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# The relationship between moral reasoning, ethical sensitivity, and empathy among nursing students: A cross-sectional study

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**Abstract:** This cross-sectional study investigated interrelationships between moral reasoning, ethical sensitivity, and empathy among 200 Iranian nursing students using Rest's Four Component Model. Participants demonstrated high moral sensitivity ( $88.9 \pm 9.9$ ) and moderate empathy ( $97.4 \pm 10.7$ ), but suboptimal moral reasoning ( $43.1 \pm 4.6$ ) despite progression across academic years. A significant positive correlation linked moral sensitivity and empathy ( $r = 0.329$ ,  $p < 0.001$ ), while moral reasoning showed no significant relationship with either sensitivity ( $r = -0.100$ ) or empathy ( $r = -0.041$ ). Notably, empathy declined with academic advancement ( $\rho = -0.32$ ,  $p < 0.05$ ), and dormitory residents scored higher in practical (rule-based) decision-making ( $p = 0.006$ ). Findings reveal a critical disconnect: although students recognize ethical dilemmas (sensitivity) and demonstrate emotional engagement (empathy), they lack systematic frameworks for moral reasoning. This underscores curricular deficiencies in ethics education, necessitating integration of simulated dilemmas, empathy-centered reflection, and expert mentorship. Urgent reforms should bridge cognitive-affective gaps to prepare nurses for complex ethical challenges in clinical practice.

**Keywords:** moral reasoning; moral sensitivity; empathy; nursing students; ethics education

## 1. Introduction

Nursing, as a profession rooted in patient-centered care, demands clinical expertise alongside a steadfast commitment to ethical practice. Patients in healthcare settings often experience vulnerability, fear, and helplessness, making therapeutic nurse-patient interactions critical for fostering trust and emotional safety [1]. Ethical competence, encompassing moral reasoning (the ability to analyze ethical dilemmas systematically), moral sensitivity (recognizing ethical conflicts and their implications), and empathy (understanding patients' perspectives and emotions), serves as the cornerstone of effective nursing practice [2,3]. This study is conceptually anchored in Rest's Four Component Model (FCM) of moral behavior, which integrates these ethical competencies into a unified framework. The FCM posits that ethical action requires four distinct psychological processes: moral sensitivity (interpreting situations as ethically relevant), moral reasoning (judging which action is morally right), moral motivation (prioritizing moral values), and moral implementation

(executing actions) [4]. Nursing ethics, defined as the systematic application of ethical principles in care delivery, is vital to maintaining public trust, particularly in roles like nursing where practitioners are directly responsible for patient well-being [5,6].

Professional ethics education equips nursing students with the analytical and emotional tools to navigate complex care scenarios, ensuring high standards of practice and minimizing risks to care quality [7,8]. Such education integrates critical frameworks that enhance clinical expertise and promote holistic patient well-being across physical, social, and psychological domains [9,10]. For nursing students who face unique challenges due to their inexperience, developmental immaturity, and emotional reactivity, structured ethics training is imperative. Empirical evidence indicates that ethics education strengthens moral awareness while cultivating analytical rigor, essential for resolving complex care scenarios [11–13].

Within Rest's FCM framework, moral sensitivity functions as the foundational prerequisite for ethical action, preceding moral reasoning in the decision-making sequence [4]. Moral sensitivity involves recognizing moral dilemmas, identifying vulnerable contexts, and anticipating the ethical consequences of decisions on stakeholders [14,15]. A morally sensitive nurse demonstrating moral sensitivity not only identifies ethical dilemmas but also critically examines emotional, cognitive, and contextual factors to ensure decisions correspond with ethically justifiable outcomes [16]. Contemporary research emphasizes that moral sensitivity is not innate but developed through experiential learning and reflective practice [14]. In high-stress clinical environments, lapses in moral awareness risk marginalizing ethical considerations, thereby jeopardizing patient-centered care [14,17].

Upholding ethical standards in such settings necessitates multifaceted competencies, among which empathy plays a pivotal role [18]. Empathy, while not explicitly included in Rest's original model, functionally supports moral sensitivity by enabling perspective-taking, a core element in recognizing patients' moral claims and vulnerabilities. Defined as the capacity to adopt others' perspectives to deeply comprehend their emotional and experiential realities, empathy strengthens therapeutic relationships and correlates with improved clinical outcomes, workplace productivity, and reduced burnout [19,20]. Empathy also enhances ethical awareness, as healthcare professionals' psychological attributes profoundly influence their integration of ethics into practice [19,21,22]. For nursing students, empathy synergizes with moral reasoning and sensitivity to navigate ethical challenges in clinical settings [23].

Evidence-based interventions in ethics education require a robust understanding of the interrelationships among moral reasoning, moral sensitivity, and empathy to effectively foster ethical decision-making among nursing students [24]. Post-graduation nurses must rely on these competencies to reconcile conflicts between theoretical knowledge and real-world clinical challenges. While ethical decision-making models are introduced during nursing education [25], gaps persist in understanding how moral reasoning, sensitivity, and empathy interact, particularly in non-Western contexts. In Iran, nursing education faces challenges such as limited emphasis on ethics in curricula and high student-to-faculty ratios, which may hinder personalized ethical training [26,27]. This study explicitly positions these three constructs within Rest's FCM to examine their synergistic roles: moral sensitivity as the ethical trigger, moral reasoning as the deliberative process, and empathy as an

enabling factor for sensitivity. No prior Iranian studies have systematically examined these relationships among nursing students through a unified theoretical lens. By applying Rest's FCM, this study addresses this gap and offers a theoretically grounded analysis to refine ethics curricula and enhance preparedness for ethical practice in under-researched settings.

## 2. Materials and methods

This cross-sectional correlational study was conducted at Hamadan University of Medical Sciences in 2019. After obtaining ethical approval and written informed consent from participants, 200 undergraduate nursing students in semesters 3–8 were selected via stratified random sampling. Stratified random sampling was employed to ensure proportional representation across academic semesters. The sampling procedure involved Stratified Sampling (dividing the total eligible population ( $N = 310$ ) into 6 strata (semesters 3–8)), Random Selection (using computer-generated random numbers (SPSS 24.0) to select participants from each stratum), and Proportional Allocation (sample sizes per stratum mirrored population proportions). The eligible population consisted of 310 students who met the inclusion criteria. Of these, 200 participated (response rate = 64.5%). Non-participation was due to declined consent ( $n = 67$ ) and incomplete surveys ( $n = 43$ ). The minimum sample size was 152 (based on  $r = 0.22$ ,  $\alpha = 0.05$ , power = 80%) [28]. Accounting for 10% attrition, 170 participants were targeted. Ultimately, 200 consented, exceeding the target. Data were collected using five instruments: 1): a researcher-developed demographic questionnaire (gender, age, residence, marital status, field of study, and academic semester); 2): the standardized Jefferson Scale of Empathy (JSE\_HPS); 3): Lutzen's Moral Sensitivity Questionnaire (MSQ); 4): the Moral Reasoning Questionnaire; and 5): the Nursing Dilemma Test (NDT). All tools were administered to evaluate the relationships between demographic variables, empathy, moral sensitivity, and ethical decision-making competencies among nursing students.

### 2.1. Moral reasoning questionnaire

The Nursing Dilemma Test (NDT), grounded in Kohlberg's theory of moral development (1981), evaluates ethical reasoning through six clinical scenarios reflecting common nursing challenges: severe congenital abnormalities in infants, drug coercion, end-of-life patient demands, medication errors, introducing new nurses, and care for terminally ill individuals. Each scenario is followed by two components: selection of an intended action and ranking of six predefined justifications aligned with Kohlberg's moral stages (levels 2–6) or institutional rule adherence. Three primary metrics are derived:

- 1) Moral Development Level: Categorized per Kohlberg's stages (2–6) based on prioritized justifications.
- 2) Nursing Principled Thinking (NP): Summed scores from stages 5 and 6 (post-conventional reasoning), ranging from 18 to 66, with higher scores indicating advanced moral reasoning.
- 3) Practical Consideration (PC): Measures adherence to institutional rules (range: 6–36), where higher scores reflect greater reliance on pragmatic constraints over

principled reasoning. A supplementary Familiarity subscale assesses prior exposure to ethical dilemmas using a 5-point Likert scale (1 = direct experience; 5 = unrealistic scenario). Total familiarity scores range from 6 to 30, with scores  $\leq 17$  denoting familiarity and  $\geq 18$  indicating limited exposure.

The Persian adaptation by Zirak et al. [26] ensured linguistic and contextual validity through expert review by ten faculty members at Tabriz University of Medical Sciences, refining clarity and relevance. The analysis demonstrated strong reliability, exhibiting an intra-class correlation coefficient (ICC) of 0.95 for test-retest consistency and a Cronbach's alpha of 0.80, aligning with previous pilot validations ( $\alpha = 0.82$ ) [27]. In the current study, internal consistency was further confirmed via Cronbach's alpha ( $\alpha = 0.80$ ), affirming the tool's acceptable reliability for measuring the intended constructs.

## 2.2. Lutzen standard questionnaire of moral sensitivity

The Moral Sensitivity Questionnaire (MSQ), developed by Lutzen et al. in 1994 [29], measures ethical awareness across 25 items scored on a 5-point Likert scale (0–4). It evaluates six domains: patient autonomy, awareness of communication practices, professional knowledge, experience with ethical conflicts, application of ethical principles, and integrity and benevolence. Total scores range from 0 to 100, categorized as follows: 0–50 (low sensitivity), 51–75 (moderate sensitivity), and 76–100 (high sensitivity).

The tool's validity in Iran was established via content and face validity assessments by a panel of six academic experts and four critical care nurses. Reliability was confirmed with a Cronbach's alpha coefficient of 0.89, consistent with prior validations in the United States ( $\alpha = 0.76$ ) and South Korea ( $\alpha = 0.78$ ) [30]. In addition, in the present study, the reliability of this questionnaire was confirmed by Cronbach's alpha ( $\alpha = 0.89$ ).

## 2.3. Jefferson scale of empathy

The Jefferson Scale of Empathy for Health Professions Students (JSE-HPS), adapted from the Jefferson Scale of Physician Empathy (JSEP) (1987), is a 20-item instrument assessing clinical empathy via a 7-point Likert scale (1 = strongly disagree to 7 = strongly agree). It comprises three subscales:

- 1) Attitude Adoption: (10 items: 2, 4, 5, 9, 10, 13, 15, 16, 17, 20),
- 2) Empathic care: (8 items: 1, 7, 8, 11, 12, 14, 18, 19),
- 3) Putting yourself in the place of a patient: (2 items: 3, 6).

Ten negatively phrased items (1, 3, 6, 7, 8, 11, 12, 14, 18, and 19) are reverse-scored. Total scores range from 20 to 140, with higher scores indicating stronger empathic orientation toward patient care. The original English version was developed by researchers at the Sidney Kimmel Medical College. A linguistically validated Persian version was co-developed by Dr. Mohammadreza Hojjat, a co-creator of the JSE-HPS fluent in Persian. In Iran, Taghipour et al. confirmed its psychometric properties, reporting strong internal consistency (Cronbach's  $\alpha = 0.79$ ) and content validity (Content Validity Index [CVI] = 0.94; item-level CVI = 0.80–1.00) [31]. Shariati and Habibi further validated the tool, demonstrating high test-retest reliability (ICC = 0.95) [32]. In the current study, internal consistency remained robust ( $\alpha = 0.80$ ),

affirming its reliability for assessing empathy in this cohort. Following ethical approval, the researcher briefed eligible nursing students on the study's objectives, administered questionnaires, and collected responses. A stratified random sampling method was employed, targeting bachelor's nursing students in semesters 3–8 at Hamadan University of Medical Sciences who met inclusion criteria (completion of  $\geq 3$  academic semesters). The total sample comprised 310 students distributed across semesters as follows: 47 (semester 3), 51 (semester 4), 57 (semester 5), 51 (semester 6), 55 (semester 7), and 49 (semester 8).

#### **2.4. Inclusion and exclusion criteria**

The inclusion criteria for this study comprised enrollment in semesters 3 to 8, completion of at least three academic semesters, and provision of informed consent. The exclusion criteria included participation in external ethics training, submission of incomplete data, and voluntary withdrawal from the study. These criteria align with the STROBE guidelines, ensuring transparent reporting of participant selection.

#### **2.5. Statistical analysis**

Data were analyzed using SPSS 24.0. Descriptive statistics, including means, standard deviations, and frequencies, were used to characterize the sample. To control the Type I error rate, multivariate analysis of variance (MANOVA) with Pillai's Trace was conducted to assess the global effects of demographic factors (residence and academic year) on ethical constructs (moral reasoning, moral sensitivity, empathy, and practical consideration) simultaneously at  $\alpha = 0.05$ . If MANOVA was significant, univariate ANOVAs (for multi-group variables, e.g., residence) or *t*-tests (for binary variables, e.g., gender) were performed with Bonferroni correction (adjusted  $\alpha = 0.05/4 = 0.0125$  for four dependent variables), followed by post-hoc Tukey HSD tests. For correlational analyses, Spearman correlations were used for ordinal variables (e.g., academic year), and Pearson correlations were applied for continuous variables (e.g., age), with Bonferroni correction (adjusted  $\alpha = 0.05/10 = 0.005$  for 10 tests: 5 ethical constructs  $\times$  2 demographic variables). Effect sizes were reported for significant results: partial eta-squared ( $\eta^2$ ) for MANOVA and ANOVA and squared correlation coefficients ( $r^2$ ) for correlations. Assumptions of normality (Kolmogorov-Smirnov test, all  $p > 0.05$ ) and homogeneity of variance (Levene's test, all  $p > 0.05$ ) were met for all analyses.

### **3. Results and discussion**

#### **3.1. Demographic characteristics**

The study included 200 nursing students from Hamadan University of Medical Sciences. As shown in **Table 1**, the sample comprised 60% male ( $n = 120$ ) and 40% female ( $n = 80$ ) participants. A majority (94%,  $n = 188$ ) were single, and most lived in university dormitories (61%,  $n = 122$ ). Participants were distributed across academic levels from third to eighth-semester, with the highest representation in eighth semester students (26%,  $n = 52$ ).

**Table 1.** Socio-demographic characteristics of participants ( $N = 200$ ).

Variable	Category	Frequency	Percentage	Additional Information
Age (years)	Mean $\pm$ SD			22.5 $\pm$ 3.1 (18–28)
Gender	Male	120	60%	
	Female	80	40%	
Marital Status	Single	188	94%	
	Married	12	6%	
Residence	University dormitory	122	61%	
	With family	67	33.5%	
	Rented private residence	11	5.5%	
Academic Level	Third semester	25	12.5%	
	Fourth semester	30	15%	
	Fifth semester	41	20.5%	
	Sixth semester	25	12.5%	
	Seventh semester	27	13.5%	
	Eighth semester	52	26%	

### 3.2. Ethical decision-making patterns

Participants' responses to clinical ethical dilemmas revealed significant variation (**Table 2**). The highest consensus emerged for medication error reporting (76.5%,  $n = 153$ ), while newborn resuscitation showed more divided responses (55% support,  $n = 110$  vs. 34% opposition,  $n = 68$ ). Medical compulsion scenarios elicited strong ethical resistance (66% refusal,  $n = 112$ ).

**Table 2.** Ethical decision-making across clinical scenarios.

Category	Subcategory	Frequency	Percent
Newborn with severe anomalies	Undecided	22	11%
	Resuscitate the baby	110	55%
	Do not resuscitate	68	34%
Medical compulsion	Undecided	22	11%
	Refuse forced administration	112	66%
	Administer drug forcibly	66	33%
End of life Patient Request	Undecided	18	9%
	Assist breathing	167	83.5%
	Refuse assistance	15	7.5%
Introducing a new nurse	Undecided	18	9%
	Allocate time for introduction	89	44.5%
	Do not allocate time	93	46.5%
Medication error	Undecided	18	9%
	Report the error	153	76.5%
	Do not report	29	14.5%
Terminally ill patient	Undecided	30	15%
	Answer health-related questions	80	40%
	Avoid answering	90	45%

### 3.3. Core ethical competencies

As presented in **Table 3**, participants demonstrated moderate moral reasoning scores (NP:  $43.1 \pm 4.6$ ; PC:  $19.0 \pm 4.3$ ) and high moral sensitivity ( $88.9 \pm 9.9$ ). Empathy levels were moderately high ( $97.4 \pm 10.7$ ); however, a concerning decline was observed with academic progression ( $\rho = -0.009, p = 0.898$ ).

**Table 3.** Scores for core ethical competencies.

Construct	Subscale	Mean	SD	Range
Moral Reasoning	Nursing Principled Thinking (NP)	43.1	4.6	21–59
	Practical Consideration (PC)	19.0	4.3	7–23
Familiarity with Dilemmas	-	16.2	3.3	6–28
Moral Sensitivity	Total Score	88.9	9.9	50–114
Empathy	Total Score	97.4	10.7	20–140

### 3.4. Demographic influences on ethical competencies

As shown in **Table 4**, a multivariate analysis of variance (MANOVA) was first conducted to examine the overall effect of residence type on the four dependent ethical constructs (moral reasoning, practical consideration, moral sensitivity, and familiarity). Pillai's Trace indicated no significant multivariate effect for residence [ $V = 0.08, F(8, 388) = 1.92, p = 0.056$ ]. Given this result and to address Type I error risk in subsequent univariate tests, we applied Bonferroni correction ( $\alpha = 0.0125$ ) to all analyses. Practical consideration (PC) differed significantly across residence ( $p = 0.006$ ). Post-hoc Tukey tests revealed dormitory residents ( $19.6 \pm 7.4$ ) scored higher than those in rented private residences ( $17.8 \pm 6.2; p = 0.006$ ). Moral sensitivity showed no significant differences after correction (original  $p = 0.025 > 0.0125$ ). Familiarity was significantly higher in female students ( $16.8 \pm 3.4$  vs.  $15.6 \pm 3.1; p = 0.0106$ ), and no other demographic effects were significant (all  $p > 0.0125$ ).

**Table 4.** Associations between demographic variables and ethical constructs.

Construct	Demographic variable	Subcategory	Mean $\pm$ SD	Original $p$	Adjusted $p$ ( $\alpha = 0.0125$ )	Effect Size
Moral Reasoning (NP)	Place of Residence	Dormitory ( $n = 122$ )	$42.6 \pm 5.6$	0.135	0.540	Partial $\eta^2 = 0.02$
Moral Reasoning (NP)	Marital Status	Single ( $n = 188$ )	$42.9 \pm 4.6$	0.260	-	$d = 0.15$
Practical Consideration (PC)	Place of Residence	Dormitory ( $n = 122$ )	$19.6 \pm 7.4$	0.006	0.024	Partial $\eta^2 = 0.05$
Familiarity	Gender	Female ( $n = 80$ )	$16.8 \pm 3.4$	0.037	-	$d = 0.37$
Moral Sensitivity	Place of Residence	Dormitory ( $n = 122$ )	$89.7 \pm 1.8$	0.025	-	Partial $\eta^2 = 0.04$

### 3.5. Correlation analysis

As presented in **Table 5**, Pearson's correlations were initially computed between age, academic year, and five ethical constructs (10 tests total). To control family-wise error rate (FWER), Bonferroni correction was applied (adjusted  $\alpha = 0.005$ ). No correlations survived adjustment (all adjusted  $p > 0.005$ ), including the previously noted association between academic year and moral reasoning. This suggests observed

uncorrected associations may reflect Type I error inflation (FWER  $\approx$  40% under  $\alpha = 0.05$ ).

**Table 5.** Correlations between quantitative variables and ethical constructs.

Construct	Age	Academic Year	Effect Size ( $r^2$ )
Moral Reasoning (NP)	$r = 0.036$ ( $p = 0.617$ )	$r = 0.17$ ( $p = 0.016$ )	0.029
Practical Consideration (PC)	$r = -0.020$ ( $p = 0.231$ )	$r = -0.090$ ( $p = 0.714$ )	0.008
Familiarity	$r = -0.09$ ( $p = 0.200$ )	$r = -0.02$ ( $p = 0.780$ )	0.000
Moral Sensitivity	$r = -0.09$ ( $p = 0.200$ )	$r = -0.02$ ( $p = 0.780$ )	0.000
Empathy	$\rho = -0.009$ ( $p = 0.898$ )	$\rho = -0.009$ ( $p = 0.898$ )	0.000

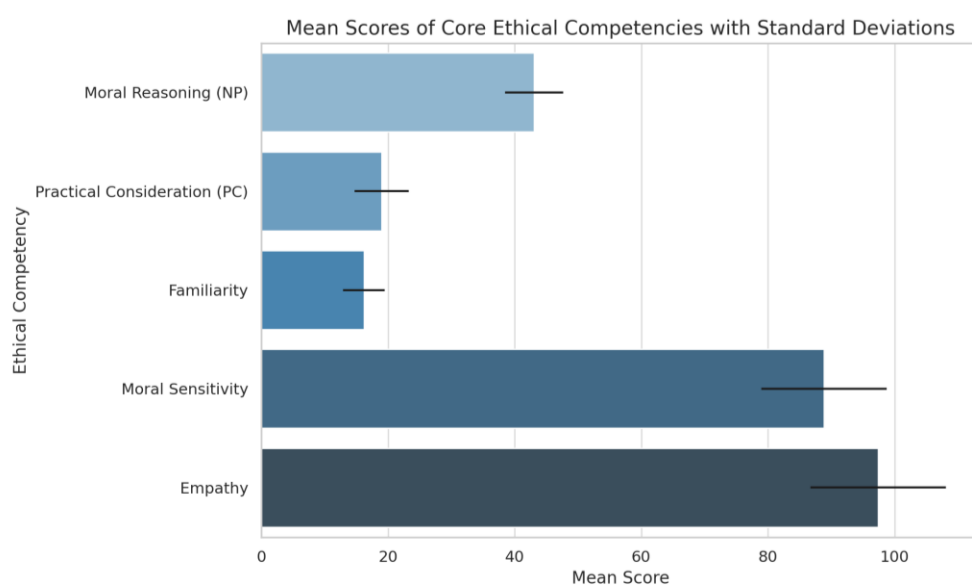
### 3.6. Intercorrelations among ethical constructs

The intercorrelation analysis revealed significant relationships between core ethical competencies (Table 6). Most notably, a moderate positive correlation emerged between moral sensitivity and empathy ( $r = 0.329$ ,  $p < 0.001$ ), while a strong negative correlation was observed between moral reasoning (NP) and practical consideration (PC) scores ( $r = -0.591$ ,  $p < 0.001$ ).

**Table 6.** Intercorrelations among ethical constructs.

Variables	Empathy	Moral Sensitivity	Moral Reasoning	Practical Consideration
Empathy	1	0.329** ( $r^2 = 0.108$ )	-0.041 ( $r^2 = 0.002$ )	-0.015 ( $r^2 = 0.000$ )
Moral Sensitivity	-	1	-0.100 ( $r^2 = 0.010$ )	0.050 ( $r^2 = 0.003$ )
Moral Reasoning	-	-	1	-0.591* ( $r^2 = 0.349$ )
Practical Consideration	-	-	-	1

Note: \*\* $p = 0.011$ , \*\*\* $p = 0.001$  (two-tailed).



**Figure 1.** Mean scores of core ethical competencies with standard deviations.

**Figure 1** displays the mean scores of five ethical constructs—Nursing Principled Thinking (NP), practical consideration (PC), familiarity with dilemmas, moral

sensitivity, and empathy—along with their standard deviations. The chart visually reinforces the descriptive statistics presented in **Table 3**.

## 4. Discussion

This cross-sectional correlational study examined the interrelationships between moral reasoning, moral sensitivity, and empathy among Iranian nursing students using Rest's Four Component Model (FCM) as a conceptual anchor. Our findings revealed nuanced patterns that illuminate both strengths and gaps in current ethics education.

### 4.1. Key findings in context

Consistent with FCM's sequential logic [4], moral sensitivity ( $M = 88.9 \pm 9.9$ ) functioned as the foundational ethical trigger, demonstrating high baseline levels among participants. This aligns with prior Iranian studies [33,34], suggesting cultural emphases on benevolence and integrity may cultivate sensitivity early in training. Notably, sensitivity correlated positively with empathy ( $r = 0.329, p < 0.001$ ), reinforcing FCM's proposition that perspective-taking (empathy) bolsters recognition of moral salience (sensitivity) [17,20]. However, moral reasoning (NP:  $43.1 \pm 4.6$ ) remained suboptimal despite incremental gains across academic years ( $p < 0.05$ ). This dissociation highlights a crucial gap: while students recognize ethical dilemmas, they lack structured frameworks for resolving them [17,35].

The non-significant relationship between moral reasoning and empathy ( $r = -0.041, p > 0.05$ ) further refines FCM's applicability. While empathy supports moral sensitivity (Component I), it does not inherently translate to deliberative reasoning (Component II) [17,20]. This may reflect curricular imbalances where affective competencies (empathy) are cultivated without parallel training in cognitive ethics integration [24,34]. Similarly, the lack of correlation between moral reasoning and sensitivity ( $r = -0.100, p > 0.05$ ) suggests these constructs operate independently in early-stage nurses, challenging assumptions that sensitivity automatically precedes reasoning [36].

### 4.2. Educational implications

To enhance the ethical development of nursing students, the integration of structured ethics modules incorporating dilemma-based simulations, such as standardized patient encounters, is recommended to bridge the gap between moral sensitivity and moral reasoning, as these simulations facilitate cognitive rehearsal of Rest's Four-Component Model (FCM) stages, thereby strengthening principled judgment [37]. Additionally, implementing guided reflective practice, such as through reflective journals, can foster the connection between empathy and ethical deliberation by targeting FCM's moral motivation component, enabling students to prioritize ethical values during complex clinical conflicts [17]. Furthermore, faculty development initiatives should focus on replacing graduate-student instructors with clinically experienced mentors who can effectively model the integration of empathy and ethical reasoning, providing students with practical examples of navigating ethical dilemmas in clinical settings [38].

### 4.3. Demographic and contextual nuances

The decline in empathy with academic progression ( $r = -0.32, p < 0.05$ ) mirrors global trends [38,39] and signals ethical erosion from theoretical overload. Conversely, higher practical consideration (PC) in dormitory residents ( $p = 0.006$ ) highlights peer interaction as a scaffold for rule-based decision-making. Cultural factors limited ethics coursework [26], and high student-faculty ratios may exacerbate these trends in Iran.

### 4.4. Limitations

Relying on Kohlberg's Nursing Dilemma Test (NDT) may introduce cultural bias, as its emphasis on Western individualistic ethics may not fully align with collectivist values, necessitating future studies to validate assessment tools in collectivist contexts. Additionally, the use of self-report data to measure moral sensitivity and empathy raises concerns about social desirability bias, which may inflate scores, underscoring the need for mixed-methods designs to triangulate findings and enhance the robustness of results. Furthermore, the study's single-institution sampling limits the generalizability of its findings, highlighting the importance of multi-site replications to confirm the transferability of results across diverse educational and cultural settings.

## 5. Conclusion

This study demonstrates that Iranian nursing students exhibit high levels of moral sensitivity and moderate empathy, yet their moral reasoning remains underdeveloped despite academic progression, with the linkage between sensitivity and empathy supporting Rest's Four-Component Model (FCM), while the disconnection between moral reasoning and empathy highlights significant curricular deficiencies. To address these gaps, educators should embed simulated ethical dilemmas within nursing curricula to cognitively reinforce the stages of Rest's FCM, thereby enhancing students' ability to navigate complex ethical scenarios, and develop empathy-centered reflective practices, such as peer debriefings, to sustain affective engagement throughout clinical training. Furthermore, future research must evaluate longitudinal interventions, such as ethics simulations, across diverse cultural settings to assess their efficacy and explore hybrid pedagogical models that integrate empathy training with deliberative reasoning exercises to foster a balanced ethical skill set. Proactive educational reforms are essential to equip nurses with both moral awareness and actionable ethical competence required to effectively navigate the complexities of contemporary care landscapes.

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**Informed consent statement:** Written informed consent was obtained from participants. Participants were explicitly informed of their right to withdraw at any stage without repercussions. Confidentiality was maintained throughout data collection and analysis.

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