternatives: 1) much more than enough, 2) more than enough, 3) a little extra money, 4) almost no extra money, 5) no extra money. The index was dichotomized. (=5)
2. No personal spending money. Respondent was asked to mark one of five alternatives: 1) almost none, 2) less than 5,000 yen, 3) less than 10,000 yen, 4) less than 15,000 yen, 5) 15,000 yen or more per month. The index was dichotomized. (=1)

Appendix 2. Family life stress

Level in the parentheses shows cut-off points.

1. Housework burden. Statement of percentage of the housework performed by the mother. From 0% to 100%. The index was dichotomized ($\geq 95\%$).
2. Childcare burden. Statement of percentage of childcare performed by the mother. From 0% to 100%. The index was dichotomized ($\geq 95\%$).
3. Burden of collecting child from the preschool. In a 10-day period, how many times do you pick up your child from the preschool? Six alternatives: from 1 (none) to 6 (9–10 times). The index was dichotomized (=6).
4. Burden of caring for a sick child. How many days would you have to be absent from work if your child is sick for 5 days? Six alternatives from: 1 (none) to 6 (five days). The index was dichotomized (=6).
5. Requiring additional help with childcare. How often do you feel you need more help with childcare? Four alternatives from 1 (often) to 4 (never). The index was dichotomized (≤ 2).
6. Anxiety about emergency childcare. Is there anyone besides yourself or your family members who can take care of your child in an emergency? Four alternatives from 1 (yes, very many) to 4 (no). The index was dichotomized (≥ 3).

7. Unsatisfactory support from family and friends. Are you satisfied with the support you are getting from your family and friends? Four alternatives from 1 (a great deal) to 4 (not at all). The index was dichotomized (≥ 3).

Appendix 3. Psychological characteristics of the work situation

Level in the parentheses shows cut-off points.

1. Job pressure. Do you have a large amount of work to do? Do you have serious work responsibilities at work? Four alternatives from 1 (not at all) to 4 (a great deal). The average of the two scores was taken to indicate job pressure. The index was dichotomized (≥ 3).
2. Skill underutilization. Can you utilize your abilities or skills in your job? Four alternatives from 1 (not at all) to 4 (a great deal). The index was dichotomized (≤ 2).
3. Income dissatisfaction. Are you satisfied with your own income? Four alternatives from 1 (not satisfied at all) to 4 (a great deal). The index was dichotomized (≤ 2).
4. Inflexibility of work schedule. Is it easy to change your work schedule or to be absent from work if your child is sick or if another emergency arises? Four alternatives from 1 (not easy at all) to 4 (very easy). The index was dichotomized (≤ 2).
5. Negative relationships at work. Are your workplace

relationships positive? Four alternatives from 1 (very negative) to 4 (very positive). The index was dichotomized (≤ 2).

6. Poor support from supervisor. Does your boss understand your situation and cooperate with you as a woman worker with children? Four alternatives from 1 (not at all) to 4 (a great deal). The index was dichotomized (≤ 2).
7. Poor support from colleagues. Do your colleagues understand your situation and cooperate with you as a woman worker with children? Four alternatives from 1 (not at all) to 4 (a great deal). The index was dichotomized (≤ 2).

Appendix 4. Perceived strain

Level in the parentheses shows cut-off points.

1. Work and family strain. How often do you feel the total burden of work and family commitment is too heavy? Four answers: 1) Often, 2) Sometimes, 3) Rarely, 4) Never. The index was dichotomized (≤ 2).
2. Work-family conflict. "How often do you have to juggle work and family obligations that conflict with one another and give you a pulled-apart feeling?"¹⁸⁾ The same four alternatives as previous question. The index was dichotomized (≤ 2).
3. Work dissatisfaction. Are you satisfied with your current job? Four alternatives from 1 (very much) to 4 (not at all). The index was dichotomized (≥ 3).