

Factors related to hospital nurse intention to leave: Does striving for work-life balance and sense of coherence affect wishes to stay in the organization?

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Abstract— The aim of this study is to identify relationships between striving for work-life balance (S-WLB), sense of coherence (SOC), and intention to leave among hospital nurses. In August of 2017, we conducted a self-administered questionnaire survey to 2239 nurses at nine public hospitals. The questionnaire included demographic factors, work environmental factors, organizational factors, striving for work-life balance, a 13-item SOC, the Maslach Burnout Inventory, and intention to leave. We carried out a multiple regression analysis with intention to leave as the dependent variable and others as independent variables. We obtained valid responses from 1368 full-time employed nurses (61.1%). The mean age of respondents was 36.38 ± 10.18 years, and the length of clinical experience 13.4 ± 9.65 years. The mean total score of the intention to leave was 14.58 ± 5.09 . As a result of the multiple regression analysis, the S-WLB and the SOC were found to be statistically related to the intention to leave even after controlling for the confounding factor of burnout. In addition, the satisfaction of desire level for the actual working assignment at the workplace was a significant independent factor. In this study, the full-time nursing staff had a low intention to leave score when they had a high score in the S-WLB and the SOC. It was also found that the level of satisfaction with appointment to a desired assignment is a significant factor in the intention to leave. In establishing an attractive workplace for nursing staff, it is important to create a workplace environment and supports to be able to properly evaluate workplace satisfaction after assignments are made while taking into account individual S-WLB and SOC functions.

Keywords- nurses; work-life balance; sense of coherence; intention to leave

I. INTRODUCTION

The declining birthrate and aging society that is becoming increasingly acute in Japan is a never before experienced situation here. Securing labor as a productive population is important in this situation, and promotion of a stabilized nursing workforce is considered to ensure the quality of patient care. For the turnover rate of hospital nursing staff in Japan, the full-time nursing staff has been reported as 10.9% and for new graduate nurses it was 7.8%. It is clear that the turnover rate is higher in urban areas and smaller hospitals [1]. Factors related to turnover and intention to leave are individually determined factors affected by suitability as a nurse [2], self-esteem [3] and for other reasons. Among environmental factors in the workplace, many studies have reported burnout [4,5,6], which is considered an occupational stress syndrome. According to

previous studies, factors related to ward assignment included: guidance and management framework [7]; lack of colleagues [8,9]; absence of support by supervisors [9,10]; atmosphere where it is comfortable to talk [3]; and dissatisfaction with the assigned ward as it is different from what was hoped for [8]. Organizational factors include the organizational climate [11], salary [3], and organizational commitment [12]. In addition, as working hours [7] and work-home life balance [13] are related to the backgrounds of both work and private life, factors related to turnover are becoming increasingly complicated. As a preventive measure to ward against turnover, the Japan Nursing Association [1] started an "employment promotion project by nursing staff with working styles" and has tried to strengthen the work arrangements. In addition, the turnover rate of new graduate nurses was reduced with some effect by measures such as establishing human relationships, carrying out collective training [14,15], and other measures. However, in the last few years the turnover rate has remained unchanged, and among employees the proportion of mental health disorders is the highest at 76.6% in the medical and welfare occupations [16]. Further, in a labor situation survey of nursing staff, it is reported that overwork and health insecurity remain unchanged [17]. The nursing work environment is extremely busy and irregular, and it is desirable to enable staff to be able to work properly as a resident citizen.

Work-life balance (WLB) is defined as being able to achieve both work and other living conditions in a desired state by oneself [18]. The nurse WLB is related to levels of career maturity [19], burnout [18], and intention to leave [20], which may lead to job satisfaction, health maintenance, and a declining turnover rate. Therefore, it is desirable to promote WLB. In order to make WLB feasible, it is important to clarify how individuals actually behave for the WLB. By thinking about the relationship between the power to strive for WLB and the intention to leave, we thought that it is possible to avoid strengthening the intention to leave and to continue a professional life.

We also focused on the sense of coherence (SOC), which is the core concept of salutogenesis. It is the ability to maintain health by changing the impact of experiences rather than impairing health even under much stress [21]. Various previous studies [22,23,24] showed that the function of SOC predicts and defuses the tension of mental and physical health, and we thought that the SOC considerations would be effective for turnover prevention.

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We evaluated by examined both the work environment and organizational background based on the previous research [25] which clarified the relationships between striving for WLB, SOC, and intention to leave. The aim of this study is to identify suggestions for a reduction of intention to leave the organization among nurses.

II. METHODS

A. Participants

The subjects were 2239 nurses working in 9 national and public hospitals with 99-500 beds. The authors distributed a self-administered questionnaire survey to the nurses in August, 2017.

B. Measurements

1) Intention to leave

The intention to leave was assessed using a 6-item scale developed by Tei-Tominaga [26], which has shown reliability and validity. Each item asked about the participants' thoughts or behaviors related to resignation from their job. Responses were scored on a 4-point scale. The sum of the scores ranges from 6 to 24, with higher total scores indicating a stronger intention to leave. The Cronbach's alpha coefficients in this study were 0.905. Permission to use the questionnaires has been obtained from developers.

2) Demographic attributes

Demographic details for gender, age, marital status, parental status, caregiver status, form of the cohabiting family, education, experience as a nurse, occupational assignment, chronic diseases, and confidence in physical strength. Further, details of the attitude to the work, information on suitability as a nurse, feelings as a member of the employing organization, salary satisfaction, family understanding of the work, and ideas of changing and leaving jobs. The responses were scaled as ranging from "not at all" to "very much so" in six grades.

3) Environmental Factors

Information was collected on the position, working schedule, section of work, ward assignment preferences, presence of someone providing assistance in the workplace, and commuting time. Regarding perceptions of the workplace, details of workplace approval, opportunities to demonstrate abilities, assignment of duties beyond individual capability, satisfaction with welfare benefits, awareness of role in the workplace, cooperation among helping staff at the workplace, ease for medical accidents to occur, cooperation in cases of medical accidents, openness in discussions in the workplace, high turnover rate in the hospital, ease to take holidays according to own wishes, and providing adequate patient care and availability of care supplies. The responses were scaled as ranging from "not at all" to "very much so" in six grades.

4) Striving for work-life balance

The striving for work-life balance was assessed using the striving for work-life balance (S-WLB) scale developed by the chief author, which has shown reliability and validity (not published data). It consists of 11 items, in 2 subscales, consisting of 6 items of consultation ability in seeking support and 5 items of self-control. The S-WLB was rated on a 6-point

scale, with the sum of the scores from 11 to 66, with the higher total score indicating a higher S-WLB.

5) Sense of coherence

The Japanese version of the SOC-13, which was described and verified for reliability and validity by Yamazaki [27] and is based on the original scale of Antonovsky [21] was used. It comprises the following subscales: comprehensibility, manageability, and meaningfulness. The SOC score was rated on a 7-point scale. The sum of the scores (SOC scale score) totaling from 13 to 91, with the higher total score showing a stronger SOC. Permission to use the scale questionnaire was obtained from the developers and copyright-holder.

6) Maslach Burnout Inventory – General Survey

The Japanese version of the Maslach Burnout Inventory – General Survey (MBI-GS), which was described and verified for reliability and validity by Kitaoka-Higashiguchi [28] and is based on the original scale of Maslach [29], was used. It comprises the following subscales: exhaustion, cynicism, and professional efficacy. The Japanese MBI-GS has 16-items and responses options from never to every day. Permission to use the scale questionnaire was obtained from the Japanese version developers and copyright-holder.

7) Organizational Factors

The questions addressed organizational factors: size of the city of the hospital location, type of hospital, average number of hospitalization days, and number of hospital beds.

C. Procedures

The questionnaires were mailed to the hospitals, and the directors of the nursing departments were asked to distribute these to the potential participants and to provide collection bags for the completed questionnaires. The collection bags for the questionnaires were made available at the hospitals for 2 weeks after which the collected questionnaires were forwarded to the author by the directors.

D. Statistical analysis

First, for the participant demographic characteristics, the frequency, mean total of intention to leave scores, and standard deviations of the variables were calculated. The relationships between the mean total intention to leave scores and other factors were determined. The tests of significance were the *t*-test and one-way ANOVA. For the variables with interval scales, the correlation coefficients with the mean total intention to leave scores were calculated. Second, to establish the relevant factors of the intention to leave, a stepwise multiple regression analysis for intention to leave scores was conducted, using independent variables where the statistical significance was at $P < 0.2$. For questions with more than three choices: education, the overtime per month, the ward assignment preference, type of hospital, average number of hospitalization days, and size of the city where the hospital is located were converted into dummy variables. Other responses were transformed into dichotomous ratings in the multivariate analysis. We confirmed that VIF is 10 or less in multicollinearity. For the statistical analyses, IBM SPSS Statistics (v. 24.0; IBM Corporation, Armonk, NY, USA) was used.

E. Ethical considerations

The cooperation of the directors of the nursing service departments at hospitals was obtained by explaining the purpose of the study in writing. The study objectives and methods were explained to the participating nurse supervisors in writing: all respondents were informed that their anonymity would be protected, that their participation or withdrawal was as determined by their own free will, and that refusal to participate or withdrawal of consent would not result in any negative consequences. At the beginning of the questionnaire form, there was a check box to show agreement or disagreement with participation in the research, it was considered to show agreement to participate when the agree box was marked. The protocol for this study was approved by the Ethics Review Committee of the International University Health and Welfare (No.17-Ig-47, July 2017).

III. RESULTS

A. Response rate and the mean total Intention to leave score

The authors distributed questionnaires to 2239 nurses, and collected 1739 (77.6%) responses. Of these, responses from 1494 (66.7%) nurses were determined as valid responses. There was a statistically significant difference in the intention to leave score with the job type and kind of employment, 1368 full-time nurses (61.1%) were analyzed for the form of employment. Participating hospitals were nine public hospitals. There was a significant difference ($p < 0.01$) in the mean total intention to leave scores in some hospitals. The results of the multiple regression analysis of the nine hospitals were compared with the eight hospitals after excluding hospitals with high or low intention to leave scores. Since items with high rates of explanation were for similar variables, all the facilities were analyzed. The mean total intention to leave score was 14.58 ± 5.09 .

B. Participant demographic data

The mean age of the participant was 36.4 ± 10.2 years and the experience as a nurse was 13.4 ± 9.7 years, showing no correlation with the intention to leave score (Table 3). The nurses in 2nd and 3rd years had the highest intention to leave scores (Table 1). The 1266 female nurses (93.2%) and 97 male nurses (6.5%), and the 1236 nurses (92.3%) and 103 midwives (7.5%) did not significantly differ in the intention to leave (Table1).

C. Personal factors and the total intention to leave score

The participant demographic data and the mean total intention to leave scores are shown in Table1. The statistically significant variables were: age, having a spouse and children (< 7 years), experience as a nurse, chronic disease, and confidence in physical strength (all, $P < 0.01$). In addition, the education variable reached statistical significant value ($0.05 < P < 0.2$).

D. Work environmental factors and the total intention to leave score

The participant workplace environmental factors and the mean total intention to leave scores are shown in Table2. The statistically significant variables were: overtime per month, ward assignment preference, having coworkers who will provide support in the workplace (other occupation, junior, senior, or supervisor), and enough care supplies (all, $P < 0.01$). Variables that reached statistically significant values were position ($0.05 < P < 0.01$), shift type, and coworkers who will provide support in the workplace ($0.05 < P < 0.2$).

E. Correlation between the continuous variables and the total intention to leave score

The correlation coefficient for S-WLB ($r = -0.39$, $P < 0.01$) and SOC ($r = -0.45$, $P < 0.01$) showed a negative intermediate correlation with the total intention to leave score. For MBI-GS, exhaustion showed a positive intermediate correlation ($r = 0.46$, $P < 0.01$) as did cynicism ($r = 0.57$, $P < 0.01$). The actual proportion of work life vs non-work life percentage showed a weak positive correlation ($r = 0.21$, $P < 0.01$), and as the proportion of work vs private life increased, the intention to leave score was higher (Table3).

F. Way of thinking about work and the total intention to leave score

The way of thinking about the work and the total intention to leave scores are shown in Table4. The statistically significant variables were: suitability as a nurse, feeling of being a part of the organization, salary satisfaction, family understanding towards work, and perceived hardship in the life after resignation (all, $P < 0.01$).

G. Perception of the workplace and the total intention to leave score

Perception of the workplace and the total intention to leave scores are shown in Table5. The statistically significant variables were 11 items: approval in the workplace, opportunities to demonstrate ability, benefits good, working with role consciousness, cooperation in the workplace, medical accidents easy to occur in hospital, security in case of medical accidents, openness in discussions in the workplace, high turnover rate in the hospital, ease of obtaining desired holiday, and providing sufficient patient care (all, $P < 0.01$).

H. Organizational characteristic and the total intention to leave score

The participant organizational factors and the mean total intention to leave scores are shown in Table6. There are 4 general hospitals, 2 regional medical care hospitals, and 3 advanced treatment hospitals in this survey. The average number of days of hospitalization was 1 facility with 10 days or less, 5 facilities for 11 to 15 days, and 3 facilities with 16 days or more, with significant differences observed ($P < 0.01$).

Table 1. Demographic factors and total intention to leave score

N = 1368

Demographic factors		Participants		Total Intention to leave score		
		N	(%)	Mean	SD	
Gender	Male	97	7.1	13.95	5.59	
	Female	1266	90.1	14.61	5.04	
	No answer	5	0.4	-	-	
Age	≤ 24 years	186	13.6	14.44	5.56	**
	25 - 29 years	255	18.6	15.59	5.02	
	30 - 34 years	158	11.5	14.77	4.93	
	35 - 39 years	200	14.6	15.10	5.26	
	40 - 44 years	217	15.9	14.03	4.96	
	45 - 49 years	174	12.7	14.09	4.94	
	50 - 54 years	110	8.0	14.48	4.28	
	≥ 55 years	68	5.0	12.32	4.87	
Spouse	Yes	659	51.1	14.24	4.94	**
	No	699	48.2	14.85	5.16	
	No answer	10	0.7	-	-	
Child living together (≤ 7 years)	Yes	214	15.6	13.58	4.96	**
	No	1076	84.5	14.76	5.06	
	No answer	51	3.7	-	-	
Child living together (≥ 7 years)	Yes	380	28.0	14.18	4.81	
	No	910	72.0	14.72	5.16	
	No answer	78	5.7	-	-	
Care giver living together	Yes	36	2.6	13.61	4.88	
	No	1254	91.7	14.59	5.07	
	No answer	78	5.7	-	-	
Education	Vocational school of nursing	932	68.1	14.40	5.00	†
	Nursing junior college	87	6.4	14.22	4.73	
	University of nursing	300	21.9	15.16	5.33	
	Graduated school of nursing	16	1.2	14.56	5.76	
	Five years of consistent nursing education	18	1.3	16.50	4.57	
	No answer		15	1.1	-	-
Experience as a nurse	1 years	90	6.6	12.32	5.90	**
	2 - 3 years	161	11.8	15.21	5.11	
	4. 5. 6 years	200	14.6	15.01	4.88	
	7. 8. 9. 10 years	178	13.0	14.88	4.80	
	11 - 20 years	409	30.0	14.77	5.07	
	≥ 21 years	303	24.1	13.81	4.85	
Occupation	Nurse	1263	92.3	14.62	5.09	
	Midwives	103	7.5	14.08	5.05	
Chronic disease	Yes	179	13.1	14.96	5.20	**
	No	1175	85.9	14.52	5.08	
	No answer	14	0.4	-	-	
Confidence in physical strength	Not confidence	88	6.4	17.50	4.84	**
	Not very confidence	563	41.2	15.24	4.82	
	Somewhat confidence	604	44.2	13.74	5.09	
	Have confidence	105	7.7	13.70	5.65	
	No answer	8	0.6	-	-	

† 0.05 < P < 0.2, ** P < 0.01, according to the t - test and one - way ANOVA. SD, standard deviation.

I. Factors related to intention to leave determined with the stepwise multiple regression analysis

The degrees of freedom adjusted coefficient of determination was 45%. The multiple regression analysis identified factors that were related to intention to leave as MBI-GS (cynicism) ($\beta = 0.30$), the ward assignment preference ($\beta = -0.19$), the SOC ($\beta = -0.12$), MBI-GS (exhaustion) ($\beta = 0.11$). As for the desired assignment, the nurses who were satisfied with the assignment or did not desire an assignment had lower

intention to leave mean scores than nurses who were dissatisfied with the assignment or did not desire how they had been assigned. For individual factors, nurses who have high SOC and S-WLB total mean scores showed a low intention to leave. For environmental factors, the perception of nurses that secured feelings arise when a medical accident happens ($\beta = -0.07$) and that the workplace offers an opportunity for open discussion ($\beta = -0.07$) showed a low intention to leave. In addition, a perception that the hospital has a high turnover rate

Table 2. Environmental factors and the total intention to leave score

N=1368

Environmental factors		Participants		Total Intention to leave score		
		N	(%)	Mean	SD	
Position	Staff	1076	78.7	14.69	5.12	*
	Sub-head nurse	161	14.0	14.31	4.90	
	Head nurse	80	5.8	13.29	4.62	
	No answer	21	1.5	-	-	
Shift type	No shifts	202	14.8	13.88	4.86	†
	Two shifts	621	45.4	14.72	5.16	
	Three shifts	481	35.2	14.75	5.10	
	Sometimes night duty	52	3.8	14.06	4.49	
	Only night duty	1	0.1	-	-	
	No answer	11	0.8	-	-	
Over time per month	None	83	6.1	13.41	4.87	**
	≤ 1 – 10 hours	695	50.8	14.30	5.02	
	11 – 20 hours	355	26.0	14.92	5.09	
	≥ 21 hours	200	14.6	15.61	5.19	
	Unknown	35	2.6	-	-	
Work section	Mixed ward	996	72.8	14.58	5.09	
	Outpatient	96	7.0	14.60	4.83	
	ICU	97	7.1	14.68	5.03	
	Emergency section	5	0.4	18.60	4.82	
	Operating theater	76	5.6	15.11	5.28	
	Home care	29	2.1	12.83	4.69	
	Administrative department	22	1.6	14.95	5.36	
	No answer	47	3.4	-	-	
Ward assignment preference	Dissatisfied (the ward not as desired)	194	14.2	17.58	4.60	**
	Dissatisfied (the ward as desired)	230	16.8	17.59	3.88	
	Satisfied (the ward not as desired)	392	28.7	13.95	4.92	
	Satisfied (the ward as desired)	515	37.6	12.57	4.75	
	No answer	37	2.7	-	-	
Presence of someone providing assistance in the workplace						
Other occupation	Yes	264	19.3	13.75	5.12	**
	No	1095	80.0	14.79	5.63	
	No answer	9	0.7	-	-	
Junior	Yes	576	42.1	13.96	5.11	**
	No	783	57.2	15.05	5.27	
	No answer	9	0.7	-	-	
coworkers	Yes	767	56.1	14.39	5.13	†
	No	592	43.3	14.84	5.03	
	No answer	9	0.7	-	-	
Senior	Yes	949	69.4	14.23	5.09	**
	No	410	30.2	15.40	5.00	
	No answer	9	0.7	-	-	
Supervisor	Yes	570	41.7	13.17	5.01	**
	No	789	57.7	15.61	4.90	
	No answer	9	0.7	-	-	
Commuting time	Within 30 minutes	994	72.7	14.50	5.09	
	31 – 60 minutes	283	20.7	14.69	5.13	
	61 – 90 minutes	77	5.6	14.99	4.96	
	Over 91 minutes	12	0.9	15.33	5.45	
	No answer	2	0.1	-	-	
Enough care supplies	Disagree	128	9.4	17.05	4.92	**
	Somewhat disagree	440	32.2	15.47	4.81	
	Somewhat agree	607	44.4	13.91	4.89	
	Agree	187	13.7	12.89	5.45	
	No answer	6	0.4	-	-	

† 0.05 < P < 0.2, * 0.01 < P < 0.05, ** P < 0.01, according to the t - test and one - way ANOVA. SD, standard deviation.

($\beta = 0.09$) was a related significant factor for high intention to leave for nurses. For organizational factors, the type of hospital and intention to leave were related ($\beta = -0.07$), and

the regional medical care hospital had lower mean intention to leave scores than the advanced treatment hospital (Table7).

Table3. Correlation between the continuous variables and the total intention to leave score

	Participants N	Mean	SD	Min	Max	Correlation coefficient		
Age (years)	1368	36.8	10.18	21	64	-0.095	**	
Experience as a nurse (years)	1368	13.4	9.65	1	45	-0.057	*	
Experience as a nurse at current hospital (years)	1368	8.9	7.65	1	39	-0.026		
Striving for Work-Life balance (6 - 66 points; S-WLB is high as the high score)	1368	37.4	8.41	11	66	-0.390	**	
Sense of Coherence (13 - 91 points; SOC is high as the high score)	Total score	1368	51.4	9.82	16	91	-0.454	**
Maslach Burnout Inventory-General Survey (sub-scale total scores / each item; MBI - GS sub- scale is high as the high score)	Ex (5)	1368	3.8	1.42			0.458	**
	Cy (5)	1368	2.4	1.48			0.569	**
	PE (6)	1368	2.2	1.14			-0.157	**
The percentage of WLB in a day (Higher points is the high work percentage)	reality ideal	1363 1360	4.2 2.7	1.33 1.00			0.214 -0.087	**

* 0.01 < P < 0.05, ** P < 0.01. SD, standard deviation.
Min, minimum. Max, maximum

IV. DISCUSSION

A. Institutions and participants

There is a report that the number of nursing staff [1] who is 35 to 39 years old is the largest, and that the male-female ratio in Japan is 1:14. The age distribution and male-female ratio of the respondents of this study are very similar, and close to that of nurses of general hospitals.

The adjusted R^2 -coefficient for the related factors in the present study was 0.45. As for the interpretation of the coefficient of determination, the adjusted R^2 -coefficient of > 0.20 is sufficient in some instances, as social survey data contain much noise or is measuring human consciousness or behavior [30,31]. This allows concluding that the present

study provides meaningful results with good predictive accuracy.

The intention to leave score for the study participants was the highest for those with clinical experience of 2 or 3 years, followed by 4, 5, 6, and 7-10 years, and the lowest scoring group was 1st year nurses. Previous studies also reported the intention to leave for 3 to 5 years of experience is high [32], similar to the results of this study. In addition, it may be inferred that the low intention to leave score for first year nurses in this study is a result of training of newly graduated nurses achieving some effect in hospitals [1]. However, the length of clinical experience is not correlated with the intention to leave, and it is necessary to consider the daily life situation and organizational culture background.

Table 4. Way of thinking towards work and the total intention to leave score

Variables		Participants		Total Intention to leave score		P - value	
		N	(%)	Mean	SD		
Suitability as a nurse	Not at all	735	53.7	15.69	4.85	0.000	**
	Very much so	633	46.2	13.29	5.05		
Feeling of being member of the organization	Not at all	577	42.1	16.13	4.86	0.000	**
	Very much so	791	57.8	13.44	4.97		
Salary satisfaction	Not at all	939	68.6	15.21	4.92	0.000	**
	Very much so	429	31.4	13.18	5.17		
Family understanding towards work	Not at all	223	16.3	15.39	4.69	0.006	**
	Very much so	1145	83.7	14.42	5.15		
Easily finding new workplace	Not at all	688	50.3	14.55	5.04	0.813	
	Very much so	688	49.7	14.61	5.13		
Hardship in the life after resignation	Not at all	680	40.0	15.12	5.05	0.001	**
	Very much so	547	60.0	14.22	5.08		

** P < 0.01, according to the t - test. SD, standard deviation.

Table 5. Perception of the workplace and the total intention to leave score

N = 1368

Variables		Participants		Total Intention to leave score		P - value	
		N	(%)	Mean	SD		
Approval in the workplace	Not at all	645	47.1	16.09	4.73	0.000	**
	Very much so	723	52.9	13.22	5.01		
Opportunities to demonstrate ability	Not at all	637	46.6	16.07	4.78	0.000	**
	Very much so	731	53.4	13.27	4.98		
Request more than abilities	Not at all	635	46.4	14.38	5.19	0.191	
	Very much so	733	53.6	14.74	4.99		
Benefits are good	Not at all	736	53.8	15.29	4.94	0.000	**
	Very much so	632	46.2	13.75	5.13		
Working with role consciousness	Not at all	675	49.3	15.85	4.73	0.000	**
	Very much so	693	50.7	13.34	5.12		
Cooperation in the workplace	Not at all	505	36.9	16.29	4.72	0.000	**
	Very much so	863	63.1	13.57	5.03		
Medical accidents easy to occur	Not at all	629	46.0	13.76	4.88	0.000	**
	Very much so	739	54.0	15.27	5.16		
Security in case of medical accidents	Not at all	805	58.8	15.47	4.80	0.000	**
	Very much so	563	41.2	13.30	5.43		
Openness in discussions in the workplace	Not at all	793	58.0	15.79	4.88	0.000	**
	Very much so	575	42.0	12.90	4.88		
High turnover rate	Not at all	572	41.8	13.39	4.86	0.000	**
	Very much so	796	58.2	15.43	5.07		
Ease of obtaining desired holidays	Not at all	525	38.4	16.12	4.81	0.000	**
	Very much so	843	61.6	13.61	5.02		
Providing sufficient patient care	Not at all	805	58.8	15.58	4.80	0.000	**
	Very much so	563	41.2	13.14	5.15		

** $P < 0.01$, according to the t - test. SD, standard deviation.

Table 6. Organizational factors and the total intention to leave score

Organizational factors	Number		Total intention to leave score		
	hospitals	participants	Mean	SD	
Size of the city of the hospital location					**
A small-sized city with a population of less than 100,000	4	291	14.61	4.57	
A medium-sized city with a population between 100,000 and 500,000	4	726	14.21	5.07	
A big city with a population of more than 500,000	1	351	15.39	5.33	
Types of hospital					**
A general hospital	4	220	14.61	4.57	
A regional medical care hospital etc.	2	455	13.97	5.09	
An advanced treatment hospital etc.	3	693	14.97	5.20	
Average number of days of hospitalization					**
≤ 10 days	1	351	15.39	5.33	
11 – 15 days	5	764	14.22	5.00	
≥ 16 days	3	253	14.52	4.87	
Bed number of the hospital					
Fewer than 99 beds	1	27	13.74	4.86	
100-199 beds	3	193	14.73	4.53	
200-299 beds	-	-	-	-	
300-399 beds	1	215	14.23	5.07	
400-499 beds	4	933	14.65	5.20	

** $P < 0.01$, According to the one - way ANOVA. SD, standard deviation.

Table 7. Factors related to intention to leave from the stepwise multiple regression analysis

N=1200

Explanatory variables	Standardized partial regression coefficient β	P - value
MBI – GS (Cynicism) †	0.300	0.000
Satisfaction after desired assignment‡	-0.193	0.000
Satisfaction after not desired assignment§	-0.128	0.000
SOC †	-0.117	0.000
MBI – GS (Exhaustion) †	0.109	0.000
This hospital has a high turnover rate ¶	0.093	0.000
Hardship in the life after resignation ¶	-0.090	0.000
S-WLB †	-0.078	0.003
Security in case of medical accidents¶	-0.068	0.005
Type of hospitals††	-0.068	0.002
Openness of discussions in the workplace¶	-0.069	0.006
Actual percentage of WLB‡‡	0.050	0.030
R2 - value	0.453	
Adjusted R2 - value	0.448	

†Continuous variable; ‡About desired department? (“dissatisfied (the ward not as desired) = 0, dissatisfied (the ward as desired) = 0,” “satisfied (the ward not as desired) = 0,” “satisfied (the ward as desired) = 1”); §About desired department? (“dissatisfied (the ward not as desired) = 0, dissatisfied (the ward as desired) = 0,” “satisfied (the ward not as desired) = 1,” “satisfied (the ward as desired) = 0”); ¶“not at all = 0, very much so = 1”; ††“general hospitals=0, regional medical care hospitals etc.=1, advanced treatment hospitals etc.=0, ; ‡‡between “work life 30%, other than work life 70%” to “work life 90%, other than work life 10%”

B. Factors related to intention to leave of nursing staff

From the result of the multiple regression analysis, the factors related to intention to leave in this study were burnout (cynicism, exhaustion) which was high in explanatory rate, satisfaction at desired assignment, and the SOC. The S-WLB, which was the object of this study, was also related to the intention to leave. Regarding burnout, many studies have shown a relationship between intention to leave or turnover in nurses [4,5,6], and much research has been reported. Therefore, in this study, burnout was treated as a confounding factor of intention to leave, and a multiple regression analysis was carried out.

The nurses who reported that the assigned ward was what they hoped for, and that they were satisfied with the ward although it was different from what they hoped for showed higher intention to leave than those who reported that they were dissatisfied with the ward assignment either as hoped for or not. Suzuki et al. [8] have reported the rapid turnover behavior of novice nurses who are dissatisfied that the assigned ward was not what they hoped for. In addition, mental suffering, work stress [9] and lack of supporting supervisors [9,10,33] is a factor in the intention to leave and it is conceivable that inconsistencies between desired assignment and workplace satisfaction after assignment promotes intention to leave.

For SOC, it has been reported that newly graduated nurses with low SOC scores have high intention to leave scores [34], and the newly graduated nurses of this study suggest a similar result. In addition, as the nursing staff with 2 or 3 years experience has a strong intention to leave, and the longer clinical experience shows this to be higher, the intention to leave score tends to gradually decline. The SOC has a tendency to rise with age [22,24]. Even at ages other than newly graduated nurses, if their SOC level is high, it is a possibility that the intention to leave becomes low. It is necessary to raise SOC and undertake measures for nursing staff with low SOC.

With regard to S-WLB, nursing staff with high S-WLB tended to report a lower intention to leave. Tanabe et al., [20] stated the necessity of improving the evaluation on the balance between work and non-work life in nurse intention to leave employment. Nursing staff have recognized how to work properly in modern society and then need the ability to strive for WLB themselves. In this study, rather than evaluating the recognition of WLB, we thought that the ability to adjust WLB would not increase the intention to leave and we used the S - WLB scale as an explanatory variable. The S-WLB can evaluate the ability of a nurse to consult to improve WLB and the ability to control time and health as a resident citizen which may help lower the intention to leave score. In this study, for nursing staff with high S-WLB, it is a possible that the

intention to leave may be lowered, and it is desirable to improve S-WLB scores to prevent these nurses from discontinuing employment.

As mentioned above, we identified the relevance of the turnover intention at the individual level, when considering the possibility that individual turnover intentions differ and depend on the organizational background; additionally, analyzing the organizational factor as a variable, this could explain the differences in the intention to leave/remain score. A nationwide survey showed that the turnover rate of small hospitals in urban areas is high [1]. In this study, the regional medical care hospitals with a small number of beds had a lower mean intention to leave score than the large hospital and advanced treatment hospitals. In addition, in the nationwide survey on early turnover the target was experienced and newly employed nurses, here the regional medical care hospitals showed a higher turnover intent than the general hospitals, which is different from this study [35]. In this study, it was shown that the nurse perceptions of the work environment that the secured feelings arise when a medical accident happens, that the workplace offers an opportunity for open discussion, and that the hospital has a high turnover rate are related to the intention to leave. It is difficult to solve the problem of the intention to leave due to the complicating background involving organizational, workplace, and nurses' individual factors. In addition, the relationship between actual turnover and intention to leave is not clear, and it is desirable that further research into this be undertaken.

C. Study limitations

This study was conducted through cooperation with nine hospitals in one region of Japan and generalization of the results would be limited by that. Additionally, as this was a cross sectional study, no causal inferences can be made. The background to the intention to leave a workplace or profession involves complex issues with individuals, the workplace environment, and the organizations, and it is necessary to consider these differences in measures to prevent turnover. In future studies, it is necessary to identify the cause by a longitudinal study.

V. CONCLUSIONS

In this study, full-time nurses with low S-WLB and low SOC levels showed high intention to leave. It was found that satisfaction of being able to work in a desired assignment is also a significant factor leading to higher intention to leave scores. In establishing a workplace for nursing staff, it is necessary to pay attention to the period of the transition from being newly graduated as a nurse to becoming an experienced nurse, and to consider individual S-WLB and SOC functions. It is also important to recognize the influence of workplace environment and support arrangements that make it possible to properly evaluate workplace satisfaction after placement in an organization.

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