Validation of an instrument for the *Nurses' Ethical Decision-Making around End-Of-Life Care Scale* (NEDM-EOLCS)

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Background

- End-of-life (EOL) care presents **complex ethical challenges**, requiring healthcare providers **to navigate medical, emotional, and moral uncertainties**.
- Nurses, as key providers of such care, have to balance **ethical responsibilities** with patients' dignity, values, and family dynamics.
- However, **they often face ethical dilemmas without clear guidance**, which can result in significant stress, moral distress, and compromised decision-making.
- Despite the critical role of **ethical competence** in ensuring quality end-of-life care, reliable and validated tools to assess this capacity in nurses remain limited.
- Kim's (2011) *Nurses' Ethical Decision-Making for End-of-Life Care Scale* (NEDM-EOLCS) was developed to measure ethical competence, but its psychometric properties require further validation.

Aims

- To validate the construct validity of the NEDM-EOLCS
- **Research Question 1.** To develop a shortened version to enhance its practicality and applicability in clinical and research settings
- **Research Question 2.** To validate the construct validity of the shortened version to ensure it reliably measures ethical decision-making in EOL care.

METHODS

- **NEDM-EOLCS:** 6-point Likert scale
  - Domain 1: Perceived professional accountability (28 items)
  - Domain 2: Moral practice (14 items)
  - Domain 3: Moral reasoning and moral agency (13 items)
- **Data collection**
  1) Retrospective data (196 nurses)
  2) Online survey
     - Recruited from 3 hospitals and 1 Graduate School
     - Recruitment period: May 2023 – April 2024
- **Data analysis** *(Software: SPSS 27.0 and JASP 0.18.3.)*
  1) EFA (Principal axis factoring with varimax): communality > 0.4, factor loading > 0.3 (Merenda, 1997)
  2) CFA (estimator: DWLS): x^2 test p > 0.05, GFI > 0.9, RMSEA < 0.08, SRMR < 0.08, NFI > 0.9 (Li, 2016)
  3) Reliability: Cronbach's α(ω) ≥ 0.7 (Hair et al., 2009)

RESULTS

- Total 348 nurses, with 196 participants' data used for exploratory factor analysis (EFA) and the remaining 142 participants' data utilized for confirmatory factor analysis (CFA).
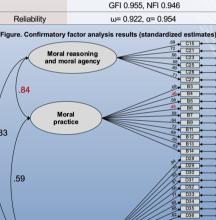
I. General characteristics

- Homogeneity test revealed **no significant demographic differences** between the EFA and CFA groups.

Characteristics	Categories	n (%) or mean±SD		t or x^2	p
		EFA (n=196)	CFA (n=142)		
Sex	Male	9 (4.6)	9 (6.3)	.50	.48
	Female	187 (95.4)	133 (93.7)		
Age (yr)		33.57 ± 7.99	34.47 ± 8.71	-.99	.33
Marital status	Married	114 (58.2)	80 (56.3)	1.81	.41
	Unmarried	82 (41.8)	61 (43.0)		
	Other	2 (1.0)	1 (0.7)		
Religion	Catholic	24 (12.2)	13 (9.2)	4.47	.35
	Christian	64 (32.7)	40 (28.2)		
	Buddhism	13 (6.6)	8 (5.6)		
	None	92 (46.9)	81 (57.0)		
	Other	2 (1.0)	0 (0)		
Total clinical experience (weeks)		121.53 ± 94.34	135.19 ± 106.61	-1.24	.21
Have you experienced ethical conflicts within the last week?	Yes	55 (28.1)	36 (25.4)	.72	.40
	No	141 (71.9)	106 (74.6)		

II. Development of a shortened version (Item reduction)

- Through the EFA, total items decrease from 55 to 40. (Eliminated items with communality < 0.4 (Merenda, 1997))

KMO (Kaise-Meyer-Olkin)	0.937
Barlett's sphericity test	5,576.74 (p < .001)
Cumulated variance contribution rate	53.76%

Perceived professional accountability	28 → **24 items**
Moral practice	14 → **10 items**
Moral reasoning and moral agency	13 → **6 items**

III. Validation of the shortened version

- Through the CFA, the shortened version (40 items) was evaluated for the construct validity.

Chi-square test	x^2 658.99, Normed x^2 0.894 (p > 0.05)
Model fit indices	RMSEA <0.001, SRMR 0.089, GFI 0.955, NFI 0.946
Reliability	ω= 0.922, α= 0.954

Figure. Confirmatory factor analysis results (standardized estimates)

Consideration for results

- Items with factor loadings < .50 were retained for their theoretical importance (Hair et al., 2009).
- Latent factor correlation (r = .84) was high but within acceptable limits (r < .85; Brown, 2015).

CONCLUSIONS

- The study's findings confirmed the **psychometric soundness and reliability** of the NEDM-EOLCS, supporting its **validity as an instrument for measuring ethical decision-making competencies** among nurses involved in end-of-life care. It demonstrated a **robust factor structure** and **high internal consistency**, making it suitable for various applications in both research and practice.
- Given its strong psychometric properties, the validated scale can serve as **a foundation for developing targeted educational programs**. It can also inform **ethical training within nursing curricula**, helping to foster critical thinking and value-based judgement in ethically complex clinical situations.
- Incorporating the NEDM-EOLCS into clinical practice may enhance nurses' ability **to navigate ethical dilemmas more confidently and systematically**. This can lead to **more ethically grounded, patient-centered care** at the end-of-life, ultimately contributing to **improved decision-making quality, patient satisfaction, and overall care outcomes**.

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