

Development of a Self-Report Checklist to Assess Dementia Care by Nurses in Hospital Settings

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ABSTRACT

Nurses working at general hospitals face difficulties in providing dementia care. The current study examined aged care nurses' dementia care practices in the hospital setting and developed a dementia care checklist that nurses can use to review their own care practice. A self-administered questionnaire was given to 676 participants; responses were collected from 595 participants. Exploratory factor analysis identified six factors (e.g., patient understanding prompted by concern and interest for the patient, respect for patients' voluntary behavior, early detection of abnormalities) among the questionnaire's 28 items. This analysis provided a framework for the checklist and verified that it had satisfactory internal consistency and construct validity. The frequency of care practices varied with participants' knowledge of dementia care requirements, satisfaction with their own dementia care practice, confidence in their ability to judge patients' physical condition, and cooperation with colleagues. This checklist might improve dementia care in hospital settings.

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In 2015, approximately 46.8 million individuals worldwide had dementia, with this figure predicted to approximately double every 20 years to 113.5 million individuals with dementia by 2050 (Prince, Comas-Herrera, Knapp, Guerchet, & Karagiannidou, 2016). Specific symptoms and chronic characteristics of dementia include confused memory, cognition, and orientation; personality change;

and behavioral changes associated with progressive brain dysfunction (e.g., inhibited understanding, learning, calculation, language, judgment) (Draper, 2004).

In British acute care hospitals, the number of older adults with dementia has recently increased to 42.2% (Royal College of Psychiatrists, 2017; Sampson, Blanchard, Jones, Tookman, & King, 2009). Acute care environ-

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ments may worsen dementia symptoms (Cunningham & Archibald, 2006; Martin & Haynes, 2000), and nurses working in acute care hospitals may not be sufficiently skilled to provide care to patients with dementia.

Caring for older adults who are in a confused state due to dementia in an acute hospital setting presents care staff with special challenges—in particular, the need to holistically support each patient's personhood while managing his/her disruptive behavior (Moyle, Borbasi, Wallis, Olorenshaw, & Gracia, 2011). Due to disruptive patient behavior, nurses may not be able to provide appropriate care; this can affect the care provided to other patients. Consequently, there are some facilities where physical and chemical restraints have been adopted (Chrzescijanski, Moyle, & Creedy, 2007; Nakahira, Moyle, Creedy, & Hitomi, 2009). Some nurses in acute care hospitals are unable to distinguish between the symptoms of dementia and delirium; however, other nurses show accurate knowledge of dementia and how to care for patients with dementia of varying levels of severity (Lin, Hsieh, & Lin, 2012). These findings suggest that knowledge of dementia helps nurses understand how to care for patients with dementia, although some nurses may still struggle to determine if patients' confusion is due to the progression of dementia or delirium.

The environment of acute care hospitals differs from that of residential care homes in terms of staff ratio, skill mix, and staff education: acute care staff may lack the understanding of older adults necessary to optimize their practice for such individuals (Moyle, Olorenshaw, Wallis, & Borbasi, 2008). This lack of understanding may be because acute hospitals are more treatment-focused and therefore less likely to consider older adult patients with dementia from a holistic perspective. During the care of individuals with dementia, acute care nurses are required to perform a thorough daily assessment of the patient's condition, including signs of onset of more serious symptoms including delirium and behavioral and psychological symptoms of dementia (BPSD). As a result, provision of daily care that enables a safe environment that seeks to ensure quality of life for the patient can be achieved. All nurses should be able to practice effective dementia care.

Japan is considered a super-aged society, with an aging rate of 27.3% (Government of Japan Cabinet Office, 2017), with reports of dementia among inpatients at a 27.2% holding rate (All Japan Hospital Association, 2016). Previous studies of hospitalized patients with dementia exist in the literature, including some that are focused on concerns regarding the response to BPSD in patients with

dementia (Matsuo, 2011), difficulties nurses face in caring for older patients with dementia (Chida & Mizuno, 2014), and the difficulty of nurses to maintain emotional control (Nishimura, Okamoto, & Suzuki, 2015). Consequently, the need for a response to hospital-based dementia care is urgent.

Person-centered care (PCC; Brooker, 2007) aims to improve dementia care and emphasizes recognition and respect for individuals' values, regardless of age or health condition. PCC also stresses individualized care practice and forming relationships that consider the perspective of the patient with dementia. Several scales for evaluating the practical effectiveness of PCC have been developed (Edvardsson, Fetherstonhaugh, & Nay, 2011; Edvardsson, Koch, & Nay, 2010; Edvardsson, Nilsson, Fetherstonhaugh, Nay, & Crowe, 2013; Edvardsson et al., 2015). One scale, the Person-Centered Climate Questionnaire (PCQ-S), developed by Edvardsson et al. (2010), focuses on hospital staff and assesses the climate of a person-centered environment, including safety, community, and comprehensibility.

The Tool for Understanding Residents' Needs as Individual Persons (TURNIP; Edvardsson et al., 2011) is an intervention tool for the provision of person-centered service for admissions staff at older adult facilities and includes details on the attitudes of staff, beliefs and current activities (such as those expressed within the care environment), staff members' attitudes toward dementia, their knowledge about dementia, and care provided at the facility. The Person-Centered Care of Older People with Cognitive Impairment in Acute Care (POPAC; Edvardsson et al., 2013) scale is used for evaluation of hospital staff's knowledge of PCC as it relates to the hospitalization of older adult patients with dementia in acute care hospitals. Details are based on the use of cognitive assessments and care interventions as well as evidence and expertise regarding cognition and individual care.

Separately, Brooker (2012) developed a self-assessment index for medical staff practicing PCC for patients with dementia and their families. This index examines the following elements of PCC: value (V), an individualized approach (I), perspective of the person (P), and social psychology (S) (Brooker, 2007).

The above-mentioned scales and targets, however, fail to grasp the severity of the physical conditions and associated dementia symptoms experienced by older patients in acute care hospitals. There are also issues of cognitive function, nursing diagnosis, and consultations with professionals, apart from specific nursing practices (Suzuki et al., 2016).

It is important to consider such practices because they reflect the multidimensional nature of effective dementia care; namely, how effective care addresses physical, psychological, emotional, environmental, cultural, social, and spiritual factors (Barker & Board, 2012; Gail, 2008). Previous studies have highlighted the following specific factors as important to the effectiveness of dementia care: early detection and evaluation of dementia in acute hospitals, nursing staff's knowledge and attitude, focused communication, reduction of stressors, familiarity of family and other care providers, and interdisciplinary care administration (Borbasi, Jones, Lockwood, & Emden, 2006; Moyle et al., 2008).

As for dementia care in Japan, Rokkaku (2012) identified 11 subtypes of dementia care: supervision and monitoring care, health management care, engagement care, care to stimulate the five senses, care to explore interests, refreshment care, team care, care to facilitate behavioral changes, rehabilitation care, care for basic needs, and family care. Based on this framework by Rokkaku (2012), it is possible to generate tools for evaluating individual dementia care practices. Development of a self-report checklist is particularly crucial, as it would allow nurses to identify which of the necessary dementia care practices they have performed, which could lead to improvements in dementia care.

For this purpose, the elements of dementia care through a literature review and interviews with nurses were extracted and organized using Rokkaku's (2012) framework, and a draft of a dementia care checklist (DCC) was developed. The reliability and validity of the DCC were evaluated.

METHOD

Study Design

A descriptive study aimed at developing a checklist for dementia care was performed. In the first step (item development), 18 nurses were interviewed.

Three researchers (C.I., K.O., and another) examined the interview results and organized and categorized the elements of dementia care based on Rokkaku's (2012) framework. Based on this result, a draft of the DCC (DCC draft) was created. In consideration of the background of the three researchers, two (C.I. and another) had 15 years of gerontological nursing education and practice experience as well as experience and practice in the provision of dementia care. The third researcher (K.O.) had more than 25 years of experience in nursing ethics research.

Content validity (Lynn, 1986) of the DCC draft was evaluated by the initial three researchers as well as two additional researchers who aided in the analysis of the

interview results. The background of these two additional researchers included nursing ethics and experience in nursing education as well as commensurate clinical experience, including dementia care. In addition, two pretests were conducted with 12 and 23 nurses, respectively, to confirm DCC draft feasibility.

In the second step, a questionnaire survey (i.e., the main survey) was administered using the DCC draft. The factors of dementia care were extracted using exploratory factor analysis (EFA), and the reliability was confirmed using Cronbach's alpha. Construct validity was evaluated via a comparison of these factors with the original care categories of the DCC draft prepared in the first step.

The current study was performed with approval of the clinical and epidemiological research committee of the School of Health Sciences, Nagoya University. Informed consent was obtained from participants when they responded to the questionnaire.

Item Development (Step 1)

The objectives of this step were to collect information about the details of hospital nurses' dementia care practice, create items for the DCC draft, and evaluate the DCC draft's content validity. Participants were 18 nurses working in medical institutions (excluding psychiatric hospitals) who had ≥ 3 years of clinical experience and had cared for five or more patients diagnosed with dementia. Participants' mean age and clinical experience were 40.5 ($SD = 11$) and 17.7 ($SD = 9.2$) years, respectively. One-on-one, semi-structured interviews were conducted examining participants' individual dementia care practice. Interview transcripts were created, and Rokkaku's (2012) dementia care framework was used to identify specific practices for dementia care in these transcripts. To ensure reliability and validity, this analysis was conducted by two faculty members (C.I., K.O.) in the doctoral program at the Department of Nursing and one nursing ethics specialist.

Specific care actions and keywords were identified and coded among the transcripts, ultimately resulting in 422 codes. A total of 365 codes fit in one of the 11 care categories in the existing framework; of the remaining 57 codes, 37 were classified in a novel care category called "engagement with patients." The 20 remaining codes related to the restriction of actions and medical restraint, but because these were not considered to constitute positive forms of care, they were not included in the subsequent analysis. Accordingly, the following 12 categories, containing a total of 37 items, were adopted to create the DCC draft (**Table 1**): monitoring patients (three items); observation and un-

TABLE 1
Draft Dementia Care Checklist Items

Category	Items	Abbreviation ^a
1. Monitoring Patients	1. I observe patients' behavior.	Patients' behavior
	2. I give consideration to patients' safety.	Patients' safety
	3. I perform my duties while checking and being aware of patients' current whereabouts (even if they are not right in front of me).	Current whereabouts
2. Observation and Understanding of Behavioral and Psychological Symptoms	4. I check for exacerbation of patients' concerns and fears.	Concerns and fears
	5. I listen attentively to patients' complaints and remarks.	Complaints and remarks
	6. I always check for behavior considered dangerous from a medical standpoint.	Checking behavior
	7. I explain things so that patients consent by saying "I see" or "Well, that sounds okay."	Patients' consent
3. Understanding Patients Through Involvement	8. I endeavor to explore the background behind the gaps between patients' conception of reality and reality itself.	Patients' conception
	9. I endeavor to understand patients' intentions based on their behavior.	Patients' intentions
	10. When talking with patients, I position my eyes at the same height as theirs.	Eye level
4. Stimulating the Five Senses	11. I endeavor to react positively to patients' words and behavior.	Patients' words
	12. I attempt to correct patients' perceptions of time; for example, opening the curtains and letting sunlight in.	Correct perceptions
5. Exploring Interests	13. At mealtimes, I endeavor to tell patients their meal contents while they eat so that they can taste them.	Meal content
	14. I endeavor to ask patients for the reasons behind their behavior.	Ask about reasons
	15. I attentively check patients' preferences and habits while providing assistance with their daily lives.	Patients' preferences
6. Team Care	16. I take opportunities to initiate communication offered by objects in the patients' vicinity with which patients are familiar.	Initiate communication
	17. I coordinate with health care professionals other than nurses to prevent complications.	Prevent complications
	18. I make adjustments aimed toward living at home together with health care professionals other than nurses.	Living at home
7. Guiding Behavior Due to Dementia; Guidance Toward Appropriate Behavior	19. I work to promote patients' independence in ADLs through collaboration with health care professionals other than nurses.	Independence in ADLs
	20. I seek out patients' physiological needs based on their actions.	Physiological needs
	21. I guide patients so that they can fulfill needs they are unable to express.	Fulfill needs
	22. I seek out requests from patients I cannot see.	Requests from patients

derstanding of BPSD (five items); understanding patients through involvement (three items); stimulating the five senses (two items); exploring interests (three items); team

care (three items); guiding behavior due to dementia, guidance toward appropriate behavior (three items); involvement to ensure autonomy (four items); physical health

TABLE 1 (CONTINUED)
Draft Dementia Care Checklist Items

Category	Items	Abbreviation ^a
8. Involvement to Ensure Autonomy	23. I work to maintain the ADLs of patients who have diminished independent function.	Maintaining ADLs
	24. I accommodate independent patients flexibly so that they can behave voluntarily and spontaneously.	Patients' independence
	25. I remain able to respect the needs of patients from the viewpoint of preserving their self-esteem, dignity, and well-being.	Respect needs
	26. I monitor patients' voluntary behavior without restraining them if it is not dangerous.	Voluntary behavior
9. Physical Health Management	27. I endeavor to notice differences from patients' typical facial expressions and attitudes.	Notice differences
	28. I endeavor to not miss any signs of patients' primary diseases worsening.	Diseases worsening
	29. I perform physical assessments of patients in the initial period after their admission.	Physical assessments
10. Environmental Adjustments Related to Basic Desires	30. I promote time-appropriate ADLs (e.g., morning activities in the morning, daytime activities during the day).	Time-appropriate ADLs
	31. I make environmental adjustments so that patients can get closer to their former living rhythms.	Living rhythms
11. Ways of Involvement with Families	32. I take time to explain to families the effects that dementia symptoms have on their relatives' daily life.	Time explaining
	33. I endeavor to look gently after families who are in denial about their relative having dementia.	Looking after families
	34. I improve families' understanding of their relatives based on the relationship between relatives and their families.	Families' understanding
12. Ways of Involvement with Patients	35. I try to use short words when speaking to patients.	Use short words
	36. I try to calm my emotions before approaching patients.	Calm emotion
	37. When rejected by a patient, I give them time and instead try to get involved with different patients.	Patient rejection

Note. ADLs = activities of daily living.

^aThese abbreviations are used in Table 4 to refer to the items in each factor.

management (three items); environmental adjustments related to basic desires (two items); ways of involvement with family (three items); and ways of involvement with patients (three items). Responses to the items were made on a 4-point Likert scale (1 = *not at all*, 4 = *always*) in terms of the frequency with which each care item was performed. To ensure the DCC draft's content validity, each category's and item's agreement was confirmed among five nursing researchers, as per Lynn's (1986) study. The feasibility of the items was then evaluated twice using pretests with 12 and 23 nurses, respectively.

Main Survey (Step 2)

Sample. Before beginning data collection, the initial sample size was 1,200 nurses working in neurology and brain surgery, orthopedics, general internal medicine, and surgery wards in 54 medical institutions (excluding psychiatric hospitals) among all hospitals with ≥ 100 beds in the Tokai and Kanto-Koshinetsu areas of Japan. The reason for setting this sample size was to ensure a sufficient number of participants for factor analysis: as there are 37 DCC items, it was necessary to obtain ≥ 600 participants to achieve sufficient power. Therefore, assuming

TABLE 2
Participants' Knowledge, Support, and Experience in Caring for Patients With Dementia

Variable	Median Score	Likert Score (n, %)			
		1	2	3	4
Knowledge type ^a					
Dementia	2	55 (9.3)	308 (52.1)	224 (37.9)	4 (0.7)
Age-related physical changes	3	11 (1.9)	207 (35.0)	351 (59.4)	22 (3.7)
Drugs' action and side effects	2	84 (14.2)	301 (50.7)	205 (34.6)	3 (0.5)
Delirium	2	30 (5.1)	296 (49.9)	258 (43.9)	9 (1.5)
Support ^b					
By colleague	2	8 (1.4)	61 (10.3)	349 (58.9)	174 (29.4)
By supervisor	2	26 (4.4)	95 (16.3)	313 (53.7)	149 (25.6)
Experienced embarrassment due to dementia patients' violent language or behavior ^c	2	50 (8.4)	327 (55.1)	181 (30.5)	35 (5.9)
Concerns regarding dementia ^d	3	9 (1.5)	279 (47.1)	213 (36.0)	91 (15.4)
Confidence in one's judgment of dementia patients' physical condition ^e	2	244 (41.2)	230 (38.9)	118 (19.9)	0 (0.0)
Satisfaction with one's dementia care practice ^f	2	232 (39.5)	231 (39.3)	122 (20.7)	3 (0.5)

^a Likert scale ranged from 1 = *minimal knowledge* to 4 = *possess sufficient knowledge*.

^b Likert scale ranged from 1 = *there is a lack of support* to 4 = *sufficient support is available*.

^c Likert scale ranged from 1 = *not particularly* to 4 = *always embarrassed/bewildered*.

^d Likert scale ranged from 1 = *no anxiety* to 4 = *very uneasy*.

^e Likert scale ranged from 1 = *not confident* to 4 = *very confident*.

^f Likert scale ranged from 1 = *no sense of achievement* to 4 = *feeling very accomplished*.

a collection rate of approximately 50%, the total number of requests needed to be 1,200. In addition, assuming cooperation of approximately 20 nurses per hospital, the number of facilities to which requests were sent was 54.

Procedure. Initially, the cooperation of the director of each study hospital was requested; once he/she agreed to cooperate, individual nurses working in the hospitals were asked if they would participate in the study. A total of 1,227 nurses in 24 facilities agreed to participate. Questionnaires were sent to the study hospitals and representatives of each hospital were asked to distribute them to the nurses. The survey was anonymous and self-administered. Participants returned their answers using a stamped reply envelope. Responses were obtained from 676 nurses (collection rate = 55.1%); 595 responses were valid (response rate = 88%). Data were collected from September to November 2014.

Measures. The questionnaire was divided into two parts: a face sheet asking about demographic data and the 37 items (4-point Likert scale: 1 = *not at all*, 4 = *always*) evaluating their frequency of performing each care practice developed in Step 1. Participants' knowledge and

support experience items examined the following: four knowledge types (i.e., knowledge of dementia, age-related physical changes, drugs' action and side effects, and delirium); colleagues' and supervisors' cooperation; experience of embarrassment due to violent language or behavior of a patient with dementia; concerns regarding dementia care; confidence in one's judgment of the physical condition of patients with dementia; satisfaction with one's dementia care practice; and number of experts in the facility.

The questionnaire was structured according to a 4-point Likert scale based on reports from previous studies, which indicate that difficulties faced by nurses in providing care to older adults with dementia (Chida & Mizuno, 2014), the current support system (Matsuda, Nagahata, Ueno, & Gora, 2006; McCarthy, 2003), and inadequate care provision due to insufficient knowledge (Lin et al., 2012) all affect the quality of dementia care provided.

Data Analysis

SPSS Statistics 21.0 was used for all data analysis. An item analysis of the 37 items in the DCC draft was performed, ex-

aminating ceiling and floor effects. Normality of the distributions was checked via a P-P plot. To confirm the appropriateness of the sample for EFA, the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity were conducted. Reliability was evaluated using Cronbach's alpha. Validity was evaluated by comparing the factors extracted by EFA with the original care categories. EFA was performed using the principal factor method and a promax rotation. Factors were extracted if they had an eigenvalue ≥ 1.0 and all constituent items had factor loadings ≥ 0.4 . Items that showed cross-loading on two or more factors were removed.

Demographic data were dichotomized, and *t* tests were used to determine how the frequencies of different dementia care practices varied by demographic characteristics. Dichotomization was conducted as follows: years of clinical experience divided into groups of <10 years and ≥ 10 years. For the remaining demographic characteristics (e.g., knowledge types, colleagues' and supervisors' support, experience of embarrassment due to patients' violent language or behavior), the median value of participants' answers was confirmed and two groups were created. Positive answers were classified as "yes" and negative answers as "no" (Table 2). All comparisons were performed via *t* tests.

To clarify construct validity, the 12 categories obtained through item development in Step 1 and the factor structure extracted after the EFA were compared. Known-groups validity (Polit & Beck, 2016) was also examined by comparing the total scores according to years of nursing experience and expert knowledge. *Known-group validity*, also known as discriminative validity, is a measure of distinguishing two or more different (or anticipated) groups with respect to the component of interest and is based on the linear hypothesis of the ability to distinguish two or more groups (Polit & Beck, 2016). The known-group method examines the extent to which distinction can be made among multiple groups expected to differ depending on known characteristics (Peters, Benkert, Templin, & Cassidy-Bushrow, 2014). Amaki, Momose, and Fujino (2017) show that nurses with more years of experience currently provide more dementia care in Japan than nurses with fewer years of experience.

RESULTS

Participant Characteristics

Of 595 participants, 554 were female and 41 were male. Mean participant age and clinical experience were 34.6 ($SD = 9.5$) and 11.8 ($SD = 9.1$) years, respectively (Table 3), and the mean number of beds in participants' facilities was 422 ($SD = 43.8$ beds). Most facilities were public medical institutions.

TABLE 3

Participant Characteristics

Characteristic	<i>n</i> (%) ^a
Gender	
Female	554 (92.6)
Male	41 (6.9)
Position	
Chief/staff	575 (96.6)
Administrative staff (higher position than chief nurse)	19 (3.2)
Education level	
Professional school/junior college	501 (84.2)
University	91 (15.3)
Employment status	
Full time	577 (87)
Part time/temporary staff	15 (2.5)
Experience with dementia training	187 (31.4)
Facility organization	
Public medical institution	15 (62.5)
Medical corporate body	4 (16.7)
Educational foundation	2 (8.3)
Government	1 (4.2)
Medical co-op	1 (4.2)
Private company	1 (4.2)
Experts in the facility ^b	
Neurologist	312 (73.6)
Certified nurse ^c	272 (52.7)
Specialized nurse ^d	17 (5.8)
	Mean (SD)
Age (years)	34.6 (9.5)
Clinical experience (years)	11.8 (9.1)
Average number of beds in facility	422 (43.8)

^a Some data missing due to blank or invalid responses.

^b More than one response possible.

^c Certified nurse has ≥ 5 years of practical experience as a nurse, satisfied the Japanese Nursing Association certification education requirements (≥ 615 hours), and passed the certified nurse certification examination.

^d Specialized nurse has ≥ 5 years of practical experience as a nurse, completed a master's degree at a nursing graduate school, and passed the professional nurse certification examination.

Item Analysis

When considering all 37 items in the DCC draft, the average practice frequency score was 3.0 ($SD = 0.7$). A ceiling effect was observed for seven items. However, no items showed a floor effect or diverged significantly from the P-P plot distribution.

TABLE 4
Factor Structure of the Dementia Care Checklist Items

Factor (Item ^a)	F1	F2	F3	F4	F5	F6
F1 Patient's Comprehension ($\alpha = 0.87$)						
Fulfill needs (21)	0.855	0.033	-0.168	-0.056	0.034	0.081
Requests from patients (22)	0.854	0.129	-0.128	-0.130	-0.013	-0.025
Patients' conception (8)	0.681	-0.106	0.151	0.039	0.086	-0.107
Concerns and fears (4)	0.628	-0.127	0.279	-0.017	0.037	-0.003
Physiological needs (20)	0.625	0.135	-0.023	-0.060	-0.086	0.163
Patients' intentions (9)	0.476	0.156	0.260	0.120	-0.117	-0.078
F2 Early Discovery of Peculiar Events ($\alpha = 0.83$)						
Patients' independence (24)	0.019	0.741	-0.045	0.027	-0.018	0.015
Voluntary behavior (26)	0.018	0.701	0.025	-0.079	0.05	-0.195
Respect needs (25)	0.095	0.591	-0.094	0.096	0.070	-0.048
Diseases worsening (28)	-0.051	0.576	0.204	-0.134	0.016	0.116
Notice differences (27)	0.121	0.525	0.010	0.118	-0.023	0.023
Maintaining ADLs (23)	0.063	0.444	0.066	0.028	0.040	0.149
F3 Consideration for Patients' Safety ($\alpha = 0.75$)						
Patients' safety (2)	-0.141	0.106	0.819	0.005	-0.079	-0.024
Current whereabouts (3)	0.059	-0.087	0.669	-0.068	0.105	-0.004
Checking behavior (6)	-0.047	0.093	0.582	0.062	-0.046	0.068
Patients' behavior (1)	0.117	-0.071	0.512	0.033	0.055	0.024
F4 Respect for Patient as an Individual ($\alpha = 0.78$)						
Meal content (13)	-0.067	-0.085	-0.045	0.753	-0.007	0.037
Correct perceptions (12)	-0.188	0.035	0.076	0.629	-0.071	0.093
Eye level (10)	0.006	-0.016	0.009	0.524	0.063	-0.041
Initiate communication (16)	0.192	0.087	-0.052	0.511	-0.060	-0.024
Patients' words (11)	0.109	0.075	0.078	0.470	0.011	-0.046
Patients' preferences (15)	0.407	-0.087	-0.042	0.464	0.087	-0.011
F5 Response to the Family ($\alpha = 0.80$)						
Families' understanding (34)	-0.020	0.009	0.141	-0.012	0.755	0.021
Time explaining (32)	0.090	-0.036	-0.077	-0.100	0.747	0.036
Looking after families (33)	-0.055	0.101	0.055	0.035	0.633	-0.033
Living rhythms (31)	-0.029	0.195	-0.120	0.199	0.472	0.020
F6 Coordination With Other Professionals ($\alpha = 0.78$)						
Living at home (18)	0.007	-0.054	0.014	0.016	0.004	0.784
Independence in ADLs (19)	0.043	-0.044	0.023	0.041	0.035	0.778

Factor Structure of the Checklist

The KMO value was 0.95, whereas Bartlett's test of sphericity was significant ($p < 0.001$). Taken together, the results suggest that the sample was suitable for factor analysis (Strickland, 2003) (Table 4). A six-factor structure containing 28 items was identified, and factors were named

based on item content. The first factor comprised six items relating to how nurses are expected to anticipate patients' needs, anxieties, and worries, which they cannot consciously express due to the core symptoms of dementia; as such, it was named "patient's comprehension." The second factor comprised six items related to nurses' observation

TABLE 4 (CONTINUED)
Factor Structure of the Dementia Care Checklist Items

Factor (Item ^a)	F1	F2	F3	F4	F5	F6
Eigenvalue	9.43	1.44	1.00	0.77	0.73	0.64
Variance explained by factor (%)	34	5	4	3	3	2
Total variance explained by the factor model (%)	—	—	—	—	—	50
Correlation matrix						
F1	1.000	—	—	—	—	—
F2	0.683	1.000	—	—	—	—
F3	0.468	0.506	1.000	—	—	—
F4	0.714	0.694	0.523	1.000	—	—
F5	0.643	0.609	0.383	0.615	1.000	—
F6	0.341	0.431	0.391	0.399	0.368	1.000

Note. F = factor; ADLs = activities of daily living. Method of factor analysis: Principal factor method. Rotation method: Promax rotation method with Kaiser normalization. Overall α coefficient for five factors = 0.95.

^a Refer to Table 1 for item abbreviations.

of spontaneous behavior and detection of changes in patients' physical condition from their behavior. Thus, it was named "early discovery of peculiar events." The third factor comprised four items relating to nurses' efforts to confirm patients' locations and dangerous behaviors, and was thus named "consideration for the patient's safety." The fourth factor comprised six items concerning adjustment to daily routines through stimulation of the five senses, named "respect for the patient as an individual." The fifth factor comprised four items related to how families can understand patients by explaining the state of dementia symptoms, and was named "response to the family." Finally, the sixth factor contained two items relating to adjustment to one's daily lifestyle for multiple activities, and thus was named "coordination with other professionals."

Differences in Factors by Demographic Characteristics

Table A (available in the online version of this article) presents the differences in each factor and total score by participants' demographic characteristics. The total score was significantly higher among participants with ≥ 10 years of clinical experience than among participants with < 10 years' experience ($p < 0.01$). Similarly, those who responded positively for each of the four types of knowledge had significantly higher total scores ($p < 0.01$). Mean scores of the second, third, fifth, and sixth factors varied significantly according to participants' answers for cooperation with colleagues and supervisors ($p < 0.01$ or $p < 0.05$;

see Table 4 for specific p values). Furthermore, nurses with greater expertise—namely, knowledge of dementia, age-related physical changes, drugs' action and side effects, and delirium—more frequently practiced all factors of dementia care ($p < 0.01$ or $p < 0.05$).

Many of the factor scores varied significantly according to the presence of (a) experience of embarrassment due to violent language or behavior from patients with dementia, (b) confidence in one's judgment of the physical condition of patients with dementia, (c) concerns about dementia care, and (d) satisfaction with one's dementia care practice ($p < 0.01$ or $p < 0.05$). The second factor score also varied significantly depending on the presence of specialized nurses ($p < 0.05$).

Reliability of the DCC

The DCC draft's internal consistency (Cronbach's alpha) was 0.93 for all 28 items and ranged from 0.78 to 0.87 for each of the six factors, indicating satisfactory reliability.

Comparison Between the Original 12 Care Categories and Extracted Factor Structure (Construct Validity Assessment)

The EFA identified six underlying factors corresponding to 11 of the 12 original categories, excluding category 12 (i.e., "ways to remain involved with patients"). Among the 11 remaining categories, Categories 8 and 9 corresponded to Factor 2 (Table 4). Overall, the factors ex-

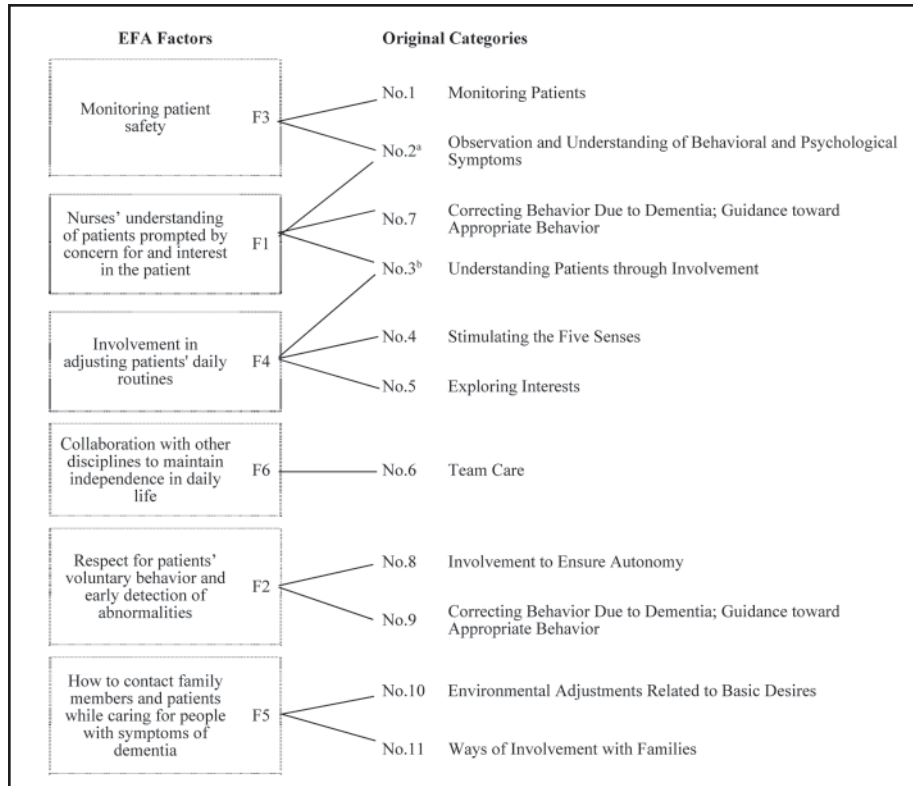


Figure. Dementia Care Checklist versus original care categories.

Note. EFA = exploratory factor analysis. The original categories converged into six factors, excluding No. 12.

^a Three items from No. 2 fit in F1 and F3.

^b Three items from No. 3 fit in F1 and F4.

tracted through EFA were more abstract than the original care categories, but retained all elements of dementia care proposed in the existing care framework (Rokkaku, 2012). Therefore, the DCC draft showed greater abstraction for dementia care but retained satisfactory construct validity (Figure).

As for the known-groups validity, when comparing DCC scores by nursing experience and the four knowledge types (i.e., general knowledge of dementia, physical changes due to aging, knowledge of the action and side effects of drugs, and knowledge of delirium), nurses with ≥ 10 years of nursing experience and nurses with more knowledge showed significantly higher total DCC scores.

DISCUSSION

The mean DCC factor scores differed significantly according to the following demographics: (a) expertise (knowledge of dementia, knowledge of age-related physical changes, knowledge of the action and side effects of drugs, and knowledge of delirium), (b) cooperation with colleagues, (c) experience of embarrassment due to violent language or behavior by patients with dementia, (d)

worries about dementia care, (e) confidence in one's judgment of the physical condition of patients with dementia, and (f) satisfaction with one's dementia care practice.

Regarding the significant association between dementia knowledge and dementia care practice frequency, the absence of specific knowledge of dementia in nurses appeared to disrupt the performance of care processes (Borbasi et al., 2006). Research has similarly shown that expertise in dementia care is important for understanding care needs of individuals with dementia (Fick & Foreman, 2000; Poole, 2003). As for differences in practice frequency according to other areas of dementia-related expertise (i.e., knowledge of age-relat-

ed physical changes, drugs' actions and side effects, and delirium), studies have shown considerable individual differences among patients with dementia in terms of age-related changes in physical condition and reactions to medications (Lin et al., 2012). As such, knowledge of age-related changes in physical condition, medication, and delirium appears to support a systematic understanding of the physical and mental health of older adults with dementia, leading to more comprehensive and multidimensional care practices.

The significant association between dementia care practice frequency and cooperation with colleagues underlines the need for care environments that permit nurses to freely discuss dementia care requirements, and for consideration and support of the ward's administrator (Chrzescijanski et al., 2007). This need for cooperation may exist because dementia care requires multiple specific approaches and the consistent and timely management of problems. Cooperation with colleagues appears to help nurses meet these care requirements, thereby increasing nurses' dementia care practice frequency. Thus, the current results support previous findings suggesting the benefit of educational support and the systematic administrative arrangement of the

care environment (Chrzescijanski et al., 2007), particularly regarding cooperation with colleagues (McCarthy, 2003).

Practice frequency was also found to be significantly associated with the experience of embarrassment due to violent language and behavior from patients with dementia, concerns about dementia care, confidence in one's judgment of the physical condition of patients with dementia, and satisfaction with one's dementia care practice. These results support reviews recommending further exploration of the relationships between systematic person-centered evaluations and nurses' level of support and satisfaction (Edvardsson, Winblad, & Sandman, 2008; McCormack, 2004). In the current study, nurses who were more satisfied with their care practice and more confident in their judgment of the physical condition of patients with dementia had significantly greater care practice frequency. This finding appears to support research indicating that the frequency of engaging in PCC is positively associated with work satisfaction and social support (Cunningham & Archibald, 2006; Dewing & Dijk, 2014).

Care practice frequency was also higher among nurses who had not experienced embarrassment through caring for individuals with dementia and those who did not experience concerns regarding their dementia care practice. These results suggest that negative emotional experiences associated with dementia care reduce nurses' care practice frequency, and that practice frequency can be maintained by protecting against such experiences.

LIMITATIONS

The current study has the following limitations. First, the data collected during the semi-structured interviews in Step 1 were analyzed under the supervision of two experts; this method may explain why the novel twelfth care factor identified at this stage was not supported in the subsequent EFA. However, some of the 12 original categories (e.g., numbers 2 and 3) fit into two factors, whereas in other cases, multiple categories corresponded to a single factor. This finding suggests that more accurate categorization could be obtained by increasing the number of experts involved in the analysis of Step 1. Second, it was determined that seven of the 37 items on the DCC had ceiling effects. These items were not excluded because the item analysis supported their normality, but future research should revise these items' expressions to increase the checklist's accuracy.

IMPLICATIONS

The 28 items of the self-report DCC developed in the current study were based on past literature and interviews

with nurses. By using this checklist, each nurse can review and correct his or her care, both overall and for each individual practice. The current authors hope this checklist will help nurses improve their delivery of dementia care.

CONCLUSION

The DCC, which has a six-factor structure and 28 items, was developed for assessing dementia care provided by nurses. Regarding the DCC's construct validity, the factor structure contained all constructs from Rokkaku's (2012) framework. Furthermore, the checklist showed satisfactory internal consistency. Data collected using this checklist suggest that dementia care practice frequency is associated with nurses' expertise (e.g., knowledge of dementia and age-related physical changes), cooperation with colleagues, confidence in one's judgment of the physical condition of patients with dementia, and satisfaction with one's dementia care practice.

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Table A
Average Practice Frequency Score in Each Factor Compared by Participant Demographics

Demographic categories		n	Total score				Factor 1				Factor 2				Factor 3				Factor 4				Factor 5				Factor 6				
			Average	SD	t	p	Average	SD	t	p	Average	SD	t	p	Average	SD	t	p	Average	SD	t	p	Average	SD	t	p	Average	SD	t	p	
Clinical experience	Over 10 years	281	86.1	10.6	-	**	2.8	0.5	-	**	3.1	0.5	-	**	3.5	0.4	-	**	3.1	0.5	-	**	2.8	0.6	-	**	3.5	0.6	-	**	
	Less than 10 years	299	83.2	11.6	3.1	**	2.7	0.5	3.16	**	3.0	0.5	1.69		3.4	0.5	2.79	**	3.0	0.5	2.86	**	2.7	0.6	1.09		3.3	0.6	3.55	**	
Knowledge of dementia	Yes	228	86.5	10.6	-	**	2.8	0.5	-	**	3.1	0.5	-	*	3.5	0.4	-	*	3.1	0.5	-	*	2.8	0.6	-	**	3.4	0.6	-	**	
	No	363	83.6	11.5	3.2	**	2.7	0.5	3.63	**	3.0	0.5	2.36	*	3.4	0.5	1.96	*	3.0	0.5	2.07	*	2.7	0.6	2.83	**	3.3	0.6	0.99		
Expertise	Knowledge of age-related physical changes	Yes	22	95.2	11.0	-		3.2	0.4	-		3.5	0.5	-		3.7	0.3	-		3.4	0.5	-		3.1	0.6	-		3.5	0.7	-	
	No	569	84.3	11.0	4.6	**	2.7	0.5	4.46	**	3.0	0.5	4.25	**	3.4	0.4	4.87	**	3.1	0.5	3.63	**	2.7	0.6	2.89	**	3.4	0.6	1.24		
Knowledge of drugs' action and side effects	Yes	208	87.3	10.5	-	**	2.9	0.5	-	**	3.1	0.5	-	**	3.6	0.4	-	**	3.2	0.5	-	**	2.8	0.6	-	**	3.4	0.6	-	*	
	No	385	83.3	11.3	4.2	**	2.7	0.5	4.13	**	3.0	0.5	3.15	**	3.4	0.5	4.33	**	3.0	0.5	3.44	**	2.7	0.6	2.38	*	3.3	0.6	2.14	*	
Knowledge of delirium	Yes	267	87.6	10.5	-	**	2.9	0.5	-	**	3.1	0.5	-	**	3.5	0.4	-	**	3.2	0.5	-	**	2.9	0.6	-	**	3.4	0.6	-	*	
	No	326	82.3	11.2	5.9	**	2.6	0.5	5.97	**	3.0	0.5	4.25	**	3.4	0.5	4.56	**	3.0	0.5	4.41	**	2.6	0.6	4.61	**	3.3	0.6	2.34	*	
Support	By colleagues	Yes	523	85.3	11.1	-	**	2.8	0.5	-	**	3.1	0.5	-	**	3.5	0.4	-	**	3.1	0.5	-	*	2.8	0.6	-	**	3.4	0.6	-	*
	No	69	79.9	10.9	3.7	**	2.6	0.5	2.89	**	2.9	0.5	2.76	**	3.2	0.5	4.35	**	2.9	0.4	2.50	**	2.6	0.6	2.89	**	3.2	0.6	2.20	*	
By supervisors	Yes	462	85.1	11.1	-	**	2.7	0.5	-	**	3.1	0.5	-	**	3.5	0.4	-	**	3.1	0.5	-	*	2.8	0.6	-	*	3.4	0.6	-		
	No	121	82.6	11.6	2.2	**	2.7	0.5	1.40		3.0	0.6	1.25		3.4	0.5	2.73	**	3.0	0.5	1.67	*	2.6	0.6	2.59	*	3.3	0.6	0.53		
Experienced embarrassment due to dementia patients' violent language or behavior	Yes	216	82.5	12.7	-	**	2.7	0.5	-	**	3.0	0.6	-	**	3.4	0.5	-	**	3.0	0.5	-	**	2.7	0.6	-	**	3.3	0.6	-		
	No	377	85.9	10.1	3.3	**	2.8	0.5	2.96	**	3.1	0.5	2.54	*	3.5	0.4	2.16	*	3.1	0.5	3.40	**	2.8	0.6	2.65	**	3.4	0.6	1.23		
Concerns regarding dementia	Yes	91	80.2	13.4	3.6	**	2.6	0.6	2.97	**	2.9	0.6	4.04	**	3.4	0.6	1.48		2.9	0.5	3.61	**	2.5	0.6	4.25	**	3.2	0.7	1.98	*	
	No	501	85.5	10.6	-	**	2.8	0.5	-	**	3.1	0.5	-	**	3.5	0.4	-	**	3.1	0.5	-	**	2.8	0.6	-	**	3.4	0.6	-		
Confidence in one's judgment of dementia patients' physical condition	Yes	118	87.9	10.1	-	**	2.9	0.5	-	**	3.1	0.5	-	**	3.5	0.4	-	**	3.2	0.5	-	**	2.9	0.5	-	**	3.4	0.6	-		
	No	474	83.8	11.4	3.9	**	2.7	0.5	3.91	**	3.0	0.5	1.70		3.4	0.5	2.05	*	3.0	0.5	3.25	**	2.7	0.6	3.81	**	3.3	0.6	1.70		
Satisfaction with one's dementia care practice	Yes	125	87.8	10.5	-	**	2.9	0.5	-	**	3.1	0.5	-	*	3.5	0.4	-	**	3.2	0.5	-	**	2.9	0.6	-	**	3.4	0.6	-		
	No	463	83.8	11.3	3.6	**	2.7	0.5	4.61	**	3.0	0.5	2.26	*	3.4	0.5	1.11		3.0	0.5	3.50	**	2.7	0.6	2.88	**	3.4	0.6	0.36		
Experts in the facility	SN	Yes	17	80.8	9.4	-		2.6	0.4	-		2.8	0.4	-	*	3.5	0.5	0.30		2.9	0.3	-		2.5	0.6	-		3.3	0.7	-	
	No	277	84.8	11.1	1.5		2.7	0.5	0.92		3.1	0.5	2.41		3.5	0.4			3.1	0.5	1.02		2.7	0.6	1.37		3.4	0.6	0.61		

Note. The number of responses marked positive answers are “Yes” and negative answers are “No” were counted.
Among the demographics, gender, position, education history, employment status, experience of dementia training, and presence of expertise (certified nurse neurologist) did not significantly affect any of the factors

* $p < 0.05$, ** $p < 0.01$