Development and evaluation of the Dementia Nursing Competency Scale in Acute Hospitals

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Background

- **Elderly population in Japan**: 28.1% of total population in 2018.

- **Medical development**: elderly people receive surgery or other high risk treatments.

- **Dementia prevalence**: more than 15% of elderly people have dementia, and the rate increases depending on age (80-84: 20%, 90-94: 60%).

- **Patients with dementia (PWD)**: admittance to acute hospitals (AH) will increase rapidly.

- **Difficulty of admission**: PWD admitted to AH have difficulty adapting to the environment, sharing their needs or will, and easily develop delirium.

- **Dementia nursing competency**: nurses working at AH need dementia care competency for PWD.

- **Evaluation of new training program** (using VR): there are not any scales to measure dementia nursing competency at AH.

Purpose

The purpose of this study was to develop the Dementia Nursing Competency Scale in Acute Hospitals (DNCS-AH).

Methods

Procedure

➢ Draft of Dementia Nursing Competency Scale in acute hospitals (DNCS-AH)

✓Interview: 16 nurses working at acute hospitals

✓Literature review

✓Professional Environmental Assessment Protocol

✓Concept analysis of dementia nursing competency

➢ Confirming the ceiling effect and the floor effect

➢ Verifying validity

✓Face validity: three specialists of gerontological nursing and two specialists of acute care nursing

✓Content validity: 6 certified nurse specialists in gerontological nursing and 11 certified nurses in dementia nursing

Methods

- ➢ Verifying validity
  - ✓ Exploratory and confirmatory factor analyses
- ➢ Verifying reliability
  - ✓ Item-Total correlation analysis
  - ✓ Good-Poor analysis
  - ✓ Cronbach's alpha
- ➢ Scored on a six-point Likert scale

Ethical Condition: approved by Institutional Review Board of School of Health Sciences, Kobe University

Results

- 77 items: extracted from the interview data.
- 20 items: extracted from the literature review, the Professional Environmental Assessment Protocol, and a concept analysis of dementia nursing competency

    ➡ Content Validity Index: 7 items were removed

- Distributed to 575 nurses and 170 (29.6%) responded to the questionnaire
- Valid responses: 168 (29.2%)

    ➡ Ceiling effect: 26 items were removed

- Floor effect: None

Results

Table 1. Participants' age and experience

Item	Mean ± Standard Deviation (SD)
Age (Years)	33.7 ± 7.9
Nursing experience (Years)	11.1 ± 7.7

Table 2. Participants' sex and nursing license

	Item	Number	%
Sex	Female	156	92.9
	Male	12	7.1
License	Resisted Nurse	167	99.4
	Licensed Practical Nurse	7	4.2
	Public Health Nurse	44	26.2
	Midwife	0	0.0
	Others	2	1.2

Results

Table 3. Participants' education, working ward and training experience

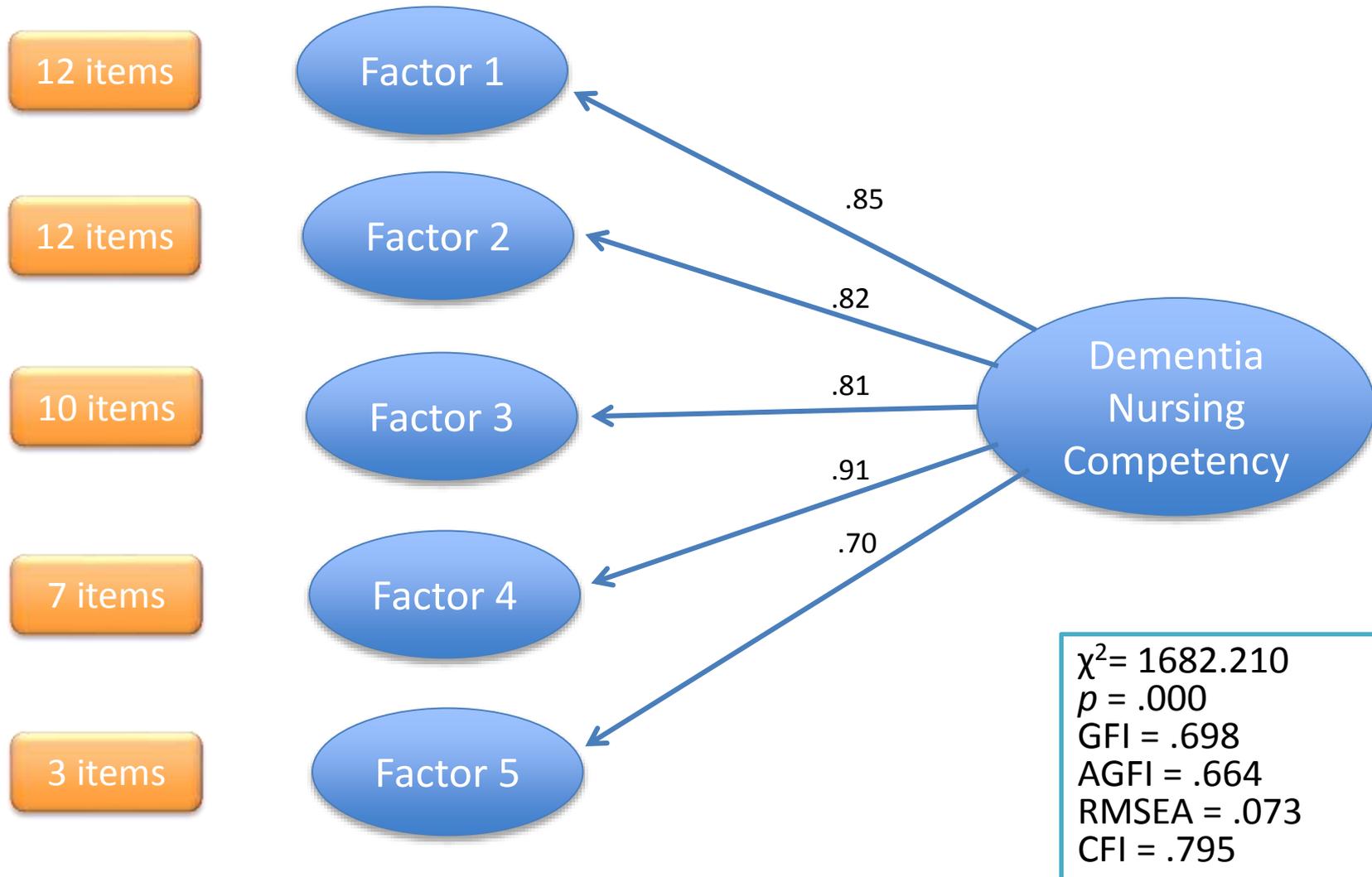| Item		Number	%
Education	University	69	41.1
	College (3 years)	4	2.4
	Diploma (3 years)	81	48.2
	Upper secondary school	5	3.0
	Others	9	5.4
Working ward	Surgical	61	36.3
	Internal	53	31.5
	Mixed	53	31.6
	ICU/CCU	1	0.6
Experience of attending dementia training course	Yes	126	75.0
	No	34	20.2
	Don't know	8	4.8

Results

- **■ Factor analysis**
  - promax rotation, principal factor analysis
  - 44 item questionnaire
  - factor loadings → 39 items: over .40, lowest item: .35
- **■ Final factors**

	Factor description
Factor 1	Maintenance of ward and room environment for patients to spend their admitted life according to their personality and for their well-being
Factor 2	Effort to provide continuous and effective care
Factor 3	Care to support patients' dignity based on patients' point of view
Factor 4	Assessment based on understanding and knowledge of dementia
Factor 5	Excretion care coordinated with patients' individuality

Confirmatory factor analysis

Conclusion

- The 44 item DNCS-AH was developed.
- Adequate reliability was demonstrated with I-T correlation and Cronbach's alpha.
- Adequate validity was demonstrated with face validity, content validity and G-P analysis.
- Construct validity was not enough with factor analysis.
- The developed DNCS-AH could be used to evaluate dementia nursing competency in acute hospitals.
- Further scale refinement should be performed.