A Prospective Study of Factors Associated with Risk of Turnover among Care Workers in Group Homes for Elderly Individuals with Dementia

Miwa SUZUMURA¹, Yasuhiro FUSHIKI¹, Kota KOBAYASHI², Asae OURA³,
Shigeo SUZUMURA⁴, Masafumi YAMASHITA⁴ and Mitsuru MORI¹

¹Department of Public Health, Sapporo Medical University School of Medicine, Japan, ²Mental Assist Hokkaido, Japan, ³Department of Public Health, Kochi University School of Medicine, Japan and ⁴Shingu Prefectural Health Center, Japan

Abstract: A Prospective Study of Factors Associated with Risk of Turnover among Care Workers in Group Homes for Elderly Individuals with Dementia: Miwa SUZUMURA, *et al.* Department of Public Health, Sapporo Medical University School of Medicine—

Objectives: A prospective study was conducted to assess factors associated with risk of turnover among care workers in group homes (GHs) for elderly individuals with dementia. **Methods:** In January, 2010, 51 out of 238 GHs in Sapporo City responded to our request for participation in a survey. During February and March of 2010, 438 out of 700 care workers (62.6%) in the GHs returned a completed questionnaire to us. They were followed up with until March of 2012, and 395 subjects (90.1%) responded to our survey, which was conducted twice. Over the course of 2 years, 91 subjects left their jobs. Cox's proportional hazards model was used for analysis, adjusting for gender and age. **Results:** Less provision of social support by supervisors, colleagues, family or friends was significantly associated with increased risk of turnover. Financial aids for off-the-job training was marginally significantly associated with reduced risk of turnover. Longer duration of working for frail elderly care was significantly associated with decreased risk of turnover. Habitual smoking was significantly associated with increased risk of turnover. **Conclusions:** Social support in the workplace may be important to reduce the risk of turnover in care workers at GHs. Further prospective studies are required in other areas in Japan.

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Key words: Care worker, Group home, Prospective study, Social support, Turnover

A higher staff turnover rate of care workers in nursing facilities for the elderly was reported (21.9%) in 2008¹⁾ as compared with the rate for general workers in 2008²⁾ in Japan (13.8%). A high turnover rate for staffs caring for people with dementia was also revealed in the United Kingdom in private facilities (38%) and NHS facilities (16%)³⁾. Moreover, the 1-year turnover rates were reported to be 56.4, 39.7 and 35.8% for certified nurse aides, licensed practical nurses, and registered nurses, respectively, in the USA⁴⁾. These higher turnover rates might be caused by relatively lower wages⁵⁾, increased job stress⁶⁾, reduced job satisfaction⁷⁾ and less provision of social support⁶⁾. Lack of employee continuity may contribute to recurring increased staff training costs and decreased quality of care provided to care receivers⁶⁾. The significance of understanding turnover in the aged care setting is especially important when considering an aging population such as in Japan, in which, 31.6 and 38.8% of the Japanese population will be older than 65 in 2030 and 2055, respectively⁸⁾.

Group homes for elderly individuals with dementia, abbreviated as GHs in this article, have spread widely throughout Japan since the 1990s⁹⁾, and now, GHs are considered a type of community service, not a type of institutional service, in the National Care Insurance System in Japan. Because one unit in a GH consists of 5 to 9 inhabitants, and the allowed maximum number of units in a GH is 2, only a small number of care workers work in a unit in a GH. Accordingly, care workers at GHs experience carry problems such as increased stress or anxiety. Furthermore, the environment in a GH sometimes tends to be too close,

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Correspondence to: M. Suzumura, Department of Public Health, Sapporo Medical University School of Medicine, South 1, West 17, Cho-ku, Sapporo, Hokkaido 060-8556, Japan (e-mail: miwasuzu@sapmed.ac.jp)

causing problems between inhabitants and care workers. In contrast to the stressful work environment in the GH in Japan, according to te Boekhorst *et al.*¹⁰⁾, job satisfaction was higher and burnout was lower in professional caregivers at GHs than in traditional nursing homes in the Netherlands.

Few prospective studies³⁾ have been conducted to assess risk factors associated with staff turnover in care workers, to our knowledge. Consequently, we conducted a prospective study of care workers at GHs to assess factors associated with risk of their turnover.

Subjects and Methods

The Ethics Committee at Sapporo Medical University approved this study in 2009. In January, 2010, 51 out of 238 GHs (21.4%) in Sapporo City responded to our request for participation in a survey. During February and March of 2010, 438 out of 700 care workers (62.6%) returned, by post, a completed questionnaire of a baseline survey directly to the Department of Public Health, Sapporo Medical University School of Medicine. The questionnaire included such things as demographic characteristics, experience in care giving, duration of working as a care staff number, average number of days and nights working in a month, wage, social support¹¹⁾ from supervisors, colleagues, family or friends, depressive status according to the Center of Epidemiological Studies-Depression Scale (CES-D)¹²⁾ and Ozeki's

coping style for stress¹³⁾.

We tried to conduct follow-up surveys for turnover twice, in March of 2011 and March of 2012, for the 438 study subjects. If a subject quit a job, his or her exact date and reason for quitting were asked. We sent the questionnaires for the follow-up surveys to the study subjects at their home addresses by post. Thereafter, 395 subjects (90.1%) returned, by post, the completed questionnaires for the follow-up surveys directly to the Department. Data for the 3 surveys were connected based on the subjects' personal information including their full name. Eventually, 91 subjects left their jobs during the 2-year period.

The number of observational days was calculated as the date of turnover minus the date of the baseline survey for workers that left their jobs or as the date of the last follow-up survey minus the date of the baseline survey for workers continuing in a job. The turnover rate per person-year (%) was calculated as the number of turnovers multiplied by both of 365.25 and 100 divided by the number of observational days. Cox's proportional hazards model¹⁴⁾ was used to find the association of potential factors with risk of turnover, adjusting for age and sex. SPSS 16.0 (Japanese version) was used for every analysis. The significance level was set at the 5% level.

Results

Table 1 shows hazard ratios (HRs) and their 95%

Table 1. Age- and sex-adjusted hazard ratio (HR) and its 95% confidence interval (95%CI) for turnover in workers at group homes for elderly individuals with dementia according to basic characteristics

Variables	Contents	Number of subjects	Observational days	Number of turnover subjects	Turnover rate per person-year (%)	HR	95%CI	p value
Sex	Male	57	31,467	17	19.7	1.00		
	Female	338	196,410	74	13.8	0.78	0.46–1.34	0.367
	Total	395	227,877	91	14.6			
Age	20–29	71	39,190	21	19.6	1.00		
	30–39	82	46,298	19	15.0	0.76	0.41–1.42	0.395
	40–49	104	60,167	26	15.8	0.85	0.48–1.51	0.577
	50–59	97	57,760	17	10.8	0.58	0.31–1.11	0.101
	60≤	41	24,462	8	11.9	0.65	0.29–1.48	0.309
	Total	395	227,877	91	14.6		<i>p</i> for trend=0.075	
Having spouse	Yes	181	105,324	39	13.5	1.00		
	No	214	122,553	52	15.5	0.93	0.69–1.69	0.748
	Total	395	227,877	91	14.6			
Experience of care for a fail family member	Yes	123	72,694	22	11.0	1.00		
	No	272	155,183	69	16.2	1.29	0.78–2.13	0.329
	Total	395	227,877	91	14.6			

confidence intervals (95% CIs) for turnover in the study subjects according to basic characteristics. As shown in Table 1, the turnover rate for all study subjects was 14.6% per person-year, and that of the female subjects (13.8% per person-year) was lower than that of the male subjects (19.7% per person-year), although the difference was not significant. Furthermore, older subjects had a lower risk of turnover than younger subjects, although the difference was also not significant. Analyses adjusted for age and sex revealed that, having a spouse was not associated with risk of turnover and that experience caring for a frail elderly family member was also not associated with risk of turnover.

Table 2 shows age- and sex-adjusted HRs and their 95% CIs for turnover in the study subjects according to working status. Risk of turnover was slightly higher in the subjects with a duration of working in frail elderly care of between 3 and 5 years than in those with a duration shorter than 3 years. However, risk of turnover was significantly lower in the subjects with a duration of working in frail elder care of 10 years or more (p for trend=0.029).

Wage was not associated with the risk of turnover. Moreover, since wage expectation was thought to be different between full-time workers and part-time workers, full-time workers and part-time workers were separately analyzed in terms of the association between wage and the risk of turnover. The results showed that wage was not associated with the risk of turnover either in full-time workers or part-time workers (data not shown). None of the subjects left their job because they had reached the end of their contract.

Other variables such as being proud of one's job, duration of working at present GH, job status, average working days per month, average working nights per month, or being concerned about persons in the group home when not at work were not associated with risk of turnover.

Table 3 shows age- and sex-adjusted HRs and their 95% CIs for turnover in the study subjects according to support from others. Less provision of support by a supervisor when consulted by a subject was significantly associated with an increased risk of turnover (p for trend<0.001). Similarly, less provision of support by colleagues when consulted by a subject was significantly associated with an increased risk of turnover (p for trend, $p=0.006$). Furthermore, less provision of support by family or friends when consulted by a subject was also significantly associated with an increased risk of turnover (p for trend, $p=0.010$).

Table 4 shows age- and sex-adjusted HRs and their 95% CIs for turnover in the study subjects according to off-the-job training for care working. The results

showed that financial aid for off-the-job training was marginally significantly associated with reduced risk of turnover (HR=0.64, 95% CI 0.40, 1.01, $p=0.05$). However, presence of primary or midcourse off-the-job training in GHs was not associated with risk of turnover.

Table 5 shows age- and sex-adjusted HRs and their 95% CIs for turnover in the study according to the CES-D score and Ozeki's coping style. The results showed that the CES-D score, problem-focused coping, emotional-focused coping and avoidance coping were not associated with risk of turnover.

Table 6 shows age- and sex-adjusted HRs and their 95% CIs for turnover in the study subjects according to lifestyle habits. Habitual smoking was significantly associated with increased risk of turnover (p for trend, $p=0.006$). However, intention to continue present job, satisfaction of sleeping, usual effect of drinking and leisure time activities were not associated with risk of turnover.

Discussion

We found that less provision of support by a supervisor, colleagues, family or friends when consulted was strongly associated with risk of turnover in care workers in GHs, and these are the first findings obtained from a longitudinal study in Japan to our knowledge. Brannon *et al.*¹⁵⁾ showed that a care worker's assessment of the quality of supervision they received was inversely associated with the odds ratio for intent to quit a job. They¹⁵⁾ suggested that understanding of the caregiving role by a supervisor and colleague encouraged care workers in their respective jobs and their intention to retain their job. Karantzas *et al.*⁶⁾ also suggested that supervisor support demonstrated numerous indirect inverse associations with job quitting intentions. Onodera *et al.*¹⁶⁾ showed that factor analysis of stressors in care workers for the elderly revealed four large factor structures including conflict with supervisor and conflict with colleagues. So *et al.*¹⁷⁾ also indicated with multiple linear regression analysis that competence and growth of care workers in special nursing homes was significantly positively associated with support from a supervisor or colleague. These findings might suggest that personal relationships with a supervisor or colleagues strongly affect risk of turnover in care workers. Anderson *et al.*¹⁸⁾ also explained that adequate staffing and longer nursing tenure of the nursing director were important predictors of reduced turnover risk.

Although we anticipated that there would be a positive relationship between stressful work environments and the turnover rate, we could not detect this relationship. Karantzas *et al.*⁶⁾ showed that stressors directly influenced intentions to quit work based on

Table 2. Age- and sex-adjusted hazard ratio (HR) and its 95% confidence interval (95%CI) for turnover in workers at group homes for elderly individuals with dementia according to working status

Variables	Contents	Number of subjects	Observational days	Number of turnover subjects	Turnover rate per person-year (%)	HR	95%CI	p value
Total duration of working in frail elderly care	<3 years	92	52,079	23	16.1	1.00		
	3–5 years	101	53,517	31	21.1	1.47	0.83–2.60	0.187
	6–9 years	116	68,927	27	14.3	1.06	0.59–1.92	0.846
	≥10 years	86	53,354	10	6.8	0.56	0.25–1.22	0.141
	Total	395	227,877	91	14.6	<i>p</i> for trend=0.029		
Duration of working at present group home	<1 year	59	31,917	14	16.0	1.00		
	1–3 years	177	101,020	42	15.2	0.97	0.53–1.79	0.931
	4–7 years	142	83,472	34	14.9	0.95	0.51–1.77	0.870
	≥8 years	17	11,468	1	3.20	0.23	0.03–1.75	0.155
	Total	395	227,877	91	14.6	<i>p</i> for trend=0.510		
Job status	Full-time, regular work	280	160,934	68	15.4	1.00		
	Full-time, contractual work	67	39,096	14	13.1	1.04	0.57–1.90	0.903
	Part-time, regular work	33	20,343	3	5.4	0.42	0.13–1.34	0.141
	Part-time, contractual work	5	2,274	3	48.2	2.94	0.91–9.54	0.073
	Others	9	4,529	3	20.9	1.98	0.61–6.39	0.254
	Total	394 [#]	227,176	91	14.6			
Average working days per month	<15 days	52	31,715	7	8.10	1.00		
	16–21 days	138	77,714	36	16.9	1.78	0.78–4.05	0.172
	≥22 days	205	118,448	48	14.8	1.53	0.68–3.45	0.303
	Total	395	227,877	91	14.6	<i>p</i> for trend=0.241		
Average working nights per month	None	77	46,497	12	9.4	1.00		
	1–4 times	120	70,146	28	14.6	1.54	0.76–3.10	0.230
	5–9 times	193	108,050	50	16.9	1.58	0.83–2.99	0.163
	≥10 times	5	3,184	1	11.5	1.08	0.14–8.36	0.940
	Total	395	227,877	91	14.6	<i>p</i> for trend=0.265		
Wages per month	<100,000 yen	52	29,894	10	12.2	1.00		
	100,00–149,999 yen	163	92,374	40	15.8	1.12	0.55–2.28	0.755
	150,000–199,999 yen	138	79,389	34	15.6	0.98	0.47–2.06	0.957
	200,000–249,999 yen	29	17,446	6	12.6	0.80	0.28–2.28	0.681
	≥250,000 yen	11	7,516	1	4.9	0.35	0.04–2.78	0.322
	Total	393 [#]	226,619	91	14.7	<i>p</i> for trend=0.305		
Being concerned for persons in the group home when not at work	Always	91	50,444	25	18.1	1.00		
	Sometimes	248	148,482	46	11.3	0.57	0.35–0.94	0.027
	Scarcely	46	24,440	15	22.4	1.15	0.60–2.18	0.677
	None	10	4,511	5	40.5	2.13	0.81–5.60	0.126
	Total	395	227,877	91	14.6	<i>p</i> for trend=0.347		
Being proud of one's job	Yes	306	180,177	65	13.2	1.00		
	Scarcely	78	42,156	22	19.0	1.32	0.81–2.16	0.269
	No	11	5,544	4	26.3	2.00	0.73–5.49	0.178
	Total	395	227,877	91	14.6	<i>p</i> for trend=0.107		

[#]: The number is lower due to missing values.

Table 3. Age- and sex-adjusted hazard ratio (HR) and its 95% confidence interval (95%CI) for turnover in workers at group homes for elderly individuals with dementia according to support by others when consulted

Variables	Contents	Number of subjects	Observational days	Number of turnover subjects	Turnover rate per person-year (%)	HR	95%CI	p value
Support by supervisors when consulted	Yes	184	111,260	33	10.8	1.00		
	So-so	133	76,670	30	14.3	1.30	0.79–2.13	0.300
	Little	55	30,551	16	19.1	1.82	1.00–3.31	0.049
	No	22	8,692	12	50.4	4.89	2.51–9.52	<0.001
	Total	394 [#]	227,173	91	14.6	<i>p</i> for trend<0.001		
Support by colleagues when consulted	Yes	237	140,451	48	12.5	1.00		
	So-so	139	78,607	35	16.3	1.26	0.81–1.96	0.297
	Little	11	5,270	4	27.7	2.62	0.93–7.38	0.069
	No	7	2,845	4	51.3	4.18	1.50–11.69	0.006
	Total	394 [#]	227,173	91	14.6	<i>p</i> for trend=0.006		
Support by family or friends when consulted	Yes	242	143,321	47	12.0	1.00		
	So-so	126	71,273	34	17.4	1.46	0.94–2.27	0.097
	Little	21	10,442	8	28.0	2.33	1.10–4.96	0.028
	No	6	2,841	2	25.7	2.24	0.54–9.23	0.266
	Total	395	227,877	91	14.6	<i>p</i> for trend=0.010		

[#]: The number is lower due to missing values.

Table 4. Age- and sex-adjusted hazard ratio (HR) and its 95% confidence interval (95%CI) for turnover in workers at group homes for elderly individuals with dementia according to off-the-job training for care work

Variables	Contents	Number of subjects	Observational days	Number of turnover subjects	Turnover rate per person-year (%)	HR	95%CI	p value
Primary off-the-job training for care working	Present	216	128,275	44	12.5	1.00		
	Absent	178	98,898	47	17.4	1.40	0.92–2.11	0.113
	Total	394 [#]	227,173	88 [#]	13.7			
Midcourse off-the-job training for care working	Present	323	189,081	72	13.9	1.00		
	Absent	71	38,088	19	18.2	1.49	0.89–2.50	0.130
	Total	394 [#]	227,169	91	14.6			
Financial aid for off-the-job training	No	90	48,370	26	19.6	1.00		
	Yes	302	177,416	65	13.4	0.64	0.40–1.01	0.055
	Total	392 [#]	214,786	91	15.5			

[#]: The number is lower due to missing values.

their survey measuring four aspects of stress, including role ambiguity, role conflict, work overload, and work–family conflict. Therefore, it is necessary for us to use more refined variables or scales to identify stressful work environments in a future study.

Longer duration of working in frail elderly care was not associated with reduced risk of turnover in our study. So *et al.*¹⁷⁾ reported that length of time in

care work was significantly related to preparation for problem solving. Another possible explanation of this finding may be related to the fact that workers with maladjustment to the work environment in the GH are apt to leave there at an earlier time.

Financial aid for off-the-job training was marginally significantly associated with reduced risk of turnover in our study. Financial support for off-the-job train-

Table 5. Age- and sex-adjusted hazard ratio (HR) and its 95% confidence interval (95%CI) for turnover in workers at group homes for elderly individuals with dementia according to CES-D score and Ozeki's coping style

Variables	Contents	Number of subjects	Observational days	Number of turnover subjects	Turnover rate per person-year (%)	HR	95%CI	p value
CES-D score	16<	358	207,417	81	14.3	1.00		
	16≥	36	19,868	10	18.4	1.21	0.62–2.34	0.581
	Total	394 [#]	227,285	91	14.6			
Problem-focused coping	0–4	87	49,182	21	15.6	1.00		
	5–7	133	74,756	36	17.6	1.09	0.64–1.87	0.749
	8–15	167	98,444	34	12.6	0.78	0.45–1.35	0.379
	Total	387 [#]	222,382	91	14.8		<i>p</i> for trend=0.101	
Emotional-focused coping	0–3	82	47,116	20	15.5	1.00		
	4–6	185	107,028	45	15.3	1.04	0.61–1.76	0.892
	7–9	121	68,911	26	13.8	0.97	0.54–1.74	0.907
	Total	388 [#]	223,055	91	14.9		<i>p</i> for trend=0.639	
Avoidance coping	0–6	101	60,719	20	12.0	1.00		
	7–12	224	127,134	57	16.4	1.43	0.86–2.38	0.172
	13–18	62	34,529	14	14.8	1.39	0.70–2.77	0.354
	Total	387 [#]	222,382	91	14.9		<i>p</i> for trend=0.460	

[#]: The number is lower due to missing values.

ing may help care workers to improve their ability to deal with care receivers, because Nitta *et al.*¹⁹⁾ as well as Miura and Kato²⁰⁾ showed a significantly good effect of training in terms of care for the elderly with dementia. However, Banaszak-Holl and Hines²¹⁾ indicated that total hours of training were not related to turnover rate of nursing aides in nursing homes.

Wage was not associated with the risk of turnover either in full-time workers or part-time workers. Although we compared reasons for turnover between full-time workers and part-time workers, the proportions of reasons such as worsened relationship with inhabitants or co-workers, low wage, anxiety for future life and health problem, were not significantly different between the 2 groups. According to the result of the Danish Nurse Cohort Study by Friis *et al.*²²⁾, nurses who had relatively low gross incomes showed an increased probability of early retirement. Hanaoka⁵⁾ also reported that lower wages had a significant effect on increased risk of turnover, especially, during a year after employment.

We found that being proud of one's job was not associated with risk of turnover. Several previous reports indicated that job satisfaction was associated with lower risk of turnover^{6, 23, 24)}. Ogiso *et al.*²³⁾ reported that higher professional pride was related to lower risk of turnover. Karantzas *et al.*⁶⁾ suggested that lower job satisfaction directly influenced intention

to quit a job among care staff in the aged care sector. Castle *et al.*²⁴⁾ also indicated that high overall job satisfaction was associated with lower risk of turnover in nursing aides in nursing homes.

Smoking habits were significantly associated with risk of turnover in our study. Although we could not find any article indicating a relationship between smoking habits and turnover in care workers, it is thought that stress may be associated with both habitual smoking and staff turnover. However, relationships of smoking habits with the CES-D score or coping style were not statistically significant in our study (data were not shown). In addition, it is possible that workers with smoking habits would be subjects that might quit their job because of a smoking-related health problem.

The yearly turnover rate of our study subjects (14.6%) was shown to be a little higher, but not by much, than that of general workers in Japan (13.5%)²⁾. Selection bias may exist in our study and might have resulted in the relatively lower turnover rate in GH workers, because only 21.4% of GHs and 62.6% of care workers at them participated in the study. Furthermore, because the work environment of care workers in Sapporo City may be different from other areas in Japan, our findings should not be generalized to the entirety of Japan. In particular, because the lowest legal wage in Sapporo City is lower than that

Table 6. Age- and sex-adjusted hazard ratio (HR) and its 95% confidence interval (95%CI) for turnover in workers at group homes for elderly individuals with dementia according to lifestyle habits

Variables	Contents	Number of subjects	Observational days	Number of turnover subjects	Turnover rate per person-year (%)	HR	95%CI	p value
Intention to continue present job	Strongly want to continue	128	74,773	29	14.2	1.00		
	Slightly want to continue	201	118,921	40	12.3	0.92	0.57–1.50	0.748
	Slightly want to quit	54	28,054	19	24.7	1.67	0.93–2.98	0.087
	Strongly want to quit	10	4,858	3	17.9	1.56	0.47–5.12	0.466
	Total	393 [#]	226,606	91	14.7	<i>p</i> for trend=0.542		
Satisfaction of sleeping	Very satisfied	115	65,826	28	15.5	1.00		
	Slightly satisfied	159	91,629	37	14.7	0.89	0.54–1.46	0.652
	Slightly unsatisfied	93	54,691	19	12.7	0.77	0.43–1.39	0.390
	Very unsatisfied	28	15,731	7	16.2	1.06	0.46–2.44	0.899
	Total	395	227,877	91	14.6	<i>p</i> for trend=0.646		
Smoking	Never	171	102,352	30	10.7	1.00		
	Quitting	82	48,879	14	10.5	1.01	0.53–1.91	0.989
	Sometimes	21	10,501	8	27.8	2.39	1.09–5.25	0.030
	Daily	121	66,145	39	21.5	1.84	1.14–2.98	0.013
	Total	395	227,877	91	14.6	<i>p</i> for trend=0.006		
Usual effect of drinking	Little effect	153	88,289	36	14.5	1.00		
	Slightly drunk	173	101,373	34	12.3	0.71	0.44–1.15	0.167
	Somewhat drunk	69	38,215	21	20.1	1.21	0.70–2.09	0.498
	Total	395	227,877	91	14.6	<i>p</i> for trend=0.665		
Leisure time activities	Yes	166	96,538	36	13.6	1.00		
	No	229	131,339	53	14.7	1.19	0.77–1.82	0.438
	Total	395	227,877	89 [#]	14.3			

[#]: The number is lower due to missing values.

in other areas of Japan, it is possibly difficult to find a significant association between lower wages and an increased risk of turnover in Sapporo City compared with in other areas of Japan.

In conclusion, less provision of social support by supervisors, colleagues, family or friends was significantly associated with increased risk of turnover. Social support in the workplace may be important to reduce risk of turnover in care workers at GHs. Further prospective studies are required with a longer duration in other areas of Japan.

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