

Ethical Decision-Making Confidence Scale (EDMCS) for Nurse Leaders: Psychometric Evaluation

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Background: Ethical decision-making confidence develops from clinical expertise and is a core competency for nurse leaders. To date, no tool exists to measure confidence levels in nurse leaders based upon an ethical decision-making framework.



Aim: The objective of this research was to compare ethical decision-making among nurse leaders in the U.S. and three German-speaking countries in Europe by developing and testing a newly constructed Ethical Decision-Making Confidence (EDMC) scale.

Methods: The cross-sectional survey included 18 theory-derived questions on ethical decision-making confidence which were used to develop the scale. Ethical approval was given by the IRB Board of a U.S. university. Participation in the survey implied voluntary consent.

Participants were a convenience sample of nurse leaders from the U.S. (n=91) and three German-speaking countries (n=225) in Europe who self-identified as holding a leadership position.

As for statistical analyses, a principal component analysis (PCA) applying an oblique (promax) rotation method was carried out for total sample and separately by country. After examination of item correlation matrices, scree plot and Kaiser Eigenvalue criteria (>1.0) were used to extract the optimal number of components.

Results: The scale's a) item structure dimensionality and b) subscale reliability were analysed and c) compared between nurse leaders from all German-speaking countries and the U.S.

a) Item structure dimensionality

- In total sample, PCA showed high between-item correlations of the 18 items and identified a two-factor solution, cumulatively explaining 58.23% of total variance, and factor loadings ranging from 0.536-0.889 were observed
- Subsample (U.S. vs. German-speaking countries) analysis revealed that three items differed in terms of their component alignment, and thus, were excluded
- Finally, a 15-item bi-dimensional EDMC scale yielding a skill-related (9-item) and a behaviour-related (6-item) confidence dimension was identified

b) Subscale reliability

- Mean index variables were computed for the two subscales
- Subscale means and internal consistency (Cronbach α) were analyzed for the total and the subsamples
- EDMC subscales showed good-to-excellent internal consistency ranging between 0.851 and 0.938
- Corrected item-scale correlation and Cronbach α if item deleted further indicated that all items correlated well with total item average and deletion of certain items would not lead to any increase of internal consistency, respectively

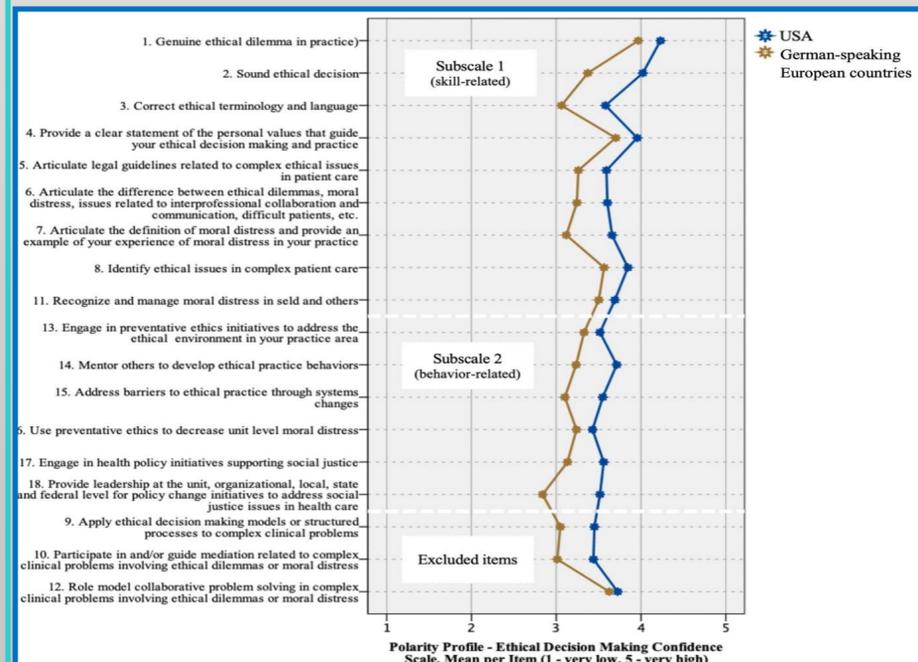
c) Comparison of EDMC between nurse leaders by countries

- Overall, U.S. nurse leaders rated their skill-related ($\Delta=0.38$, $p<0.001$, CI 95% 0.22-0.48) as well as their behavior-related ($\Delta=0.40$, $p<0.001$, 0.23-0.58) ethical decision-making confidence significantly higher than their European counterparts

Reliability and Statistical Comparisons by Country

EDMC subscale	AT-DE-CH	U.S.A.	Total
Skill-related confidence dimension – 1 (very low) to 5 (very high)			
Cronbach α	0.884	0.938	0.908
\bar{x} (SD), Ra	3.42 (0.6), 1.7-5.0	3.80 (0.7), 2.2-5.0	3.53 (0.6), 1.8-5.0
T, p, CI 95% of mean difference	5.02, <0.001, 0.22-0.48		
Behavior-related confidence dimension – 1 (very low) to 5 (very high)			
Cronbach α	0.851	0.911	0.874
\bar{x} (SD), Ra	3.15 (0.7), 1.0-5.0	3.55 (0.7), 2.0-5.0	3.3 (0.8), 1.0-5.0
T, p (df), CI 95% of mean difference	4.51, <0.001, 0.23-0.58		

Notes: \bar{x} Mean, SD Standard Deviation, Ra Range, α alpha (internal consistency), T Student T-Test, p significance level, df degrees of freedom, CI 95% confidence interval; AT Austria, DE Germany, CH Switzerland



Discussion/Conclusion: This newly developed scale is an effective tool for measuring ethical decision-making confidence in nurse leaders. An overarching factor structure was identified, which is shared by the samples of nurse leaders. The promising results of this study should be replicated to ensure validity and reliability of the EDMC scale measuring skill-related and behavior-related concepts and include nurse leaders from various cultural, social, and demographic groups.

Literature:

[1] Birkholz L, Kutschar P, Kundt FS & Beil-Hildebrand M. (2022) Ethical decision-making confidence scale for nurse leaders: Psychometric evaluation. Nursing Ethics. 1:9697330211065847. Epub ahead of print. DOI: 10.1177/09697330211065847. PMID: 35230887.