

Cultural adaptation and psychometric validation of the Korean version of the Intensive care unit Dignified Care Questionnaire (IDCQ)

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Title page**Cultural adaptation and psychometric validation of the Korean version of the Intensive care unit Dignified Care Questionnaire (IDCQ)**Sejin **Kang**¹, So Hyun **Park**², Youn-Jung **Son**^{3*}

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□ **Running Head:** Psychometric validation of IDCQ

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Cultural Adaptation and Psychometric Validation of the Korean version of the Intensive Care Unit Dignified Care Questionnaire (IDCQ)

Abstract

Background: Intensive care unit (ICU) nurses should prioritize patient dignity, but modern ICUs often prioritize efficiency, increasing patients' psychological distress. A validated tool is needed to measure dignified care in ICUs. Thus, this study aimed to translate, culturally adapt, and psychometrically evaluate a Korean version of the Intensive Care Unit Dignified Care Questionnaire (IDCQ) for use among nurses caring for adult ICU patients.

Methods: Data were collected from 297 ICU nurses at general hospitals or higher-level facilities through an online survey from June to August 2024. The content validity index was evaluated by 10 experts. Exploratory ($n = 97$) and confirmatory ($n = 200$) factor analyses were performed, along with assessments of convergent, discriminant, and criterion validity, as well as internal consistency reliability.

Results: The scale-level content validity index/averaging was .97. An exploratory factor analysis revealed two sub-factors—relative dignity and absolute dignity—that explained 43.03% of the variance across 17 items, with factor loadings ranging from .38 to .78. Acceptable model fit was verified by confirmatory factor analysis and convergent and discriminant validity. The Korean version of the IDCQ exhibited a significant correlation with the person-centered critical nursing tool for ICU nurses,

and its reliability was supported by a Cronbach's α of .86.

Conclusion: This study confirmed the validity and reliability of the Korean version of the IDCQ for assessing dignity in nursing care, making it suitable for Korean ICU nurses. The IDCQ can be utilized for identifying factors associated with dignified care among ICU nurses. More sufficient evidence that the IDCQ is a valid tool for screening dignified care in ICUs can contribute to promoting patient dignity and creating a culture of respect in ICU environments.

Keywords: intensive care units, nurses, patient dignity, cultural adaptation, validity, reliability

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Background

Dignity—the most fundamental human right and an inherent value of humanity—includes the right to self-determination and the right to be respected [1]. It has unique characteristics depending on the culture or social setting [2]. Human dignity is important for patients as it closely relates to illness [3]. Illness threatens individuals' self-care ability, which may lead to loss of self-worth, physical constraints, and privacy infringement. This high vulnerability to physical and psychological decline highlights the importance of respect for patient dignity [4].

Critically ill patients admitted to the intensive care unit (ICU) face numerous physical and psychological problems [1]. ICU patients may lose control over their situation because of the illness and are prone to reduced autonomy [5]. Thus, an environment of respect should be created within the ICU [6]. However, in modern ICUs, patient dignity is overlooked, with rapid response to emergencies and efficient nursing care prioritized over spending sufficient time protecting patients' dignity [7]. Given that patients' loss of dignity causes psychological trauma, delaying treatment and recovery, respect for critically ill patients' dignity is essential [1,8]. Respect for patient dignity is fundamental to nursing care, requiring attention to patients' conditions, autonomy, and individuality [1,5]. However, dignity is often compromised in communication, including inadequate listening, empathy, information sharing, and trust-building [9]. Accordingly, nurses should uphold dignity and rights based on professional values such as respect, justice,

responsiveness, caring, compassion, empathy, trust, and integrity [10].

Dignified care involves viewing all patients equally, considering their cultural, social, spiritual, and religious backgrounds [11]. Dignified care can relieve patients' stress and provide comfort [12], prevent them from losing their will to live during their difficult times, and relieve their suffering [13]. In particular, it emphasizes a holistic approach that accounts for patients' illnesses and life stages [6]. Nurses' perception of dignified care should be assessed to enhance patient-centered care and ensure care quality in ICUs. A validated tool that can accurately assess nurses' performance of dignified care, accounting for the characteristics of the ICU environment and critically ill patients is necessary. However, existing tools are limited to certain environments or populations, such as patients receiving palliative care, older adults in nursing homes, and hospitalized patients [14,15].

In South Korea, research on patient dignity is limited. Some scales including the Dignity in Care Scale of Terminally Ill Patients for Nurses (DCS-TPN) [16] and the Korean translation of the Patient Dignity Inventory [17] were not applicable to assess ICU nurses' dignified care because those were developed for terminally ill patients and general ward nurses, respectively. As such, tools measuring the dignified care performance of ICU nurses that also reflect the characteristics of the ICU environment and critically ill patients are limited. Furthermore, the existing tools were primarily designed for ICU physicians [18,19]. The measurement methods are based on direct observation of physicians in action, which can be time-consuming and expensive [19].

The ICU Dignified Care Questionnaire (IDCQ) by Liang et al. [20] evaluates whether ICU nurses provide dignified care. It adequately reflects the characteristics of ICUs and is concise and convenient. It comprises 17 valid and reliable self-reported items. The tool was developed in China, reflecting the characteristics of Asian culture and accounting for the special environment of ICUs and the meaning of dignity perceived by patients admitted to these units. Further, the relatively small number of questions makes it easily applicable in nursing practice and human resource competency management.

Our study was grounded in the conceptual model of ICU patient dignity proposed by Henry et al. [21], which also served as the theoretical foundation for the original development of the IDCQ by Liang et al. [20]. In this model, ICU patient dignity is conceptualized in terms of three core attributes: common humanity, personal narrative, and autonomy. These attributes are operationalized in the two subscales of the IDCQ: the “absolute dignity” factor corresponds to the notion of common humanity, whereas the “relative dignity” factor captures elements of personal narrative and autonomy. Because the original developers explicitly drew on this model as their theoretical framework, we likewise adopted Henry et al.’s dignity model as the guiding conceptual foundation for the cultural adaptation and psychometric validation of the Korean IDCQ.

Therefore, this study aimed to culturally adapt and psychometrically validate the Korean version of the IDCQ for use among nurses caring for adults ICU patients by examining its validity and

reliability, thereby providing a context-appropriate instrument that can support efforts to improve the quality of ICU nursing care.

Methods

Study design

This methodological study assessed the cultural adaptation, validity, and reliability of the Korean version of the IDCQ to measure ICU nurses' practice of dignified care.

Participants

Participants were recruited from the ICUs of two tertiary care hospitals in Seoul and Gyeonggi-do, South Korea as well as a Korean online community for nurses. Inclusion criteria were nurses who: 1) had at least six months of clinical nursing experience, 2) were currently providing direct patient care, and 3) worked in an adult ICU. Exclusion criteria were nurses who: 1) worked in specialized ICUs that do not provide care for adult patients (e.g., neonatal or pediatric ICU), and 2) were in administrative or educational positions without direct patient care responsibilities.

The sample size was set at 317 participants based on the requirements for exploratory factor analysis (EFA), which suggests 5–10 participants per item [22]. Similarly, for CFA, a minimum sample size of 200 or at least 10 participants per item is typically advised [22,23]. Based on these literatures, we ensured that our CFA sample exceeded this

requirement after allowing for an anticipated 10% dropout rate.

A total of 317 participants were recruited, of whom 20 were excluded due to unidentifiable responses. A total of 297 participants were included in the final analysis.

Instruments

Intensive care unit dignified care (IDCQ) questionnaire

The IDCQ, developed by Liang et al. [20], was used with approval from the authors. The IDCQ comprises two sub-domains: “absolute dignity” which contains nine items (e.g., “I treat each patient with courtesy and gentleness.”); and “relative dignity” which contains eight items (e.g., “I collect patients’ personal information from different aspects, such as education levels, beliefs, customs, and economics, to provide personalized care.”). The 17 items are rated on a five-point Likert scale ranging from 1 (*never*) to 5 (*always*), with higher scores indicating provided more dignified care. The validity and reliability of the IDCQ were verified for ICU nurses in China. In the original study [20], Cronbach’s α was .91 for “absolute dignity” .92 for “relative dignity” and .94 for the entire tool, indicating excellent internal consistency.

Person-centered critical care nursing

To verify the criterion validity of the Korean version of the IDCQ, the person-centered critical care nursing (PCCN), developed by Kang et al. [24], was used after obtaining approval from the original author. The

PCCN was deemed appropriate for the Korean version of the IDCQ because it includes items such as respecting the patient's individuality, empathizing with their fears, providing emotional support, and establishing a therapeutic relationship [24]. The PCCN comprises four sub-factors—"compassion" "individuality" "respect" and "comfort"—and 15 items (e.g., "Console patient and family with words and actions" and "Try to empathize with the situation of the patient and family"). It is rated on a five-point Likert scale ranging from 1 (*never*) to 5 (*always*), with higher scores indicating better patient-centered critical care. In the original study [24], the overall reliability (Cronbach's α) was .84, and the Cronbach's α for each sub-factor was as follows: compassion (.81); individuality (.72); respect (.71); and comfort (.76). In this study, Cronbach's α was .84, indicating good internal consistency.

Cultural adaptation of the intensive care unit dignified care questionnaire

Translation

The IDCQ was translated following the guidelines proposed by Sousa and Rojjanasrriat [25]. The process included forward translation by two bilingual experts, synthesis of the translated versions, blind back-translation by independent translators, and expert review to ensure semantic equivalence and cultural appropriateness. The finalized Korean version demonstrated consistency with the original instrument (Figure 1).

Content validation

Although the IDCQ has established content validity in its original version, expert content validation was conducted to ensure that the translated items preserved their conceptual meaning and cultural appropriateness in the Korean ICU context, in line with recommended procedures for cross-cultural adaptation and the COnsensus-based Standards for the selection of health status Measurement INstruments (COSMIN) guidance [26]. To verify the content validity of Version 1, the content validity index (CVI) was evaluated by a group of 10 experts, including 9 nurses with an average of 14 years of ICU experience (8–21 years) and one professor specializing in ICU nursing. The item-level CVI (I-CVI) was calculated as the proportion of participants who rated each item's suitability at 3 or 4 points (1 = *strongly disagree*, 2 = *disagree*, 3 = *agree*, and 4 = *strongly agree*). The scale-level CVI/averaging (S-CVI/Ave) was calculated by dividing the sum of the I-CVI by the total number of items [25].

The content validity assessment showed that the individual items displayed I-CVIs of .90 or higher, except for question 17, which exhibited an I-CVI of .50, and an S-CVI/Ave of .94 for the entire scale. As I-CVI should be .78 or higher and S-CVI/Ave should be .80 or higher when three or more experts are involved [27], item 17 was deemed as requiring revision or deletion, falling short of the standard. It was the last item of the second domain of the original instrument, "relative dignity" and stated, "I will (or suggest doctors to) be patient and give

patients and their families sufficient disease-related information to help them make the best decision.” The expert group suggested that providing disease-related information is difficult for nurses as important explanations that can influence the decision-making of patients or their families are usually provided by the attending physician. To reflect this, the item was reworded to “I will provide patients and their families with information about their health condition to help them make the best decisions possible.” and content validity was reassessed in the same manner. Consequently, its I-CVI improved to 0.80, and the S-CVI/Ave of the entire tool increased to .97. Thus, Version 2 consisted of the final 17 items, and a pilot study was conducted.

Pilot test

To evaluate the readability and content comprehensibility of Version 2, in which 17 items were modified during the Korean translation process, a pilot study was conducted as outlined in Step 5 of the guidelines of Sousa and Rojjanasrirat [25]. The guidelines recommended conducting a preliminary survey with 10–40 participants at this stage. We selected 40 ICU nurses from an online community for nurses. If any items in Version 2 were difficult to understand or ambiguous, participants were encouraged to answer them freely. After confirming that there were no difficulties in understanding the content or responding to the items, Version 3 was finalized with 17 items.

Data collection

Data were collected using a self-administered online survey between June and August 2024. Prior to recruitment, the study purpose and procedures were explained to the nursing departments of participating tertiary university hospitals, and institutional permission to conduct the survey was obtained. After permission had been granted, study invitations and brief study descriptions were posted at ICU nurse stations to invite eligible nurses to participate. In addition, nurses were recruited through an active online nursing community, for which the study purpose and procedures were explained and approval to post the survey link was obtained. After the Korean version of the IDCQ had been finalized through translation, cultural adaptation, expert content validity assessment, and a preliminary pilot test, the instrument was programmed in Google Forms and administered electronically. Google Forms was used solely as a platform for survey distribution, response capture, and data export for subsequent EFA and CFA, and it did not play any role in the instrument development process itself. On the first page of the online questionnaire, an electronic information sheet described the study aims, procedures, and voluntary nature of participation; only nurses who provided consent by clicking the “Agree to participate” button were able to proceed to the survey items. Upon completion, participants received a small incentive via mobile electronic payment.

Data analysis

Data analysis was performed using SPSS 29.0 and AMOS 26.0. Descriptive statistics and frequency analysis were performed on participants' characteristics and workplace attributes, with the results expressed as means, standard deviations, and frequencies. To separate the samples for EFA and CFA, Microsoft Excel was used to assign numbers randomly. Ninety-seven samples were used for the EFA, while 200 samples were used for the CFA. An independent t-test and chi-square test were performed to assess the homogeneity of the two groups.

To confirm the normal distribution of the data, skewness, kurtosis, and mean values were analyzed. As the Sousa was developed in China, the possibility of deriving new factors when applying the tool to the Korean context remained; therefore, an EFA was performed. Using Microsoft Excel, the total sample of 297 participants was randomly numbered from 1 to 297. Principle component analysis (PCA), which is commonly used in EFA for construct validity testing and can reduce dimensionality with the fewest factors, was used along with varimax rotation—the most frequently applied factor rotation method [28]. The suitability of the data for the EFA was assessed using the Kaiser-Meyer-Olkin (KMO) index and Bartlett's test of sphericity. The KMO index is generally considered adequate when it is .60 or higher, and Bartlett's test of sphericity is considered adequate when the probability of significance is less than .05 [29]. Factors were extracted if they had an eigenvalue of 1.00 or higher, with factor loadings of .40 or higher [30]. To analyze the relationships between the factors and items and verify the model fit for the two factors and 17 items derived from the EFA results, a

CFA using the maximum likelihood method was performed on the data of the 200 participants not included in the EFA. Model fit indicators through CFA were evaluated as an χ^2 statistic (p-value), χ^2/df (chi-square minimum/degree of freedom [CMIN/df]), goodness-of-fit index (GFI), standardized root mean residual (SRMR), root mean square error of approximation (RMSEA), normed fit index (NFI), comparative fit index (CFI), Tucker-Lewis index (TLI), and adjusted GFI (AGFI). The model fit criteria were as follows: CMIN/df $\leq$ 3.0, GFI $\geq$.90, SRMR $\leq$.50, RMSEA $\leq$.80, NFI $\geq$.90, CFI $\geq$.90, TLI $\geq$.90, and AGFI $\geq$.90 [31].

To evaluate the convergent and discriminant validity, we used the average variance extracted (AVE) and construct reliability (CR) values, with a threshold for fulfillment of .50 and .70, respectively [32]. Pearson correlation coefficient was used to verify criterion validity with the PCCN. Reliability was assessed based on Cronbach's α to verify the internal consistency of the tool.

Results

Participant characteristics

Participants' general and workplace characteristics are shown in Table 1. Of the 297 participants, 250 (84.2%) were women. The mean age was 28.53 years, with 263 (88.6%) having a bachelor's degree. Regarding workplace characteristics, 172 participants (57.9%) worked in tertiary hospitals and 125 (42.1%) worked in general hospitals. The types of ICUs represented were as follows: 122 (41.1%) internal medicine ICUs, 66

(22.2%) surgical ICUs, 44 (14.8%) mixed ICUs, 41 (13.8%) emergency ICUs, 14 (4.7%) cardiac ICUs, and 10 (3.4%) neurological ICUs. Most nurses had less than five years of clinical and ICU experience, and the average number of patients per nurse was 2.34. Regarding job positions, 234 (78.8%) were staff nurses, and 63 (21.2%) were senior or charge nurses. An analysis of differences in general and workplace characteristics between the EFA and CFA participants revealed no significant differences in any characteristics.

Item analysis

The normal distribution was verified by analyzing the mean, skewness, and kurtosis of all 17 items of the research tool. The items' average scores ranged from 3.18 to 4.29; the absolute value of skewness for each item ranged from .10 to 1.13, and the absolute value of kurtosis ranged from .25 to 1.47 (Table 2).

Exploratory factor analysis

Sampling adequacy for EFA was acceptable ($KMO = 0.82$; Bartlett's test of sphericity $\chi^2 = 566.07$, $p < .001$) [23, 33]. Principal component analysis with varimax rotation supported a two-factor solution: two components had eigenvalues greater than 1, and inspection of the scree plot showed a clear break after the second factor. Together, the two factors accounted for 43.03% of the total variance across the 17 items. Although this proportion is modest, it is comparable to values

typically reported for multifactor instruments assessing complex ethical and attitudinal constructs.

All items showed factor loadings ≥ 0.40 on their primary factor except item 8. Item 8 (“I provide care for patients with the belief that everyone is equal.”) showed a factor loading of .38. Although this value was slightly below the conventional .40 cutoff for EFA, the item was retained due to its conceptual importance to the construct.

The first factor extracted after the analysis had an eigenvalue of 5.59, an explained variance of 32.87%, included items 7 and 10–17, and was named “relative dignity” The second factor had an eigenvalue of 1.73, an explained variance of 10.16%, included items 1–6 and 8–9, and was named “absolute dignity” (Table 2). Item 8, which relates to “equity” was moved to “absolute dignity” as there was no significant difference in its factor loadings between the two factors (Factor 1: .38 and Factor 2: .36).

Confirmatory factor analysis

As a fit indicator of the model, chi-square (χ^2) was 198.48, $p < .001$, which is less than .05. However, when the sample size is 200 or more, if the CMIN/df, which is the χ^2 -value divided by the df, is less than 3, the model is considered appropriate even if the p-value is less than .05. Therefore, the model in this study met the appropriateness criterion with a CMIN/df of 1.68 [31]. The model fit in this study was GFI .90, RMSEA .06, CFI .91, SRMR .06, NFI .81, TLI .89, and AGFI .87, which were values close to the fit criteria. Accordingly, a two-factor, 17-item model

was determined as the final model for the Korean version of the IDCQ (Figure 2) (Supplementary Table 1).

Convergent, discriminant, and criterion validity

The finalized structural model from the CFA was used to test the extent to which the observed variables accurately measured the latent factors. Consequently, the AVE values were lower than the criterion of .50 for all factors, with .32 for the first factor and .31 for the second factor, and the CR values were .80 and .78 for the first and second factors, respectively, which met the criterion of .70. Based on the evidence that CR values greater than .60 are acceptable if the AVE value is lower than .50, the convergent validity of this research instrument was acceptable. Regarding discriminant validity, confidence intervals ranged from .80 to .92, confirming the discriminatory power of the instrument. For criterion validity, the Korean version of the IDCQ had a significant positive correlation with PCCN ($r = .64, p < .001$).

Reliability

Cronbach's α for the entire 17-item Korean version of the IDCQ was .86, with Cronbach's α values of .81 for factor 1 (relative dignity) and .75 for factor 2 (absolute dignity), indicating good internal consistency (Table 3).

Discussion

This study evaluated whether the IDCQ, developed by Liang et al. [20], can be applied to Korean ICU nurses to evaluate their dignified care performance. The IDCQ was translated into Korean and demonstrated acceptable psychometric properties. Finally, a Korean version of the 17-item IDCQ was constructed, comprising two factors: “relative dignity” and “absolute dignity.”

In the EFA, two-factors explained 43.03% of the total variance, which falls below the heuristic threshold of 60%. However, methodological work on scale development in the social and health sciences indicates that instruments designed to capture complex, multidimensional constructs such as ethics, values, attitudes, and dignity often yield total explained variances in the range of approximately 35-45%, particularly in nursing and psychosocial research [34-36]. The relatively modest variance in our analysis likely reflects the abstract and multifaceted nature of dignified care in the ICU rather than a fundamental weakness of the scale.

Among 17 IDCQ items, one item (item 17) was revised to reflect the Korean clinical context, as nurses in Korean ICUs typically provide information related to patients’ health conditions rather than detailed disease-related information. This modification was made to ensure contextual appropriateness while preserving the item’s intent regarding patient autonomy and shared decision-making. This revision emphasized providing information about the patient’s condition based on continuous monitoring rather than focusing solely on the disease itself and its progression. This approach may enhance decision-making processes and

foster better dignified care by aligning clinical discussions with the dynamic nature of the patient's health.

The EFA identified two factors—"relative dignity" and "absolute dignity"—consistent with the original instrument, but with minor differences. In this study, "relative dignity" emerged as the first factor with a higher eigenvalue, and items 7 and 8 loaded onto this factor rather than "absolute dignity", as reported in the original study [20]. Item 7 ("I explain to patients before each nursing operation as long as they are conscious.") reflects respect for patients' autonomy through information sharing. As autonomy is a key component of dignity in critically ill patients [21,37], this item was classified under "relative dignity" in this study.

The Korean version of the IDCQ exhibited high reliability, with a Cronbach's α value of .86, which is slightly lower than that of the original study (.94) [20]. This discrepancy could be due to cultural differences or variations in sample characteristics. Meanwhile, a test-retest reliability analysis was conducted to verify the reliability of the tool in the original study. Our study could not assess a test-retest reliability due to the nurses' shift work, different workplace characteristics, and the nature of the online survey, which made it difficult to collect data from the same sample in the same environment over a certain period. Therefore, future research should conduct a test-retest reliability analysis to confirm the instrument's stability. Compared with the original IDCQ study [20], the item composition differed based on the content validity and construct validity verification results. This is because China, where the tool was

developed, has a family-centered culture, and in traditional Chinese culture, family members typically play a critical role in patients' treatment plans [38]. Nurses in China also tend to value family-centered care and focus on communicating with the patient's family to actively provide information about the patient's condition and treatment process [39]. Korean nurses' communication with patients and their caregivers is influenced by role conflict and hospitals administrative culture. Role conflict occurs most frequently in interaction with patients and caregivers and is most pronounced in relationships with physicians [40]. Factors such as nurses' relatively low legal authority, the physician-centered perception of treatment responsibility, and unclear role delineation within hospital organizations may contribute to passive communication behaviors [41]. This phenomenon has been possibly reflected in the research results. Therefore, improving the recognition of nurses' expertise in patient care would help empower them to communicate more assertively, ultimately enhancing the quality of dignified care in the ICU.

For EFA, the larger the sample size, the higher the reliability of the results [42]. Liang et al. [20] conducted EFA and CFA with the same sample without separating them, resulting in a sample size of 392 for the EFA. However, in this study, the samples for the EFA and CFA were separated to prevent overlap and then analyzed, resulting in a sample size of 97 for the EFA, which is a significant difference from the original study. These differences may also have influenced the EFA results. Nevertheless, when conducting EFA and CFA, the samples should be

separated to avoid overlap. If both analyses are conducted with the same sample, the model fit in the CFA may appear higher than it actually is [43]. Therefore, this study is meaningful in compensating for the limitations of the original study by separating the samples in the two-factor analyses. This argument may be misinterpreted as a critique of the original author's work and should be carefully reconsidered.

A closer look at the two factors extracted from the EFA in this study and the items included in them reveals that "relative dignity" is the first factor, with the highest explanatory power of 32.87% and including nine items. Liang et al. [20] integrated "personal narrative" and "autonomy" from the components of respect and dignity for critically ill patients suggested by Henry et al. [21] into "relative dignity" of the IDCQ. The items included in the factor relate to providing nursing care that accounts for the unique and diverse aspects of patients, sharing in the care process, and ensuring individuality and autonomy so that their needs and opinions are respected. The second factor, "absolute dignity" had an explanatory power of 10.16% and included eight items. Liang et al. [20] included "shared humanity" from Henry and their colleagues' [21] components of respect and dignity for critically ill patients into the IDCQ's "absolute dignity." The characteristics of the items included in the factor included empathy, respect, and humanity for the patient. Items such as "If I were a patient lying in bed, what kind of care would I want?" and "I treat patients as carefully as possible to reduce their pain and discomfort." indicate the nurse's empathy toward the patient, which is an attribute of dignity suggested by Ostaszewicz et al. [44]. Empathy was

significantly positively correlated with ICU nurses' dignified care performance and can thus serve as a predictor of dignified care performance [20]. Items such as "I treat patients as living, dignified individuals and do not mark them (such as by calling them by their bed numbers or disease names)." and "I provide care for patients with the belief that everyone is equal." imply respect for patients' rights. This means that healthcare providers ensure ethical, equitable, and standardized treatment and care that meet patients' physical, mental, intellectual, and social needs [45]. Acts of protecting patient privacy or improving the surrounding environment, such as noise and lighting, can also be considered respecting the "integrity of humanity" an attribute of patient dignity suggested by Sun et al. [8]. This perspective recognizes patients as individuals with personalities and experiences. This also suggests that institutional support is essential for promoting dignified care in the ICU.

The findings of this study indicate that the level of dignified care among Korean ICU nurses was comparable to that reported in the original study [20] and can be interpreted as reflecting an intermediate level of dignified care performance. This suggests that the construct is consistently represented across cultural contexts. Nevertheless, human dignity was possibly strongly influenced by social desirability bias, as it was a self-reported measure of an individual's morality. This should be kept in mind when interpreting the results.

In ICUs' specialized environments, where frequent emergencies and various life-support devices coexist with patients, patients' dignity is often

overlooked [46]. To date, several studies have developed tools to measure patient dignity quantitatively; however, few have met COSMIN criteria in a patient-reported format [26], and even fewer have measured dignified care, particularly in the ICU setting. Against this backdrop, the Korean version of the IDCQ is important in that it demonstrates cultural appropriateness, acceptable validity and reliability, and explicit consideration of the contextual characteristics of South Korean ICUs. This instrument also enables cross-cultural comparisons with validation studies in other languages and supports comparative and analytical research on nurses' perceptions and the culture of dignity in care.

In terms of implications for clinical practice, the Korean IDCQ offers ICU nurses and nurse leaders an evidence-based instrument to systematically assess the level of dignified care provided in daily practice. By identifying strengths and areas for improvement at the item and subscale levels, the scale can be used to guide nursing staff education, continuous monitoring, and targeted quality improvement initiatives that explicitly focus on dignity-centered care. At the organizational level, aggregated IDCQ scores may serve as a benchmark for designing and evaluating strategies to enhance patient experience and cultivate a culture in which respect for ICU patients' dignity is systematically embedded in policies, routines, and interprofessional collaboration. Therefore, replication studies applying this instrument across a broader range of Korean ICU nurses are needed to enhance its generalizability. Given that research on patient dignity and dignified care in ICUs remains limited in South Korea, this instrument can also be used

in future studies examining factors that influence dignified care and its patient- and system-level outcomes.

Limitations

This study had several limitations. First, during the recruitment, we prioritized ICU nurses from two hospitals within one healthcare system, possibly sharing a similar culture. Subsequently, we recruited a more diverse sample from an online nursing community to meet the target sample size. However, the samples from the two hospitals may have been overrepresented, potentially influencing the results. Second, this study addressed human dignity, which is closely related to ethics and morality. Therefore, social desirability bias may have led to over-scoring on some items, requiring careful interpretation. Third, the total variance explained by the exploratory factor solution (43.03%) indicates that certain facets of ICU patient dignity may not be fully captured by the current 17-item set. Future research should further refine and, if necessary, expand the items and re-examine the factor structure across diverse ICU settings to determine whether a greater proportion of variance can be explained without compromising conceptual clarity. Finally, as reliability was assessed solely through Cronbach's α , test-retest reliability validation is necessary to confirm its stability.

Conclusion

The Korean version of the 17-item IDCQ demonstrated appropriate

psychometric properties, comprising two subdomains—“relative dignity” and “absolute dignity.” Therefore, the Korean version of the IDCQ can be used as a valid and reliable tool for measuring the dignified care practiced by ICU nurses in South Korea, reflecting Korean cultural characteristics. By quantitatively measuring the quality of dignified care in ICUs, the tool helps evaluate Korean ICU nurses’ performance in providing dignified care. More studies in various cultural hospital settings are necessary to obtain standardized cut-off scores, measure the extent of dignified care practice among ICU nurses, and develop tailored interventions, such as workplace improvement strategies and dignified care education programs.

Abbreviations

ICU: Intensive Care Unit

DCS-TPN: Dignity in Care Scale of Terminally Ill Patients for Nurses

IDCQ: The ICU Dignified Care Questionnaire

EFA: Exploratory Factor Analysis

CFA: Confirmatory Factor Analysis

PCCN: Person-Centered Critical care Nursing

CVI: Content Validity Index

I-CVI: Item-level Content Validity Index

S-CVI/Ave: Scale-level Content Validity Index /Averaging

PCA: Principle Component Analysis

KMO: Kaiser-Meyer-Olkin

CMIN/df: Chi-Square MINimum/degree of freedom

GFI: Goodness-of-Fit Index

SRMR: Standardized Root Mean Residual

RMSEA: Root Mean Square Error of Approximation

NFI: Normed Fit Index

CFI: Comparative Fit Index

TLI: Tucker-Lewis Index

AGFI: Adjusted Goodness-of-Fit Index

AVE: Average Variance Extracted

CR: Construct Reliability

COSMIN: CONsensus-based Standards for the selection of health status
Measurement Instruments

Declarations

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Ethical approval and consento participate

The study was conducted in accordance with the Declaration of Helsinki.

This study was conducted after receiving approval from the Institutional
Review Board of Chung-Ang University Gwangmyeong Hospital (IRB No.
2403-148-836). Written informed consent was obtained from all
participants prior to the study. Participants voluntarily consented to take
part after fully understanding the study's purpose and procedures.

Consent for publication

Not applicable

Availability of data and materials

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Competing interests

The authors declare that they have no competing interests.

Declaration of Generative AI and AI-assisted technologies in the writing process

Generative AI and AI-assisted technologies were not used in the writing process of this manuscript.

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Author contributions

SJK: Conceptualization, Methodology, Data curation, Validation, Formal analysis, Visualization, Software, Writing – original draft, Writing – review & editing

SHP: Writing – original draft, Writing – review & editing.

YJS: Conceptualization, Methodology, Validation, Supervision, Project administration, Funding acquisition, Writing – original draft, Writing – review & editing.

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FIGURE AND TABLE LEGENDS

Figure 1. Flow chart of translation process of the IDCQ

Figure 2. Final model of the IDCQ from the Confirmatory Factor Analysis

Table 1. General characteristics of the participants

Table 2. Item analysis & Exploratory factor analysis of IDCQ

Table 3. Reliability of IDCQ

Supplementary Table 1. The Korean version of the Intensive Care Unit Dignified Care Questionnaire

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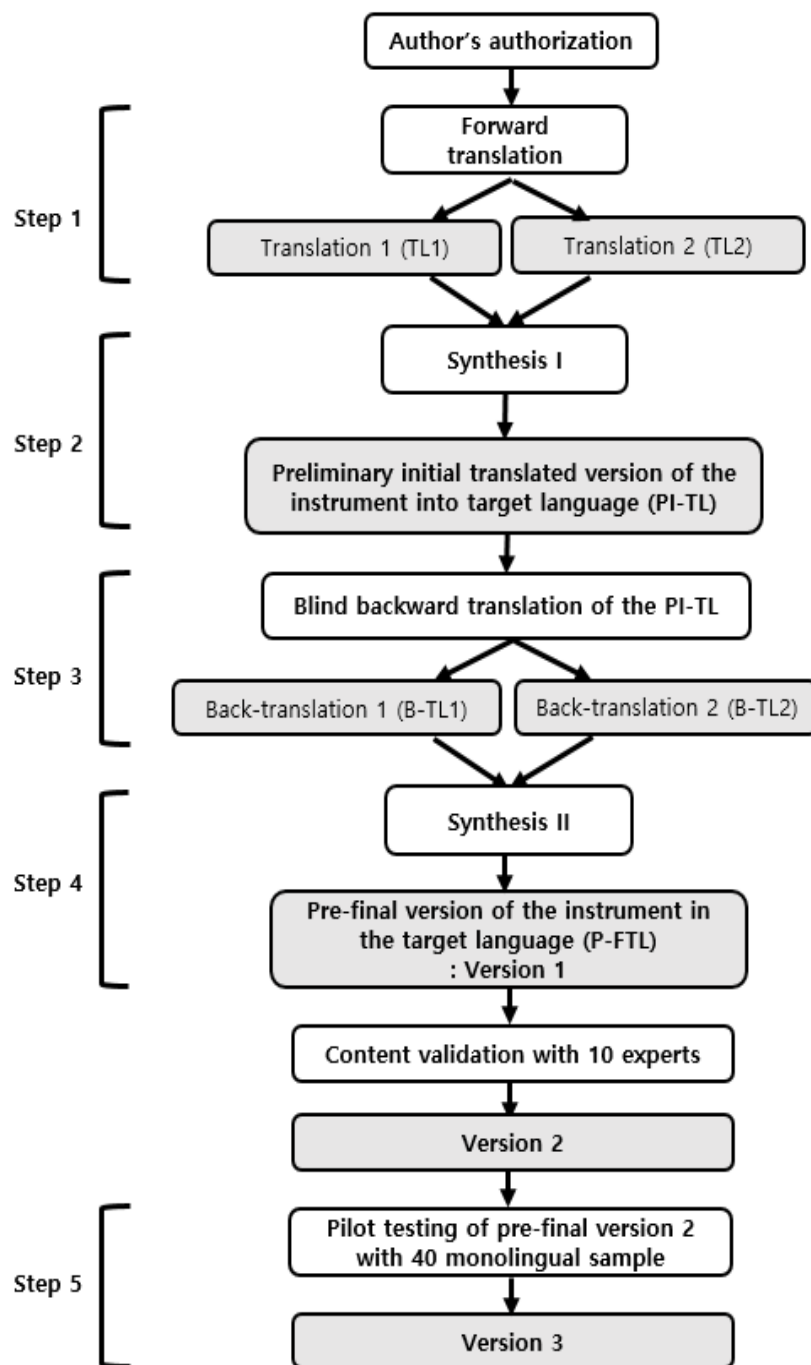


Figure 1. Flow chart of translation process of the IDCQ

Note. IDCQ, Intensive care unit Dignified Care Questionnaire

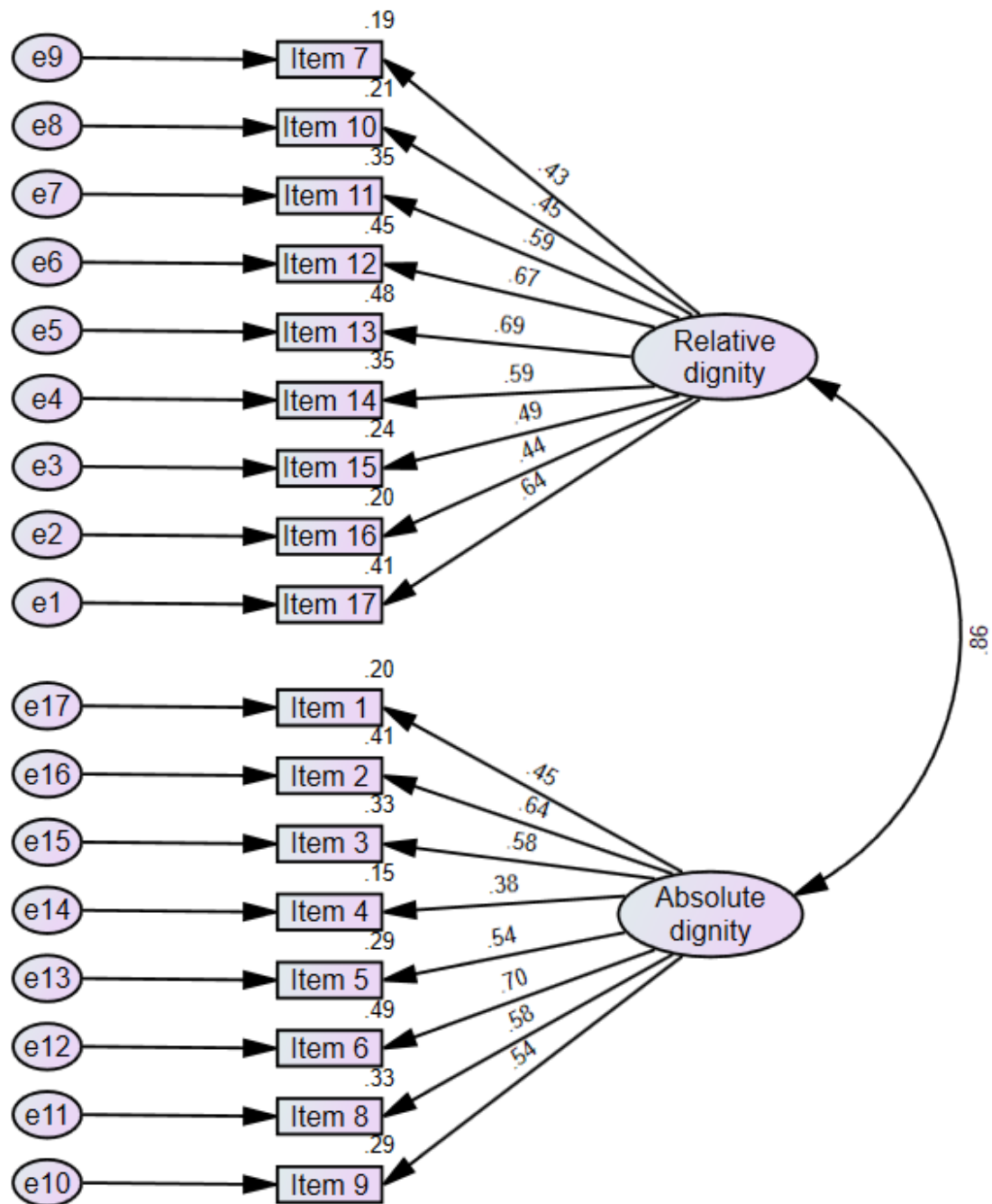


Figure 2. Final model of the IDCQ from the Confirmatory Factor Analysis

Note. IDCQ, Intensive care unit Dignified Care Questionnaire

Table 1. General characteristics of the participants

Characteristics	Categories	Total (n=297)	EFA (n=97)	CFA (n=200)	t or χ^2	p
		n (%) or <i>Mean±SD</i>	n (%) or <i>Mean±SD</i>	n (%) or <i>Mean±SD</i>		
Sex	Male	47 (15.8)	18 (18.6)	29 (14.5)	.81	.37
	Female	250 (84.2)	79 (81.4)	171 (85.5)		
Age (year)		<i>28.53±3.81</i>	<i>28.97±4.25</i>	<i>28.32±3.57</i>	1.38	.35
Education	Bachelor's degree	263 (88.6)	86 (88.7)	177 (88.5)	.002	.97
	Master's degree	34 (11.4)	11 (11.3)	23 (11.5)		
Type of hospital	General hospital	125 (42.1)	44 (45.4)	81 (40.5)	.63	.43
	Tertiary general hospital	172 (57.9)	53 (54.6)	119 (59.5)		
ICU type	Medical	122 (41.1)	44 (45.4)	78 (39.0)	8.70	.12
	Surgical	66 (22.2)	16 (16.5)	50 (25.0)		
	Emergency	41 (13.8)	12 (12.4)	29 (14.5)		
	Cardiac	14 (4.7)	4 (4.1)	10 (5.0)		
	Neurological	10 (3.4)	1 (1)	9 (4.5)		
	Mixed	44 (14.8)	20 (20.6)	24 (12.0)		
Clinical experience (year)	≤5	170 (57.2)	50 (51.5)	120 (60.0)	1.03	.57
	5~9	99 (33.3)	36 (37.1)	63 (31.5)		
	10~14	21 (7.1)	8 (8.2)	13 (6.5)		
	≥15	7 (2.4)	3 (3.1)	4 (2.0)		
ICU experience (year)	≤5	186 (62.6)	59 (60.8)	127 (63.5)	.51	.66
	5~9	91 (30.6)	32 (33.0)	59 (29.5)		
	10~14	16 (5.4)	4 (4.1)	12 (6.0)		
	≥15	4 (1.3)	2 (2.1)	2 (1.0)		
Number of patients per nurse		<i>2.34±.63</i>	<i>2.39±.51</i>	<i>2.34±.68</i>	.57	.39
Job position	Staff nurse	234 (78.8)	72 (74.2)	162 (81.0)	1.79	.18
	Charge nurse	63 (21.2)	25 (25.8)	38 (19.0)		

EFA=exploratory factor analysis; CFA=confirmatory factor analysis; SD=standard deviation.

Table 2 Item analysis & Exploratory factor analysis of the IDCQ (n=97)

Item	Factor		Mean $\pm$ SD	Skewness	Kurtosis	CI
	1	2				
16. If patients have self-expressions, I will convey their willingness to their families and doctors	.78	.11	4.24 $\pm$.66	-.59	.61	.44
13. I try my best to alleviate the anxiety, fear, or other bad feelings of patients and their families in different ways	.71	.28	3.90 $\pm$.70	-.73	1.37	.63
15. I involve patients' families in caring (such as physical restraint plans and early rehabilitation activities)	.69	-.18	3.67 $\pm$.84	-.33	-.25	.40
17. I will (or suggest doctors) be patient and give patients and their families enough health conditions-related information to help them make the best decision	.67	.12	4.13 $\pm$.64	-.51	.96	.56
14. I use evaluation instruments to promptly evaluate the self-decision-making ability of patients and try my best to safeguard their autonomy	.63	.18	3.66 $\pm$.76	-.52	.29	.53
10. I collect patients' personal information from different aspects (such as education levels, beliefs, customs, economics) to provide personalized care	.61	.20	3.18 $\pm$.99	-.11	-.60	.41
11. I adjust the nursing plan dynamically to meet the physical and psychological needs of patients according to their condition	.60	.53	3.82 $\pm$.67	-.51	1.04	.57
12. I listen to the requests of patients and their families with heart	.58	.42	3.94 $\pm$.71	-.57	.92	.61
7. I explain to patients before each nursing operation as long as they are conscious	.40	.19	4.29 $\pm$.66	-.75	1.03	.41
8. I provide care for patients with the belief that everyone is equal	.38	.36	4.17 $\pm$.70	-.60	.48	.48
6. I treat patients as carefully as possible to reduce their pain and discomfort	.10	.73	4.05 $\pm$.57	-.10	.51	.58
5. If I were a patient lying in bed, what kind of care would I want? I use this question to guide my nursing behavior	.13	.73	3.61 $\pm$.80	-.28	-.34	.47
2. I am polite and gentle in treating	.21	.62	3.95 $\pm$.70	-.29	.03	.53
1. I greet patients as soon as possible at each shift	.05	.53	4.25 $\pm$.81	-1.13	1.47	.38
9. I make effort to improve the patient's surroundings, such as lighting and noise	.09	.53	3.99 $\pm$.71	-.60	.71	.50
4. I treat patients as living, dignified individuals and do not mark them (such as calling them by their bed numbers or disease names)	.43	.46	3.49 $\pm$ 1.04	-.15	-.76	.34
3. I protect patients' privacy and avoid unnecessary physical exposure	.15	.42	4.12 $\pm$.65	-.27	-.07	.46
Eigen Value	5.59	1.73				
Explained variance (%)	32.8	10.16				

Total explained variances (%)	7	32.8	43.03
	7		

Kaiser-Meyer-Olkin=.82, Bartlett's test of sphericity=566.07, $p<.001$

Factor 1=relative dignity; Factor 2=absolute dignity; IDCQ=intensive care unit dignified care questionnaire; SD=standard deviation; CI=corrected item-total correlation.

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Table 3. Reliability of the IDCQ (n=297)

Factors	Item	α if item deleted	Cronbach's α
1. Relative dignity	16	.85	.81
	13	.84	
	15	.86	
	17	.85	
	14	.85	
	10	.86	
	11	.85	
	12	.85	
	7	.85	
2. Absolute dignity	8	.85	.75
	6	.85	
	5	.85	
	2	.85	
	1	.86	
	4	.86	
	9	.85	
	3	.85	
Total			.86