

Study on Stress Factors in Care Workers

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ABSTRACT

Aim: Many care workers work with great stress and discontent at their workplaces due to various factors. Their stress induces burnout and turnover. This study aimed to examine physical, mental, wage-treatment, and human relationship stress factors in care workers from the view point of their sex, age group, number of years of experience, care environment, employment form, and care qualification.

Materials and Methods: We collected data from 351 persons (82 male and 269 female) on their stress in nursing care labor to analyze their stress degree with respect to concrete stress factors.

Results: Regardless of their sex, many care workers were found to experience stress and dissatisfaction in terms of physical, mental, and wage-treatment. Greater stress was experienced by care workers in the age group 30-50 years than those aged >60, by those in the nursing homes service than those in the home visit service for the physical stress, and by those in the age group 20-40 than those aged >60 for the mental stress. There was very little stress in the human relationship factor. Regardless of sex, many care workers experience stress and dissatisfaction in terms of physical, mental, and wage-treatment factors except for human relationships.

Keywords

Care workers, Stress, Stress factors, Stress survey.

Introduction

Japan has reached the status of a “super-aged society.” The need for care workers has become critical with the increase in the number of elderly and elderly disabled persons who need care. However, the turnover rate is very high in this industry and the fixation ratio is also low [1]. As reported by many studies, the reason for this is poor labor circumstances together with inferior working conditions [2,3]. In Japan in particular, it is imperative to address the shortage of care workers.

According to the report of the survey by the Care Work Foundation [4], many welfare service business offices recognized the lack of care workers. Moreover, in the survey by the Ministry of Health, Labour and Welfare [5], the shortage and high turnover rate of

care workers were clarified. The survey results, which have been known since 2000 when long-term care insurance system for care workers was introduced, clarified the following. Of the most concern was that most of the care workers were non-full-time workers, such as registered helpers or part-timers, and had no work agreement with care insurance offices. Another problem was that their remuneration did not include recompense for transit time, unscheduled waiting, or report writing [6].

Inaba et al. [7], investigated the relationship between burnout and work-related stress in female nurses and reported that many of them leave within several months and as a result of turnover, there are burnout, low job aptitude, discontent with assignment to undesirable hospital wards, and absence of supportive co-workers. In addition, survey reports on the work situation of nurses by Ishikawa et al. [8] and Ueda et al. [9] showed that factors such as irregularity of working hours in shift work, increase in fatigue, decrease in morale, and burnout are related to turnover.

These factors are all similar to those of care workers. According to Hayashi [10], they are forced into stressful working conditions and overworked due to laborer shortage in spite of low wage conditions. Hayashi added that their own health problems, limited career enhancement, lack of potential for self-realization and self-growth, and discrepancies in ideas and concepts of values with their employers also contribute to turnover.

On the other hand, Hotta [11], examined employment management in welfare service offices and reported that the absence of instruction and advice and consultations with supervisors and seniors increases their stress and causes their burnout. Moreover, Cohen [12], reported that inadequate system of payment, employment management, and type of employment available from welfare service offices cause not only stress in care workers but also burnout and turnover increase.

Stress was originally defined in 1936 by Selye [13], following which many researchers attempted to define stress. Concerning the stress evaluation of care workers, there are two methods: the degree of “whole” stress in the work situation [14, 15] and the degree of “concrete” stress factors such as physical and mental aspects. As examples of these concrete stress factors [16], Shimomitsu [17], gave psychological burden, subjective physical burden, environment of workplaces, interpersonal relationships at workplaces, and job satisfaction.

On the other hand, in their analysis of stress and lifestyle in care workers, Kawano et al. [18], proposed that regardless of differences in sex, age group, care environment (nursing homes or home visit service), or style of employment (full-time or part-time), many workers experience stress at work related to the effect of long-term employment (workers with extended care experience feel more stress) and the nature of the service (certified care workers feel more stress than visiting care workers who help with severe disabilities). Most care work is mainly involved in maintaining the life of the elderly. Among the elderly, however, there are those with dementia and congenital disabilities. Care of these people may induce different types of stress based on their age group, years of experience, and labor content.

Stress related to concrete physical and mental problems such as wage, service conditions, and human relationships has been little examined from perspectives of differences in gender, age group, years of experience, care environment, employment form, and care qualification. This study aimed to examine these problems in care workers.

Methods

Participants

Of 522 care workers enrolled at 34 welfare service business offices located in Osaka, Hyogo, Yamaguchi, Chiba, and Nagano prefectures, 507 (119 males and 388 females) were selected as participants through the use of a questionnaire constructed to elicit information about various types and aspects of stress. Inadequately completed questionnaires served as the initial exclusion criterion

for 15 participants. Prior to the administration of the questionnaire, informed consent was obtained from the office managers and care workers after explaining in detail the purpose and content of the study.

Questionnaire

For the purpose of evaluation of the degree of workers' stress, two classifications were used: whole stress (related to the whole labor situation) [14,15], and stress due to concrete individual factors relating to physical and mental attributes and issues [16]. For the former, participants were asked to use a four-point rating scale: 1 = feel strongly, 2 = feel fairly strongly, 3 = feel less strongly, and 4 = feel nothing [18]. Ten individuals who rated 4 (feel nothing) and 146 individuals who rated 3 (feel less strongly) were excluded from the study's analysis and the data provided by the remaining 351 persons (82 males and 269 females) were analyzed.

This study was approved by the Ethics Committee on Human Experimentation of the Faculty of Human Science, Kanazawa University (Approval No. 2012-20).

Concrete stress factors

Physical stress [19], mental stress [3], stress produced from discontent with wages and treatment [20,21], and stress due to relationships with supervisors, co-workers, and cared persons [22, 23] have been reported as concrete stress factors of care workers in previous studies. These factors have a close mutual relationship. For example, the stress arising from discontent with wages and treatment and human relationships may be partly included in mental stress. However, in this study, the above mentioned four factors were assumed to be independent stress according to previous reports [3,19-23].

As above, subjects were asked to rate factors of physical and mental stresses using the following rating scale: 1 = very strong, 2 = slightly strong, 3 = normal, 4 = relatively comfortable, and 5 = very comfortable. They were asked to rate the other two factors of stress using the following scale: 1 = very dissatisfied, 2 = slightly dissatisfied, 3 = normal, 4 = relatively satisfied, and 5 = very satisfied (for discontent with wage and treatment) and 1 = very bad, 2 = slightly bad, 3 = normal, 4 = relatively good, and 5 = very good (for human relationships).

Comparisons

Physical fitness is different between men and women and between young and middle-aged persons. This being the case, physical stress would also be different due to differing physical capacity. Moreover, cared persons and labor situations are also different depending on differences in care qualifications [21, 23], care environment, and employment style. Therefore, concrete stress of care workers would also be different, as caused by their own specific differences. Based on the above, this study aimed to compare stress of care workers from points of view such as differences in gender, age group, years of experience, care environment, employment form, and care qualification.

Age group: The age range of participants was 20–75 years and participant data were classified according to five age groups of 20–29, 30–39, 40–49, 50–59, and ≥60 years.

Years of experience: This was divided into five categories of <1, 1–2, 2–3, 3–4, and ≥5 years.

Care environment. Care service is generally divided into nursing home and home visit service. The former provided service to resident persons in special nursing home and the latter provided care at patients’ homes.

Employment form: Participants were largely divided into full-time and part-time workers. Full-timers worked during hours decided by the institution and service business offices, and part-timers worked within a specified time.

Care qualification: Qualifications regarding care labor include those for care manager, nurse, assistant nurse, certified social worker, visiting care for persons with severe disabilities, certified care worker, and home helper. In this study, we identified the qualification of each subject.

The focus of the data analysis was based on the hypothesis that workers’ stress varies, depending on their age group, years of experience, care environment, and employment form.

Statistical analysis

Frequency (ratio) and median of each category (stage) evaluated using five stages (ordinal scale, as 1 = very strong to 5 = very comfortable) were calculated for stress factors. Medians of two groups for sex (male and female), care environment (nursing homes and home visit service), and employment form (full-time and part-time) were tested using Mann–Whitney U test. Medians of multiple groups for age group, years of experience, and care qualification were calculated using Kruskal–Wallis H test. When significant differences were found, a multiple comparison was performed using Mann–Whitney U test. The level of significance in this study was set at 0.05, which was adjusted using Bonferroni’s method.

Results

Table 1 shows the frequency (percentage) according to sex and results of the Mann–Whitney U test for physical, mental, wage–treatment, and human relationship stress factors. For physical, mental, and wage–treatment factors, >59% in both male and female participants answered “very strong” and “slightly strong,” whereas for the human relationship factor, >67% answered “normal.” No significant sex differences were found in any of the stress factors.

Table 2 shows the frequency (percentage) according to age group for four stress factors and results of the H test and multiple comparison tests. In results of multiple comparison tests, significant differences were observed among different age groups in physical and mental factors and medians were significantly larger in the 30–50 age groups than in the ≥60 group for the physical factor and in the 20–40 age groups than in the ≥60 age group for the mental factor. No significant differences were observed among age groups in either of the wage–treatment or human relationship factors.

For the physical, mental, and wage–treatment factors, >57% in all age groups except for the ≥60 age group answered “very strong or dissatisfied” or “slightly strong or dissatisfied” whereas for the human relationship factor, >70% in all age groups answered “normal.”

Table 3 shows the frequency (percentage) according to years of experience for the four stress factors and results of the H test. For the physical, mental, and wage–treatment factors, >50% in groups with different years of experience answered “very strong or dissatisfied” or “slightly strong or dissatisfied” whereas >59% in all groups answered “normal” for the human relationship factor. No significant difference was found among any of the stress factors.

Table 4 shows the frequency (percentage) according to care environment for the four stress factors and results of Mann–Whitney U test. For the physical, mental, and wage–treatment factors, >62% participants from nursing homes and home visit service answered “very strong or dissatisfied” or “slightly strong or dissatisfied” whereas >73% answered “normal” for the human

Table 1: Frequency (percentage) according to gender and test results for physical, mental, wage–treatment, and human relationship stress factors.

Factor	Gender	Very strong	Slightly strong	normal	Relatively comfortable	Very comfortable	M	U	Z	p
Physical	Female	45 (16.7)	138 (51.4)	84 (31.2)	2 (0.7)	0 (0.0)	2.2	10151	1.193	0.233
	Male	13 (15.9)	36 (43.9)	31 (37.8)	2 (2.4)	0 (0.0)	2.3			
Mental	Female	48 (17.8)	160 (59.5)	59 (21.9)	1 (0.4)	1 (0.4)	2.0	10053	1.380	0.168
	Male	19 (23.2)	49 (59.7)	14 (17.1)	0 (0.0)	0 (0.0)	1.9			
		Very dissatisfaction	Slightly dissatisfaction	Normal	Relatively satisfaction	Very satisfaction				
Wage and treatment	Female	60 (22.3)	111 (41.2)	87 (32.3)	9 (3.3)	2 (0.7)	2.2	10339	0.911	0.362
	Male	16 (19.5)	34 (41.5)	23 (28.0)	6 (7.3)	3 (3.7)	2.2			
		Very bad	Slightly bad	normal	Relatively good	Very good				
Human relations	Female	2 (0.8)	10 (3.7)	211 (78.4)	40 (14.9)	6 (2.2)	3.1	10693	0.559	0.576
	Male	1 (1.2)	6 (7.3)	55 (67.1)	20 (24.4)	0 (0.0)	3.1			

Table 2: Frequency (percentage) according to age group for four stress factors and test results.

Factor	Age group	Very strong	Slightly strong	Normal	Relatively comfortable	Very comfortable	M	H	p	Post-hoc
Physical	20 years	8 (13.6)	31 (52.5)	19 (32.2)	1 (1.7)	0 (0.0)	2.2	18.641	0.001*	30,40,50<60
	30 years	16 (16.7)	51 (53.1)	28 (29.2)	1 (1.0)	0 (0.0)	2.1			
	40 years	16 (21.3)	39 (52.1)	19 (25.3)	1 (1.3)	0 (0.0)	2.1			
	50 years	15 (19.0)	41 (51.9)	23 (29.1)	0 (0.0)	0 (0.0)	2.1			
	60 years	3 (7.1)	12 (28.6)	26 (61.9)	1 (2.4)	0 (0.0)	2.7			
Mental	20 years	14 (23.7)	34 (57.7)	11 (18.6)	0 (0.0)	0 (0.0)	2.0	23.895	0.000*	20,30,40<60
	30 years	25 (26.0)	58 (60.5)	13 (13.5)	0 (0.0)	0 (0.0)	1.9			
	40 years	14 (18.7)	47 (62.7)	13 (17.3)	1 (1.3)	0 (0.0)	2.0			
	50 years	11 (13.9)	52 (65.8)	16 (20.3)	0 (0.0)	0 (0.0)	2.1			
	60 years	3 (7.1)	18 (42.9)	20 (47.6)	0 (0.0)	1 (2.4)	2.5			
		Very dissatisfaction	Slightly dissatisfaction	Normal	Relatively satisfaction	Very satisfaction				
Age and treatment	20 years	12 (20.3)	22 (37.3)	22 (37.3)	3 (5.1)	0 (0.0)	2.3	4.461	0.347	
	30 years	22 (22.9)	40 (41.5)	28 (29.2)	2 (2.1)	4 (4.2)	2.2			
	40 years	17 (22.7)	29 (38.7)	22 (29.3)	7 (9.3)	0 (0.0)	2.2			
	50 years	22 (27.8)	32 (40.5)	23 (29.1)	1 (1.3)	1 (1.3)	2.1			
	60 years	3 (7.1)	22 (52.4)	15 (35.7)	2 (4.8)	0 (0.0)	2.3			
		Very bad	Slightly bad	Normal	Relatively good	Very good				
Human relations	20 years	0 (0.0)	5 (8.5)	42 (71.2)	12 (20.3)	0 (0.0)	3.1	9.241	0.055	
	30 years	3 (3.1)	5 (5.2)	77 (80.2)	11 (11.5)	0 (0.0)	3.0			
	40 years	0 (0.0)	3 (4.0)	58 (77.3)	12 (16.0)	2 (2.7)	3.1			
	50 years	0 (0.0)	2 (2.5)	56 (70.9)	18 (22.8)	3 (3.8)	3.2			
	60 years	0 (0.0)	1 (2.4)	33 (78.4)	7 (16.7)	1 (2.4)	3.1			

Table 3: Frequency (percentage) according to years of experience for the four stress factors and test results.

Factor	Years of experience	Very strong	Slightly strong	Normal	Relatively comfortable	Very comfortable	M	H	P
Physical	under 1 year	2 (9.1)	12 (54.6)	7 (31.8)	1 (4.5)	0 (0.0)	2.3	2.869	0.580
	1-2 year	4 (12.1)	19 (57.6)	9 (27.3)	1 (3.0)	0 (0.0)	2.0		
	2-3 year	4 (14.8)	14 (51.9)	9 (33.3)	0 (0.0)	0 (0.0)	3.2		
	3-5year	4 (9.1)	22 (50.0)	18 (40.9)	0 (0.0)	0 (0.0)	2.3		
	over 5 years	44 (19.6)	107 (47.5)	72 (32.0)	2 (0.9)	0 (0.0)	2.1		
Mental	under 1 year	4 (18.2)	13 (59.1)	5 (22.7)	0 (0.0)	0 (0.0)	2.0	7.541	0.110
	1-2 year	6 (18.2)	24 (72.7)	3 (9.1)	0 (0.0)	0 (0.0)	2.0		
	2-3 year	8 (29.6)	15 (55.6)	4 (14.8)	0 (0.0)	0 (0.0)	1.9		
	3-5year	5 (11.4)	24 (54.5)	15 (34.1)	0 (0.0)	0 (0.0)	2.2		
	over 5 years	44 (19.6)	133 (59.2)	46 (20.4)	1 (0.4)	1 (0.4)	2.0		
		Very dissatisfaction	Slightly dissatisfaction	Normal	Relatively satisfaction	Very satisfaction			
Wage and treatment	under 1 year	3 (13.6)	9 (40.9)	10 (45.5)	0 (0.0)	0 (0.0)	2.4	10.053	0.018
	1-2 year	7 (21.2)	11 (33.4)	14 (42.4)	1 (3.0)	0 (0.0)	2.4		
	2-3 year	6 (22.2)	14 (51.9)	6 (22.2)	1 (3.7)	0 (0.0)	2.1		
	3-5year	4 (9.1)	18 (40.9)	18 (40.9)	4 (9.1)	0 (0.0)	2.5		
	over 5 years	56 (24.9)	93 (41.3)	62 (27.6)	9 (4.0)	5 (2.2)	2.1		
		Very bad	Slightly bad	Normal	Relatively good	Very good			
Human relations	under 1 year	0 (0.0)	1 (4.5)	20 (91.0)	1 (4.5)	0 (0.0)	3.0	2.158	0.540
	1-2 year	0 (0.0)	1 (3.0)	29 (87.9)	3 (9.1)	0 (0.0)	3.1		
	2-3 year	1 (3.7)	3 (11.1)	16 (59.3)	7 (25.9)	0 (0.0)	3.1		
	3-5year	1 (2.3)	3 (6.8)	34 (77.2)	5 (11.4)	1 (2.3)	3.0		
	over 5 years	1 (0.4)	8 (3.6)	167 (74.2)	44 (19.6)	5 (2.2)	3.1		

Table 4: Frequency (percentage) according to care environment for the four stress factors and test results.

Factor	Care environment	Very strong	Slightly strong	Normal	Relatively comfortable	Very comfortable	M	U	Z	P
Physical	Care home	35 (22.7)	75 (48.7)	42 (27.3)	2 (1.3)	0 (0.0)	2.1	12889	2.639	0.008*
	home visit service	23 (11.7)	99 (50.2)	73 (37.1)	2 (1.0)	0 (0.0)	2.3			
Mental	Care home	33 (21.4)	97 (63.0)	24 (15.6)	0 (0.0)	0 (0.0)	2.0	13383	1.923	0.060
	home visit service	34 (17.3)	112 (56.8)	49 (24.9)	1 (0.5)	1 (0.5)	2.1			
		Very dissatisfaction	Slightly dissatisfaction	Normal	Relatively satisfaction	Very satisfaction				
Wage and treatment	Care home	35 (22.7)	64 (41.6)	50 (32.5)	3 (1.9)	2 (1.3)	2.2	14489	0.729	0.466
	home visit service	41 (20.8)	81 (41.1)	60 (30.5)	12 (6.1)	3 (1.5)	2.2			
		Very bad	Slightly bad	Normal	Relatively good	Very good				
Human relations	Care home	2 (1.3)	7 (4.5)	122 (79.3)	21 (13.6)	2 (1.3)	3.1	14077	1.158	0.247
	home visit service	1 (0.5)	9 (4.6)	144 (73.1)	39 (19.8)	4 (2.0)	3.1			

Table 5: Frequency (percentage) according to the employment form for the four stress factors and test results.

Factor	Employment form	Very strong	Slightly strong	Normal	Relatively comfortable	Very comfortable	M	U	Z	P
Physical	full-time	44 (19.8)	99 (44.6)	77 (34.7)	2 (0.9)	0 (0.0)	2.2	13979	0.406	0.685
	part-time	14 (10.9)	75 (58.0)	38 (29.5)	2 (1.6)	0 (0.0)	2.2			
Mental	full-time	46 (20.7)	130 (58.6)	46 (20.7)	0 (0.0)	0 (0.0)	2.0	13569	0.831	0.406
	part-time	21 (16.3)	79 (61.1)	27 (20.9)	1 (0.8)	1 (0.8)	2.0			
		Very dissatisfaction	Slightly dissatisfaction	Normal	Relatively satisfaction	Very satisfaction				
Wage and treatment	full-time	55 (24.7)	91 (41.0)	65 (29.3)	6 (2.7)	5 (2.3)	2.1	12675	1.812	0.070
	part-time	21 (16.3)	54 (41.8)	45 (34.9)	9 (7.0)	0 (0.0)	2.3			
		Very bad	Slightly bad	Normal	Relatively satisfaction	Very good				
Human relations	full-time	1 (0.5)	9 (4.1)	170 (76.5)	40 (18.0)	2 (0.9)	3.3	14044	0.301	0.764
	part-time	2 (1.6)	7 (5.4)	96 (74.4)	20 (15.5)	4 (3.1)	3.1			

Table 6: Frequency (percentage) according to care qualification for the four stress factors and test results.

Factor	Care qualification	Very strong	Slightly strong	Normal	Relatively comfortable	Very comfortable	M	H	P
Physical	Home helper	25 (14.5)	90 (52.4)	54 (31.4)	3 (1.7)	0 (0.0)	2.1	3.991	0.262
	CCW	32 (22.2)	64 (44.5)	48 (33.3)	0 (0.0)	0 (0.1)	2.2		
	VCPSD	1 (4.3)	13 (56.5)	93 (9.1)	0 (0.0)	0 (0.2)	2.3		
	Other	0 (0.0)	7 (58.1)	4 (33.3)	1 (8.3)	0 (0.3)	2.4		
Mental	Home helper	32 (18.6)	103 (59.9)	36 (20.9)	1 (0.6)	0 (0.0)	2.0	5.979	0.113
	CCW	32 (22.3)	82 (56.9)	29 (20.1)	0 (0.0)	1 (0.7)	2.0		
	VCPSD	1 (4.3)	14 (60.9)	8 (34.8)	0 (0.0)	0 (0.0)	2.3		
	Other	2 (16.7)	10 (83.3)	0 (0.0)	0 (0.0)	0 (0.0)	1.9		
		Very dissatisfaction	Slightly dissatisfaction	Normal	Relatively satisfaction	Very satisfaction			
Wage and treatment	Home helper	33 (19.2)	73 (42.4)	58 (33.7)	7 (4.1)	1 (0.6)	2.1	10.053	0.018
	CCW	41 (28.5)	55 (38.2)	43 (29.8)	2 (1.4)	3 (2.1)	2.2		
	VCPSD	2 (8.7)	8 (34.8)	7 (30.4)	6 (26.1)	0 (0.0)	2.8		
	Other	0 (0.0)	9 (75.0)	2 (16.7)	0 (0.0)	1 (8.3)	2.2		
		Very bad	Slightly bad	Normal	Relatively good	Very good			
Human relations	Home helper	1 (0.6)	12 (7.0)	126 (73.3)	30 (17.4)	3 (1.7)	3.1	2.158	0.540
	CCW	2 (1.4)	3 (2.1)	114 (79.1)	22 (15.3)	3 (2.1)	3.1		
	VCPSD	0 (0.0)	1 (4.3)	18 (78.3)	4 (17.4)	0 (0.0)	3.1		
	Other	0 (0.0)	0 (0.0)	8 (66.7)	4 (33.3)	0 (0.0)	3.3		

relationship factor. A significant difference was found only in the physical stress factor and the median was larger in the nursing homes service than in the home visit service.

Table 5 shows the frequency (percentage) according to the employment form for the four stress factors and results of Mann–Whitney U test. For the physical, mental, and wage–treatment factors, >58% participants in the full-time and part-time groups answered “very strong or dissatisfied” or “slightly strong or dissatisfied” whereas >74% answered “normal” for the human relationship factor. No significant differences were found among medians of all stress factors.

Table 6 shows the frequency (percentage) according to care qualification for the four stress factors and results of the H test.

In the results of this survey, the sample size of a care manager (n = 2) and nurse (n = 1), assistant nurses (n = 1), and certified social workers (n = 8) was very small. Hence, workers with these care qualifications were analyzed as one group (n = 12).

For the physical, mental, and wage–treatment factors, >58% participants in all care qualification answered “very strong or dissatisfied” or “slightly strong or dissatisfied” whereas >67% answered “normal” for the human relationship factor. No significant differences were found among medians of groups with different care qualifications in all stress factors.

Discussion

In this study, we investigated the degree of stress at work with respect to the concrete stress factors of physical, mental, wage–treatment, and human relationship factors in 351 care workers (82 men and 269 women) from the viewpoint of gender, age group, years of experience, care environment, employment form, and care qualification.

In the analysis of the results, wage–treatment and human relationship factors among the four stress factors showed insignificant differences in six comparative items (gender, age group, years of experience, care environment, employment form, and care qualification), and physical and mental factors showed significant differences only in gender, years of experience, and employment form.

In addition, it became clear that >60% of both men and women experience physical stress, >77% experience mental stress, and >60% were discontent with wage–treatment (Table 1). However, for the human relationship factor, unlike the above three factors, >50% of the participants answered “normal” and only ≤10% experienced stress in relationships with supervisors, co-workers, and cared persons in the workplace. In short, it was confirmed that many workers have little stress regarding human relationships. We assumed that stress regarding human relationships has close association with mental stress.

According to the survey report by Care Work Foundation [24],

>60% of care workers were cheered by a smile from the residents. Kubota [3] stated that many of them feel worthwhile about their work. In addition, Kwiatkowski [25] and Maslach [26] reported that burnout of care workers and nurses occurred due to human relationships and communication in the workplace. Most care workers in this study were considered to be in good contact with cared persons and to have good human relationships.

For the physical stress factor, participants in the age groups 30–50 showed significantly greater stress than those in the ≥60 age group, and those in the nursing homes service showed significantly greater stress than those in the home visit service.

According to Moroi [27], care workers in special nursing home tend to have stronger willingness to offer close nursing care to their cared persons than those in the role of a physical laborer because of the closeness in age between them. Senior citizen care workers aged >60 may prefer care that involves more mental support than physical caring, based on their abundance of life and care experience, compared with workers in the younger groups. Therefore, it is inferred that physical burden and stress is smaller in care workers aged >60.

In addition, labor content considerably differs between nursing homes service and home visit service. The former mainly targets elderly persons with dementia or disabilities [28, 29] on the basis of in-facility labor. There are many elderly people with physical problems such walking difficulty and obesity, and some may be hindered by medical instruments such as oxygen cylinders; for these, the nursing care of the cared persons themselves is the main focus [30].

In contrast, the home visit service involves nursing care at home, and care workers mainly assist in housekeeping and mobility care with wheelchairs for disabilities. In short, living support (assistance) is the main role rather than caring for the cared persons themselves. Differences in characteristics of cared persons and physical burden by labor contents like the above-stated may cause differences in their physical stress.

Significant differences were observed in the mental stress factor among different age groups. The Ministry of Health [31], Labour and Welfare’s survey reported that mental stress in the general population was observed more in those in their 40s (51.2% for men and 60.6% for women) than in those in their 30s (48.8% for men and 59.6% for women) [31]. Similarly in this study, it was shown that care workers in their 30s and 40s experience greater mental stress than the other age groups.

Therefore, it is inferred that the care workers in their 30s and 40s as well as those in the general population have mental stress not only regarding human relationships with supervisors, co-workers, and cared persons in the workplace but also difficulties in home–work balance; hence, they have greater stress than those in their 60s.

For wage-treatment, regardless of differences in sex age group, years of experience, care environment, employment form, or care qualification, >60% of care workers felt dissatisfied, although no significant difference was found in any of the above items.

Remuneration for care work is lower than that of workers in other fields [32]. Tatewaki [33] reported that disparity in wages and treatment based on differences in nursing care qualifications and years of nursing care experience in addition to large salary gap between regular employees and part-time workers cause dissatisfaction and stress. Low wages of care workers is one factor for their dissatisfaction and stress and may be related to the high rate of leaving the job. Moreover, the labor roles sharing with other care workers are not always constant, differing from general companies. Part-time care workers are required to perform clerical work similar to full-time workers, and full-time workers are sometimes required to do work like part-time workers [2]. In short, the stress of care workers is related to the large disparity between wages earned and the wide variety of tasks performed.

Insignificant differences were found in all stress factors with different care qualifications. However, compared with home visiting care workers caring for elderlies with severe disabilities ($\leq 50\%$), >60% of level 2 home helpers and certified care workers have greater anxiety and stress.

Kubota [3], insisted that if care workers have different qualifications, the working environment, labor content, nature of care recipients, and quality and quantity of work must differ. However, because adequate wage-treatment corresponding to their labor content was not guaranteed, care workers in the study may have been dissatisfied. In addition, Kawano et al. [18] also reported that certified care workers experience greater stress than visiting care workers for persons with severe disabilities, but they are differentiated by their type and level of care qualification.

Our results indicated that many care workers experience great stress and discontent in the physical, mental, and wage-treatment factors, but not so much in the human relationship factor. Future studies should focus on methods and reforms to relieve these stresses on workers.

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Conclusions

Regardless of sex, many care workers experience stress and are

dissatisfied in terms of physical, mental, and wage-treatment factors, but they experience little stress due to human relationships, as they have good relationships with their supervisors, co-workers, and cared persons. Care workers aged >50 or <40 experience greater physical and mental stress than those aged >60, and facility institution care workers experience greater physical stress than home visit care workers.

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