

ORIGINAL ARTICLE

Validity and Reliability of Confidence in Dementia (CODE) Instrument for Nurses in Indonesian Language

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ABSTRACT

Introduction: The population of people with dementia (PWD) in Indonesia is increasing. Evaluating nurses' confidence in caring for PWD is crucial as it impacts the delivery of health services to PWD. In Indonesia, no instrument is available to measure a nurse's confidence in caring for PWD. This study aimed to report the translation process, validity, and reliability of the Confidence in Dementia (CODE) instrument for nurses. **Materials and methods:** This psychometric testing study was conducted from September to October 2021. The CODE instrument was translated using the Beaton Method in the first step. The second step was testing the content validity involving six experts using the Scale-Content Validity Index (S-CVI). After that, the researchers conducted a construct validity test using Pearson Product Moment and a reliability test using Cronbach's Alpha that involved 115 nurses at a hospital in Yogyakarta, Indonesia. **Results:** S-CVI results of 1.00 indicate that the content of CODE is valid. All CODE items are also valid in construct validity as the Pearson Product Moment test results show a calculated r of 0.526 to 0.633. Moreover, the CODE reliability test revealed a Cronbach's Alpha score of 0.770 (acceptable). **Conclusion:** The Indonesian language CODE is considered valid and reliable for measuring nurses' confidence in caring for PWD.

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INTRODUCTION

Dementia is a progressive syndrome in which sufferers experience impaired memory, thought processes, orientation, understanding, numeracy, capacity for learning, and judgment, which is not a normal part of aging (1). Nowadays, the population of people with dementia (PWD) globally reaches 50 million people and is expected to increase to almost 75 million people in 2030 and to 131 million people in 2050 (2). In 2015, over a million Indonesians were suffering from dementia; by 2030, that number is expected to rise to over two million (3). This number could be higher considering that the dementia diagnosis rate in developing countries is only around 10-20%, while the awareness rate is much lower than that number (3). Additionally, it is anticipated that expenses related to dementia will increase twofold, from US\$1.3 trillion in 2019 to US\$2.8 trillion in 2030 (4).

Dementia threatens a person's health and quality of life (5). In order to treat PWD and enhance their comfort and quality of life, it is necessary to have sufficient self-confidence. Self-confidence can be increased

through knowledge and a positive attitude towards dementia (6). Several studies report that many factors and characteristics influence confidence in caring for PWD (5). However, someone may not have enough self-confidence to handle dementia patients well. Therefore, this aspect of self-confidence needs to be a common concern.

Nurses have an essential role in dementia care, including responding to the multidimensional needs of dementia patients (7). Nurses are also increasingly needed in dementia care in most practice settings (8). For nurses, self-confidence is one of the aspects discussed in dementia care (9,10), especially in managing the disease and its progression (9). When it comes to providing person-centered dementia care, which includes responding appropriately to Behavioural and Psychological Symptoms of Dementia (BPSD), nurses must have confidence in their capacity to care for patients with dementia (5). Therefore, measuring nurses' self-confidence when caring for PWD is very important because it influences the quality of nursing services and interventions.

Research with confidence in caring for PWD has been conducted in various countries, such as China (5), Malaysia (11), Malta (12), the United Kingdom (UK) (13,14), and the United States (US) (8). Very few

questionnaires are available that ask about confidence in dementia care (15). Still, several instruments can be used to measure self-confidence, namely: Confidence in Dementia (CODE) (14), Confidence Scale (16), Caring Efficacy Scale (CES) (17), General Practitioners Attitude and Confidence Scale for Dementia (GPACS-D) (11), Self-Perceived Behavioural Management Self Efficacy Profile (SBMSEP) (18), and Sense of Competence in Dementia Care Staff Scale (8). The CODE instrument was chosen because it is simple, has good psychometric properties (13,14), and has been used in several other studies in China (5), UK (13,14), and Malta (12).

It is essential to measure nurses' confidence in providing care for individuals with dementia in order to ascertain their level of assurance in this regard. Consequently, having accurate and trustworthy tools is crucial for measuring this variable. There is a chance to translate the CODE instrument into Indonesian and evaluate its reliability and validity there. Other than that, the primary motivation for this research is the lack of a valid and trustworthy self-confidence questionnaire in Indonesian dementia care. The objective of this study is to translate the CODE instrument for nurses into Indonesian and assess its validity and reliability.

MATERIALS AND METHODS

The validity and reliability of the Indonesian version of the CODE instrument are examined in this study using a cross-sectional quantitative design. This research began with a cross-cultural adaptation process on the CODE instrument with five stages (19). The first stage is translation, synthesis, back translation, and review by a team of experts (expert review), and the last is pre-testing carried out on nurses from a hospital in Yogyakarta. The adaptation process for the instruments can be seen in Figure 1 below.

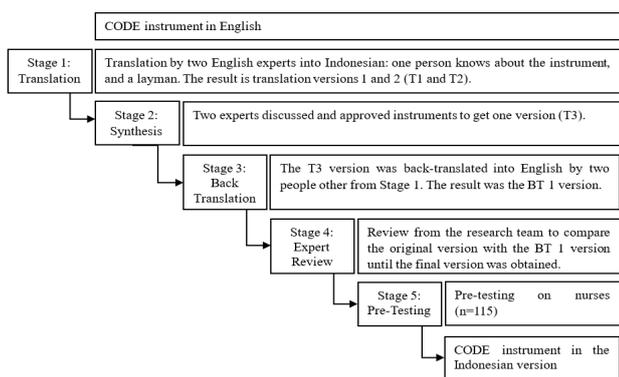


Figure 1: Flow of Adapting the CODE Instrument to Indonesian

The CODE instrument's validity was tested through the use of both content and construct validity. Six specialists in the field of gerontic nursing with a minimum master's degree completed the content validity test of the CODE instrument utilising the Item-Content Validity Index (I-CVI) and the Scale-Content Validity Index (S-CVI).

The construct validity test was carried out using Pearson product-moment. The CODE instrument's reliability was assessed using Cronbach's Alpha.

In one of Yogyakarta, Indonesia's teaching hospitals, nurses were the subjects of this study. One hundred and fifteen people willingly participated in this study as research participants, all of whom were employed as permanent nurses at the hospital. Interning nurses and nurses on leave at the time of data collection were among the exclusion criteria.

The Confidence in Dementia (CODE) instrument was developed in 2014 by Ruth Elvish, Simon Burrow, and John Keady, who have expertise in dementia care (14). The CODE was developed to measure hospital staff's confidence when caring for PWD. CODE is a unidimensional questionnaire consisting of 9 items using 5 Likert scales with ratings of 'Not Confident', 'Somewhat Confident', and 'Very Confident', so the final score of this instrument is between 9-45. The cut points in this instrument are as follows: 0-18 not confident, 19-35 somewhat confident, and 36-45 very confident (13). CODE has a Cronbach's Alpha of 0.91 and a Kaiser-Meyer-Olkin (KMO) of 0.90, indicating that this instrument has good internal consistency without too much item redundancy and good sample adequacy (14).

The dementia care experts Ruth Elvish, Simon Burrow, and John Keady created the Confidence in Dementia (CODE) tool in 2014. The CODE was created to gauge hospital staff confidence in their ability to care for patients with dementia. The CODE instrument has a final score ranging from 9 to 45. It is a unidimensional questionnaire with nine items utilising five Likert scales with scores of "Not Confident," "Somewhat Confident," and "Very Confident." This instrument's cut points are as follows: 0–18 not confident, 19–35 fairly confident, and 36–45 extremely confident (13). The CODE instrument exhibits good internal consistency with minimal item redundancy and good sample adequacy, as seen by its Cronbach's Alpha of 0.91 and Kaiser-Meyer-Olkin (KMO) of 0.90 (14).

The present study used Google Forms to collect data online. Due to the COVID-19 pandemic, participants were required to complete out a Google form by reading a research explanation page intended for potential participants and then indicating their agreement to participate in the study by signing an informed consent form. Respondents need between fifteen and twenty-five minutes to finish the questionnaire. Once all the data had been gathered, data analysis was done. When preparing reports, researchers respect respondent privacy by employing codes or initials in place of asking for respondent names.

Data were analyzed using the Excel program for I-CVI

and S-CVI. The Cronbach's Alpha and factor analysis were done using SPSS version 26 (IBM Corp., Armonk, NY, US). Normal data distributions are represented by mean and standard deviation (SD), while medians in numerical variable description tables represent abnormal data distributions. Cronbach's Alpha score demonstrates the reliability of the questionnaire.

Ethical Clearance

This research received ethical permission from the Medical and Health Research Ethics Committee of the Faculty of Medicine, Public Health and Nursing, Universitas Gadjah Mada, Yogyakarta, Indonesia, with number KE/FK/0371/EC/2020.

RESULTS

This research was conducted on 115 nurses at a teaching hospital in Yogyakarta, Indonesia. Most respondents were women (n=105) aged between 21-46 years. Most had a Bachelor's degree (n=70), followed by Diploma 3 (n=38), Master's (n=6), and Diploma 4 (n=1). The majority of nurses had worked for 6-10 years (n=44) and had never received training on dementia (n=109).

Table I: Characteristics of Nurses (n=115)

Respondent Characteristics	Frequency (n)	Percentage (%)	Median	Min-Max
Gender				
Man	10	8,7		
Woman	105	91,3		
Age			30	21-46
21-25 years old	23	13,9		
26-30 years old	36	21,7		
31-35 years old	39	23,5		
36-40 years old	13	7,8		
41-45 years old	3	1,8		
>45 years old	1	0,6		
Level of Education				
Diploma 3	38	33,0		
Diploma 4	1	0,9		
Bachelor	70	60,9		
Master	6	5,2		
Length of Work				
<1 year	28	24,3		
1-5 years	32	27,8		
6-10 years	44	38,3		
11-15 years	10	8,7		
>15 years	1	0,9		
Previous Dementia Training				
Yes	6	5,2		
No	109	94,8		

Researchers carried out content validity by reviewing the results of reviews from six geriatric experts regarding the relevance of the items in the CODE instrument. On a scale of 1 to 4, experts rank each item according to its level of relevance. Scale 1 means "not relevant", two means "slightly relevant and requires very significant changes", three means "relevant, but requires slight changes or modifications", and four means "very relevant". In addition, researchers also asked for expert input regarding accuracy, item arrangement, wording, and whether there was bias.

The S-CVI was calculated to ensure the overall content validity of the scale (20). The S-CVI results of the CODE instrument obtained a value of 1.00, which shows that this instrument has excellent validity. To compute the I-CVI for each item, divide the total number of experts by the number of experts who rated the item's relevance as either 3 or 4 (21). The I-CVI CODE value is 1.00, indicating excellent content validity (22).

As the items in the CODE instrument have a determined r count > r table, according to the construct validity test using Pearson Product Moment, the CODE instrument is valid. Table II displays the results.

Table II: Validity Test of the CODE-9 Item Instrument for Nurses (n=115)

Number	Item	R count	R table	Result
1	I feel able to understand the needs of a person with dementia when they cannot communicate well verbally. <i>Saya merasa dapat memahami kebutuhan dari ODD ketika mereka tidak dapat berkomunikasi secara lisan dengan baik.</i>	.617	.183	Valid
2	I feel able to interact with a person with dementia when they cannot communicate well verbally. <i>Saya merasa mampu untuk berinteraksi dengan ODD ketika mereka tidak bisa berkomunikasi dengan baik secara lisan.</i>	.567	.183	Valid
3	I feel able to manage situations when a person with dementia becomes agitated. <i>Saya merasa dapat mengatasi situasi ketika ODD menjadi gelisah.</i>	.560	.183	Valid
4	I feel able to identify when a person may have a dementia. <i>Saya merasa dapat mengidentifikasi ketika seseorang mungkin mengalami demensia.</i>	.526	.183	Valid
5	I feel able to gather relevant information to understand the needs of a person with dementia. <i>Saya merasa dapat mengumpulkan informasi yang relevan untuk memahami kebutuhan ODD.</i>	.627	.183	Valid
6	I feel able to help a person with dementia feel safe during their stay in hospital. <i>Saya merasa mampu untuk membantu ODD merasa aman ketika mereka dirawat di rumah sakit.</i>	.633	.183	Valid

CONTINUE

Table II: Validity Test of the CODE-9 Item Instrument for Nurses (n=115). (CONT.)

Number	Item	R count	R table	Result
7	I feel able to work with people who have a diagnosis of dementia. <i>Saya merasa mampu untuk bekerja dengan seseorang yang terdiagnosis demensia.</i>	.632	.183	Valid
8	I feel able to understand the needs of a person with dementia when they can communicate well verbally. <i>Saya merasa dapat memahami kebutuhan ODD ketika mereka dapat berkomunikasi dengan baik secara lisan.</i>	.579	.183	Valid
9	I feel able to interact with a person with dementia when they can communicate well verbally. <i>Saya merasa dapat berinteraksi dengan ODD ketika mereka dapat berkomunikasi dengan baik secara lisan.</i>	.631	.183	Valid

Using Cronbach's Alpha, the instrument's reliability test was evaluated in this study. An adequate degree of reliability is indicated by a Cronbach's Alpha of 0.6–0.7, while an outstanding level of reliability is defined by a value of 0.8 or higher (23). The CODE instrument's Cronbach's Alpha value is 0.770, indicating that it is reliable, according to the reliability test results (23).

DISCUSSION

The validity test of the CODE instrument in this research uses I-CVI and S-CVI as well as Pearson Product Moment. The S-CVI result from the CODE instrument that the researcher translated is 1.00, while the I-CVI value is 1.00, indicating excellent content validity (22), so this instrument can be said to be valid. In the S-CVI assessment, the number of experts assessing it is between 3-10 people. The more experts assessing it, the more difficult it will be for the S-CVI score to approach 1 (24). In this study, the number of experts who evaluated the CODE instrument was six people, so it was considered sufficient. If the number of experts is 2, then the S-CVI value should be 1. The S-CVI score ought to be higher than 0.85 if there are more experts than five (24).

Owing to the COVID-19 pandemic and the fact that experts are dispersed across multiple regions, the S-CVI assessment for this study was carried out virtually. All experts fill in the instrument as requested and the comment column. Filling in by experts online is effective in S-CVI if it is structured, namely by using a questionnaire, asking experts to fill in, and calculating the S-CVI value (25). The Pearson Product Moment validity test shows that the CODE instrument has an estimated r count greater than the r table, so the items are considered valid (26).

Cronbach's Alpha was used to gauge the instrument's reliability test in this investigation. A Cronbach's Alpha of 0.6–0.7 denotes a passable degree of reliability, whereas 0.8 or higher denotes an exceptional degree of reliability (23). The CODE reliability test results show a Cronbach's Alpha value of 0.770, which means this instrument is reliable (23). However, this value is lower than initial research in England ($\alpha = 0.91$) with similar sample size (14) and other development research ($\alpha = 0.88$) with a bigger sample size (13). This may be due to differences in participant types and sampling techniques. Despite having the same number of participants in this study, the UK study participants consisted of a variety of professions, including 47 nurses, 17 doctors, and 17 physiotherapists or occupational therapists (14), resulting in higher reliability. In addition, participants were selected from six wards (including complex care, orthopedic trauma, and orthopedic wards) in a hospital providing elderly care (14). In another study in the UK (13), psychometric analysis of the CODE scale was carried out by combining initial research data (14) with data from this study. As a result, a total of 666 participants from three NHS Trusts or 222 participants per Trust were recruited in this study. Participants selected from departments considered to provide care to people with dementia, such as: Stroke Rehabilitation, Cardiac Rehabilitation, Day Services, General Out-Patients, Orthopaedics, Heart Care Unit, Neurology Unit, Dermatology, Rheumatology, Acute Respiratory, Acute Elderly, Endoscopy, Discharge Assessment Team, Accident & Emergency, Maternity, Complex Care, Medical Assessment, Observational Medical Unit, Safeguarding, Neurosurgery, Gastro-Surgery, and Surgical High Dependency (13).

The CODE instrument has also been translated into Greek (CODE-GR) and shows a satisfactory Cronbach's Alpha value: 0.85 (15), indicating higher reliability than the Indonesian version. In this study, CODE-GR involved 212 adult students of the Faculty of Psychology (Aristotle University of Thessaloniki), who were collected using a convenience sampling technique due to practical limitations (15). Researchers used students as samples because of their characteristics: young, highly educated, easy to contact and reach, and willing to participate, even though they were considered not representative of the general population (15).

The CODE instrument has good internal consistency even though it is translated into various languages. The amount of items in the questionnaire and the correlation between them have an impact on internal consistency as determined by Cronbach's Alpha (27). Correlation between items that are strong enough (>0.3) will produce good internal consistency. Apart from that, a sufficient number of items in the questionnaire will also support good internal consistency values. Instruments with a dozen items have higher internal consistency

than instruments with fewer items below 10. Instruments with several items above 20 will usually have acceptable internal consistency (27). This shows that the CODE instrument has good internal consistency and is suitable for measuring nurses' confidence in caring for PWD.

The CODE scale is a one-factor scale that has been validated by its developers (13, 14). This instrument is a widely used research tool (12, 13, 14) despite the paucity of questionnaires regarding confidence in dementia care. The CODE instrument also fits well with the psychometric properties of other confidence or self-efficacy scales (15).

Additionally, a dementia education program may potentially employ the CODE instrument as an evaluation tool. These training courses are intended to provide workers more self-confidence while interacting with individuals who have dementia. In order to do this, the CODE scale was translated into Indonesian and verified there.

CONCLUSION

The Indonesian language CODE is considered a valid and reliable instrument. The Indonesian CODE can assess nurses' confidence in caring for PWD.

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