



Original article

Job satisfaction and intention to remain on the job among Japanese nursing assistants

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Abstract

Objective: To establish work environments that prevent Japanese nursing assistants from leaving their jobs, we investigated the associations between their job satisfaction levels and intentions to remain on their jobs.

Materials and Methods: We distributed anonymous self-administered questionnaires to Japanese female nursing assistants in 30 different hospitals. Regarding job satisfaction, we investigated various items relevant to both intrinsic facets (e.g., gaining various experiences) and extrinsic facets (e.g., salary), and conducted factor analyses of those items. Standardized partial regression coefficients were then calculated using multiple regression analyses. Intention to remain on the job was the dependent variable for this study. The factor scores calculated by the factor analyses of job satisfaction and respondents' characteristics were the independent variables. Since multicollinearity occurred, we utilized two types of statistical models. After questionnaires with one or more missing values were excluded, 618 questionnaires were analyzed.

Results: Using factor analyses, we discovered six factors related to job satisfaction among nursing assistants: "Intrinsic motivation", "Salary", "Relationships among nursing assistants", "Registered nurses' attitudes", "Fatigue reduction", and "Opportunities for vocational skills". In statistical model 1, "Intrinsic motivation", "Salary", "Fatigue reduction", "Age", "Employment status", and "Certified care worker status" were significantly associated with "Intention to remain on the job". In statistical model 2, "Salary", "Registered nurses' attitudes", "Fatigue reduction", "Opportunities for vocational skills", "Age", and "Employment status" were significantly associated with "Intention to remain on the job".

Conclusion: "Intrinsic motivation" and "Opportunities for vocational skills" are included in intrinsic facets. To prevent nursing assistants from leaving their jobs, raising only their extrinsic job satisfaction levels is insufficient. Because nursing assistants have not received formal nursing education, they cannot take pride in having the same skills and expertise as registered nurses. However, hospital managers must respect their feelings and establish an appropriate working environment.

Key words: hospitals, intention to remain on the job, job satisfaction, nursing assistant, nursing management

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Introduction

Hiring nursing assistants to work in nursing departments in hospitals is a necessary measure in alleviating registered nurses' overwork and in creating a working environment wherein they can concentrate on highly professional

work^{1, 2}. Although nursing assistants have not received the same formal education of nursing, they are important human resources that support the work of nursing departments in hospitals. It is, therefore, important for hospital managers to prevent nursing assistants from leaving their jobs.

When job satisfaction is studied, the concepts of intrinsic and extrinsic facets have been found to be important^{3, 4}. For example, achievement, decision-making, challenging jobs, and self-actualization are all involved as intrinsic facets. Salary, working conditions, fatigue countermeasures, relationships with others, job security, and supervision are extrinsic facets. Intrinsic facets represent the nature and experiences of the jobs themselves, and are at a higher order than the extrinsic facets.

Outside Japan, studies regarding turnover and job satisfaction among nursing assistants working in nursing homes

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have been reported⁵⁻⁷). Parsons *et al.*⁵) reported that the intrinsic facets such as personal growth and involvement in decision-making were significant variables for predicting turnover. Castle *et al.*⁶) investigated job satisfaction, intent to leave, and actual turnover after 1 year. They reported that positive satisfaction of training, reward, and workload were particularly important variables for the decrease in the intent to leave and preventing actual turnover. The training is included as an intrinsic facet, and both reward and workload are included as extrinsic facets. Decker *et al.*⁷) also studied job satisfaction and intention to leave the job. They concluded that intrinsic and extrinsic job dissatisfaction facets were important predictors for nursing assistants' intention to leave. However, in Japan, to the best of our knowledge, there are no studies that have investigated the associations between the intention to remain on the job and job satisfaction among Japanese nursing assistants working in nursing departments in hospitals.

Those reports⁵⁻⁷) serve as useful references for an investigation into the predictors associated with intentions to remain on the job among Japanese nursing assistants in hospitals. Since Japanese nursing assistants do not receive formal nursing education, their jobs are limited when compared with registered nurses^{2, 8, 9}). However, to prevent nursing assistants from leaving their jobs, focusing on only their extrinsic job satisfaction indicators may be insufficient. Therefore, hospital managers may be required to raise their intrinsic job satisfaction as well.

In this study, to establish adequate workplace environments that prevent nursing assistants from leaving their jobs, we investigated the associations between their job satisfaction levels and intentions to remain on the job. Regarding job satisfaction, we investigated various items relevant to both intrinsic and extrinsic facets. Furthermore, we performed factor analyses of Japanese nursing assistants' job satisfaction. We then analyzed which of the factors of job satisfaction influence their intentions to remain on the job.

Methods

Definition of nursing assistants

In this study, "nursing assistants" are defined as "workers who are affiliated with the nursing department in a hospital but are not qualified as registered nurses or licensed practical nurses".

Participating hospitals and subjects

A total of 30 hospitals in Mie Prefecture, Japan, participated in this study. The distribution and return of questionnaires were both conducted from September to December of 2017. As the number of male nursing assistants was much lower than that of female nursing assistants, they were excluded as subjects. Dispatch workers were also excluded

from the study, as only nursing assistants who were directly employed by hospitals were the focus of this study. The study subjects were 947 Japanese nursing assistants.

Distribution and return of questionnaires

We distributed anonymous self-administered questionnaires (original version in Japanese), explanatory documents for the study, and return envelopes to the participants. Approximately two weeks following distribution, the completed questionnaires were returned in sealed envelopes to ensure that truthful answers were given. The questionnaires were returned from collection boxes inside the participating hospitals.

Questionnaire items

Regarding "Nursing assistants' job satisfaction", we hypothesized seven factors as follows: "Salary (Items 1–5 in the Appendix 1)", "Registered nurses' attitudes (6–10 in the Appendix 1)", "Relationships among nursing assistants (11–15 in the Appendix 1)", "Reduced workload (16–20 in the Appendix 1)", "Skill development (21–25 in the Appendix 1)", "Work experience (26–30 in the Appendix 1)", and "Positive feelings around work (31–35 in the Appendix 1)". Answers to these items were rated on a 7-point scale from "Definitely disagree" to "Definitely agree".

"Intention to remain on the job" was determined by "I intend to continue working in our hospital from now on" (Item 36 in the Appendix 1). This item was rated on a 7-point scale from "Definitely disagree" to "Definitely agree".

The items of the respondents' characteristics were age, marital status (married/single), employment status (full-time worker/part-time worker), and certified care worker status (yes/no). In Japan, there is a profession called, "Certified care workers", which includes those who care for the disabled and elderly¹⁰). Although these people are technically professionals, they work as nursing assistants in the nursing departments of hospitals¹¹). Certified care workers can effectively utilize their knowledge and skills from their unique expertise when compared with nursing assistants who are not similarly qualified¹¹). Therefore, we hypothesized that care workers' "Intention to remain on the job" is higher.

Statistical analyses

Factor analyses (the principal factor method and promax rotation) were conducted for job satisfaction. Factors with eigenvalues of ≥ 1 were retained. Items that did not have factor loadings of $\geq |0.4|$ were excluded, and the factor analyses (the principal factor method and promax rotation) were repeated. The Cronbach's alpha of each factor was also calculated.

To investigate the relationships between "Intention to remain on the job" and other variables, we calculated Pearson's correlation coefficients or conducted Mann-Whitney

U tests. In addition, standardized partial regression coefficients were calculated using forced-entry multiple regression analyses. “Intention to remain on the job” was the dependent variable. The factor scores calculated by the factor analyses of job satisfaction and respondent characteristics were the independent variables.

The level of statistical significance was set at $P < 0.05$. We used the IBM SPSS Statistics Ver. 25.0 statistical software for all the analyses.

Analyzed subjects

Among the 947 questionnaires distributed, 888 were returned. Questionnaires that had one or more missing values were excluded. As a result, questionnaires completed by 618 nursing assistants were analyzed. The average age (standard deviation) of the analyzed subjects was 46.7 (12.0) years old.

Ethics

The study was conducted with approval from the Ethics Committee of Yokkaichi Nursing and Medical Care University (No. 122).

Results

The distributions of “Intention to remain on the job” and characteristics among Japanese nursing assistants are shown in Table 1. Regarding “Intention to remain on the job”, 46 (7.4%) responded “Definitely disagree”, 45 (7.3%) “Mostly disagree”, 33 (5.3%) “Somewhat disagree”, 191 (30.9%) “Neither agree nor disagree”, 133 (21.5%) “Somewhat agree”, 107 (17.3%) “Mostly agree”, and 63 (10.2%) “Definitely agree”. There is a significant correlation between age and “Intention to remain on the job”. Regarding marital and employment statuses, the Mann-Whitney U tests discovered significant differences in intentions to remain on the job.

Factor loadings of job satisfaction that were gained by conducting factor analyses (the principal factor method and promax rotation) are shown in Table 2. Six factors were finally extracted: 1. “Intrinsic motivation”, 2. “Salary”, 3. “Relationships among nursing assistants”, 4. “Registered nurses’ attitudes”, 5. “Fatigue reduction”, and 6. “Opportunities for vocational skills”. These six factors accounted for 66.7% of the total variance of the 33 items prior to rotation and the eigenvalues of these factors were 10.776, 3.307, 2.938, 1.879, 1.772, and 1.323, respectively.

To calculate Cronbach’s alpha for each of these six factors shown in Table 2, concerning each item of job satisfaction for nursing assistants, 1 to 7 points were given in the order from “Definitely disagree” to “Definitely agree”. Cronbach’s alphas for these six factors were 0.910 for “Intrinsic motivation”, 0.915 for “Salary”, 0.908 for “Relationships among nursing assistants”, 0.863 for “Registered nurses’ attitudes”, 0.812 for “Fatigue reduction”, and 0.832 for

“Opportunities for vocational skills”.

Pearson’s correlation coefficients (r) are shown in Table 3. The P -values of all of them were < 0.001 . For “Intention to remain on the job”, there were significant correlations with “Intrinsic motivation” ($r = 0.622$), “Salary” ($r = 0.410$), “Relationships among nursing assistants” ($r = 0.334$), “Registered nurses’ attitudes” ($r = 0.412$), “Fatigue reduction” ($r = 0.402$), and “Opportunities for vocational skills” ($r = 0.375$).

To investigate predictors associated with “Intention to remain on the job”, forced-entry multiple regression analysis was conducted. The independent variables included age, marital status, employment status, certified care worker status, and the factor scores of “Intrinsic motivation”, “Salary”, “Relationships among nursing assistants”, “Registered nurses’ attitudes”, “Fatigue reduction”, and “Opportunities for vocational skills”. However, regarding “Opportunities for vocational skills”, the standardized partial regression coefficient was -0.143 ($P = 0.001$) with a variance inflation factor (VIF) of 2.059. If the VIF is ≥ 2 , there is a possibility that multicollinearity occurs¹². “Opportunities for vocational skills” showed the highest Pearson’s correlation coefficient with “Intrinsic motivation” ($r = 0.656$ [$P < 0.001$]), as shown in Table 3. Therefore, “Intrinsic motivation” was excluded from the statistical model, while “Opportunities for vocational skills” was included, and the forced-entry multiple regression analysis was then performed again. As a result, the value of the standardized partial regression coefficient for “Opportunities for vocational skills” was changed from -0.143 ($P = 0.001$) to 0.125 ($P = 0.003$). The standardized partial regression coefficient of this variable changed from negative to positive, therefore, we concluded that multicollinearity occurred.

The final results of the forced-entry multiple regression analyses are shown in Table 4. We constructed two statistical models. “Opportunities for vocational skills” was excluded from statistical model 1, while “Intrinsic motivation” was included. Contrarily, “Intrinsic motivation” was excluded from statistical model 2, while “Opportunities for vocational skills” was included.

In statistical model 1, the significant variables of the factor scores were “Intrinsic motivation” ($\beta = 0.481$), “Salary” ($\beta = 0.154$), and “Fatigue reduction” ($\beta = 0.097$). Moreover, the significant variables for the respondents’ characteristics were: “Age” ($\beta = 0.106$), “Employment status” ($\beta = -0.074$), and “Certified care worker status” ($\beta = 0.061$). The adjusted R^2 value was 0.446. The VIF values were < 2 for all variables in this model.

In statistical model 2, the significant variables of the factor scores were: “Salary” ($\beta = 0.196$), “Registered nurses’ attitudes” ($\beta = 0.150$), “Fatigue reduction” ($\beta = 0.155$), and “Opportunities for vocational skills” ($\beta = 0.125$). Moreover, the significant variables for the respondents’ characteristics were: “Age” ($\beta = 0.146$) and “Employment status” ($\beta =$

Table 1 Distributions of intention to remain on the job and characteristics among Japanese nursing assistants

Variable	Intention to remain on the job							Total	Pearson's correlation coefficient and Mann-Whitney U test
	Definitely disagree	Mostly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Mostly agree	Definitely agree		
Age									
≤29	7 (9.3%)	8 (10.7%)	3 (4.0%)	34 (45.3%)	9 (12.0%)	8 (10.7%)	6 (8.0%)	75 (100%)	0.172 (<i>P</i> <0.001)
30s	6 (7.9%)	9 (11.8%)	3 (3.9%)	31 (40.8%)	15 (19.7%)	9 (11.8%)	3 (3.9%)	76 (100%)	
40s	14 (8.0%)	13 (7.5%)	11 (6.3%)	50 (28.7%)	41 (23.6%)	29 (16.7%)	16 (9.2%)	174 (100%)	
50s	14 (6.6%)	13 (6.1%)	13 (6.1%)	57 (26.9%)	48 (22.6%)	37 (17.5%)	30 (14.2%)	212 (100%)	
≥60	5 (6.2%)	2 (2.5%)	3 (3.7%)	19 (23.5%)	20 (24.7%)	24 (29.6%)	8 (9.9%)	81 (100%)	
Marital status									
Married	28 (6.7%)	23 (5.5%)	20 (4.8%)	131 (31.2%)	99 (23.6%)	77 (18.3%)	42 (10.0%)	420 (100%)	<i>P</i> =0.031
Single	18 (9.1%)	22 (11.1%)	13 (6.6%)	60 (30.3%)	34 (17.2%)	30 (15.2%)	21 (10.6%)	198 (100%)	
Employment status									
Full-time worker	39 (8.9%)	38 (8.7%)	23 (5.2%)	140 (31.9%)	96 (21.9%)	68 (15.5%)	35 (8.0%)	439 (100%)	<i>P</i> <0.001
Part-time worker	7 (3.9%)	7 (3.9%)	10 (5.6%)	51 (28.5%)	37 (20.7%)	39 (21.8%)	28 (15.6%)	179 (100%)	
Certified care worker status									
Yes	7 (5.3%)	13 (9.8%)	9 (6.8%)	39 (29.3%)	24 (18.0%)	24 (18.0%)	17 (12.8%)	133 (100%)	<i>P</i> =0.717
No	39 (8.0%)	32 (6.6%)	24 (4.9%)	152 (31.3%)	109 (22.5%)	83 (17.1%)	46 (9.5%)	485 (100%)	
Total	46 (7.4%)	45 (7.3%)	33 (5.3%)	191 (30.9%)	133 (21.5%)	107 (17.3%)	63 (10.2%)	618 (100%)	

Concerning age, the Pearson's correlation coefficient was calculated. Concerning marital status, employment status, and certified care worker status, Mann-Whitney U tests were conducted. For these analyses, concerning intention to remain on the job, 1 to 7 points were given in the order from "Definitely disagree" to "Definitely agree." Age was used as a continuous variable.

-0.098). The adjusted R² value was 0.303. The VIF values were <2 for all variables in this model.

Discussion

Using factor analyses, we discovered six factors related to job satisfaction among nursing assistants: "Intrinsic motivation", "Salary", "Relationships among nursing assistants", "Registered nurses' attitudes", "Fatigue reduction", and "Opportunities for vocational skills". In statistical model 1, "Intrinsic motivation", "Salary", "Fatigue reduction", "Age", "Employment status", and "Certified care worker status" were significantly associated with "Intention to remain on the job". In statistical model 2, "Salary", "Registered nurses' attitudes", "Fatigue reduction", "Opportunities for vocational skills", "Age", and "Employment status" were significantly associated with "Intention to remain on the job".

"Intrinsic motivation" was significantly associated with "Intention to remain on the job" in statistical model 1. Moreover, in statistical model 2, "Opportunities for vocational skills", which is an intrinsic facet, was significantly associated with the dependent variable. In a similar study¹⁾, "Japanese nursing assistants' work motivation" was significantly associated with "Free time to do one's own things", "Nursing assistants as important partners in the job", "Feeling

helpful to patients", "Participation in decision-making", and "Job-skill improvement". The significant variables, other than "Free time to do one's own things", are all of an intrinsic nature. The dependent variable in that previous report was "Work motivation". However, in the present study, "Intention to remain on the job" is the dependent variable. Therefore, a simple comparison between these results is not possible. However, it is clear from both studies, that Japanese nursing assistants value intrinsic facets.

In the United States, a study on "Magnet hospitals" which have maintained a high retention rate of professional nurses was conducted through an interview survey^{13, 14)}. Those hospitals developed a positive working environment that promotes certain factors, such as autonomy, professional development, and supporting education. In Japan, working as specialists was found to be the key variable associated with higher work motivation among professional nurses¹⁵⁾. In both countries, professional nurses work best by taking pride in their skills and expertise, and value intrinsic job satisfaction.

On the other hand, nursing assistants have not received the same professional education as registered nurses. Therefore, their jobs are composed of more simple and routine tasks^{2, 8, 9)}. However, even though nursing assistants cannot take pride in having the same skills and expertise as registered nurses, they still value intrinsic job satisfaction.

Table 2 Factor analyses of job satisfaction (N=618)

Factor	1	2	3	4	5	6
1. Intrinsic motivation						
31. Pride in work	0.879	-0.068	-0.046	0.022	-0.047	-0.081
33. Contribution to society	0.839	-0.057	0.040	-0.050	-0.039	-0.142
32. Self-actualization	0.838	0.090	-0.045	-0.028	-0.042	-0.020
34. Sense of fulfillment	0.788	0.139	-0.010	0.053	0.177	-0.190
35. Sense of personal growth	0.752	0.041	0.048	0.029	-0.025	-0.041
30. Never getting bored with my work	0.589	0.068	0.029	0.058	0.062	-0.006
29. Usefulness for hospital management	0.557	-0.085	0.105	-0.107	-0.094	0.057
28. Helpfulness for patients	0.548	-0.066	0.053	-0.079	-0.043	0.140
26. Responsible work	0.483	-0.101	-0.133	0.014	<0.001 ^a	0.329
22. Gaining various experiences	0.462	-0.057	-0.061	0.040	0.030	0.386
21. Development of vocational skills	0.449	-0.007	-0.074	0.055	0.003	0.428
2. Salary						
1. Salary level	0.011	0.894	0.035	-0.008	-0.041	-0.015
5. The salary level appropriate for work	0.024	0.846	-0.002	-0.005	0.060	-0.012
4. Comparison of the salary level with those in other organizations besides hospitals	-0.083	0.821	-0.094	0.056	-0.036	0.050
3. Comparison of the salary level between hospitals	-0.050	0.814	-0.034	-0.049	-0.031	0.035
2. Salary level based on a fair evaluation	0.003	0.789	0.077	-0.032	-0.001	0.070
3. Relationships among nursing assistants						
12. Good terms among nursing assistants	-0.106	-0.017	0.917	-0.007	-0.026	0.006
15. Respect among nursing assistants	-0.005	0.019	0.833	-0.024	0.006	0.059
14. Enjoyment in working together with nursing assistants	0.144	0.027	0.819	-0.109	0.044	-0.027
13. Mutual cooperation among nursing assistants	0.048	-0.022	0.804	-0.018	-0.036	0.041
11. Good relationships made among the nursing assistants concerning job performance	-0.031	-0.049	0.625	0.241	0.038	-0.029
4. Registered nurses' attitudes						
9. Registered nurses not looking down upon nursing assistants	-0.024	0.007	-0.032	0.868	-0.048	-0.047
7. Registered nurses not behaving arrogantly	-0.068	0.056	-0.105	0.837	-0.003	-0.031
8. Registered nurses' politeness	-0.007	0.023	0.068	0.822	-0.047	-0.015
10. Registered nurses not using abusive language	-0.038	-0.129	0.010	0.699	0.045	0.052
6. Registered nurses' friendliness	0.127	0.001	0.127	0.561	-0.004	-0.027
5. Fatigue reduction						
19. Sleep time	-0.008	-0.052	-0.074	-0.077	0.953	0.009
20. Quality of sleep	-0.030	-0.017	-0.001	-0.014	0.817	-0.018
18. Free time after work	-0.073	-0.024	0.075	0.002	0.689	0.013
17. Never becoming ill due to work	-0.028	0.114	0.058	0.143	0.441	0.024
6. Opportunities for vocational skills						
24. Managers' recognition of the necessity of developing vocational skills	0.017	0.056	0.048	-0.086	0.030	0.799
23. Educational opportunities	0.009	0.069	0.028	-0.016	-0.037	0.787
25. Registered nurses' cooperation towards developing vocational skills	0.126	0.017	0.104	0.195	0.060	0.443
Interfactor correlations						
1. Intrinsic motivation	1					
2. Salary	0.334	1				
3. Relationships among nursing assistants	0.426	0.244	1			
4. Registered nurses' attitudes	0.446	0.380	0.510	1		
5. Fatigue reduction	0.384	0.389	0.418	0.437	1	
6. Opportunities for vocational skills	0.591	0.336	0.439	0.446	0.358	1

^a As factor loadings can be either positive (+) or negative (-), absolute value was used. Bold-faced type indicates factor loadings of $\geq|0.4|$. To conduct factor analyses, the codes below were used. Concerning each item of job satisfaction among nursing assistants as shown in the Appendix 1. 1–35, 1 to 7 points were given in the order from “Definitely disagree” to “Definitely agree.” Factor analysis (the principal factor method and promax rotation) of the 35 items of job satisfaction was then performed. As the factor loadings of the item “27. Participation in decision-making,” were $<|0.4|$, this item was excluded. We subsequently conducted the factor analysis (the principal factor method and promax rotation) again. However, the factor loadings of “16. Consideration for nursing assistants' workloads to avoid overwork” then changed to $<|0.4|$. Therefore, this item was also excluded. We then conducted the factor analysis (the principal factor method and promax rotation) for the third time.

Table 3 Pearson's correlation matrix (N = 618)

Variable	1	2	3	4	5	6
1. Intention to remain on the job	1					
2. Intrinsic motivation	0.622 ($P<0.001$)	1				
3. Salary	0.410 ($P<0.001$)	0.360 ($P<0.001$)	1			
4. Relationships among nursing assistants	0.334 ($P<0.001$)	0.458 ($P<0.001$)	0.265 ($P<0.001$)	1		
5. Registered nurses' attitudes	0.412 ($P<0.001$)	0.486 ($P<0.001$)	0.414 ($P<0.001$)	0.555 ($P<0.001$)	1	
6. Fatigue reduction	0.402 ($P<0.001$)	0.423 ($P<0.001$)	0.424 ($P<0.001$)	0.457 ($P<0.001$)	0.481 ($P<0.001$)	1
7. Opportunities for vocational skills	0.375 ($P<0.001$)	0.656 ($P<0.001$)	0.378 ($P<0.001$)	0.492 ($P<0.001$)	0.500 ($P<0.001$)	0.408 ($P<0.001$)

To calculate Pearson's correlation coefficients, the codes below were used. Concerning intention to remain on the job, 1 to 7 points were given in the order from "Definitely disagree" to "Definitely agree," respectively. The factor scores calculated by the factor analyses of job satisfaction were used.

Table 4 Multiple linear regression analyses (N = 618)

Variable	Statistical model 1			Statistical model 2		
	β	P	VIF	β	P	VIF
Age	0.106	0.001	1.161	0.146	<0.001	1.150
Marital status	-0.029	0.370	1.171	-0.011	0.764	1.169
Employment status	-0.074	0.018	1.077	-0.098	0.005	1.074
Certified care worker status	0.061	0.046	1.037	0.066	0.058	1.054
1. Intrinsic motivation	0.481	<0.001	1.527	—	—	—
2. Salary	0.154	<0.001	1.358	0.196	<0.001	1.375
3. Relationships among nursing assistants	-0.015	0.697	1.636	0.061	0.161	1.677
4. Registered nurses' attitudes	0.072	0.075	1.808	0.150	0.001	1.809
5. Fatigue reduction	0.097	0.010	1.568	0.155	<0.001	1.551
6. Opportunities for vocational skills	—	—	—	0.125	0.003	1.585

β : standardized partial regression coefficient; VIF: variance inflation factor. To calculate the standardized partial regression coefficients, the codes below were used. Concerning intention to remain on the job, 1 to 7 points were given in the order from "Definitely disagree" to "Definitely agree," respectively. Age was used as a continuous variable. The codes for the dichotomous variables were as follows: marital status (married=1, single=0), employment status (full-time worker=1, part-time worker=0), certified care worker status (yes=1, no=0). The factor scores calculated by the factor analyses of job satisfaction were used.

Therefore, hospital managers should manage nursing assistants by focusing on their intrinsic feelings towards their work.

In statistical models 1 and 2, "Salary" and "Fatigue reduction" were significantly associated with "Intention to remain on the job". Nursing assistants are, therefore, more likely to leave their jobs if they have difficulty in maintaining their daily lives due to low salaries and/or feeling burned out. Hospital managers, as a result, should never neglect improving the working environments of nursing assistants' and should pay attention to setting adequate salaries and cutting down on workers' fatigue.

In statistical model 2, "Registered nurses' attitudes" was significantly associated with "Intention to remain on the job". Because nursing assistants work under registered nurses' supervision, those attitudes would therefore influence their intention to remain on the job. Moreover, as revealed in a previous study¹⁶⁾, if registered and licensed practical nurses exhibited bad manners towards nursing assistants,

their desires to be helpful to them would decrease. If nursing assistants' motivation is low, registered nurses cannot adequately concentrate on their work. Registered nurses must, then, feel thankful for their assistants and establish good working relationships with them.

In both statistical models, "Intention to remain on the job" was higher as the subjects' ages increased. Younger workers may want to be challenged and experience various occupations. Therefore, it is necessary to help them enjoy working in hospitals by providing them with opportunities to experience various kinds of jobs. One measure that may enhance younger workers' intentions to remain on the job may be by encouraging them to obtain a registered nursing certificate, followed by providing them an opportunity to work in a hospital after obtaining it. Such management issues are thought to have a high degree of social significance, as they help to expand the future possibilities of younger nursing assistants.

In both statistical models, the intention to remain on the

job among full-time nursing assistants was significantly lower than that of those working part-time. Full-timers work in the hospital for longer periods than do part-timers. However, because the jobs of nursing assistants are limited, compared with those of registered nurses, full-timers are more likely to lose sight of the fact that there is both creativity and uniqueness involved in their work. For full-timers, with good work attitudes and greater work experience, establishing a commendation system would help in enhancing their intentions to remain on the job.

In statistical model 1, certified care workers were shown to have significantly higher intentions of remaining on the job when compared with nursing assistants who did not have such qualifications. Certified care workers are professionals who provide care services to the disabled and elderly¹⁰. Therefore, they may have a higher intention to continue to work in the same job capacity, as they can more effectively make use of their expertise providing care services in hospitals.

In a previous study¹⁷, “Nursing assistants’ knowledge related to healthcare” was significantly associated with “Maintaining a high motivation to work thanks to nursing assistants” among registered nurses and licensed practical nurses. Therefore, by employing certified care workers, it is possible that the feelings of registered and licensed practical nurses may be reflections of those of the hospitals’ management.

The first limitation of this study was that random sampling was not employed. Therefore, the generalizability of the study’s results is limited. Another limitation is that,

because a cross-sectional design was used, we could not identify causal relationships. The adjusted R^2 values of statistical models 1 and 2 were 0.446 and 0.303, respectively. Future investigations warrant including this study’s items (e.g., stress, school expenses for their children, and the subjects’ educational backgrounds). Moreover, with regard to nursing assistants’ job satisfaction factors, it may be necessary to create new items, and to investigate other factors through utilizing factor analyses.

Conclusion

For hospital managers to prevent nursing assistants from leaving their jobs, only raising their extrinsic job satisfaction is insufficient. It must be noted that nursing assistants do not receive formal nursing education. Therefore, they do not take the same pride in the professional nursing expertise that registered nurses do. However, hospital managers should respect nursing assistants’ feelings and establish proper working environments to motivate them to remain on the job.

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Appendix 1. Job satisfaction and intention to remain on the job among nursing assistants (original version in Japanese)

1. Salary level

1. I am satisfied with the salary level in our hospital.

2. Salary level based on a fair evaluation

2. I think that the level of salary in our hospital is based on a fair evaluation of employees' work.

3. Comparison of the salary level between hospitals

3. I think that the salary level in our hospital is not lower than those of other hospitals.

4. Comparison of the salary level with those in other organizations besides hospitals

4. I think that the salary level in our hospital is not lower than those of other organizations, besides hospitals.

5. The salary level appropriate for work

5. I think that the salary level in our hospital is appropriate for our work.

6. Registered nurses' friendliness

6. I think that registered nurses in our hospital are generally friendly.

7. Registered nurses not behaving arrogantly

7. Registered nurses in our hospital generally do not behave arrogantly towards the nursing assistants.

8. Registered nurses' politeness

8. Registered nurses in our hospital are generally polite towards the nursing assistants.

9. Registered nurses not looking down upon nursing assistants

9. Registered nurses in our hospital generally do not look down upon nursing assistants.

10. Registered nurses not using abusive language

10. Registered nurses in our hospital generally do not use abusive language aimed at the nursing assistants.

11. Good relationships made among the nursing assistants concerning job performance

11. I think that good relationships are made among the nursing assistants in relation to job performance in our hospital.

12. Good terms among nursing assistants

12. I think that nursing assistants in our hospital are on good terms with one other.

13. Mutual cooperation among nursing assistants

13. I think that nursing assistants in our hospital work with mutual cooperation.

14. Enjoyment in working together with nursing assistants

14. I enjoy working together with nursing assistants in our hospital.

15. Respect among nursing assistants

15. I think that nursing assistants in our hospital respect one other.

16. Consideration for nursing assistants' workloads to avoid overwork

16. I think that there is consideration by our hospital for nursing assistants' workloads to avoid overwork.

17. Never becoming ill due to work

17. I have never become ill due to the work in our hospital.

18. Free time after work

18. While I work in our hospital, I think I still have enough free time after work.

19. Sleep time

19. While I work in our hospital, I think I get enough time to sleep.

20. Quality of sleep

20. While I work in our hospital, I do not feel a decline in the quality of my sleep.

21. Development of vocational skills

21. I think that I can develop my vocational skills through working in our hospital.

22. Gaining various experiences

22. I think that I am able to gain various experiences through working in our hospital.

23. Educational opportunities

23. I think that the managers in our hospital provide nursing assistants with educational opportunities aimed at developing their vocational skills.

24. Managers' recognition of the necessity of developing vocational skills

24. I think that the managers in our hospital recognize the necessity of developing vocational skills among nursing assistants.

25. Registered nurses' cooperation towards developing vocational skills

25. I think that registered nurses are cooperative with nursing assistants towards developing their vocational skills.

26. Responsible work

26. I think that I am entrusted with responsible work in our hospital.

27. Participation in decision-making

27. I feel that I have opportunities to participate in decision-making within the nursing department.

28. Helpfulness for patients

28. I think that my job is helpful in order for patients to get the appropriate nursing services.

29. Usefulness for hospital management

29. I think that my job is useful for the hospital management.

30. Never getting bored with my work

30. While working in this hospital, I never get bored with my work.

31. Pride in work

31. I take pride in my work.

32. Self-actualization

32. I think that I can achieve self-actualization through working in our hospital.

33. Contribution to society

33. I think that I can contribute to society by working in our hospital.

34. Sense of fulfillment

34. I feel a sense of fulfillment in my daily life by working in our hospital.

35. Sense of personal growth

35. I feel a sense of personal growth by working in our hospital.

36. Intention to remain on the job

36. I intend to continue working in our hospital from now on.