Job control, work-family balance and nurses' intention to leave their profession and organization: A comparative cross-sectional survey

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ABSTRACT

Background: The shortage of nurses is a problem in many countries. In Japan, the distribution of nurses across different care settings is uneven: the shortage of nurses in home healthcare and nursing homes is more serious than in hospitals. Earlier research has identified numerous factors affecting nurses' intention to leave work (e.g., job control, family-related variables, work-family conflict); however, these factors' levels and effect size may vary between nurses in hospitals, home healthcare, and nursing homes.
Objectives: This study measured job control, family-related variables, and work-family conflict among nurses in hospitals, home healthcare, and nursing homes, and compared these variables' levels and effect size on nurses' intention to leave their organization or profession between these care settings.
Design: The research design was cross-sectional.
Methods: Participating nurses from hospitals, home healthcare facilities, and nursing homes self-administered an anonymous questionnaire survey; nurses were recruited from the Kyushu district of Japan. Nurses from nine hospitals, 86 home healthcare offices, and 107 nursing homes participated. We measured nurses' intention to leave nursing or their organization, perceived job control, family variables and work-family conflict. We analyzed 1461 participants (response rate: 81.7%).
Results: The level of job control, family variables, and work-family conflict affecting nurses varied between hospitals, home healthcare, and nursing homes; additionally, these variables' effect on nurses' intention to leave their organization or profession varied between these care settings. Work-family conflict, family variables, and job control most strongly predicted nurses' intention to leave their organization or profession in hospitals, home healthcare, and nursing homes, respectively.
Conclusions: Interventions aiming to increase nurse retention should distinguish between care settings. Regarding hospitals, reducing nurses' work-family conflict will increase nurse retention. Regarding home healthcare, allowing nurses to fulfill family responsibilities will increase nurse retention. Regarding nursing home nurses, increasing nurses' job control will increase nurse retention.

What is already known about the topic?

- Nurses' intention to leave their organization or the nursing profession importantly predicts their subsequent departure from work.
- Job control, specific family factors, and work-family conflict importantly predict nurses' intention to leave work; however, earlier research examining nurses' turnover intention is largely limited to hospital nurses.

- Nurses' job control varies between care settings. Nurses working in home-based care (e.g., home healthcare) experience more autonomy than nurses working in residential care (e.g., nursing homes).

What does this paper add

- We found that job control, family variables, and work interference with family were correlated with nurses' intention to leave their organization or profession; however, the level and effect size of these variables varied between nurses in hospitals, home healthcare, and nursing homes.
- We found that work interference with family, family variables, and job control most strongly predicted nurses' intention to

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leave their organization or profession among nurses in hospitals, home healthcare, and nursing homes, respectively.

- These findings suggest that interventions aiming to increase nurse retention should distinguish between care settings: hospitals should reduce work interference with family; home healthcare facilities should help nurses fulfill their family responsibilities; nursing homes should increase nurses' job control.

1. Introduction

The shortage of nurses is an increasingly serious problem in many countries; in Japan, the distribution of nurses across different care settings is particularly uneven. The number of hospital nurses is sufficient for requirements; however, the number of home healthcare nurses is insufficient (Kawagoe, 2009). Approximately 50,000 nurses will soon be required in long-term care settings (e.g., nursing homes) in Japan (Hui, 2012). Recruiting nurses and preventing nurses leaving work importantly affect nurse retention; nurses' intention to leave work importantly predicts nurses' leaving work (Hayes et al., 2006; Brewer et al., 2009). Extensive previous research has examined nurses' intention to leave work (e.g., regarding its variables and consequences); however, most of this research examined nurses in acute care settings (Hayes et al., 2012; Nei et al., 2014). Few studies have examined nurses in other settings, such as home healthcare (Maurits et al., 2015) or long-term care (Tummers et al., 2013). Additionally, multiple complex factors affect nurses' intention to leave work in different health care settings. This research therefore compared factors predicting nurses' intention to leave work between in different health care settings.

1.1. Job control

Job control (decision latitude) is a combination of skilled discretion and decision autonomy (Karasek and Theorell, 1990). "Skilled discretion" refers to the skill and creativity required to do one's job; "decision autonomy" refers to organizationally mediated opportunities for workers to make decisions about their work (Karasek et al., 1998). Job control importantly predicts nurses' turnover intention. Lack of job control is associated with nurses' intention to leave work (Chan et al., 2013; Chiu et al., 2009; regarding hospital nurses). Autonomy is negatively correlated with home healthcare nurses' intention to leave work (Maurits et al., 2015). Job resources (job control and job support) negatively affect actual work departure among nursing home nurses (Gao et al., 2014). Nurses' degree of job control is likely to vary between care settings. For example, home healthcare nurses work in their clients' home; this may provide nurses with more opportunities to use a range of skills (e.g., regarding implementing care). Additionally, home healthcare nurses mostly provide care alone, allowing them to exercise greater independent nursing judgment (Simmons et al., 2001). Previous research indicates that home healthcare nurses experience greater autonomy in caring for their clients (Maurits et al., 2015) and that nurses working in home-based care experience greater autonomy than nurses working in residential care (Tummers et al., 2013). Hospitals and nursing homes are both "internal" care settings (i.e., care is provided within a dedicated facility); however, these settings require different varieties of nursing care. Hospital nurses mainly use acute care skills; in contrast, nursing home nurses use a wider range of skills to manage residents' frailty (Gao et al., 2014). Additionally, job control's effect size on nurse's intention to leave work varies between care settings. Lack of autonomy increases home health-care nurse's intention to leave work but does not affect nurses in

residential care (Tummers et al., 2013). Nonetheless, earlier research has not compared the level of job control between hospital nurses and nurses working in other care settings (e.g., home healthcare, nursing homes). It thus remains unclear if job control varies between nurses in various care settings, and if job control's effect on nurses' intention to leave varies between nursing care settings.

1.2. Family variables and work–family conflict

Earlier studies have identified numerous family-related variables correlated with nurses' intention to leave work; for example, family needs or kinship responsibilities (Hayes et al., 2006) and the age of nurses' youngest child (Tzeng, 2002) significantly predict nurses' intention to leave work. The individual's role as a family member varies with age; specifically, individuals tend to take on childrearing responsibilities as they grow older. In Japan, nurses working in different care settings have different mean ages; for instance, most newly graduated nurses commence work at hospitals (Ministry of Health, Labour and Welfare, 2014). In contrast, home healthcare nurses normally provide care alone at a residential home. In Japan, home healthcare nurses therefore tend already to have job tenure when commencing work as home healthcare nurses. Over 80% of home healthcare nurses in Japan and the U.S. are aged 30–50 years (Oota and Kudo, 2014; Anthony and Milone-Nuzzo, 2005). Additionally, nurses in nursing homes tend to be older than hospital nurses. Approximately 50% of nursing home nurses in Japan have completed a leave of absence relating to childcare when they commenced work at nursing homes (Takahashi, 2009). The average age of Australian nurses in nursing home is around 50 years (Gao et al., 2014). Age distributions thus vary between these care settings; family-related variables' effect size on nurses may therefore also vary between these care settings.

Work–family conflict affects nurses' intention to leave work. Work–family conflict arises from competing responsibilities to work and family; it is composed of work interference with family and family interference with work (Greenhaus and Beutell, 1985). Work interference with family (not family interference with work) predicts greater intention to leave work among nurses (Nei et al., 2014; Simon et al., 2004; Farquharson et al., 2012; Brewer et al., 2009; Battistelli et al., 2012). Most antecedents of work interference with family are work-related (e.g., long working hours, work stress); and the majority of antecedents of family interference with work are family-related (e.g., housework, family stress). Family-related stress predicts levels of work interference with family; work-related stress predicts levels of family interference with work (Byron, 2005; Hargis et al., 2011). Nurses' family responsibilities are likely to vary between the hospital, home healthcare, and nursing home care settings; hence, the levels of nurses' work–family conflict are also likely to vary between these care settings.

1.3. Theoretical framework and hypothesis

Fig. 1 illustrates this research's conceptual framework. Nurses' job control, family variables, and work–family conflict may vary between the hospital, home healthcare, and nursing home care settings; therefore, the effect size of job control, family variables, and work–family conflict on nurses' intention to leave their organization or profession may also vary between these care settings. Job control is directly negatively correlated with nurses' intention to leave their organization or profession (Chiu et al., 2009; Chan et al., 2013). Family variables (e.g. rearing a young child) are directly positively correlated with nurses' intention to quit (Tzeng, 2002). Kinship responsibilities are directly negatively correlated with nurses' intention to leave their organization or
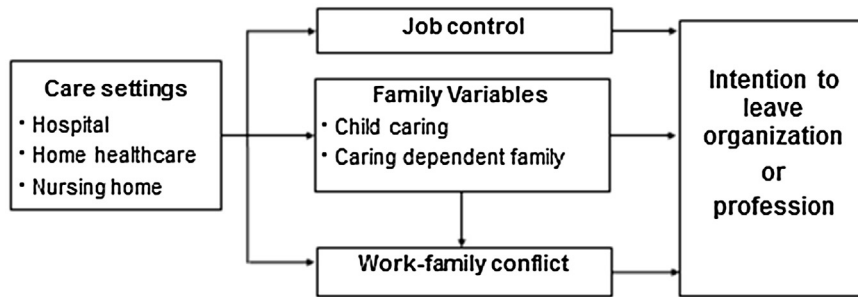
Fig. 1. The Theoretical framework and hypothesis of this study.

profession (Hayes et al., 2012). Family variables are indirectly positively correlated with nurses' intention to leave their organization or profession via work–family conflict (Grzywacz et al., 2006). Work–family conflict is directly positively correlated with nurses' intention to leave their organization or profession (Nei et al., 2014).

2. Aim

This study aimed to compare the level and effects of job control, family variables, and work–family conflict on nurses' intention to leave their organization or profession between hospital, home healthcare, and nursing home care settings. Research questions were as follows:

1) Does nurses' degree of job control and work–family conflict vary with care setting; do family variables differentially apply to nurses in hospital, home healthcare, and nursing home care settings?
2) Do these variables vary in the size of their effect on nurses' intention to leave between these care settings?

3. Methods

3.1. Design

A cross-sectional design was used.

3.2. Setting and participants

Data were collected from nurses working at hospitals, in home healthcare and nursing homes in the Kyushu district of Japan. Kyushu is located in the southwestern part of Japan; it contains three cities with populations exceeding one million people and five cities with populations exceeding 50,000 people, comprising 10% of Japan's population; the landscape is mainly agricultural with some islands (Ministry of Land, Infrastructure, Transport and Tourism, 2015). Kyushu was chosen for examination as it contains numerous distinct aspects of Japan.

Regarding nurse distribution in Japan, 944,640 nurses (61%) work in hospitals, 33,649 nurses (2%) work in home healthcare, and 151,102 nurses (10%) work in nursing homes (Ministry of Health, Labour and Welfare, 2014). Additionally, the number of nurses working in each organization varies between hospitals, home healthcare, and nursing homes. Several dozen or hundred nurses work in each hospital; however, home healthcare facilities and nursing homes tend to employ <10 nurses each. Comparative surveying ideally requires equal sample sizes; we therefore recruited all home healthcare facilities and nursing homes in Kyushu and randomly selected hospitals to achieve equal numbers.

Regarding hospitals, we initially randomly selected eight university hospitals, six incorporated administrative hospitals (formerly national hospitals), and 18 private hospitals from Kyushu; we then explained the purpose of the study and the contents of the questionnaires to representatives of these hospitals and asked for their participation. We subsequently asked the representatives of 672 home healthcare facilities and 1507 nursing homes in Kyushu for their participation. Finally, nine hospitals (two university hospitals, two incorporated administrative hospitals, and five private hospitals), 86 home healthcare facilities, and 107 nursing homes consented to participate. Three hospitals (two university hospitals and one private hospital), two home healthcare facilities, and two nursing homes consented to involve a part of their nursing staff; other organizations consented that all their nurses would participate. We asked institution representatives to deliver questionnaire packs, which included an explanation of the study's purpose, to their participating nurses. We also provided envelopes to permit the anonymous return of completed questionnaires, to protect participants' privacy. Completed questionnaires were returned individually or via the participating institutions. We confirmed organizations' consent in writing; participants' consent was confirmed by return of the questionnaire.

3.3. Sample

Regarding delivered questionnaires, 872, 535 and 770 questionnaires were delivered to hospitals, home healthcare, and nursing homes, respectively, totaling 2177 delivered questionnaires. Regarding returned questionnaires, 685 (78.5%), 472 (88.2%), and 621 (80.6%) were returned from hospitals, home healthcare and nursing homes, respectively, totaling 1778 returned questionnaires (81.7%). We analyzed only fully completed questionnaires (hospitals: 596 (87.1%); home healthcare: 408 (86.4%); nursing homes: 457 (73.5%); 1461 questionnaires in total).

3.4. Data collection

Data were collected from October 1, 2013 until October 26, 2014.

3.5. Measures

3.5.1. Job control

Job control was measured using the Japanese version of the Job Content Questionnaire (Karasek, 1985). Kawakami et al. (1995) translated this measure into Japanese and validated it using the

following procedure (1995): researchers carried out forward translation (English–Japanese) and back translation (Japanese–English) of the measure; the translated measure's reliability and validity were then tested in a pilot study. In a female sample, values of Cronbach's α for decision latitude (job control), psychological demand, supervisor support, and coworker support (subscales of the measure) were 0.84, 0.65, 0.87, 0.76, respectively, and in a men sample, these were 0.68, 0.61, 0.89 and 0.74, respectively. These values indicated good internal consistency. Regarding validity, the variable structure among the measure's items was consistent with expectations and distributions of decision latitude scores were similar to those obtained in a U. S national sample using the original measure. Earlier research using the translated measure in Japan indicates that occupational health nurses and home healthcare nurses experience high job control (Fukuoka et al., 2010; Hakamada-Taguchi et al., 2012). The Japanese version of the Job Content Questionnaire is composed of 22 items measuring the following categories: job demand, job control, and job support. Responses used a four-point scale (1 = strongly disagree, 4 = strongly agree). Job control is composed of two domains: skill discretion and decision autonomy. The following are example items: "My job requires that I learn new things" (skill discretion), and "My job allows me to make a lot of decisions on my own" (decision autonomy). Job demand is the psychological demand on the individual relating to the job, and is examined by five items, three of which are reverse-coded. Example items are as follows: "My job requires me to work very fast," and "I am free from conflicting demands made by others" (reverse-coded item). Job support is composed of two categories: co-worker support and supervisor support. Example items are as follows: "People I work with take a personal interest in me" (co-worker support), and "My supervisor is concerned about the welfare of those working under him" (supervisor support).

3.5.2. Work–family conflict

Work–family conflict was measured using the Japanese version of the multi-dimensional Work Family Conflict Scale. The original Work Family Conflict Scale is in English (Carlson et al., 2000); its Japanese version was developed as follows: Several researchers carried out the measure's forward translation (English to Japanese) and back translation (Japanese to English). A pilot study then tested the translated measure's reliability and validity. Obtained values of Cronbach's α for the measure's subscales were 0.77–0.92, indicating good internal consistency; regarding validity, the original and Japanese versions of the Work Family Conflict Scale exhibited the same variable structure (Watai et al., 2006). Extensive research has used this scale to examine nursing in Japan (e.g., nurses' work–family conflict levels correlate with their personality, Yamada et al., 2010; having a child increases hospital nurses' work–family conflict, Sigemoto and Murotu, 2015). The Japanese Work Family Conflict Scale is composed of nine items examining work interference with family and nine items examining family interference with work; the following are example items: "My work keeps me from my family activities more than I would like" (work interference with family), and "The time I spend on family responsibilities often interferes with my work responsibilities" (family interference with work). Responses used a five-point scale (1 = strongly disagree, 5 = strongly agree). Higher scores indicated greater conflict.

3.5.3. Work–family culture

Work–family culture was measured using one item—"Your organization understands your family role." Responses used a four-point scale (1 = there is no understanding, 4 = there is understanding). Higher scores indicated stronger belief that the participant's organization understood his or her family role.

3.5.4. Family stress

Family stress was measured using one item: "Do you feel stress when you are with your family?" Responses used a three-point scale (0 = never, 2 = always). Higher scores indicated greater perceived family stress.

3.5.5. Intention to leave one's organization or profession

Participants' intention to leave their organization was measured using one item: "What is your perception regarding your future job?" Responses used a four-point scale (1 = I want to continue working in this organization, 4 = I do not want to continue working in this organization). Participants' intention to leave their profession was measured using one item: "What is your perception regarding your future job?" Responses used a four-point scale (1 = I want to continue work as a nurse, 4 = I do not want to continue work as a nurse). Regarding both items, higher scores indicated stronger intention to leave.

3.5.6. Nurse characteristics

Age, working style, nursing qualification, specific nursing qualifications (e.g. certified nurse, certified nurse specialist), work position, nursing education, job tenure, living with family, child-rearing role, and dependent family caring role were examined.

3.6. Analysis

We divided the sample into three groups: nurses in hospitals, home healthcare, and nursing homes. A one-way ANOVA was used to analyze differences in interval scale variables; Tukey's test was used to verify identified differences between groups. The Chi-square test was used to analyze differences in categorical scale variables. The Chi-square test was applied repeatedly to analyze differences between groups; the revised Bonferroni test was used for statistical significance. Hierarchal regression analysis was subsequently conducted on each group to identify variables affecting intention to leave the organization or profession (step 1, age; step 2, work-related variables, job demand, job control, and job support; step 3, family related variables and work–family conflict). Categorical independent variables were dummy-coded (i.e., registered nurse, fulltime work, specific nursing qualification, presently raising a child, living with family, presently caring for dependent family; yes = 1, no = 0). Effect size and statistical power were analyzed post-hoc to examine the sample's statistical adequacy. Statistical significance was set at $p < 0.05$. The Japanese version of SPSS for Windows was used for all statistical analysis; G*Power 3 was used for analysis of effect size and statistical power.

4. Results

4.1. Reliability of measures

Regarding the Job Content Questionnaire, values of Cronbach's α were 0.68, 0.67, 0.94, and .085 for job control, psychological job demand, supervisor support, and coworker support, respectively. Regarding the Work Family Conflict Scale, values of Cronbach's α were 0.89 and 0.87 for work interference with family and family interference with work, respectively. These values indicated adequate-to-good internal consistency and reliability.

4.2. Age, work- and family-related variables

Hospital nurses were significantly younger than home healthcare and nursing home nurses (F (2, 1458) = 133.599, p < 0.000, ES: f = 0.3934, (1 − β) = 1.0000). Regarding work-related variables, home healthcare nurses gave the highest work–family culture scores (F (2, 1458) = 27.630, p < 0.000, ES: f = 0.1896,

Table 1
Comparison of hospital nurse, home healthcare nurse and nursing home nurse; interval variables.

	a. Hospitals $n = 596$	b. Home healthcare $n = 408$	c. Nursing homes $n = 457$	f-value	ES: f	$1-\beta$	p-value	$N = 1461$
Age	38.4 ± 10.0	45.9 ± 8.2	47.5 ± 10.5	133.599	0.3934	1.0000	0.000**	c > b > a
Job tenure	15.8 ± 10.0	20.5 ± 8.4	22.6 ± 10.8	66.545	0.2880	1.0000	0.000**	c > b > a
Work-family culture	3.3 ± 0.7	3.7 ± 0.6	3.5 ± 0.7	27.630	0.1896	0.9999	0.000**	b > c > a
Job demand	36.6 ± 5.2	31.9 ± 4.5	33.1 ± 4.9	122.112	0.3869	1.0000	0.000**	a > c > b
Job control	68.1 ± 8.0	70.6 ± 7.5	66.3 ± 7.9	33.069	0.2474	1.0000	0.000**	b > a > c
Job support	23.1 ± 4.2	24.9 ± 3.7	23.3 ± 3.7	27.321	0.1933	0.9999	0.000**	b > a, c
Family stress	0.7 ± 0.6	0.9 ± 0.6	0.8 ± 0.6	10.665	0.1165	0.9843	0.000**	b, c > a
Work interference with family	3.2 ± 0.8	2.8 ± 0.7	2.9 ± 0.8	39.998	0.2188	1.0000	0.000**	a > b, c
Family interference with work	2.4 ± 0.6	2.3 ± 0.6	2.3 ± 0.6	1.906	0.0189	0.8063	0.149	NS
Inteniont to leave organization	2.1 ± 1.0	1.6 ± 0.7	1.8 ± 0.9	34.822	0.2136	1.0000	0.000**	a > c > b
Intention to leave profession	1.7 ± 0.8	1.4 ± 0.6	1.5 ± 0.7	25.880	0.1859	0.9999	0.000**	a > c, b

One-way ANOVA, Data is means, SD.
** $p < 0.01$.

$(1 - \beta) = 0.9999$; Table 1). Work style ($\chi^2 = 149.850$, df = 2, p < 0.000, ES: V = 0.3202, $(1 - \beta) = 1.0000$), and nursing education ($\chi^2 = 129.796$, df = 6, p < 0.000, ES: V = 0.2108, $(1 - \beta) = 1.0000$) differed significantly between hospital, home healthcare, and nursing home nurses. Nursing qualification ($\chi^2 = 328.649$, df = 2, p < 0.000, ES: V = 0.4743, $(1 - \beta) = 1.0000$) and specific nursing qualification ($\chi^2 = 24.738$, df = 2, p < 0.000, ES: V = 0.1301, $(1 - \beta) = 0.9961$) differed significantly between hospital, home healthcare and nursing home nurses. There was no significant difference between hospital and home healthcare nurses regarding qualifications (Table 2). Regarding family-related variables, home healthcare nurses and nursing home nurses were significantly

Table 2
Comparison of hospital nurse, home healthcare nurse and nursing home nurse; categorical variables.

	a. Hospitals $n = 596$	b. Home healthcare $n = 408$	c. Nursing homes $n = 457$	chi-square	ES: V	$1-\beta$	p-value	$N = 1461$
Nursing qualification				328.649	0.4743	1.0000	0.000**	a and b; ns
Registered Nurse	542 (90.9)	376 (92.2)	225 (49.2)					
Enrolled Nurse	54 (9.1)	32 (7.8)	232 (50.8)					
Work style				149.850	0.3202	1.0000	0.000**	
Full time	574 (96.3)	287 (70.3)	411 (89.9)					
Part time	22 (3.7)	121 (29.7)	46 (10.1)					
Specific nursing qualification				24.738	0.1301	0.9961	0.000**	a and b; ns
Yes	58 (9.7)	45 (11.0)	90 (19.7)					
No	538 (90.2)	363 (89.0)	367 (80.3)					
Education of nursing				129.796	0.2108	1.0000	0.000**	
Post graduate	1 (0.2)		1 (0.2)					
Under graduate	105 (17.6)	14 (3.5)	2 (0.4)					
College	31 (5.2)	19 (4.7)	9 (2.0)					
Nursing school	459 (77.0)	375 (91.9)	445 (97.4)					
Role of raising a child				56.319	0.1963	1.0000	0.000**	a and c; ns
Yes	280 (47.0)	283 (69.4)	221 (48.4)					
No	316 (53.0)	125 (30.6)	236 (51.6)					
Living with family				56.979	0.1975	1.0000	0.000**	b and c; ns
Yes	427 (71.6)	364 (89.2)	390 (85.3)					
No	169 (28.4)	44 (10.8)	67 (14.7)					
Role of care for dependent family				23.637	0.1272	0.9947	0.000**	b and c; ns
Yes	115 (19.3)	120 (29.4)	144 (31.5)					
No	481 (80.7)	288 (70.6)	313 (68.5)					

Chi-Square test **$p < 0.01$, Comparison between two groups in Chi-Square test; significant level $p < 0.0167$. Data is the number, (%).

more likely to feel family stress than hospital nurses (F (2, 1458) = 10.665, p < 0.000, ES: f = 0.1165, (1 − β) = 0.9843; Table 1). Childrearing (χ^2 = 56.319, df = 2, p < 0.000, ES: V = 0.1963, (1 − β) = 1.0000) differed significantly between hospital, home healthcare and nursing home nurses. There was no significant difference between hospital and nursing home nurses regarding childrearing. Living with family (χ^2 = 56.979, df = 2, p < 0.000, ES: V = 0.1975, (1 − β) = 1.0000), and caring for dependent family members (χ^2 = 23.637, df = 2, p < 0.000, ES: V = 0.1272, (1 − β) = 0.9947) differed significantly between hospital, home healthcare and nursing home nurses. There was no significant difference between home healthcare and nursing home nurses regarding living with family and caring for dependent family member (Table 2).

4.3. Work–family conflict, job control, and intention to leave the organization or profession

Hospital nurses experienced significantly more work interference with family than home healthcare nurses or nursing home nurses. There was no significant difference in work interference with family scores between home healthcare and nursing home nurses (F (2, 1458) = 39.998, p < 0.000, ES: f = 0.2188, (1 − β) = 1.0000). There was no significant difference in family interference with work scores between the groups. Home healthcare nurses perceived significantly more job control than hospital and nursing home nurses (F (2, 1458) = 33.069, p < 0.000, ES: f = 0.2474, (1 − β) = 1.0000); Tukey's test indicated that hospital nurses perceived significantly more job control than nursing home nurses (Table 1). Job control and job tenure were significantly correlated among hospital nurses (r = 0.164, p = 0.000) and home healthcare nurses (r = 0.118, p = 0.017) but not among nursing home nurses (Table 3). Intention to leave one's organization was significantly higher among hospital nurses than among home healthcare nurses or nursing home nurses (F (2, 1458) = 34.822, p < 0.000, ES: f = 0.2136, (1 − β) = 1.0000); intention to leave one's organization was significantly greater among nursing home nurses than among home healthcare nurses. Intention to leave nursing was significantly greater among hospital nurses than among home healthcare and nursing home nurses (F (2, 1458) = 25.880, p < 0.000, ES: f = 0.1859, (1 − β) = 0.9999). There was no significant difference between home healthcare and nursing home nurses regarding intention to leave nursing (Table 1).

4.4. Variables affecting intention to leave one's organization

Job support scores most strongly predicted reduced intention to leave one's organization among hospital nurses (β = −0.175, p < 0.000, R^2 = 0.205, ES: f^2 = 0.2578, (1 − β) = 1.0000) and nursing home nurses (β = −0.195, p < 0.000, R^2 = 0.260, ES: f^2 = 0.3513, (1 − β) = 1.0000). In contrast, work–family culture scores most strongly predicted reduced intention to leave the organization among home healthcare nurses (β = −0.218, p < 0.000, R^2 = 0.270, ES: f^2 = 0.3698, (1 − β) = 1.0000; Table 4).

Table 3
Correration between job tenure and job control .

		a. Hospitals n = 596	b. Home healthcare n = 408	N = 1461 c. Nursing homes n = 457
1	Job tenure	r = 0.164[**]	r = 0.118[*]	r = 0.052
2	Job control			

Pearson coefficient of correlation.
[*] p < 0.05.
[**] p < 0.

4.5. Variables affecting intention to leave nursing

Work interference with family scores most strongly predicted increased intention to leave nursing among hospital nurses (β = 0.222, p < 0.000, R^2 = 0.147, ES: f^2 = 0.1723, (1 − β) = 1.0000). Work–family culture scores most strongly predicted reduced intention to leave the profession among home healthcare nurses (β = −0.245, p < 0.000, R^2 = 0.222, ES: f^2 = 0.2853, (1 − β) = 1.0000). Job control scores most strongly predicted reduced intention to leave the profession among nursing home nurses (β = −0.166, p < 0.001, R^2 = 0.091, ES: f^2 = 0.1001, (1 − β) = 0.9999; Table 5).

5. Discussion

5.1. Job control

Regarding job control, home healthcare nurses scored highest and nursing home nurses scored lowest. Home healthcare nurses have greater control over practical decisions because they work outside a purpose-built care facility and must adapt their care practice to their environment (Neal-Boylan, 2006). Nursing home nurses' job control scores were the lowest; additionally, this group showed no significant correlation between job control and job tenure. Hospitals and nursing homes are both purpose-built care facilities; however, residents in nursing homes are more likely to require help with activities of daily living than with medical care (Karsh et al., 2005). Nursing home nurses may encounter fewer opportunities to learn specialized and current care techniques than hospital nurses do.

5.1.1. Job control and nurses' intention to leave their organization or profession

Reduced job control was correlated with nurses' intention to leave their organization in the three examined care settings, supporting previous research examining hospital and home healthcare nurses (Chiu et al., 2009; Presseau et al., 2014 (hospital nurses); Ellenbecker et al., 2006 (home healthcare nurses)); however, this finding is inconsistent with previous research examining nursing home nurses (Tummers et al., 2013). In the Japanese long-term care system, several types of nursing home facilities do not require the doctor to be resident (Ministry of Health, Labour and Welfare, 2016a,b); nurses in these facilities therefore bear significant responsibility for residents' health. This may underlie the observed correlation between reduced job control and nursing home nurses' intention to leave their organization.

Reduced job control was also correlated with nurses' intention to leave nursing in each examined care setting, supporting previous research examining hospital and home healthcare nurses (Gurkova et al., 2012 (hospital nurses); Unruh and Zhang, 2013 (new hospital nurses); Maurits et al., 2015 (intention to leave home healthcare)). Regarding nursing home nurses, hierarchal regression analysis yielded a low R^2 value (0.091). Other factors may therefore affect nursing home nurses' intention to leave nursing.

5.2. Family variables

The effect of family variables on nurses' intention to leave their organization or profession varied between the examined care settings. This may reflect differences of average age between the care settings. Nurses in hospitals were younger, most home healthcare nurses were rearing children, and over half of nursing home nurses were aged >50 years. Nurses' life stage thus varied between the examined care settings; this likely underlay the varying effect of family variables between nurses in hospitals, home healthcare, and nursing homes.

Table 4
Factors affecting intention to leave Organization.

N = 1461

	Hospitals n = 596						Home healthcare n = 408						Nursing homes n = 457					
	t	β	t	β	t	β	t	β	t	β	t	β	t	β	t	β	t	β
Step 1																		
Age	−2.548	−0.104*	0.430	0.047	0.491	0.054	−0.035	−0.002	−1.064	−0.070	−0.521	−0.035	−3.017	−0.140**	−2.950	−0.220**	−2.780	−0.209**
Step 2																		
Job tenure			−1.390	−0.153	−1.250	−0.136			0.520	0.034	0.559	0.036			1.383	0.103	0.893	0.066
Registered Nurse			−0.422	−0.016	−0.697	−0.027			−1.543	−0.068	−1.655	−0.073			−0.879	−0.037	−1.177	−0.049
Fulltime work			0.392	0.015	−0.692	−0.027			−1.383	−0.064	−1.617	−0.077			−0.997	−0.043	−2.034	−0.090*
Specific nursing qualification			−0.094	−0.004	−0.292	−0.011			−1.251	−0.057	−1.355	−0.061			0.203	0.009	0.525	0.022
Work-family culture			−3.059	−0.126**	−2.514	−0.104*			−4.964	−0.238**	−4.578	−0.218**			−4.769	−0.221**	−3.864	−0.181**
Job demand			3.750	0.145**	2.057	0.083*			3.404	0.161**	2.543	0.126*			2.080	0.094*	0.895	0.042
Job control			−3.497	−0.145**	−2.849	−0.117**			−2.850	−0.135**	−2.523	−0.119*			−3.565	−0.167**	−3.370	−0.156**
Job support			−4.783	−0.203**	−4.107	−0.175**			−4.522	−0.223**	−3.748	−0.186**			−4.029	−0.192**	−4.107	−0.195**
Step 3																		
Role of raising a child					−1.344	−0.060					−0.361	−0.018					−1.071	−0.049
Living with family					−2.725	−0.119**					0.487	0.023					−1.948	−0.087
Role of care for dependent family					0.734	0.030					−2.017	−0.094*					−1.545	−0.069
Family stress					−0.597	−0.026					2.171	0.105*					0.988	0.044
Work interference with family					3.971	0.212**					1.300	0.088					3.660	0.239**
Family interference with work					−1.718	−0.082					0.840	0.054					−1.966	−0.118
R²		0.011*		0.169**		0.205**		0.000		0.234**		0.270**		0.020		0.224**		0.260**
ΔR²		0.011*		0.169**		0.205**		0.000		0.234**		0.270**		0.020		0.224**		0.260**
ES: f²						0.2578						0.3698						0.3513
1-β						1.0000						1.0000						1.0000

Independent variables; categorical variables were applied dummy coding, Yes = 1, No = 0.
Dependent variable; Intention to leave Organization.
Hierarchical multiple regression analysis *p < 0.05, **p < 0.01.

Table 5
Factors affecting intention to leave Profession.

	Hospitals n = 596						Home healthcare n = 408						Nursing homes n = 457						N = 1461
	t	β	t	β	t	β	t	β	t	β	t	β	t	β	t	β	t	β	
Step 1																			
Age	−0.181	−0.007	1.394	0.159	1.431	0.163	2.581	0.127**	1.954	0.133	2.374	0.165*	0.036	0.002	1.216	0.099	0.868	0.072	
Step 2																			
Job tenure			−1.430	−0.163	−1.219	−0.138			−0.393	−0.027	−0.385	−0.026			−1.253	−0.101	−1.484	−0.122	
Registered Nurse			−0.806	−0.032	−1.151	−0.046			−2.801	−0.127**	−2.908	−0.133**			−2.437	−0.112*	−2.381	−0.111*	
Fulltime work			0.496	0.020	−0.613	−0.025			−3.329	−0.158**	−3.229	−0.158**			−1.326	−0.062	−1.624	−0.080	
Specific nursing qualification			0.848	0.034	0.692	0.027			0.694	0.032	0.477	0.022			−0.238	−0.011	−0.187	−0.009	
Work-family culture			−1.760	−0.076	−1.205	−0.051			−5.428	−0.267**	−4.997	−0.245**			−0.135	−0.007	0.269	0.014	
Job demand			3.764	0.151**	1.844	0.078			0.492	0.024	−0.102	−0.005			3.053	0.150**	2.635	0.136**	
Job control			−3.506	−0.151**	−2.779	−0.119**			−3.418	−0.167**	−3.023	−0.147**			−3.330	−0.170**	−3.232	−0.166**	
Job support			−2.702	−0.119**	−1.833	−0.081			−1.381	−0.070	−0.724	−0.037			−0.974	−0.051**	−1.015	−0.053	
Step 3																			
Role of raising a child					−0.896	−0.042					0.371	0.019					−1.690	−0.086	
Living with family					−3.916	−0.178**					−0.550	−0.027					−0.707	−0.035	
Role of care for dependent family					0.109	0.005					−0.767	−0.037					0.720	0.036	
Family stress					0.185	0.008					2.746	0.137**					0.091	0.005	
Work interference with family					4.014	0.222**					0.430	0.030					1.224	0.089	
Family interference with work					−1.110	−0.055					1.036	0.068					−0.822	−0.055	
R^2		0.000		0.099**		0.147**		0.016**		0.190**		0.222**		0.000		0.080**		0.091**	
ΔR^2		0.000		0.099**		0.147**		0.016**		0.190**		0.222**		0.000		0.080**		0.091**	
ES: f^2						0.1723						0.2853						0.1001	
1-β						1.0000						1.0000						0.9999	

Independent variables; categorical variables were applied dummy coding, Yes = 1, No = 0.
Dependent variable; Intention to leave Profession.
Hierarchical multiple regression analysis $^*p < 0.05$, $^{**}p < 0.01$.

5.2.1. Family variables and nurses' intention to leave their organization or profession

Work–family culture reduced nurses' intention to leave their organization in the three examined care settings; specifically, the level and effect of work–family culture was greatest among home healthcare nurses. Many home healthcare nurses have family responsibilities such as housework and childrearing; this likely underlies home healthcare nurses' particular sensitivity to work–family culture. Such workplace variables may foster a more mutually supportive workplace environment. This finding is inconsistent with Ellenbecker et al. (2006), who found that autonomy critically affects home healthcare nurses' intention to continue working. In this study, family variables more strongly affected home healthcare nurses' intention to leave their organization. In Japan, most home healthcare nurses are women (Oota and Kudo, 2014) and women experience normative pressure to manage housework and child care (Oota and Tachibanaki, 2009). In this study, home healthcare nurses were more involved in housework and childrearing; this likely underlies their greater sensitivity to recognition of family responsibilities.

Family stress also affected home healthcare nurses' intention to leave their organization. Home healthcare nurses who perceive family stress may attribute that stress to their work, resulting in an increased intention to leave their organization. Among nurses in hospitals, living with family was negatively correlated with nurses' intention to leave their organization, supporting previous research (Hayes et al., 2006, 2012; Brewer et al., 2009). On average, hospital nurses were significantly younger than home healthcare and nursing home nurses; hospital nurses may therefore have received support from family members regarding meals or housework, rather than supporting their family members.

Only work–family culture reduced home healthcare nurses' intention to leave nursing. In the present study, work–family culture importantly promoted home healthcare nurses' professionalism and living with family reduced hospital nurses' intention to leave nursing. Nurses who are young parents may have strong economic or career incentives of work (Brewer et al., 2009); hence, living with family may foster hospital nurses' career promotion. Additionally, family factors did not significantly predict nursing home nurses' intention to leave the profession. In this study, 50.3% of nursing home nurses were aged >50 years; these nurses may have already completed family roles such as raising a child.

5.3. Work–family conflict

Regarding work–family conflict, hospital nurses scored highest in the three examined care settings. Work stress most strongly predicts work interference with family (Byron, 2005; Hargis et al., 2011); hospital nurses may experience more work stress than home healthcare or nursing home nurses. Nurses in hospitals normally adopt the latest medical care techniques. This promotes hospital nurses' ability; however, it may also increase their work stress. Additionally, average patient hospitalization duration is presently decreasing in Japan due to new government policy (Ministry of Health, Labour and Welfare, 2016a,b). Hospital nurses are finding it more difficult to have sufficient time to care for patients before they are discharged; however, home healthcare nurses regard having sufficient time for patients/family as attractive (Anthony and Milone-Nuzzo, 2005) and nursing home nurses value relationships with residents (McGilton et al., 2014). Hospital nurses may experience greater difficultly establishing rapport with patients due to time constraints. Patient–nurse relationships may thus contribute to work stress among hospital nurses.

5.3.1. Work–family conflict and intention to leave one's organization or profession

Work interference with family was not significantly correlated with intention to leave one's organization among home healthcare nurses, contrasting with previous research (Farquharson et al., 2012; Battistelli et al., 2012; Chen et al., 2015). Nurses may choose to work in home healthcare because they can work relatively independently (Tummers et al., 2013). Nurses reported liking job flexibility, control in decision-making, autonomy, and independence at work (Ellenbecker and Cushman, 2012). Home healthcare nurses work independently and largely autonomously; this may prevent home healthcare nurses intending to leave their organization in response to work interference with family.

Work interference with family did not affect home healthcare and nursing home nurses' intention to leave nursing, contrasting with previous research (Simon et al., 2004; Brewer et al., 2009). Home healthcare nurses experience greater autonomy at work; their working environment may therefore promote professionalism. In this study, nursing home nurses' average age was 47.5 ± 10.5 years. In contrast with younger nurses, perception of work ability is not correlated with intention to leave nursing among nurses aged >45 (Camerino et al., 2008). Due to their age and experience, most nursing home nurses would likely have already gained considerable ability as nurses; this may be why work interference with family did not affect nursing home nurses' intention to leave nursing.

6. Practical implications

Work interference with family most importantly predicted hospital nurses' intention to leave their organization or profession. Nursing managers should ensure that nursing staff have sufficient time to manage patient care by reducing paperwork and handling times. Facilitating part-time and other nonstandard work arrangements would also allow nurses to reduce their work's interference with family commitments. The Japanese nursing association has accordingly begun promoting flexible work arrangements in the last decade (Japanese Nursing Association, 2010).

Family-related variables most importantly predicted home healthcare nurses' intention to leave their organization or profession. Nursing managers should ensure that home healthcare nurses are able to fulfill their family responsibilities; this relationship also indicates that flexible working arrangements should be implemented among home healthcare nurses. In the present study, home healthcare nurses showed the lowest intention to leave their organization; however, the actual turnover rate among home healthcare nurses is higher than among hospital nurses in Japan. This may reflect home healthcare nurses' relatively low salaries compared with hospital nurses (Japanese Nursing Association, 2011); however, it remains unclear why home healthcare nurses leave work. Future research should seek to explain the coexistence of home healthcare nurses' low intention to leave their organization and relatively high turnover rate.

Regarding nursing home nurses, job control reduced nurses' intention to leave their organization or profession; however, the effect of family variables was weak. Nursing managers should ensure nursing home nurses have adequate job control and provide opportunities to study developments in medical care in order to increase nursing home nurse retention.

7. Strengths and limitations

This study possesses the following strengths and limitations. First, regarding sampling, some organizations consented to participate on the condition that not all of their nurses would

participate, additionally; organizations' rate of consent was low (particularly among home healthcare and nursing homes). The sample was therefore not fully random: organization representatives interested in nurses' work–family balance or nurse retention might have preferentially consented to participate. Nonetheless, the response rate relative to disseminated questionnaire packs was very high (81.7%; valid response rate: 82.2%), and the error margin was small; these variables protect the validity of this study's results. Additionally, statistical power $(1 - \beta)$ exceeded 0.81 in the overall analysis: all statistical results was fully derived, as the sample size was statistically appropriate.

Second, work–family culture and family stress were measured using a single item each. The researchers created these items and did not test their reliability or validity. Additionally, regarding work–family culture, we measured only the degree of participants' perception that their organization understood their family role; this did not fully examine organizations' work–family culture. Similarly, regarding family stress, we measured only the frequency at which participants felt stress in interaction with their family; this is likewise a limited representation of the concept of family stress. Nonetheless, the results indicated that work–family culture and family stress significantly predict nurses' intention to leave their organization or profession, particularly among home healthcare nurses. Future research should therefore determine the underlying relationship between work–family culture, family stress, and nurses' intention to leave their organization or profession. Future research should examine differences in other variables affecting nurses' intention to leave work, such as job satisfaction and leadership, in each care setting, in order to inform nurse retention policies that distinguish between care settings.

8. Conclusion

Job control, family variables, and work interference with family predict nurses' intention to leave their organization or profession; however, these relationships varied in strength between hospital, home healthcare and nursing home nurses. Nurse retention policies should therefore distinguish between these care settings. Regarding hospitals, work interference with family most strongly predicted nurses' intention to leave their organization or profession; hence, reducing nurses' work-related stress and promoting nurses' work–family balance would improve nurse retention in this care setting. Regarding home healthcare, nurses prioritized family roles and responsibilities, causing family-related variables (e.g., work–family culture and family stress) to affect their intention to leave work. Allowing home healthcare nurses to fulfill their family responsibilities may importantly promote nurse retention in this care setting. Regarding nursing home nurses, the effect of family variables was weak; however, job control was negatively correlated with nurses' intention to leave their organization or profession. Ensuring that nurses are able to gain adequate job control would improve nurse retention in this care setting.

Conflicts of interest

The authors declare that no conflicts of interest exist.

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Ethical approval

This study was approved by the ethical committee of the University of Kyushu (No. 25-160, Date: 13/9/2013).

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