Scientific Research Publishing

Open Journal of Nursing, 2026, 16(2), 109-123
https://www.scirp.org/journal/ojn
ISSN Online: 2162-5344
ISSN Print: 2162-5336

Factors Associated with the Frequency of Nursing Records for Delirium Care: A Cross-Sectional Study in Japanese Acute Care Hospitals

Ken-ichi Matsuda[1*], Katsuhiko Hattori[2]

[1]Department of Nursing, Tokyo Medical University, Tokyo, Japan
[2]Graduate School of Human Health Sciences, Tokyo Metropolitan University, Tokyo, Japan
Email: *matsudak@d15.ncn.ac.jp

How to cite this paper: Matsuda, K. and Hattori, K. (2026) Factors Associated with the Frequency of Nursing Records for Delirium Care: A Cross-Sectional Study in Japanese Acute Care Hospitals. *Open Journal of Nursing*, **16**, 109-123.
https://doi.org/10.4236/ojn.2026.162007

Received: December 25, 2025
Accepted: January 31, 2026
Published: February 3, 2026

Abstract

Aim: This study aimed to identify the factors associated with the frequency of nursing records for delirium care among nurses in acute care hospitals in Japan. **Methods:** This cross-sectional study was conducted between November 2022 and October 2023. Request letters were sent to a random sample of 187 general acute-care hospitals in Japan. Of these, 41 agreed to participate, after which 520 self-administered questionnaires were distributed to nurses with a cumulative experience of three years or more. The survey instrument included the Self-Rated Nursing Record Frequency for Delirium Care of Nurses in Acute Care Hospitals (NRDC-Acute). This questionnaire was formulated to gather data on the respondents' demographics and nursing record frequency for delirium care and to investigate 21 variables. Multiple regression analysis was performed. **Results:** Among the distributed questionnaires, 218 (41.9%) were returned. The multiple regression analysis results showed that "total years of experience as a shift leader nurse in their wards" and "experience attending training related to nursing records" were associated with the frequency of nursing record use for delirium care. **Conclusions:** Enhancing the delirium care competency of shift leader nurses is essential to enable them to guide staff in effective documentation. Additionally, integrating training on nursing records into delirium care education is recommended. These strategies could facilitate the active information sharing necessary for multidisciplinary collaboration.

Keywords

Delirium Care, Nursing Records, Nurses, Acute Care Hospitals, Associated Factors

1. Introduction

Delirium is a disturbance of consciousness characterized by impaired attention, often precipitated by acute changes in physical condition. Its incidence is estimated to be approximately 10% - 30% in general wards and 70% - 80% in intensive care units [1] [2]. Given that delirium is associated with prolonged hospitalization and increased mortality [3], preventing its onset and enhancing the quality of care following its onset are critical clinical priorities.

Delirium results from a complex interplay between environmental and patient-specific factors. Primary management strategies involve addressing the underlying etiologies and managing symptoms using psychotropic medications such as antipsychotics. Since delirium care is most effective when delivered via a multidisciplinary approach, clinical guidelines strongly emphasize the necessity of interprofessional collaboration [4] [5].

Nursing records serve as pivotal tools for facilitating communication among healthcare providers [6], making them indispensable for multidisciplinary delirium care. While the delivery of high-quality care is essential, accurate and comprehensive records of these practices are vital. Strengthening the synergy between clinical practice and records is expected to foster inter-professional collaboration, ultimately contributing to improved quality of care. However, standardized guidelines for nursing records specific to delirium care are currently lacking in Japan and internationally. Although existing general nursing record guidelines provide broad principles, they offer insufficient guidance on how to specifically record the unique characteristics of delirium care, such as the "diurnal fluctuation of symptoms" and "diverse non-pharmacological interventions (e.g., environmental modification and reorientation)". Nurses may find it challenging to determine the appropriate level of detail for their records. Consequently, there is a risk that delirium care interventions, even when implemented effectively, remain undocumented and are thus rendered invisible. Admittedly, the quality of records, characterized by accuracy and conciseness, is crucial, and a higher frequency of recording does not necessarily equate to better practice. However, if healthcare professionals recognize the necessity of multidisciplinary collaboration in delirium care, it is reasonable to infer that they will more frequently record essential details, such as patient reactions, care content, and clinical judgments. In this context, the quantity of records is not entirely independent of their quality; rather, the frequency of recording can be considered one of the valid proxies for the active information sharing that facilitates the actual implementation of multidisciplinary collaboration. To date, however, no studies have been found internationally that focus on the relationship between nursing records in delirium care and the actual practice of multidisciplinary collaboration. Therefore, as a foundational study, the authors developed the NRDC-Acute to measure the frequency of nursing records for delirium care among nurses in acute care hospitals, based on the context of the Japanese healthcare system [7]. The NRDC-Acute comprises 13 items across four factors and has demonstrated reliability and validity. These four factors are: "Rec-

ord of PRN Pharmacological Delirium Care," "Record of Non-Pharmacological Delirium Care," "Record of Regular Pharmacological Delirium Care," and "Record of Collaboration for Delirium Care."

To establish the ideal form of nursing records that contribute to effective multidisciplinary collaboration in delirium care, it is essential to first understand the factors influencing current recording practices. Therefore, as a foundational first step toward this goal, this study aimed to exploratorily examine the individual nurse and organizational characteristics associated with the total NRDC-Acute score in Japan.

2. Methods

2.1. Study Design

This study employed descriptive and quantitative cross-sectional surveys using self-administered questionnaires.

2.2. Definition of Terms

- An acute care hospital was defined as one with ward, intensive care unit (ICU), and intermediate care unit (IMCU) that receive acutely ill patients.
- Ward nurses were defined as those working in the wards of specialties in which patients are generally considered prone to delirium. These specialties included cardiology, pulmonology, gastroenterology, neurology, cardiovascular surgery, respiratory surgery, gastrointestinal surgery, neurosurgery, and orthopedic surgery.
- Nursing records were defined as all the records that ward nurses must write in their respective facilities.

2.3. Study Participants and Data Collection

The participants were nurses with at least three years of clinical experience working in acute care hospitals in Japan. Data were collected through a postal survey. The sample size was calculated using G*Power version 3.1 [8] [9]. Assuming a multiple regression model with 21 independent variables, a medium effect size of 0.15, significance level of 0.05, and power of 0.80, the minimum required sample size was 157. Given these considerations, the target sample size in this study was set at 200.

Using the Ministry of Health, Labour, and Welfare Facility List [10], we identified 4572 eligible acute care hospitals. From this population, 240 facilities were randomly selected for the study. Requests for cooperation were sequentially sent to the nursing directors of 187 hospitals to ensure sufficient participant coverage. We asked the directors for permission to distribute questionnaires to nurses in their acute care wards and to specify the number of questionnaires required. Of the 187 hospitals contacted, 41 agreed to participate in the study. Consequently, 520 questionnaires were distributed to nurses across the 41 hospitals via the nursing department staff. This study was conducted between November 2022 and

October 2023.

2.4. Survey Items

2.4.1. Survey Items Related to Characteristics

In this study, we investigated 21 variables. The individual characteristics of nurses were age, official position, nursing education level, total years of clinical nursing experience, total years of experience in their wards, as a shift leader nurse, and as a shift leader nurse in their wards; experience attending training related to nursing records, participating in nursing record committee activity, in medical safety committee activity, in dementia or delirium care committee activity, in attending training related to dementia or delirium care, and in psychiatric nursing; having an active interest in delirium care; and the type of medical ward they worked in. The characteristics of the hospital/ward where nurses worked included the type of hospital, additional medical fees for dementia care, guidelines and manuals for nursing records and delirium care, and access to consulting psychiatrists, specialized nurses, and multidisciplinary teams to refer patients with delirium.

Shift leader nurses are responsible for coordinating the nursing process in the ward during a shift. The quality of a shift leader nurse's behavior significantly affects the quality of nursing in the ward [11] [12]. According to Japanese nursing management literature, in general, the shift leader nurse plays a distinct role unlike that of a shift member nurse, who focuses primarily on their assigned patients. The shift leader nurse is responsible for overseeing the entire shift to ensure that nursing operations proceed smoothly and that care facilitating patient treatment and recovery—in cooperation with physicians—is delivered safely and efficiently. To achieve these goals, shift leader nurses possess the authority to coordinate workflows and direct shift member nurses. Furthermore, they serve as the primary interface for coordination with other professionals, often assuming a leadership role in multidisciplinary collaboration [13].

Additional medical fees for dementia care are paid to designated acute care hospitals in Japan that specifically possess adequate human and material resources required for dementia care to facilitate treatment during hospitalization.

2.4.2. Nursing Record Frequency for Delirium Care

We used the Self-Rated Nursing Record Frequency for Delirium Care of Nurses in Acute Care Hospitals (NRDC-Acute) [7]. The scale comprises 13 items with a five-point Likert scale ranging from 1 (never) to 5 (always). The total score ranged from 13 to 65 points. Higher scores indicate higher frequency. The NRDC-Acute has four dimensions: nursing records about non-pharmacological interventions for delirium, scheduled administration for delirium, nursing record about pro re nata (PRN) administration for delirium, and policies of delirium care or intervention for the patient's family. The reliability and validity of the NRDC-Acute have been confirmed by its developers. The Cronbach's alpha coefficient was 0.888. The goodness-of-fit index (GFI) was 0.991, the Adjusted GFI (AGFI) was 0.986, and the Standardized Root Mean Square Residual (SRMR) was 0.465.

2.5. Statistical Analysis

Statistical analyses were performed using IBM SPSS Statistics for Windows (version 28; IBM Corp., Armonk, NY, USA). Descriptive statistics were used to summarize participant characteristics. Correlation analysis, Mann-Whitney U and Kruskal-Wallis tests, and multiple regression analyses were used for bivariate and multivariate data analysis. Variables with a probability value of less than 0.2 in the univariate analysis were included in the multiple regression analysis [14]. Statistical significance was assessed at the 0.05 level.

2.6. Ethics Approval

This study was approved by the Teikyo Heisei University Ethical Review Committee (approval number: 2022-093-2). Each participant was provided with a written explanation of the study's purpose, methods used, protection of anonymity, and voluntary basis of participation. Completion and return of the questionnaire were considered as informed consent to participate in this study.

3. Results

A total of 232 questionnaires (44.6%) were returned, of which 218 (41.9%) were used for analysis.

3.1. Study Participants

Table 1 and Table 2 present the participants' characteristics. The mean duration of clinical experience was 15.2 years (SD = 8.8). Most (n = 158, 72.5%) held nursing diplomas. The mean total years of experience in their wards and as a shift leader nurse in their wards were 4.9 (SD = 4.5) and 3.2 (SD = 3.8) years, respectively. Most of the nurses (93.6%) worked in general wards. Among all the participants, 155 (71.1%) attended training related to nursing records. A total of 129 (59.2%) of participants worked at hospitals where additional medical fees for dementia care were paid. A total of 162 (74.3%) and 96 (44.0%) participants had access to guidelines or manuals for nursing records and delirium care in their hospitals, respectively.

Table 1. The individual characteristics of the study participants (n = 218).

	n	%	Mean	SD
Age	216		40.4	9.4
Official position				
Staff nurse	161	73.9		
Lower manager	57	26.1		
Nursing education level				
High school nursing course	18	8.3		
Nursing diploma	158	72.5		

Continued

Junior college	15	6.9		
Bachelor's degree	25	11.5		
Missing	2	0.9		
Total years of clinical nursing experience			15.2	8.8
Total years of experience in their wards			4.9	4.5
Total years of experience as a shift leader nurse			9.5	8.1
Total years of experience as a shift leader nurse in their wards			3.2	3.8
Experience attending training related to nursing records				
Yes	155	71.1		
No	62	28.4		
Missing	1	0.5		
Participating in nursing record committee activity				
Yes	34	15.6		
No	182	83.5		
Missing	2	0.9		
Participating in medical safety committee activity				
Yes	37	17.0		
No	180	82.6		
Missing	1	0.5		
Participating in dementia or delirium care committee activity				
Yes	33	15.1		
No	183	84.0		
Missing	2	0.9		
Participating attending training related to dementia or delirium care				
Yes	180	82.6		
No	37	17.0		
Missing	1	0.5		
Participating in psychiatric nursing				
Yes	19	8.7		
No	198	90.8		
Missing	1	0.5		
Having an active interest in delirium care				
Very much	50	22.9		
Somewhat present	133	61.0		
Not much	28	12.8		

Continued

Not at all	6	2.8
Missing	1	0.5
Type of medical ward		
General Ward	204	93.6
ICU, IMUC	11	5.0
Other	1	0.5
Missing	2	0.9

Table 2. The hospital/ward characteristics of the study participants (n = 218).

	n	%
Type of hospital		
National medical institution	12	5.5
Public medical institution	73	33.5
Social insurance-related organization	13	6.0
Not-for-profit	117	53.7
Missing	3	1.4
Additional medical fees for dementia care		
Applicable	129	59.2
Not applicable	21	9.6
I don't know	66	30.3
Missing	2	0.9
Guidelines and manuals for nursing records		
Yes	162	74.3
No	20	9.2
I don't know	36	16.5
Guidelines and manuals for delirium care		
Yes	96	44.0
No	61	28.0
I don't know	61	28.0
Access to consulting psychiatrists to refer patients with delirium		
Yes	31	14.2
No	179	82.1
I don't know	8	3.7
Access to consulting specialized nurses to refer patients with delirium		
Yes	43	19.7
No	456	71.6
I don't know	18	8.3

Continued

Missing	1	0.5
Access to consulting multidisciplinary teams to refer patients with delirium		
Yes	75	34.4
No	118	54.1
I don't know	23	10.6
Missing	2	0.9

Few participants (n = 31, 14.2%) said that they had access to consulting psychiatrists to refer patients with delirium in their hospital. A total of 43 participants (19.7%) said that they had access to specialized consulting nurses to refer patients with delirium to their hospitals. A total of 75 (34.4%) participants said that they had access to consulting multidisciplinary teams to refer patients with delirium to their hospital.

The median NRDC-Acute total score was 44 (range 13 - 65) points. The score distribution was confirmed as non-normal using the Shapiro-Wilk test (p = 0.009).

3.2. Exploring Factors Associated with Nursing Record Frequency

In the univariate analysis (Table 3 and Table 4), the frequency of nursing records for delirium care was associated with the nursing education level (medians 42.5 and 44.0 and 39.0 and 45.0, p = 0.187), the total years of experience in their wards (ρ = 0.111, p = 0.103), the total years of experience as a shift leader nurse in their wards (ρ = 0.108, p = 0.120); having experience attending training related to nursing records (medians 45.0 and 39.0; p = 0.026); working at a hospital that charged additional medical fees for dementia care (medians 45.0 and 43.0; p = 0.013); having guidelines and manuals for delirium care (medians 45.0 and 43.0; p = 0.044).

NRDC-Acute did not follow a normal distribution based on the results of the Shapiro-Wilk test (p = 0.009). However, according to Katz (2006/2008), when the sample size exceeds 100, and there are no influential impossible values or outliers, the assumption of normality can be considered to have been met [15]. Furthermore, no significant deviation from the normal distribution was observed when the histogram of the total score distribution was analyzed. Therefore, in this study, multiple regression analysis was conducted, assuming that the total score distribution was normal. Multiple regression analysis was conducted using a stepwise method as the variable selection technique. Although the type of hospital did not show significant differences in the univariate analysis, we added it as an independent variable to search for relevant factors after considering the influence of the type of hospital. The type of hospital was selected using the forced entry method.

Table 3. Relationships between the characteristics of the study participants and nursing record frequency for delirium care (n = 218).

	n	Total scores on the NRDC-Acute		ρ	p-value†
		Median	Range		
Age	216			−0.043	0.530
Official position					0.343
Staff nurse	161	45.0	15.0 - 64.0		
Lower manager	57	42.0	24.0 - 65.0		
Nursing education level					0.187
High school nursing course	18	42.5	20.0 - 60.0		
Nursing diploma	158	44.0	19.0 - 65.0		
Junior college	15	39.0	24.0 - 48.0		
Bachelor's degree	25	45.0	15.0 - 61.0		
Total years of clinical nursing experience				−0.012	0.859
Total years of experience in their wards				0.111	0.103
Total years of experience as a shift leader nurse				0.051	0.474
Total years of experience as a shift leader nurse in their wards				0.108	0.120
Experience attending training related to nursing records					0.026
Yes	155	45.0	19.0 - 65.0		
No	62	39.0	15.0 - 62.0		
Participating in nursing record committee activity					0.914
Yes	34	44.0	21.0 - 64.0		
No	182	44.0	15.0 - 65.0		
Participating in medical safety committee activity					0.628
Yes	37	44.0	19.0 - 62.0		
No	180	44.0	15.0 - 65.0		
Participating in dementia or delirium care committee activity					0.829
Yes	33	44.0	19.0 - 62.0		
No	183	44.0	15.0 - 65.0		
Participating attending training related to dementia or delirium care					0.564
Yes	180	44.0	19.0 - 65.0		
No	37	44.0	15.0 - 62.0		
Participating in psychiatric nursing					0.404
Yes	19	42.0	25.0 - 57.0		
No	198	44.0	15.0 - 65.0		
Having an active interest in delirium care					0.632
Very much	50	45.0	25.0 - 65.0		
Somewhat present	133	44.0	19.0 - 64.0		
Not much	28	42.0	15.0 - 58.0		

Continued

Not at all	6	44.0	28.0 - 51.0	
Type of medical ward				0.312
General Ward	204	44.0	15.0 - 65.0	
ICU, IMUC	11	41.0	25.0 - 51.0	

Note. Nursing record frequency for delirium care was measured using the NRDC-Acute total scores (total scores ranged between 13 and 65 points). †Correlation analysis; Spearman's rank correlation coefficient, Mann-Whitney's U test, Kruskal-Wallis test.

Table 4. Relationships between characteristics of hospitals/wards and nursing record frequency for delirium care (n = 218).

	n	Total scores on the NRDC-Acute		*p*-value†
		Median	Range	
Type of hospital				0.922
National medical institution	12	46.5	20.0 - 62.0	
Public medical institution	73	43.0	21.0 - 61.0	
Social insurance-related organization	13	44.0	28.0 - 52.0	
Not-for-profit	117	44.0	15.0 - 65.0	
Additional medical fees for dementia care‡				0.130
Applicable	129	45.0	15.0 - 65.0	
Not applicable	87	43.0	19.0 - 61.0	
Guidelines and manuals for nursing records‡				0.316
Yes	162	44.0	19.0 - 65.0	
No	56	42.5	15.0 - 62.0	
Guidelines and manuals for delirium care‡				0.044
Yes	96	45.0	19.0 - 65.0	
No	122	43.0	15.0 - 62.0	
Access to consulting psychiatrists to refer patients with delirium‡				0.394
Yes	31	43.5	21.0 - 59.0	
No	187	44.0	15.0 - 65.0	
Access to consulting specialized nurses to refer patients with delirium‡				0.630
Yes	43	45.0	22.0 - 59.0	
No	174	44.0	15.0 - 65.0	
Access to consulting multidisciplinary teams to refer patients with delirium‡				0.256
Yes	75	45.0	19.0 - 65.0	
No	141	44.0	15.0 - 64.0	

Note. Nursing record frequency for delirium care was measured using the NRDC-Acute total scores (total scores ranged between 13 and 65 points). †Mann-Whitney's U test, Kruskal-Wallis test ‡ "No," "No applicable," and "I don't know" was considered "No."

Thus, two variables were selected: total years of experience as a shift leader nurse in their wards ($\beta = 0.161$, $p = 0.021$) and having experience attending training related to nursing records ($\beta = 0.218$, $p = 0.002$). The adjusted R^2 was 0.057 (Table 5).

Table 5. Multiple regression analysis of factors associated with the nursing records frequency for delirium care (n = 218).

Variables	Total scores on the NRDC-Acute				
	β	95% CI		p-value	VIF
		LL	UL		
Total years of experience as a shift leader nurse in their wards	0.161	0.065	0.792	0.021	1.028
Experience attending training related to nursing records (reference: No)	0.218	1.797	8.272	0.002	1.076
Adjusted R^2	0.057				
ANOVA	$p = 0.005$				

Note. LL: lower limit; UL: upper limit; β: standardized multivariate regression coefficient; VIF: variance inflation factor. Multiple regression analysis involved stepwise method. Nursing record frequency for delirium care was measured using the NRDC-Acute total scores (total scores ranged between 13 and 65 points). Variables were nursing education level; total years of experience in their wards; total years of experience as a shift leader nurse in their wards; having experience attending training related to nursing records; working at a hospital that charged additional medical fees for dementia care; having guidelines and manuals for delirium care.

4. Discussion

The number of valid responses in this study was 218, which exceeded the required sample size of 157. Therefore, we were able to perform data analysis using the necessary sample size for the statistical analysis. Looking at the individual characteristics of the participants, all the nurses had a wide range of experience, from minimal to extensive experience.

The results of the multiple regression analysis showed that the frequency of nursing records related to delirium care was associated with "total years of experience as a shift leader nurse in their wards" and "experience attending training related to nursing records."

As previously stated, shift leader nurses are responsible for coordinating the nursing process in the ward during a shift. The quality of a shift leader nurse's behavior significantly affects the quality of nursing in the ward [11] [12]. This association can be explained from two perspectives. First, given their responsibility to oversee nursing care across the entire ward, shift leader nurses are presumed to be well-versed in their organization's specific nursing record rules. Without a thorough understanding of these rules, they would be unable to fulfill their core duties of ensuring a safe therapeutic environment and educating shift member nurses [11] [16] [17]. It is likely that this mastery enables them to understand precisely what aspects of delirium care require documentation, leading them to

record with clear intent and autonomy based on a recognition of its necessity. Second, during their shifts, shift leader nurses act as a central hub for multidisciplinary collaboration [11] [17] [18]. Through their experience in coordinating with various professionals, they have likely identified effective recording practices that are practically useful for delirium care, which may contribute to the higher frequency of their records.

We believe that participation in training on nursing records provides an opportunity to reconfirm the need for nursing records while considering recent medical and nursing trends. Therefore, participation in nursing record training may be associated with the frequency of actual nursing records in this study. Nursing records are also positioned as legal evidence, and their content must be accurate [19] [20]. In delirium care, there are many opportunities to provide assistance when ensuring patient safety if symptoms of delirium occur. If we consider the frequency of nursing records in delirium care, it is possible that participation in training and increased awareness of the need for records, especially those related to medical safety, may be related to the frequency of nursing records. In contrast, Okaisu *et al.* [21] stated that nursing record training alone does not lead to changes in nursing record practices in the long term and that there is a need to improve nursing record systems. In connection with this, our study examined 21 candidate factors associated with the frequency of nursing records. Multiple regression analysis resulted in an adjusted R^2 of 0.057. This result implies that unmeasured organizational and environmental factors might have a stronger impact on record frequency than individual nurse characteristics. First, system-related factors, such as the interface design of Electronic Health Records and the physical burden of typing, may have played a role. Even if nurses intend to record delirium care, usability issues or time constraints can act as barriers to actual recording behavior. Second, we speculate that the organizational culture and social norms within the ward may influence practice as much as or potentially more than formal training. Record practices may be shaped by unwritten rules or group conformity rather than just official manuals. If the ward atmosphere prioritizes operational efficiency over detailed recording, nurses may unconsciously align with this norm, potentially leading to the omission of records for invisible delirium care in the documentation. Furthermore, reliance on verbal communication and tacit knowledge in clinical settings could present a paradox regarding records. In teams where information is smoothly shared via conversation or implicit understanding, nurses may perceive written records as redundant or less urgent. While such high-context communication facilitates daily operations, it may unintentionally obscure the necessity of records as legal evidence and accountability. These perspectives suggest the need for future research to investigate the influence of ward climate and communication styles on recording behavior.

The findings suggest two key directions for clinical practice. First, priority should be given to enhancing the delirium care competency of shift leader nurses. This would enable skilled leaders to mentor staff on effective documentation,

thereby contributing to the quality improvement of both nursing records and delirium care across the ward. Second, it may be necessary to integrate specific training on documentation into delirium care education, a topic that has not traditionally been central. Promoting these strategies could not only increase record frequency but also facilitate the active information sharing essential for multidisciplinary collaboration in delirium care.

5. Limitations

This study has several limitations. This study was based on a survey conducted among nurses in Japan. Therefore, the results are based on the discretion and role of nurses in Japan, and caution is necessary when generalizing the implications of the results to other situations and countries. To the best of our knowledge, this study is the first to examine the factors pertaining to the frequency of nursing records of delirium care among nurses in acute care hospitals. Thus, we believe that this study provides meaningful insights. In this study, since hospital participation was limited to 41 facilities, it is necessary to consider the possibility of selection bias. Nursing record frequency was quantitatively measured using a self-assessment method, which may have led to social desirability bias.

Furthermore, this study used a cross-sectional design. Consequently, causal relationships cannot be inferred; only correlations were identified.

6. Conclusion

We conducted an exploratory study on the factors associated with the frequency of nursing records for delirium care among nurses in acute care hospitals in Japan. The frequency of nursing record entries for delirium care was assessed using the NRDC-Acute. A total of 21 variables related to individual nurses and organizational characteristics were considered potential factors. Multivariate analysis revealed two factors, "total years of experience as a shift leader nurse in their wards" and "experience attending training related to nursing records," as being associated.

Acknowledgements

The authors are grateful to all the participants in this study. We would like to thank Editage (https://www.editage.com/) for English language editing.

Conflicts of Interest

The authors declare no conflicts of interest.

References

[1] Michaud, L., Büla, C., Berney, A., Camus, V., Voellinger, R., Stiefel, F., *et al.* (2007) Delirium: Guidelines for General Hospitals. *Journal of Psychosomatic Research*, **62**, 371-383. https://doi.org/10.1016/j.jpsychores.2006.10.004

[2] Pompei, P., Foreman, M., Rudberg, M.A., Inouye, S.K., Braund, V. and Cassel, C.K.

(1994) Delirium in Hospitalized Older Persons: Outcomes and Predictors. *Journal of the American Geriatrics Society*, **42**, 809-815. https://doi.org/10.1111/j.1532-5415.1994.tb06551.x

[3] Inouye, S.K., Westendorp, R.G. and Saczynski, J.S. (2014) Delirium in Elderly People. *The Lancet*, **383**, 911-922. https://doi.org/10.1016/s0140-6736(13)60688-1

[4] Barr, J., Fraser, G.L., Puntillo, K., Ely, E.W., Gélinas, C., Dasta, J.F., *et al.* (2013) Clinical Practice Guidelines for the Management of Pain, Agitation, and Delirium in Adult Patients in the Intensive Care Unit. *Critical Care Medicine*, **41**, 263-306. https://doi.org/10.1097/ccm.0b013e3182783b72

[5] National Institute for Health and Care Excellence (2019) Delirium: Prevention, Diagnosis and Management. (In Japanese) https://www.ncbi.nlm.nih.gov/books/NBK553009/pdf/Bookshelf_NBK553009.pdf

[6] Barbara, K.T. (2016) Fundamental Nursing Skills and Concepts. 11th Edition, Wolters Kluwer Health.

[7] Hattori, K. and Matsuda, K. (2024) Development of Self-Rated Nursing Record Frequency for Delirium Care of Nurses in Acute Care Hospitals (NRDC-Acute). *Open Journal of Nursing*, **14**, 412-420. https://doi.org/10.4236/ojn.2024.148028

[8] Faul, F., Erdfelder, E., Lang, A. and Buchner, A. (2007) G*power 3: A Flexible Statistical Power Analysis Program for the Social, Behavioral, and Biomedical Sciences. *Behavior Research Methods*, **39**, 175-191. https://doi.org/10.3758/bf03193146

[9] Faul, F., Erdfelder, E., Buchner, A. and Lang, A. (2009) Statistical Power Analyses Using G*power 3.1: Tests for Correlation and Regression Analyses. *Behavior Research Methods*, **41**, 1149-1160. https://doi.org/10.3758/brm.41.4.1149

[10] Healthcare Market Analysis Platform (2023) The Ministry of Health, Labour, and Welfare Facility List. (In Japanese) https://caremap.jp/cities/search/facility

[11] Eggenberger, T. (2012) Exploring the Charge Nurse Role: Holding the Frontline. *JONA*: *The Journal of Nursing Administration*, **42**, 502-506. https://doi.org/10.1097/nna.0b013e3182714495

[12] Admi, H., Eilon, Y., Renker, P. and Unhasuta, K. (2015) Stress Measurement among Charge Nurses: Developing a Cross-Cultural Tool. *Journal of Advanced Nursing*, **72**, 926-935. https://doi.org/10.1111/jan.12845

[13] Yanagibashi, R. (2018) Role of Shift Leader Nurses. In: Sato, E., Ed., *New Systematic Nursing Textbook*: *Integration and Practice of Nursing* 1: *Nursing Practice Management and Medical Safety*, 2nd Edition, Medical Friend Co. Ltd., 29. (In Japanese)

[14] Mickey, R.M. and Greenland, S. (1989) The Impact of Confounder Selection Criteria on Effect Estimation. *American Journal of Epidemiology*, **129**, 125-137. https://doi.org/10.1093/oxfordjournals.aje.a115101

[15] Katz, M.H. (2008) Multivariable Analysis: A Practical Guide for Clinicians. M. Kihara and M. Kihara, Trans., 2nd Edition, Medical Sciences International. (Original Work Published 2006) (In Japanese)

[16] Connelly, L.M., Yoder, L.H. and Miner-Williams, D. (2003) A Qualitative Study of Charge Nurse Competencies. *MEDSURG Nursing*, **12**, 298-306. https://research.ebsco.com/linkprocessor/plink?id=dedddd96-1218-39c1-98cc-f7a73d46d7e5

[17] Sherman, R.O., Schwarzkopf, R. and Kiger, A.J. (2011) Charge Nurse Perspectives on Frontline Leadership in Acute Care Environments. *International Scholarly Research Network Nursing*, **2011**, Article ID: 164052. https://doi.org/10.5402/2011/164052

[18] Miner-Williams, D., Connelly, L.M. and Yoder, L.H. (2000) Taking Charge. *Nursing*,

30, 32hn1-32hn2. https://doi.org/10.1097/00152193-200030030-00011

[19] Japanese Nursing Association (2016) Guidelines for Nursing Records. (In Japanese) https://www.nurse.or.jp/nursing/home/publication/pdf/guideline/nursing_record.pdf

[20] Hernle, C. (2017) Documentation and Communication in the Healthcare Team. In: Ruth, F.C., Constance, J.H. and Christine, M.H., Eds., *Fundamentals of Nursing*, 8th Edition, Wolters Kluwer, 253-274.

[21] Okaisu, E.M., Kalikwani, F., Wanyana, G. and Coetzee, M. (2014) Improving the Quality of Nursing Documentation: An Action Research Project. *Curationis*, **37**, E1-11. https://doi.org/10.4102/curationis.v37i2.1251