ORIGINAL

Development and Validation of the Japanese Version of the Individualized Care Scale-Nurse (JICS-Nurse)

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Abstract : Background : Individualized nursing care is essential for patient-centered practice, yet few validated instruments exist in Japan for assessment from the nurse's perspective. Purpose : This study aimed to develop and validate the Japanese version of the Individualized Care Scale–Nurse (JICS-Nurse) in acute care hospitals. Methods : A cross-sectional survey was conducted with nurses and midwives in Japan. Item analysis, exploratory and confirmatory factor analyses were performed. Internal consistency was assessed with Cronbach's alpha, test–retest reliability with Pearson's correlations and intraclass correlation coefficients (ICC), and concurrent validity with correlations to the Self-assessment Scale for Nursing Practice for Person-Centered Care (SSNP-PCC). Results : Valid responses from 536 of 705 invited participants were analyzed. A three-factor structure consistent with the original version was supported. CFA showed good fit for JICS-A and an overall acceptable fit for JICS-B, Internal consistency was high ($\alpha = .94$), while test–retest reliability was moderate (ICC = .54 for JICS-A, .51 for JICS-B). Strong correlations with SSNP-PCC supported concurrent validity ($r = .78$ and $r = .72$; $p < .001$). Conclusions: The JICS-Nurse demonstrated reliability and validity and may be a useful tool for assessing individualized nursing care in Japanese acute care hospitals. J. Med. Invest. 73 : 121-128, February, 2026

Keywords **:** *Individualized Care Scale, Nurses, Reliability, Validity, Japan*

INTRODUCTION

The Individualized Care Scale (ICS) was originally developed in Finland by Suhonen and colleagues (1) to measure the degree of individualization in nursing care in acute care hospitals. The original version was designed from the patient's perspective (ICS-Patient) to assess the extent to which patients perceived receiving individualized care during hospitalization (2). Subsequently, the nurse version (ICS-Nurse) was developed (3), enabling nurses to self-assess the individualization of care they provide. The availability of both versions allows examination of potential discrepancies between patients' and nurses' perceptions of individualized care.

The ICS has repeatedly been tested for reliability and validity both within and outside Finland (1, 4-6). In the original study by Suhonen, the internal consistency of the ICS-Patient was excellent (Cronbach's $\alpha = .94$ for ICS-A and .93 for ICS-B). Item analysis supported each item's contribution, and content validity was ensured through literature review and expert evaluation. Principal component analysis identified a three-factor structure explaining 65% of variance for ICS-A and 61% for ICS-B (clinical situation, personal life situation, decisional control over care), supporting construct validity (1).

Similarly, the ICS-Nurse demonstrated good psychometric properties in Finland (3, 7). Expert review confirmed acceptable content validity, internal consistency ranged from $\alpha = .72$ to .84, and a three-factor structure was supported by factor analysis. Structural equation modeling further validated the theoretical model, and ICS-Nurse has been reported as a reliable instrument for assessing nurses' perceptions of individualized care in hospital settings.

Moreover, the ICS has been translated into multiple languages (8). The patient version is available in 20 languages ; including Finnish(1, 4-6, 9), English (UK ; 10-12, US ; 12, AUS ; 13, CAN ; 14), Flemish (15), Chinese (16), Greek (Cyprus ; 9, 17-20, Greece ; 9, 10, 12, 17, 21), Czech (18, 20, 22), German (23, 24), Hungarian (18, 20, 22), Persian (25), Italian (26), Portuguese (27, 28), Korean (29), Spanish (30), Swedish (9, 10, 12, 31), Turkish (32-36), and Dutch (37). The nurse version has been translated into 14 languages : Finnish (3, 12, 38), English (UK ; 39, US ; 38, AUS ; 13), Flanders (15, 40), Greek (Cyprus ; 20, 22, 39, 41, Greece ; 38), Czech (20, 22), Hungarian (20, 22), Portuguese (20, 22), Spanish (42), Swedish (39, 43), Turkish (32, 39, 44) , and Dutch (37). Validation studies of these translated versions, such as the Turkish ICS, have confirmed both reliability and construct validity, showing they demonstrate similar psychometric properties internationally (32, 45). International comparative studies using ICS have shown cultural differences in perceptions of individualized care and patient satisfaction, while consistently demonstrating a positive association between individualized care and patient satisfaction (18).

In Japan, the ICS-Patient has recently been validated (46), but the ICS-Nurse has not yet been developed. Establishing a Japanese version would enable comparison between patients' and nurses' perceptions, as well as facilitate international comparative research.

The present study aimed to develop and validate the Japanese version of the ICS-Nurse (JICS-Nurse) and to examine its psychometric properties in a cross-sectional study.

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METHODS

Original Scale

The ICS-Nurse is a self-administered questionnaire consisting of 34 items, divided into two parts (ICS-A and ICS-B), each with 17 items. ICS-A evaluates the extent to which nurses perceive respect for patients' individuality in nursing practice, whereas ICS-B assesses the degree to which nurses report having provided individualized care. Each part consists of three dimensions : clinical condition (items 1–7), personal life status (items 8–11), and decisional control over care (items 12–17). Responses are rated on a five-point Likert scale, with higher scores indicating a higher degree of individualized care.

Translation Process

The translation process followed the *Principles of Good Practice for the Translation and Cultural Adaptation Process for Patient-Reported Outcomes* (47) to ensure conceptual equivalence with the original instrument. After obtaining permission from the original authors, two Japanese researchers independently translated the ICS-Nurse into Japanese. To ensure comparability with the ICS-Patient Japanese version (46), existing validated translations were incorporated where possible. The two versions were reconciled into a single draft, which was back-translated into English by a bilingual translator. The back-translated version was reviewed by the original developer to resolve discrepancies. Finally, five nurses pilot-tested the Japanese version to confirm clarity and naturalness.

Sample and Setting

According to COSMIN (48), sample sizes of 5–10 respondents per item are recommended for psychometric testing. For the 17-item each ICS-A and ICS-B, at least 85-170 responses were required, while at least 200 responses are preferable for confirmatory factor analysis (CFA)(49). Assuming a 30% response rate, we estimated a target sample of at least 667 nurses would be necessary. Accordingly, a total of 705 nurses and midwives working at a tertiary hospital in a regional city in Japan were invited. Exclusion criteria were nursing administrators (directors and deputy director nurses) and operating room nurses, as the ICS-Nurse is designed for inpatient and outpatient care settings.

Data Collection

A web-based questionnaire survey was conducted at the collaborating hospital using Microsoft Forms. A retest was administered three months after the initial survey, and responses were matched using participant-generated identification codes. Only responses that were completely identical, including demographic data, were retained for the test–retest analysis. The initial survey (Time 1) was conducted in October 2021, and the retest (Time 2) in January 2022.

Additional Data Collection

To examine concurrent validity, we also administered the Self-assessment Scale for Nursing Practice for Person-Centered Care (SSNP-PCC) (50), which assesses nursing practices for older patients with cognitive impairment in acute care hospitals. The SSNP-PCC consists of four dimensions : "care respecting the patient's perspective," "individualized care adapted to cognitive impairment," "care that includes psychosocial approaches predicting potential problems," and "care respecting the patient's values and decisions." Each item is rated on a six-point Likert scale, with higher scores indicating higher person-centered care practices.

Statistical Analysis

Item analysis was conducted using descriptive statistics (means, standard deviations), corrected item–total correlations (CITC), Cronbach's α if item deleted, and discrimination indices based on comparisons of mean scores between the upper and lower 27% groups, tested using independent-samples t tests. Exploratory factor analysis (EFA) was performed using maximum likelihood estimation with Promax rotation, with the number of factors fixed at three according to the original scale structure. Confirmatory factor analysis (CFA) was conducted, with model fit evaluated using the Goodness of Fit Index (GFI), Adjusted Goodness of Fit Index (AGFI), Root Mean Square Residual (RMR), Standardized Root Mean Square Residual (SRMR), Root Mean Square Error of Approximation (RMSEA), and Comparative Fit Index (CFI). Test–retest reliability was assessed using Pearson's product–moment correlation coefficients and intraclass correlation coefficients (ICC). All statistical analyses were performed using IBM SPSS Statistics version 29.0 and Amos version 26.0.

Ethical Considerations

This study was approved by the Ethics Committee of Tokushima University Hospital (approval number : 4081, October 7, 2021). Written and oral information was provided to institutional administrators, and written informed consent was obtained from all participants via the web-based questionnaire.

RESULTS

Participants

Of the 705 eligible participants, 627 completed the first survey (response rate = 88.9%). After excluding cases with missing data or identical consecutive responses, 536 were included in the analysis (valid response rate = 76.0%). Participant characteristics are shown in Table 1. More than half of the respondents had over 10 years of clinical experience. At the second survey, 291 participants were successfully matched with their first survey responses.

Item Analysis

Table 2 presents the item analysis results. The mean scores for the 17 items ranged from 3.6 to 4.2 for JICS-A (SD = 0.6–1.1) and 3.4 to 4.1 for JICS-B (SD = 0.6–1.1). No ceiling or floor effects were observed. Corrected item–total correlations (CITC) ranged from .48 to .78, exceeding the conventional cutoff value of .30. Cronbach's α if item deleted indicated that removing any single item did not meaningfully improve the overall internal consistency, supporting the reliability of the scale. Comparisons of mean scores between the upper and lower 27% groups revealed significant differences for all items ($p < .001$). Discrimination indices ranged from 1.3 to 2.5, indicating sufficient discriminative ability.

Exploratory Factor Analysis

The Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy was .95 for both JICS-A and JICS-B, and Bartlett's test of sphericity was significant (JICS-A : $\chi^2 = 5335.4$, df = 136, $p < .001$; JICS-B : $\chi^2 = 6332.3$, df = 136, $p < .001$), confirming the suitability of the data for factor analysis. Results of exploratory factor analysis using maximum likelihood extraction and Promax rotation are shown in Table 3. A three-factor structure consistent with the original version was supported. Item 12 of JICS-B exhibited cross-loadings on two factors (.382 and .330) ; however, it was retained based on theoretical validity. The

Table 1. Respondent Characteristics

Characteristic	Time 1 : Full Sample (N = 536)		Time 2 : Completed Retest (N = 291)	
	n	%	*n*	%
Age				
In their 20s	174	32.5	82	28.2
In their 30s	159	29.7	81	27.8
In their 40s	126	23.5	80	27.5
Aged 50 and above	77	14.4	48	16.5
Years of nursing experience			291	
Less than 2 years	67	12.5	33	11.3
Over 2 to less than 5 years	79	14.7	39	13.4
Over 5 to less than 10 years	114	21.3	55	18.9
Over 10 years or more	276	51.5	164	56.4
Department (affiliation)			291	
General Surgery Unit	109	20.3	58	19.9
General Medicine Unit / Psychiatric Unit	97	18.1	49	16.8
Mixed Medical-Surgical Unit	78	14.6	39	13.4
Pediatric Unit/ Perinatal Unit	70	13.1	31	10.7
Intensive Care Unit	65	12.1	40	13.7
Outpatient Clinic / Radiology Department / Others	117	21.8	74	25.4
Position				
Staff nurse	464	86.6	244	83.8
Associate Nurse Manager (Ward)	35	6.5	22	7.6
Nurse Manager (Ward)	27	5.0	20	6.9
Not answered	10	1.9	5	1.7

Table 2. Descriptive Statistics and Item Analysis for JICS-Nurse

Item	JICS-Nurse A					JICS-Nurse B				
	M	*SD*	CITC	Cronbach's α (if deleted)	Discrimination Index	*M*	*SD*	CITC	Cronbach's α (if deleted)	Discrimination Index
1. Feelings about illness/ health condition	3.8	0.7	.70	.93	1.6 **	3.9	0.7	.73	.93	1.5 **
2. Needs that require care and attention	3.8	0.7	.73	.93	1.6 **	4.0	0.7	.69	.94	1.3 **
3. Chance to take responsibility as far as possible	3.7	0.8	.68	.93	1.7 **	3.9	0.9	.56	.94	2.1 **
4. Identify changes in how they have felt	4.0	0.6	.69	.93	1.3 **	4.0	0.6	.72	.94	1.4 **
5. Talk with patients about fears and anxieties	3.9	0.7	.67	.93	1.5 **	4.1	0.7	.68	.94	1.4 **
6. Find out how their health conditions affect them	4.0	0.7	.65	.93	1.4 **	4.0	0.6	.72	.94	1.3 **
7. What the illness / health conditions means to them	3.6	0.8	.69	.93	1.6 **	3.9	0.7	.73	.94	1.4 **
8. What kinds of things they do in their everyday life	3.8	0.8	.64	.93	1.8 **	3.6	0.9	.65	.94	1.9 **
9. Previous experiences of hospitalization	3.7	0.9	.59	.93	1.9 **	3.7	0.9	.67	.94	1.9 **
10. Everyday habits	3.7	0.8	.70	.93	1.9 **	3.6	0.9	.71	.93	1.8 **
11. Family to take part in their care	3.4	0.9	.61	.93	2.0 **	3.4	1.1	.48	.94	2.5 **
12. Instructions to patients	4.2	0.7	.58	.93	1.4 **	4.0	0.7	.73	.93	1.5 **
13. What they want to know about illness / health condition	4.0	0.7	.72	.93	1.6 **	3.9	0.7	.75	.93	1.6 **
14. Patients' personal wishes with regard to their care	4.0	0.7	.72	.93	1.4 **	3.9	0.8	.78	.93	1.6 **
15. Help patients take part in decisions	3.8	0.8	.76	.93	1.8 **	3.8	0.8	.77	.93	1.8 **
16. Encourage patients to express their opinions	3.9	0.8	.73	.93	1.9 **	3.9	0.8	.78	.93	1.7 **
17. Ask patients at what time they prefer to wash	3.6	1.1	.47	.94	2.4 **	3.5	1.1	.58	.94	2.5 **

Note. $N = 536$. CITC = corrected item–total correlation; Cronbach's α if item deleted = Cronbach's alpha coefficient for the scale when the item is removed ; Discrimination index = difference in item means between the top 27% and bottom 27% of participants on the scale, tested using independent-samples *t* tests.
CITC values ≥ .30 are considered acceptable for item retention. Overall Cronbach's α was .94 for A and .95 for B. $^{**}p < .01$.

three-factor model explained 55.7% of the variance for JICS-A and 61.2% for JICS-B.

Confirmatory Factor Analysis

Confirmatory factor analysis was conducted to examine construct validity. The three-factor model of JICS-A demonstrated good model fit (GFI = .92, AGFI = .90, CFI = .95, RMR = .02, RMSEA = .07, SRMR = .04). These fit indices indicated that the model adequately represented the data. The three-factor model of JICS-B showed an acceptable but somewhat weaker fit, with some indices slightly below conventional cutoff values (GFI = .89, AGFI = .86, CFI = .93, RMR = .03, RMSEA = .08, SRMR = .05). Figures 1 and 2 illustrate the CFA models for JICS-A and JICS-B.

Reliability

Internal consistency was high, with Cronbach's α = .94 for both JICS-A and JICS-B. Test–retest reliability over a 3-month interval indicated Pearson's correlation coefficients ranging from .24 to .57 at the item level. The intraclass correlation coefficients (ICC[1,1]) were .54 (95% CI : .45–.61) for JICS-A and .51 (95% CI : .42–.59) for JICS-B, reflecting moderate reproducibility but not high stability.

Concurrent Validity

Concurrent validity of the JICS-Nurse was examined by calculating Pearson's correlation coefficients with the SSNP-PCC (Table 4). JICS-Nurse A showed a strong positive correlation with the SSNP-PCC (r = .78, p < .001), and JICS-Nurse B also demonstrated a moderate-to-strong positive correlation (r = .72, p < .001). These findings supported the concurrent validity of the JICS-Nurse.

Table 3. Exploratory Factor Analysis: Factor Loadings and Communalities for JICS

Subscale and Cronbach's α / Item content	JICS-Nurse A				JICS-Nurse B			
	Factor loading			Communality (h^2)	Factor loading			Communality (h^2)
	I	II	III		I	II	III	
Clin. A .90 , Clin. B .90								
1. Feelings about illness/ health condition	**.783**	.024	-.021	.620	**.535**	.136	.158	.581
2. Needs that require care and attention	**.754**	.109	-.041	.658	**.610**	.191	-.190	.563
3. Chance to take responsibility as far as possible	**.463**	.160	.136	.495	**.428**	.162	.038	.345
4. Identify changes in how they have felt.	**.743**	.038	-.008	.589	**.896**	-.122	.054	.710
5. Talk with patients about fears and anxieties	**.727**	.048	-.031	.552	**.936**	-.095	.060	.690
6. Find out how their health conditions affect them	**.677**	.000	.061	.521	**.785**	.080	-.044	.668
7. What the illness / health conditions means to them	**.669**	-.047	.160	.569	**.684**	.090	.049	.622
Pers. A .81, Pers.B .80								
8. What kinds of things they do in their everyday life	.075	.030	**.656**	.539	.049	-.069	**.825**	.655
9. Previous experiences of hospitalization	-.130	.137	**.561**	.432	.014	-.026	**.845**	.700
10. Everyday habits	-.006	-.052	**.910**	.755	-.060	.156	**.764**	.705
11. Family to take part in their care	.114	.115	**.485**	.441	.177	.096	**.269**	.238
Dec. A .85, Dec. B 90				.379				.573
12. Instructions to patients*	.121	**.423**	.119	.587	**.382**	.330	.119	.631
13. What they want to know about illness / health condition	.185	**.560**	.069		.250	**.544**	.060	
14. Patients' personal wishes with regard to their care	.050	**.756**	.013	.648	.127	**.804**	-.055	.747
15. Help patients take part in decisions	-.016	**.882**	.008	.766	-.480	**.934**	-.017	.787
16. Encourage patients to express their opinions	.087	**.734**	.014	.662	-.023	**.888**	.027	.792
17. Ask patients at what time they prefer to wash	-.046	**.317**	.274	.262	-.022	**.433**	.257	.390
Eigenvalue	8.7	1.1	0.9		9.2	1.2	0.9	
Percentage of explained variance	48.8	3.6	3.2		52.1	5.2	3.9	
Cumulative percentage of total variance explained	48.8	52.5	55.7		52.1	57.3	61.2	
Cronbach's α Total scale								
JICS-Nurse A .94								
JICS-Nurse B .94								
Factor Correlation I	-	.78	.72		-	.75	.66	
II		-	.72			-	.71	
III			-				-	

Note. *N* = 536. Values are pattern matrix loadings from an exploratory factor analysis (maximum likelihood extraction, Promax rotation). Communality (h^2) indicates the proportion of variance in each item explained by the extracted factors. Items with loadings ≥ .30 on two or more factors should be marked with an asterisk, indicating cross-loading. Cronbach's α coefficients are shown for the total scale and each subscale. The factor correlation matrix is displayed below. "Clin. A/B" is Clinical Situation A/B ; "Pers. A/B" is Personal Life Situation A/BA ; "Dec. A/B" is Decision Control Over Care A/B.

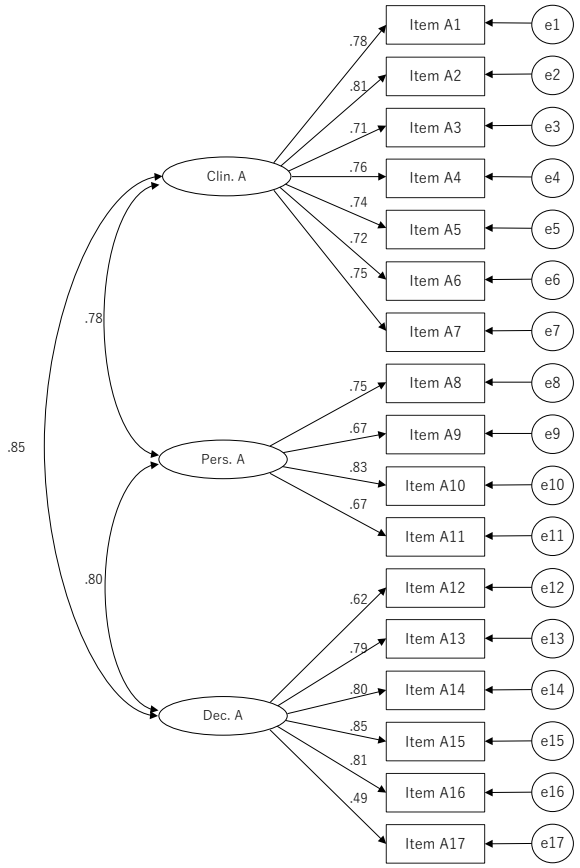

Figure 1. Confirmatory Factor Analysis of the JICS-Nurse A
Note. GFI = .92, AGFI = .90, CFI = .95, RMR = .02, RMSEA = .07, SRMR = .04, indicating an acceptable model fit. "Clin. A" is Clinical Situation A ; "Pers. A" is Personal Life Situation A ; "Dec. A" is Decision Control Over Care A.

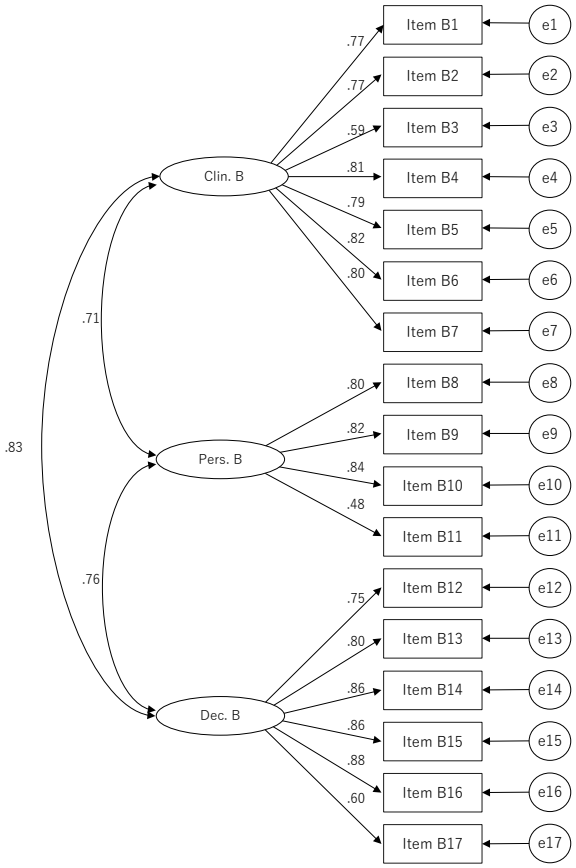

Figure 2. Confirmatory Factor Analysis of the JICS-Nurse B
Note. GFI = .89, AGFI = .86, CFI = .93, RMR = .03, RMSEA = .08, SRMR = .05, indicating an acceptable model fit. "Clin. B" is Clinical Situation B ; "Pers. B" is Personal Life Situation B ; "Dec. B" is Decision Control Over Care B.

Table 4. Correlations Between JICS-Nurse and SSNP-PCC

Scale	M	SD	SSNP-PCC (R)				
			Ⅰ	Ⅱ	Ⅲ	Ⅳ	Total
JICS-Nurse A							
Clinical Situation	3.82	0.57	0.70**	0.61**	0.59**	0.65**	0.71**
Personal Life Situation	3.67	0.68	0.60**	0.60**	0.55**	0.56**	0.65**
Decision Control Over Care	3.92	0.60	0.64**	0.63**	0.65**	0.69**	0.73**
Total	3.82	0.55	0.72**	0.68**	0.66**	0.71**	0.78**
JICS-Nurse B							
Clinical Situation	3.97	0.55	0.60**	0.59**	0.59**	0.64**	0.68**
Personal Life Situation	3.57	0.75	0.47**	0.55**	0.51**	0.47**	0.58**
Decision Control Over Care	3.82	0.67	0.55**	0.59**	0.62**	0.61**	0.66**
Total	3.82	0.57	0.61**	0.64**	0.64**	0.65**	0.72**
SSNP-PCC							
Ⅰ Care that Respects the Person's Perspective	4.46	0.79	-				
Ⅱ Individualized Care Tailored to the Person's Cognitive Function	4.06	0.92		-			
Ⅲ Care that Anticipates Potential Problems through a Psychosocial Approach	4.69	0.89			-		
Ⅳ Care that Respects the Person's Will and Value	4.97	0.78				-	
Total	4.47	0.76					-

Note. N = 536. SSNP-PCC = Self-evaluation Scale of Nursing Practice for Person-Centered Care of Older People with Cognitive Impairment in Acute Care Hospitals. *R* = Pearson's product–moment correlation coefficients. $^{**}p < .01$.

DISCUSSION

This study evaluated the psychometric properties of the Japanese version of the ICS-Nurse (JICS-Nurse). Item analysis confirmed adequate CITC values, discrimination indices, and no ceiling or floor effects, supporting internal consistency. EFA supported a three-factor structure consistent with the original scale, although one cross-loading item was observed in JICS-B and retained for theoretical reasons. CFA demonstrated good model fit for JICS-A and acceptable fit for JICS-B, although some indices were slightly below conventional cutoff values. Internal consistency was high for both scales (Cronbach's $\alpha = .94$ each), while test–retest reliability showed only moderate stability. Furthermore, significant correlations with the SSNP-PCC supported concurrent validity.

These findings suggest that the JICS-Nurse can contribute to the advancement of individualized nursing care in Japan by serving research, education, and practice. The scale enables assessment of the degree to which nurses recognize patients' individuality and provide individualized care, thereby functioning as an outcome measure for care quality as with the original scale. Many existing nursing practice measures focus primarily on evaluating task achievement rather than quality of care (51). Individualized care, however, is not only essential for meeting patients' needs but also a fundamental ethical requirement (52). By applying the JICS-Nurse, nurses can visualize the quality of their own care, and educators may utilize it to enhance clinical competencies.

Moreover, as the ICS has been translated into multiple languages and validated across countries (8), the Japanese version facilitates international collaboration and cross-cultural comparisons. With a standardized instrument, Japanese researchers and clinicians can participate in multinational studies and contribute data for meta-analyses, thereby advancing global nursing science.

Overall, the JICS-Nurse demonstrated adequate psychometric properties and appears to be a useful tool for assessing the degree of individualized nursing care in acute care hospitals. Nevertheless, the moderate test–retest reliability highlights the need for further longitudinal studies and validation in diverse clinical settings.

CONCLUSION

The Japanese version of the ICS-Nurse showed strong internal consistency, an acceptable factor structure, and evidence of concurrent validity. It may have the potential to serve as a useful tool for assessing the degree of individualized nursing care in acute care hospitals in Japan. However, as test–retest reliability was only moderate, likely due in part to the longer interval between the two assessments, further longitudinal research and validation in different clinical contexts are warranted.

CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

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