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The Japanese version of the European Moral Case Deliberation Outcomes Instrument (Euro-MCD 2.0): Validation and score distribution among nurses, doctors, and other healthcare providers—A cross-sectional study

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Abstract: The European Moral Case Deliberation Outcomes Instrument (Euro-MCD 2.0) is a widely used instrument for evaluating moral case deliberation (MCD); however, its psychometric properties have not been fully validated in Japan. Our goal is to assess the validity, reliability, and score patterns of the Japanese version of the Euro-MCD 2.0 among healthcare providers in six national hospitals. A cross-sectional web-based survey was conducted at six national centers for advanced and specialized medicine in Japan. Construct validity was assessed through exploratory and confirmatory factor analysis. Convergent and discriminant validity were examined using composite reliability and average variance extracted. Internal consistency was evaluated with Cronbach's alpha and McDonald's omega. The sample included 359 doctors, nurses, pharmacists, and other healthcare providers involved in clinical practice. Participants who were not in an employment relationship (*e.g.*, trainees) or directly involved with patients and their families in clinical practice were excluded. Items in the moral action domain had elevated 'I don't know' response rates, whereas Moral Competence items showed higher agreement. The three-factor model demonstrated acceptable fit, although discriminant validity between moral teamwork and moral action was limited. Healthcare providers with more years of experience scored higher across all subscales. The Japanese Euro-MCD 2.0 demonstrated acceptable validity and reliability, supporting its use in future evaluations in Japan.

***Keywords*:** ethically challenging situations, healthcare providers, moral competence, moral case deliberation, psychometric validation

1. Introduction

Health care providers often encounter ethically complex situations that demand interdisciplinary collaboration, mutual understanding, and the development of shared insights to guide both clinical decision-making and policy formulation (*1-3*). To support such processes, structured approaches such as moral case deliberation (MCD) have been developed (*4*). MCD is a dialogue-based, systematic method designed to facilitate reflection on ethical dilemmas (*5,6*). It enables participants to examine value-laden issues, collaboratively seek resolutions, and strengthen both individual ethical competence and teamwork skills.

Empirical studies in Europe and other regions have demonstrated MCD's effectiveness in improving moral reasoning, team communication, and shared decision-making (*7-9*). Although originally developed in the

Netherlands and widely adopted across Europe, MCD remains underexplored in the Japanese healthcare context (*10*). Despite recent efforts to establish clinical ethics consultation (CEC) in Japan, several structural issues continue to impede its development. Ambiguities regarding the definition and scope of CEC, unclear distinctions between ethics committees and consultation services, and a limited number of trained consultants remain major challenges. Preventive ethics activities are still underutilized, and quality-assurance practices are unevenly implemented. These limitations reflect the absence of nationally standardized competencies and the lack of structured training pathways in Japan (*11*).

To systematically assess MCD outcomes, the European Moral Case Deliberation Outcomes Instrument (Euro-MCD) was developed in 2014 through a literature review and the Delphi method, with initial studies confirming its content validity (*12*). The updated Euro-MCD 2.0, developed in 2020, incorporated insights from several field studies and expert consultations (*12,13*). A Japanese version of the Euro-MCD 2.0 was recently developed in 2023, but research to date has only examined its content validity (*10*). Given the cultural differences between Japan and Europe, psychometric validation of the Japanese version of the Euro-MCD 2.0 is essential before its widespread application. Accordingly, this study aims to evaluate the reliability and validity of the Japanese Euro-MCD 2.0 and to assess the moral competence of Japanese nurses, doctors, and other healthcare providers when confronted with ethically complex situations.

2. Materials and Methods

2.1. Study design and participants

We conducted a cross-sectional study at six national centers for advanced and specialized medicine in Japan. The eligible participants were medical professionals involved in clinical practice, including doctors, nurses, pharmacists, and other health care providers. Exclusion criteria were: *i*) Individuals not employed by the institution (*e.g.*, trainees), and *ii*) those not directly involved in patient and family care. These criteria were applied to ensure that participants could provide valid responses in their current clinical experience.

2.2. Data Collection

Research collaborators at each medical center received a study information sheet and a web link to the questionnaire, which they distributed to relevant staff through institutional mailing lists. The questionnaire was administered online using Google Forms (Google LLC, Mountain View, CA, USA). The participants were requested to complete the survey within two weeks, with a reminder sent after one week. Data collection occurred between July 1 and August 7, 2023. The questionnaire was anonymous to ensure confidentiality, and no identifying information was collected.

2.3. Measures

The survey collected demographic data, including gender, age, professional role, years of professional experience, and work schedule. MCD outcomes were assessed using the Japanese version, which contains 15 items across three factors—moral competence, moral teamwork, and moral action (*10*)—and has the same number of items and subscale structure as the original scale (*13*). Each item was rated on a 5-point Likert scale, consistent with the original instrument: 0 = "I do not know", 1 = "strongly disagree", 2 = "slightly disagree", 3 = "slightly agree", and 4 = "strongly agree". The response option "I do not know" was coded as 0 in the primary analysis in accordance with the scoring approach of the original Euro-MCD 2.0. This category reflects an inability to provide a directional rating rather than agreement with the item content; therefore, we examined its potential influence on psychometric findings through a sensitivity analysis in which "I do not know" responses were treated as missing values in both EFA and CFA, and results were compared with the primary analysis. Subscale scores were summed, with higher scores indicating greater moral competence.

The content validity of the Japanese version has already been examined in previous research (*10*). Following approval from the original authors, two native Japanese-speaking researchers independently translated the items. A panel of three researchers subsequently reviewed and refined the content. The Japanese version was then back-translated into English by a native English speaker, and the original authors evaluated the correspondence between the back-translation and the original items. Throughout the translation process, interpretations of wording and expressions were discussed as needed between the developers and the original authors. As a result, content validity was confirmed without introducing substantive deviations from the original instrument (*10*).

2.4. Data analysis

Descriptive statistics were calculated for participant characteristics and outcome variables. Construct validity was evaluated through a two-stage process involving exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). To assess the stability of the factor structure, the total sample was randomly split into two approximately equal subsamples for the cross-validation process. Randomization was conducted in the Statistical Package for the Social Sciences (SPSS) by generating a random value for each case using the RV.UNIFORM (0,1) function. Cases with random

values < 0.5 were assigned to the EFA sample, and those with values > 0.5 were assigned to the CFA sample. EFA was conducted using maximum likelihood extraction with promax (oblique) rotation. The number of factors was decided based on the scree plot method and interpretability. When conducting CFA, model fit was assessed using the comparative fit index (CFI), Tucker–Lewis Index (TLI), standardized root mean square residual (SRMR), and root mean square error of approximation (RMSEA), with cut-off values of > 0.90, > 0.90, < 0.08, and < 0.08, respectively (*14,15*). Additionally, the Akaike information criterion (AIC) was used to compare the relative fit of competing models (*14,15*). Model modifications in CFA were guided by both statistical and theoretical considerations. Specifically, error covariances were added only when (a) the modification index exceeded 15 and (b) the items involved belonged to the same subscale or exhibited strong conceptual similarity. This approach ensured that modifications remained theoretically grounded rather than purely data-driven (*14*). To examine the potential influence of this response category on the psychometric results, we conducted a sensitivity analysis in which "I do not know" responses were treated as missing values. We then compared the overall factor structure and model fit with those from the primary analysis.

Convergent and discriminant validity were assessed based on the results of the CFA. Convergent validity was supported when factor loadings were ≥ 0.50, average variance extracted (AVE) was ≥ 0.50, and composite reliability (CR) was ≥ 0.70. Discriminant validity was confirmed when inter-factor correlations among subscales were below 0.85. In addition, following the Fornell–Larcker criterion, the square root of the AVE for each subscale was calculated, and discriminant validity was deemed adequate when this value exceeded the corresponding inter-factor correlations (*15*).

Independent-sample *t*-tests were conducted to compare groups based on professional experience (≤ 10 years *vs.* ≥ 11 years). Based on previous research, we hypothesized that ethical competence would be higher among those with more years of experience because they have more opportunities to encounter ethically challenging cases (*16*). In addition, drawing on Patricia Benner's theory of professional development, we used 10 years as a theoretically informed cutoff because it is commonly considered a reasonable timeframe for clinicians to progress towards a level of expertise (*17*).

Reliability was evaluated through item–total correlations (> 0.30 considered adequate) and internal consistency metrics, including Cronbach's alpha and McDonald's omega (> 0.70 considered acceptable) (*18*). All statistical analyses were conducted using SPSS Statistics version 28 and SPSS Amos version 29 (IBM Corp., Armonk, NY, USA).

2.5. Ethical considerations

This study was approved by the independent Ethics Review Committee of National Cancer Centre Hospital (approval number: 6000-076). Participation was voluntary, and all participants provided informed consent electronically *via* a checkbox on the web-based questionnaire. The study protocol adhered to the ethical standards of the institutional research committee and the Declaration of Helsinki.

3. Results

3.1. Participant Characteristics

Of the 12,994 health care provider members affiliated with the six national medical centers, those directly involved in patient and family care were targeted. A total of 579 individuals responded to the questionnaire, of whom 359 were included in the final analysis. Participants were excluded if they did not provide informed consent (*n* = 36), were not involved in clinical work (*n* = 158), or had missing or incomplete responses to the Euro-MCD 2.0 scale (*n* = 26). Response and valid response rates could not be calculated because the number of eligible staff actively engaged in clinical care was not known.

Table 1 presents participants' demographics. Among the 359 participants analyzed, 74.7% were women, and 49.0% identified as nurses. The mean age was

Table 1. Participants' characteristics (*n* = 359)

Characteristics	*n*	%	SD ± mean [range]
Age Responses (*n* = 357)			41.5 ± 10.9 [21–69]
21–29	58	16.2	
30–39	104	29.0	
40–49	104	29.0	
50 or above	91	25.3	
No response	2	0.5	
Gender			
Male	83	23.1	
Female	268	74.7	
No response	8	2.2	
Profession			
Doctor	98	27.3	
Nurse	176	49.0	
Pharmacist	12	3.3	
Social worker	10	2.8	
Nutritionist	9	2.5	
Clerical workers	9	2.5	
Rehabilitation specialist	8	2.2	
Other*	37	10.3	
Years of experience			16.2 ± 10.6 [1–47]
Responses (*n* = 348)			
≤ 10	122	34.0	
11–19	104	29.0	
≥ 20	122	34.0	
No response	11	3.1	

*Other professional roles included clinical research coordinators, medical concierges, genetic counselors, medical interpreters, nursing assistants, research assistants, dentists, dental hygienists, and childcare workers.

41.5 ± 10.9 years, with a mean of 16.2 ± 10.6 years of professional experience in the current occupation. Other professional roles included clinical research coordinators, medical concierges, genetic counselors, medical interpreters, nursing assistants, research assistants, dentists, dental hygienists, and childcare workers. These roles were grouped as 'other healthcare providers' because the number of respondents in each role was small, and all met the study eligibility criterion of direct involvement in patient and family care in clinical settings, even if their involvement occurred only in specific situations.

3.2. Descriptive statistics and score distribution

Table 2 presents the descriptive statistics for each item of the Euro-MCD 2.0. Mean item scores ranged from 2.3 to 2.9, with corresponding standard deviations reported in Table 2. More than 10% of respondents selected "I do not know" for Items 3, 12, and 14, and approximately 10% selected this option across all items in the Moral Action domain. Item 5 showed a relatively higher proportion of "slightly agree" and "strongly agree" responses compared with the other items.

3.3. Differences by occupation

Figure 1 illustrates subscale scores by occupation. No significant differences were observed between nurses and doctors across all subscales. However, nurses had significantly higher mean scores than other health care providers on all three subscales ($p < 0.05$).

3.4. Item analysis

Item–total correlation coefficients ranged from 0.49 to 0.75, indicating good internal consistency (Table 2).

3.5. Validity

Construct validity was assessed in two stages: exploratory factor analysis (EFA) to identify the underlying factor structure, followed by confirmatory factor analysis (CFA) to evaluate model fit. Sampling adequacy (KMO) and Bartlett's test of Sphericity were calculated using the EFA subsample prior to conducting the exploratory factor analysis. Prior to EFA, sampling adequacy was confirmed using the Kaiser–Meyer–Olkin (KMO) measure, which yielded a value of 0.90 ($p < 0.001$). The EFA yielded a two-factor structure, with Items 1–6 loading on the first factor and Items 7–15 loading on the second factor. Although the factor loading for Item 5 was 0.33—below the commonly accepted threshold of 0.40—the resulting structure reflected two dimensions: Moral competence (Factor 1) and a combined factor representing Moral Teamwork and Moral Action (Factor 2). In addition, in the sensitivity analysis in which "I don't know" responses were treated as missing values, the KMO value remained 0.90, and the factor structure did not change compared with the main analysis.

To examine the fit of the original three-factor structure of the Euro-MCD 2.0, CFA was conducted, despite the EFA suggesting a two-factor solution. The initial model without additional error covariances was designated Model 1. Modification indices for the item pairs 1–2 and 10–11 were > 15. Therefore, additional error covariances were specified to improve model fit, and this revised specification was designated Model 2 (Figure 2). Model fit indices for both models are reported in Table 3: CFI = 0.92, SRMR = 0.054, TLI = 0.90, and RMSEA = 0.085. While RMSEA slightly exceeded the recommended cutoff (< 0.08), the other fit indices met the established thresholds. In the sensitivity analysis (Model 3), CFI = 0.927, TLI = 0.897, and RMSEA = 0.082; SRMR was not calculated due to the handling of missing data. Overall, the model fit indices were highly similar to those obtained in the main analysis. Convergent validity was supported, with a composite reliability (CR) of 0.94 and an average variance extracted (AVE) of 0.50, both exceeding conventional thresholds. For discriminant validity, the inter-factor correlations were 0.79 between moral competence and moral teamwork, 0.89 between moral teamwork and moral action, and 0.75 between moral competence and moral action. According to the Fornell–Larcker criterion, the square roots of AVE values were 0.80 for Moral Competence, 0.86 for Moral Teamwork, and 0.87 for Moral Action. The criterion was not met for the pair of Moral Teamwork and Moral Action, indicating insufficient discriminant validity between these two subscales.

Independent-sample *t*-tests revealed significant differences between participants with ≤ 10 years and ≥ 11 years of experience in their current occupation across all three subscales (Table 4). In addition, the 11 participants with missing responses on years of experience were excluded from the analysis. Participants with greater professional experience had higher mean scores, consistent with the hypothesis that moral competence increases with years of practice ($p < 0.05$ for all subscales).

3.6. Reliability

Internal consistency was acceptable across all subscales. Cronbach's alpha values ranged from 0.80 to 0.85, and McDonald's omega values ranged from 0.81 to 0.85 (Table 2).

4. Discussion

This study found that the Japanese version of the Euro-MCD 2.0 demonstrated acceptable reliability; however, discriminant validity did not fully meet recommended

Table 2. Distribution of responses for each item (n = 359)

Domain	Item	Mean ± SD	Item-total correlation	Response per item (%)*				
				I do not know	Strongly disagree	Slightly disagree	Slightly agree	Strongly agree
Moral ability (range 0–24)	1. I recognize a situation as being ethically difficult	2.7 ± 0.86	0.49	5.3	1.4	20.9	63.2	9.2
	2. I am aware of others' perspectives in ethically difficult situations	2.6 ± 0.88	0.58	6.4	1.1	24.0	62.4	6.1
	3. I can identify the different values at stake in ethically difficult situations	2.4 ± 0.99	0.67	**10.6**	0.6	33.7	50.1	5.0
α = 0.804	4. I can formulate arguments in favor of and against different courses of action in ethically difficult situations	2.5 ± 0.87	0.62	5.6	3.6	27.6	58.2	5.0
ω = 0.806	5. I listen with an open mind to others when discussing an ethically difficult situation**	2.9 ± 0.80	0.52	4.2	1.1	10.6	71.0	13.1
	6. I speak up in ethically difficult situations	2.3 ± 0.86	0.62	4.7	6.4	44.0	40.1	4.7
	Total	15.4 ± 3.75	-	-	-	-	-	-
Moral teamwork (range 0–20)	7. We openly express our viewpoints in ethically difficult situations	2.4 ± 0.90	0.72	6.7	6.4	35.1	46.8	5.0
	8. We all have opportunities to express our viewpoint on ethically difficult situations	2.3 ± 0.91	0.69	6.1	6.4	43.7	37.6	6.1
	9. We respect different viewpoints when discussing ethically difficult situations	2.7 ± 0.89	0.69	5.3	2.8	23.1	59.1	9.7
α = 0.853	10. We feel secure to share emotions in ethically difficult situations	2.4 ± 0.96	0.71	6.4	9.2	32.9	45.1	6.4
ω = 0.851	11. We support each other when dealing with ethically difficult situations	2.5 ± 0.88	0.69	5.3	3.9	28.7	55.7	6.4
	Total	12.2 ± 3.64	-	-	-	-	-	-
Moral action (range 0–16)	12. We make decisions on how to act in ethically difficult situations	2.3 ± 1.01	0.75	**10.3**	5.6	31.5	49.0	3.6
	13. We base our decisions on moral considerations in ethically difficult situations	2.6 ± 0.97	0.69	8.4	2.5	15.9	65.7	7.5
	14. We are responsive to the values and needs of patients and their families in ethically difficult situations	2.5 ± 1.08	0.68	**11.7**	2.2	18.4	59.3	8.4
α = 0.822								
ω = 0.827	15. We are able to explain and justify our care towards patients and their families	2.6 ± 0.98	0.67	9.2	1.4	14.8	68.0	6.7
	Total	10.0 ± 3.26	-	-	-	-	-	-

α: Cronbach's alpha, ω: Macdonald's omega. *The scores for each response option are as follows: 0, "I do not know"; 1, "Strongly disagree"; 2, "Slightly disagree"; 3, "Slightly agree"; 4, "Strongly agree.". **In the exploratory factor analysis, the factor loading was 0.33.

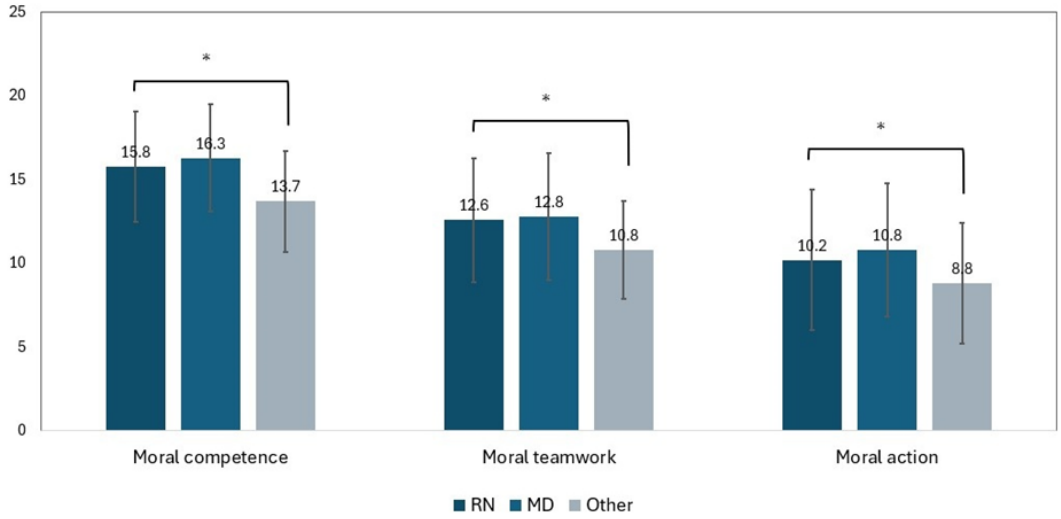

Figure 1. Differences in scores per subscale and reliability of scales by occupation (*n* = 359). *The nurses' score were considered as the reference; $p < 0.05$. *Abbreviations:* RN, registered nurse; MD, medical doctor; Other, other healthcare staff.

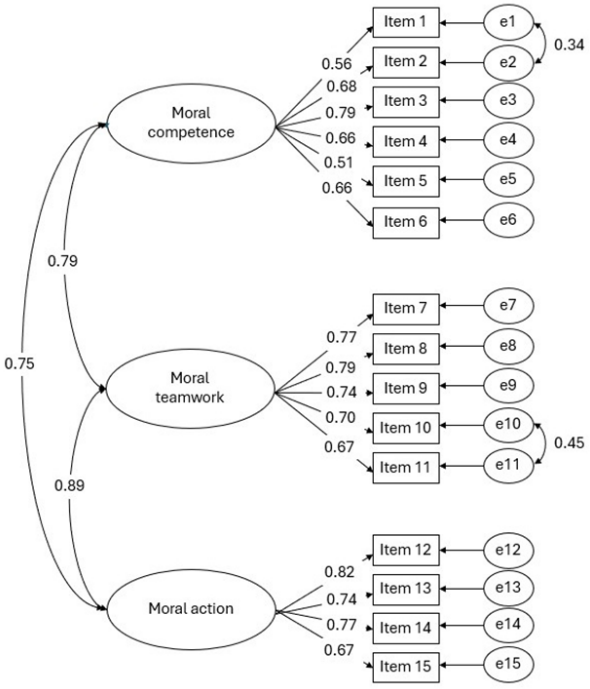

Figure 2. Confirmatory factor analysis: Model 2 (*n* = 188).

Table 3. Confirmatory Factor Analysis Models and Model Fit Indices (*n* = 188)

Models	CFI	SRMR	TLI	RMSEA	AIC
Model 1	0.885	0.062	0.861	0.101	317.325
Model 2	0.920	0.054	0.901	**0.085**	269.760
Model 3	0.927	NA*	0.897	**0.082**	291.167

CFI: Comparative Fit Index (> 0.90).SRMR: Standardized Root Mean Square Residual (< 0.08). TLI: Tucker-Lewis Index (> 0.90). RMSEA: Root Mean Square Error of Approximation (< 0.08). AIC: Akaike's Information Criterion. *Not calculated due to missing data handling.

thresholds. The study also provides insights into the moral competence of health care providers in ethically challenging situations in Japan and identifies potential areas for improving MCD discussions.

One of this study's strengths is the diversity of health care providers' backgrounds and roles. Participants were recruited from hospitals selected for convenience, each of which specialized in distinct clinical areas such as oncology, neuropsychiatry, cardiology, and pediatrics. This diversity allowed the inclusion of health care providers from multiple clinical backgrounds and with varied roles—doctors, nurses, pharmacists, and social workers—directly involved in patient care and familiar with ethically challenging situations. However, the response rate could not be calculated, limiting the ability to determine whether the sample was representative of the target population. Because the number of eligible staff directly involved in patient and family care could not be confirmed, we could not calculate a response rate. This limits confidence in how representative the sample is and raises the possibility of nonresponse bias, which may affect generalizability. Although the survey targeted all health care personnel, it was difficult to delineate the extent to which each staff member was involved in patient and family care in clinical settings. As this determination was left to the respondents themselves, calculating an accurate response rate was not feasible.

As MCD becomes more widely adopted in Japan, future research should employ more clearly defined eligibility criteria—such as including only individuals with prior MCD experience—to improve clarity in identifying the target population. In this survey, mean item scores were below 3, whereas previous research in the Netherlands employing the concentrate, unrush, reflect, and act (CURA) methodology (an MCD-based

Table 4. Differences in scores per subscale by years of occupational experience (*n* = 348)

Domain	Years of occupational experience	Mean ± SD	*p*
Moral competence	≤ 10 (*n* = 122)	14.3 ± 3.7	< 0.001
	≥ 11 (*n* = 226)	16.1 ± 3.4	
Moral teamwork	≤ 10 (*n* = 122)	11.6 ± 3.6	0.007
	≥ 11 (*n* = 226)	12.7 ± 3.6	
Moral action	≤ 10 (*n* = 122)	9.5 ± 3.4	0.010
	≥ 11 (*n* = 226)	10.4 ± 3.0	

approach) reported Euro-MCD 2.0 scores exceeding 3 across all subscales (*19*). While differences in participants and cultural context likely account for these discrepancies, familiarity with MCD may enhance ethical competence.

The Japanese version of the Euro-MCD 2.0 includes "I do not know" as a response option. High selection rates for this option may reflect respondents' uncertainty in understanding the questions or in self-assessing their moral competence. Low confidence in ethical competence may hinder healthcare providers' ability to manage moral distress, underscoring the need for interventions that strengthen healthcare providers' confidence in ethically challenging situations (*20*).

Item 3 ("I can identify the different values at stake in ethically difficult situations") suggests that the ability to recognize underlying values may be underdeveloped in Japanese clinical ethics discussions. Commonly used tools in Japan, such as Jonsen's Four-Box Method, emphasize clinical fact-finding over the exploration of participants' values and perspectives (*21*). MCD has been shown to reduce moral distress by encouraging awareness of what is important to each member, suggesting potential benefits for Japanese clinical ethics practice (*22*).

Items 12–15 from the Moral Action subscale had relatively high rates of "I do not know" responses, possibly reflecting participants' limited ability to act on moral judgments or unclear guidance on translating discussions into action. Variability in professional roles and clinical responsibilities may have contributed to these response patterns. Moral distress, defined as "knowing the right thing to do but being in a situation in which it is nearly impossible to do it" (*23*), can arise when individuals understand ethical issues but cannot act. Clinical ethics discussions should therefore include guidance on implementing individual actions based on deliberations.

While many participants endorsed Item 5 ("I listen with an open mind to others"), fewer agreed with Item 8 ("We all have opportunities to express our viewpoint"). This may reflect insufficient time for discussion in busy clinical settings or a lack of psychological safety, which can hinder open communication. Fostering a supportive, ethical climate is essential for encouraging all team members to share their perspectives during interprofessional ethics discussions (*24-26*).

The EFA indicated that the subscales of moral teamwork and moral action were extracted as a single factor, and the assessment of discriminant validity likewise suggested that these two factors lacked discriminant validity. The convergence between the EFA findings and the discriminant validity results suggests that these constructs are conceptually similar. Two possible explanations may account for this overlap. First, the Moral Teamwork and Moral Action subscale items consistently use "we" as the grammatical subject, in contrast to the Moral Competence items, which use "I". This distinction was preserved in the Japanese translation, and it is possible that respondents recalled similar situations or behaviors when responding to the moral teamwork and moral action items. Second, Japan's collectivist cultural orientation contrasts with the individualistic context in which the original scale was developed. Compared to Western populations, Japanese respondents may perceive weaker boundaries between individual and group roles, which could have led to similar interpretations of team-based behaviors and individual actions—contributing to the conceptual proximity between the two factors (*27*). Although individualism has been increasing in Japan, evidence suggests that collectivist orientations remain influential in contemporary society (*28*). In a collectivist context, ethical reflection and ethical action may be experienced as closely tied to group processes and shared responsibility, which may help explain the overlap observed between Moral Teamwork and Moral Action in this study. This interpretation aligns with cross-cultural ethics literature emphasizing that moral reasoning and action can be shaped by culturally patterned self-construal and relational norms, particularly in team-based clinical practice.

CFA result indicated that the RMSEA was the only fit index that did not meet the recommended threshold. This may have been partly influenced by the fact that some items within each factor had more than 10% of responses marked as 'I don't know', which could have lowered model fit (*29*). The response option "I don't know" may reflect an intent similar to "neither agree nor disagree", or it may indicate that the respondent cannot provide a clear answer. As a result, this option may have contributed to a departure from normality in the response distribution and may have influenced the RMSEA value. In the cultural context of Japan, "moral teamwork" and "moral action"

appeared to be closely related concepts. Consistent with this interpretation, EFA suggested a two-factor structure in which the moral teamwork and moral action items loaded on a single factor, and the discriminant validity assessment also indicated limited separation between these two subscales. Nevertheless, we retained the original three-factor model in CFA because Euro-MCD 2.0 was developed to distinguish individual moral competence from team-level processes (moral teamwork) and the translation of deliberation into practice (moral action), which remain conceptually distinct outcomes in clinical ethics support. In nursing and interprofessional ethics education, maintaining separate moral teamwork and moral action scores can be practically informative for identifying whether support is needed in inclusive participation and communication during deliberation versus follow-through and implementation after deliberation. At the same time, our findings suggest that the boundary between moral teamwork and moral action may be less distinct in Japan; therefore, future studies should further examine this relationship, including potential multicollinearity in multivariate analyses and evaluation of alternative models. However, because the fit indices other than RMSEA met recommended criteria and the main analysis results (Table 3, Model 2) were comparable to the sensitivity analysis results, the main findings were interpreted as robust. To preserve cross-cultural comparability, no modifications were made to the original factor structure, and results were interpreted as supporting the theoretical model of the original scale. Future research should further examine the correlation between "moral teamwork" and "moral action", and should use this scale with careful attention to multicollinearity in multivariate analyses. From an applied perspective, users should interpret moral teamwork and moral action subscale scores with caution in the Japanese context, as they may capture overlapping aspects of team-based ethical practice. When the goal is to evaluate intervention effects or model associations, reporting both subscales remains useful for comparability with international studies, but analyses should avoid treating them as fully independent outcomes. Depending on the analytic purpose, researchers may also consider conducting sensitivity analyses that use a combined teamwork-action score, while still reporting original subscales to maintain comparability.

Convergent validity met recommended thresholds for all constructs, indicating that it was adequately established. The known-groups validity analysis indicated that nurses and doctors scored comparably, while other healthcare providers demonstrated lower mean scores. This pattern may reflect underlying differences in professional roles and ethical values, with nurses often emphasizing patient-centered care and autonomy, and doctors prioritizing scientific reasoning and benefits (*30*). Interprofessional ethics education and improved communication may help bridge these differences (*31*). Ethical competence also increased with years of experience, regardless of occupation, suggesting that team competence may benefit from targeted training and inclusion of diverse professionals.

Cronbach's alpha and McDonald's omega values exceeded 0.8 for all subscales, indicating strong internal consistency. Test–retest reliability could not be assessed due to ethical and logistical constraints, including the requirement to maintain participant anonymity. Future studies should examine test–retest reliability by implementing follow-up measurements with participants who consent to repeated assessments.

5. Future directions and research limitations

This study provides evidence for the utility of the Japanese version of the Euro-MCD 2.0 across diverse health care professions. To address ethically complex situations effectively, healthcare teams should foster a supportive ethical climate, ensure psychological safety, and implement training programs aimed at enhancing interprofessional moral competence. Using the validated Japanese Euro-MCD 2.0, future studies and clinical programs can evaluate MCD implementation by measuring outcomes before and after MCD-based education or case deliberation initiatives, monitoring changes across three subscales, and comparing results across professions and clinical settings. This will also support international comparisons and inform the development of ethics education that is appropriate for Japan's cultural context.

This study has several limitations that should be acknowledged when interpreting the findings and designing future research. First, the response rate could not be calculated, which limits the ability to assess whether the sample accurately represents the target population. This limits confidence in how representative the sample is and raises the possibility of nonresponse bias, which may affect generalizability. Second, the CFA indicated suboptimal model fit, which may have been influenced by cultural differences and cross-cultural interpretation of questionnaire items. Third, the reliability assessment was limited to internal consistency; future research should incorporate additional reliability indicators, such as test–retest reliability, to confirm and strengthen these findings. Fourth, we did not collect information on participants' prior exposure to moral case deliberation (MCD) or ethics consultation; therefore, we could evaluate whether familiarity with these practices influenced Euro-MCD 2.0 scores, which should be considered when interpreting the findings. Fifth, as this study used a cross-sectional design, temporal sensitivity and responsiveness of the scale were not assessed; therefore, future longitudinal studies are warranted. Finally, inclusion of diverse professional roles beyond nurses and doctors may limit generalizability of findings, given variations in direct clinical involvement with

patients and families.

6. Conclusions

Although the Japanese version of the Euro-MCD 2.0 demonstrated acceptable internal consistency, discriminant validity was limited, and CFA model fit should be interpreted with caution because RMSEA exceeded the recommended cutoff. While the other fit indices were within acceptable ranges and the sensitivity analysis yielded comparable results, these findings suggest that further psychometric evaluation is warranted in larger samples and across diverse settings in Japan before drawing strong conclusions about stability of the factor structure. Therefore, the scale was retained in its original structure to facilitate future international comparative studies. These findings also underscore importance of implementing support systems and capacity-building strategies for healthcare providers, particularly in light of how cultural context in Japan may shape responses to ethically complex situations. Overall, this instrument offers a valuable tool for implementing MCD in clinical ethics in Japan, and its effectiveness should be further evaluated in future research.

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