

The Ethical Lens of Care: Exploring Moral Sensitivity and Its Determinants among Primary Healthcare Professionals: A Multicentre Cross-Sectional Study

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Abstract

Background

Healthcare professionals frequently face morally complex situations requiring decisions beyond clinical management, making moral sensitivity a vital competency. In primary care, a nuanced ethical awareness is critical due to longitudinal patient relationships, closely-knit community engagement, and distinct structural resource limitations. Literature largely focuses on ethical deliberations of tertiary or inpatient settings, leaving an empirical gap regarding moral awareness in primary care.

Objective

To assess the level of moral sensitivity and its determinants among physicians and nurses working in primary care centres of an integrated health network in Pakistan

Methods

This multicentre cross-sectional study was conducted in 54 primary care centres of Indus Hospital & Health Network (IHHN) across Pakistan. All eligible healthcare professionals (N = 173), including physicians and nurses, were invited to participate. Moral sensitivity was evaluated using the validated 30-item Moral Sensitivity Questionnaire (MSQ) across six dimensions. Following reverse scoring, lower scores indicated higher moral sensitivity. Data were analysed using independent-samples t-tests, analysis of variance, and multivariable linear regression using SPSS version 26.

Results

Of 173 invited professionals, 146 participated (response rate 84%). The sample comprised 78 females (53.4%) and 68 males (46.6%), with a mean age of 36.6 ± 8.1 years. Most participants were physicians (n = 100, 68.5%), and 65 (44.5%) had 1–5 years of professional experience. Only 30 (20.5%) had prior bioethics education. The mean total MSQ score was 89.4 ± 23.2 . The highest mean dimension score, indicating lower sensitivity, was for autonomy (21.23 ± 7.34), while the lowest was for interpersonal orientation (9.08 ± 3.33). In multivariable regression, bioethics education ($\beta = 0.267$, $p = 0.001$), clinical group ($\beta = -0.191$, $p = 0.029$), and Clinical Ethics Committee membership ($\beta = 0.207$, $p = 0.011$) were independently associated with total moral sensitivity score; the model explained 21.1% of the variance ($F(7,138) = 5.27$, $p < 0.001$).

Conclusion

Primary healthcare professionals exhibit a moderate level of moral sensitivity, shaped by professional roles and ethical exposure. The notably low sensitivity toward patient autonomy explains a shift from independence to interdependence, revolving around relational autonomy in a family-centered and socially embedded culture of South Asia. Systemic integration of formal bioethics education and local ethics support groups can bridge this gap and cultivate ethical resilience.

Background

Healthcare Professionals frequently encounter situations that extend beyond clinical judgment into the moral realm. These situations demand more than medical knowledge and technical skills. They require ethical awareness, recognition of ethical issues, reflection, and careful decision-making to uphold ethical principles and professional standards to ensure quality patient care (1).

Moral Sensitivity lies at the heart of this process. It is defined as the crucial stage where a professional interprets a situation, recognizes that an ethical dilemma exists, and anticipates how different lines of action will affect stakeholders like patients, families, and colleagues (2). Moral sensitivity is widely considered as the first essential step towards moral development and ethical decision-making in healthcare settings. It is a unique spectrum of abilities that serves as intellectual and emotional foundational gateway for the healthcare professionals to ethical praxis, enabling them to discern their moral dimensions which underlie clinical encounters, and hence influences actions for patient's well-being (2, 3).

Ethical challenges are intrinsic across all levels of healthcare. Ethical dilemmas may arise when balancing patient autonomy, beneficence, nonmaleficence, and justice. In such circumstances, healthcare professionals must evaluate competing values and interests while maintaining respect for patients' rights, dignity, and cultural beliefs. A strong ethical foundation supports professional accountability, fosters trust between patients and healthcare providers, and contributes to safe, compassionate, and patient-centred care (2, 4). Unlike tertiary care hospitals, where ethical issues and dilemmas involve high stakes life-or-death issue, primary care introduces a distinct "ethics of everyday", defined by longitudinal patient relationships, community engagement, limited resources, and patient vulnerabilities that potentially amplify moral complexity (4). If unrecognized or unaddressed, these dilemmas can lead to moral stress, injury and distress, affecting both professional well-being and patient outcomes (5). Representing the first point of contact for patients and families seeking health, primary care physicians and nurses, when faced with ethical problems, have to make certain decisions that beyond clinical management, knowingly or unknowingly (6). But, in order to appropriately respond to any ethically or morally challenging situation, it is necessary to be able to recognize it and reason it, or, it may lead to moral distress. Research suggests that moral sensitivity among primary care physicians and nurses influences their capacity to recognize ethical conflicts and guide their decision-making, with implications for quality and practice (7, 8).

The general condition of primary healthcare in Pakistan remains fragmented, under-resourced, and unevenly utilized. Despite an extensive network of Basic Health Units (BHUs) and Rural Health Centers (RHCs), the effectiveness of these services is constrained by systemic inefficiencies and governance challenges (9). In order to lessen these gaps, healthcare services are provided through a combination of private practitioners and non-governmental organizations. Such is a case of IHNN.

Evidence from Pakistan indicates that while primary healthcare physicians and nurses possess a basic awareness of ethical principles, their level of moral sensitivity remains inconsistently developed and variably applied in practice. Studies have shown that healthcare professionals are generally familiar with concepts such as autonomy, confidentiality, and informed consent; however, their ability to recognize and respond to ethical issues in routine clinical encounters is often limited (10). This echoes a persistent gap between moral knowledge and its practical application, where healthcare professionals may understand ethical standards but struggle to implement them consistently in real-world settings (11). Moreover, the emphasis on bioethics education and ethical competencies among healthcare professionals is very limited, and evidence indicates clear gaps in ethics awareness and preparedness across health professions. Therefore, it is crucial to estimate how sensitive the healthcare professionals in recognizing these moral issues are in order to analyze and resolve these complex situations reduce moral distress and improve patient care outcomes.

Building on this necessity, the present study aimed to assess the level of moral sensitivity and determine its associated factors among healthcare professionals working in primary care settings within a large health network in Pakistan.

Methods

Study Design and Setting

This multicentric cross-sectional study was conducted among healthcare professionals working in 54 primary care centres of the Indus Hospital & Health Network (IHNN) in Pakistan. Approval of Institutional Review Board (IRB) of IHNN was first sought. Permission was taken from Director, Primary Care Program, IHNN to conduct the study. Then, updated list of

physicians and nurses (employed at the time of data collection) from each centre was obtained from the office of Human Resources.

Participants and Sampling

The study population included all healthcare professionals which entailed physicians and nursing staff at all clinical levels working across primary care sites of the network. The target study sample consisted of 173 healthcare professionals. Physicians and nurses were approached and asked to participate in the study. Inclusion criteria included being a licensed physician or nurse actively engaged in patient care within the primary care setting. Professionals with 3 months or less, on extended leave or those unwilling to participate were excluded. A census approach was used; all eligible healthcare professionals (N = 173) were invited. The final sample included respondents (n = 146). An informed written consent indicating the purpose of the study and the participant's right to withdraw at any time was obtained from each participant.

Study Questionnaire

The questionnaire had two parts. The first part consisted of ten questions about the socio-demographic characteristics of the healthcare professionals. The second part was the validated tool, Moral Sensitivity Questionnaire (MSQ) originally developed by Kim Lützén and later adapted in a study from Saudi Arabia (3, 12).

The Moral Sensitivity Questionnaire (MSQ) is a 30-item instrument measured on a seven-point Likert scale and organized into six dimensions. These dimensions include; 1 - Autonomy, which reflects respect for patients' decisions and includes seven items (scores range from 7 to 49); 2 - Holistic approach, which focuses on maintaining patient integrity, consisting of five items (scores range from 5 to 35); 3 - Moral conflict, representing internal ethical dilemmas experienced by individuals, with three items (scores range from 3 to 21); 4 - Relational orientation, which concerns the impact of actions on the patient-provider relationship; 5 - Beneficence, referring to actions for patient's interests and benefits; and, 6 -Practice, which includes considering ethical aspects while making clinical decisions. The last three dimensions each contain four items, with scores ranging from 4 to 28. Additionally, three MSQ item statements have not been assigned to any specific dimension (12).

Using reverse scoring on Likert Scale, each item rated on a scale from 1 to 7, where a score of 1 indicated high moral sensitivity (complete agreement) and a score of 7 indicated low moral sensitivity (complete disagreement). The total MSQ score ranges from 30 to 210, with lower scores reflecting greater sensitivity and higher scores indicating lower sensitivity (12).

Data Collection and Confidentiality

Data was collected from April 2023 to March 2024 by the research team member. Confidentiality of data was maintained by giving a special identifying number against each participants' name. This way data was coded and anonymized. The SPSS data file was password protected with access to the research team only. There was no conflict of interest or funding for the study.

Statistical Analysis:

Data was analyzed using the IBM Statistical Package for the Social Sciences (SPSS), version 26. The Shapiro-Wilk test was applied to assess data normality. Categorical variables were summarized using frequencies and percentages, while numerical variables were expressed as mean $\pm$ standard deviation. Independent t-tests and analysis of variance (ANOVA) were conducted to compare mean total moral sensitivity score across categorical variables. When significant differences were found, Tukey's post hoc test was used for pairwise comparisons. A p-value of less than 0.05 was considered statistically significant.

Reliability of the instrument was evaluated using Cronbach’s alpha coefficient.

Variables with statistical significance ($p < 0.05$) were further analyzed using regression techniques to identify determinants of moral sensitivity. Pearson correlation coefficients were used to assess multi-collinearity among the variables.

Results

A total of 173 primary healthcare professionals from the primary care centres of the Indus Hospital and Health Network (IHHN) were approached for participation. Of these, 146 consented to participate, yielding a response rate of 84%. Majority of the participants were physicians ($n = 100$, 68.5%), while nurses comprised 31.5% ($n = 46$) of the sample. Females accounted for slightly more than half of the participants ($n = 78$, 53.4%). The mean age was 36.6 ± 8.1 years. Nearly half of the primary healthcare professionals reported having five years or less of professional practice experience ($n = 65$, 44.5%). More than half of the participants ($n = 86$, 58.9%) were aware of the existence of Ethics Committee at their workplace. However, only seven individuals had ever served on such committees, either currently ($n = 4$, 2.8%) or previously ($n = 3$, 2.1%). Furthermore, only one-fifth of the primary healthcare providers ($n = 30$, 20.5%) had ever received prior education in bioethics through formal courses or certification programs.

Table 1 shows the characteristics of the study participants.

Table 1
Characteristics of the Study Participants

Variable	Categories	n (%)
Gender	Female	78 (53.4%)
	Male	68 (46.6%)
Age (in years)	21–35 (early-career level)	70 (47.9%)
	36–50 (mid-career level)	69 (47.3%)
	51–65 (late-career level)	7 (4.8%)
Clinical Group	Physician	100 (68.5%)
	Nurse	46 (31.5%)
Education	Graduate	93 (63.7%)
	Postgraduate	53 (36.3%)
Professional Experience	Less than 1 year	41(28.1%)
	1 to 5 years	65 (44.5%)
	6 to 10 years	31 (21.2%)
	More than 10 years	9 (6.2%)
Prior Education in Bioethics	Yes	30 (20.5%)
	No	116 (79.5%)
Membership of Ethics Committee	Yes (current or previous)	7 (4.8%)
	No	139 (95.2%)

Table 1. **Characteristics of the study participants (N = 146).** Data are presented as frequency and percentage, n (%). Early-career, mid-career, and late-career levels refer to the predefined age categories of 21–35, 36–50, and 51–65 years,

respectively.

The Moral Sensitivity Questionnaire in this study showed a total Cronbach's alpha of 0.875. As the 7-point inverse response scale was used, (1 completely agree to 7 completely disagree) to explore the degree of agreement with the Moral Sensitivity, lower scores indicate a higher degree of Moral Sensitivity. The total Moral Sensitivity score showed an approximately normal distribution (skewness = -0.464, kurtosis = -0.252). The mean total Moral Sensitivity score was 89.4 ± 23.2 .

Table 2 shows the descriptive analysis of each of the six dimensions of Moral Sensitivity

Table 2
Descriptive Analysis of Six Dimensions of Moral Sensitivity for the Study Participants

Autonomy (7 items)	N	Range	Minimum Score	Maximum Score	Mean Score	Standard Deviation
	146	32	7	39	21.23	7.34
Holistic Approach (5 items)	146	17	5	22	11.58	3.22
Beneficence (4 items)	146	23	4	27	11.30	4.10
Practice (4 items)	146	22	4	26	14.60	5.51
Interpersonal Orientation (4 items)	146	13	4	17	9.08	3.325
Moral Conflict (3 items)	146	14	4	18	10.60	3.461

Table 2. **Descriptive analysis of the six dimensions of moral sensitivity among study participants (N = 146).** Values are presented as *N*, range, minimum and maximum scores, mean score, and standard deviation (SD).

An independent samples t-test showed that nursing staff had significantly higher moral sensitivity than physicians, $t(64.44) = 3.20, p = .002$, with lower mean scores among nurses ($M = 79.37, SD = 28.25$) than physicians ($M = 94.01, SD = 19.01$). Although females ($M = 90.83, SD = 22.40$) had slightly higher scores than males ($M = 87.75, SD = 24.27$), indicating marginally lower moral sensitivity, the difference was not significant, $t(144) = -0.80, p = .426$. Similarly, educational level was not significantly associated with moral sensitivity, $t(124.37) = -1.20, p = .231$. Postgraduate participants ($M = 92.32, SD = 20.61$) had somewhat higher scores than graduates ($M = 87.73, SD = 24.60$); however, this difference was not statistically significant.

Participants with prior bioethics education demonstrated significantly higher moral sensitivity than those without bioethics education, $t(38.36) = -3.55, p = .001$, with mean scores of 74.53 ($SD = 26.85$) and 93.24 ($SD = 20.69$), respectively. CEC membership was not significantly associated with moral sensitivity, $t(6.23) = -1.92, p = .102$, although CEC members had lower mean scores than non-members, suggesting high moral sensitivity.

A one-way ANOVA showed a significant difference across age groups, $F(2, 143) = 3.89, p = .023$. Participants aged 21–35 years exhibited the highest moral sensitivity ($M = 84.20, SD = 25.29$), while those aged 36–50 years exhibited the lowest moral sensitivity ($M = 94.93, SD = 20.19$). Tukey post hoc analysis indicated that participants aged 21–35 years had

significantly higher moral sensitivity than those aged 36–50 years (mean difference = 10.73, $p = .017$). No significant differences were identified between the 51–65-year age group and the other age categories. Professional experience was also significantly associated with moral sensitivity, Welch's $F(3, 32.06) = 3.17, p = .037$. Participants with more than 10 years of professional experience demonstrated the highest moral sensitivity ($M = 78.67, SD = 20.07$), whereas those with 1–5 years of experience demonstrated the lowest moral sensitivity ($M = 94.82, SD = 16.40$). However, Games–Howell post hoc comparisons did not identify any statistically significant differences between experience groups (all $p > .05$).

Table 3 shows the comparison of total Moral Sensitivity scores across clinical, demographic, and professional variables of the participants.

Table 3
Moral Sensitivity Score in relation to the Characteristics of the Participants.

Variable (test used)	Categories	Total Moral Sensitivity Score (Mean $\pm$ SD)	Significance (P-value)
Clinical Group (independent samples t-test)	Physician	94.01 $\pm$ 19.01	0.002*
	Nursing	79.37 $\pm$ 28.25	
Gender (independent samples t-test)	Female	90.83 $\pm$ 22.40	0.426
	Male	87.75 $\pm$ 24.27	
Age (in years) (one-way ANOVA)	21–35 (early-career level)	84.20 $\pm$ 25.28	0.023*
	36–50 (mid-career level)	94.93 $\pm$ 20.19	
	51–65 (late-career level)	86.86 $\pm$ 20.68	
Professional Experience (Welch ANOVA)	Less than 1 year	83.88 $\pm$ 27.19	0.037*
	1 to 5 years	94.82 $\pm$ 16.39	
	6 to 10 years	88.45 $\pm$ 28.41	
	More than 10 years	78.67 $\pm$ 20.06	
Education Level (independent samples t-test)	Graduate	87.73 $\pm$ 24.59	0.231
	Postgraduate	92.32 $\pm$ 20.61	
Prior Education in Bioethics (independent samples t-test)	Yes	74.53 $\pm$ 26.84	0.001*
	No	93.24 $\pm$ 20.68	
Membership of Ethics Committee (independent samples t-test)	Yes, (current or previous)	64.57 $\pm$ 35.61	0.102
	No	90.65 $\pm$ 21.92	

Table 3. **Moral sensitivity scores in relation to the characteristics of the study participants (N = 146).** Values are presented as mean $\pm$ standard deviation (SD). Independent-samples t -tests were used to compare two groups, one-way analysis of variance (ANOVA) was used for comparisons across three age groups, and Welch ANOVA was used for professional experience groups where the assumption of homogeneity of variance was not met. $P < 0.05$ was considered statistically significant and is indicated by an asterisk (*).

Table 4 shows the correlation between the Moral Sensitivity score and its dimensions: Practice ($r = 0.825$) and Autonomy ($r = 0.816$) correlate most strongly to the total score. Interpersonal Orientation ($r = 0.594$) is the weakest, but still there is a moderate positive correlation.

Table 4
Correlation Coefficients Between Moral Sensitivity Total Score and Its Six Dimensions

N = 146	Pearson Correlation (r)						
	Total Moral Sensitivity Score	Autonomy	Holistic Approach	Beneficence	Practice	Inter-personal Orientation	Moral Conflict
	1						
Total Moral Sensitivity Score	1	.816**	.718**	.722**	.825**	.594**	.662**
Autonomy		1	.515**	.485**	.543**	.425**	.443**
Holistic Approach			1	.559**	.497**	.367**	.397**
Beneficence				1	.518**	.305**	.438**
Practice					1	.459**	.433**
Interpersonal Orientation						1	.279**
Moral Conflict							1

Table 4. **Correlation coefficients between total moral sensitivity score and its six dimensions (N = 146).** Values represent Pearson correlation coefficients (*r*). ** indicates a statistically significant correlation at $p < 0.01$ (two-tailed). Higher positive correlation coefficients indicate a stronger positive linear association between the corresponding variables. The diagonal values of 1 represent correlations of each variable with itself.

A multiple linear regression analysis was conducted to identify independent determinants of moral sensitivity. The model was statistically significant, $F(7, 138) = 5.27, p < .001$, explaining 21.1% of the variance in moral sensitivity scores ($R^2 = 0.211$, adjusted $R^2 = 0.171$). Bioethics Education emerged as the strongest significant predictor ($\beta = 0.267, p = .001$), followed by clinical group ($\beta = -0.191, p = .029$) and membership of a Clinical Ethics Committee ($\beta = 0.207, p = .011$). In contrast, age, gender, education level, and professional experience were not significant predictors in the adjusted model (all $p > .05$). Collinearity diagnostics indicated no multicollinearity concerns (VIF range: 1.08–1.45).

Table 5 shows the output of Multiple Linear Regression Analysis.

Table 5
Multiple Linear Regression

Coefficients ^a									
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
	B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1 (Constant)	12.541	23.950		.524	.601	-34.815	59.898		
Age	2.573	3.612	.065	.712	.477	-4.569	9.716	.690	1.449
Clinical Group	-9.527	4.319	-.191	-2.206	.029	-18.068	-.987	.763	1.310
Gender	4.023	3.654	.087	1.101	.273	-3.202	11.248	.925	1.081
Education Level	.401	3.932	.008	.102	.919	-7.374	8.175	.860	1.163
Education in Bioethics	15.309	4.626	.267	3.309	.001	6.161	24.457	.879	1.137
CEC Member	22.475	8.751	.207	2.568	.011	5.171	39.779	.879	1.138
Professional Experience	3.546	2.439	.131	1.454	.148	-1.276	8.368	.701	1.426
a. Dependent Variable: total moral sensitivity score									

Table X. Multiple linear regression analysis of factors associated with total moral sensitivity score. Unstandardized regression coefficients (B), standard errors (SE), standardized regression coefficients (β), *t*-statistics, *p*-values, and 95% confidence intervals (CI) for B are presented. Tolerance and variance inflation factor (VIF) values are reported to assess multicollinearity. Statistical significance was defined as $p < 0.05$. Clinical group, gender, education level, education in bioethics, ethics committee membership, and professional experience were entered into the regression model along with age. A negative B coefficient indicates an inverse association with the total moral sensitivity score, whereas a positive coefficient indicates a positive association.

Discussion

The present study observed moral sensitivity among primary healthcare professionals working in the Indus Hospital and Health Network and identified its key determinants. The mean moral sensitivity score was 89.4 ± 23.2 , with acceptable internal consistency (Cronbach's $\alpha = 0.875$), indicating that the instrument demonstrated good reliability in this population. The approximately normal distribution of scores further supports the robustness of the parametric analyses applied. Overall, the level of moral sensitivity observed appears consistent with findings from other healthcare settings in which moderate levels of moral sensitivity are commonly reported, particularly in contexts where ethical challenges are frequent but structured ethics support systems remain limited (14).

A statistically significant difference was observed between clinical groups, with nurses demonstrating higher moral sensitivity than physicians ($p = 0.002$). This pattern aligns with established literature suggesting that nursing practice, characterized by sustained patient proximity and a care-oriented professional identity, fosters greater attentiveness to ethical dimensions of care. Lützén and colleagues have previously argued that nurses often encounter moral conflicts more directly in everyday practice, which may enhance their ethical awareness and sensitivity over time (3). In contrast,

physicians may engage more frequently in diagnostic and decision-oriented tasks, potentially limiting prolonged exposure to the relational and experiential aspects of patient care that cultivate moral sensitivity. Nevertheless, the literature is not entirely uniform, as some studies have reported minimal or no differences between professional groups, suggesting that organizational ethical climate and interdisciplinary culture may attenuate such distinctions (14).

No statistically significant differences were observed in moral sensitivity across gender or educational attainment. This finding is consistent with prior research indicating that demographic characteristics exert limited influence on moral sensitivity when compared with experiential and contextual variables (15). The absence of an effect of postgraduate education further suggests that formal academic advancement alone may not necessarily translate into enhanced ethical sensitivity unless accompanied by structured exposure to applied ethics in clinical practice (16).

Age and professional experience showed mixed patterns. Although unadjusted analyses indicated significant variation across age groups and experience categories, these effects did not persist as independent predictors in the regression model. Such inconsistency has also been reported in previous studies, where moral sensitivity does not demonstrate a linear relationship with years of experience. Some authors propose a curvilinear trajectory, whereby moral sensitivity may initially decline during mid-career stages due to workload pressures, emotional fatigue, and normalization of ethical tensions, but may stabilize or improve with advanced professional maturity (17, 18). The present findings, however, suggest that experience alone is insufficient to explain variations in moral sensitivity once educational and ethical exposure variables are considered.

A particularly notable finding was the strong and independent association between prior bioethics education and moral sensitivity. Participants with formal ethics training demonstrated significantly different moral sensitivity scores, and this variable emerged as the strongest predictor in the regression model. This is consistent with a substantial body of literature indicating that structured ethics education enhances moral reasoning, increases awareness of ethical dilemmas, and strengthens clinicians' capacity to recognize and respond to moral conflict in practice (19).

In settings where ethics education is not systematically embedded in clinical training, such deficits may translate into reduced ethical awareness despite adequate clinical competence.

Similarly, membership or prior involvement in a Clinical Ethics Committee was associated with moral sensitivity in the adjusted model. Although the number of participants with such experience was small, limiting generalizability, this finding aligns with evidence suggesting that engagement in formal ethical deliberation promotes reflective thinking and deepens understanding of moral complexity in healthcare decision-making (20).

Exposure to structured ethical discussions may therefore function as an experiential form of ethics education, reinforcing sensitivity to moral dimensions of clinical care (12). In contrast, gender, age, educational level, and professional experience did not retain significance in the multivariable model, suggesting that their apparent effects in univariate analyses may be confounded by more substantive experiential factors such as ethics training and institutional exposure. This reinforces the notion that moral sensitivity is not primarily a demographic attribute but rather an acquired professional competence shaped by targeted educational and organizational influences (12).

The total moral sensitivity scores correlated strongly with the constituent dimensions, particularly practice and autonomy, mirroring the theoretical framework proposed by Lützn et al. (3). Under this framework, moral sensitivity relies on recognizing ethical conflict, respecting patient autonomy, and translating moral awareness into clinical decision-making. In contrast, the weaker link with *interpersonal orientation* suggests that relational elements play a smaller role in this group—a likely byproduct of primary care settings where heavy workloads and tight appointment schedules leave little room for deeper interpersonal engagement.

The regression model explained approximately 21% of the variance in moral sensitivity, indicating a meaningful but incomplete explanatory capacity. This suggests that while individual and professional characteristics contribute to moral

sensitivity, a substantial proportion of variance is likely attributable to broader contextual and psychological factors such as organizational ethical climate, leadership support, burnout, and moral distress, which were not assessed in the present study. Previous research has consistently highlighted the importance of such environmental determinants in shaping ethical behavior and sensitivity in clinical practice (13). Linking together, the findings suggest that moral sensitivity among primary healthcare professionals is less a function of demographic background and more a product of ethical exposure, professional role, and engagement with structured ethical frameworks (21).

The prominent role of bioethics education highlight the importance of embedding formal ethics training across both undergraduate curricula as well as in continuing professional development programmes of healthcare providers (22). Likewise, institutional initiatives, such as clinical ethics committee, offer a practical way to foster reflective ethical practice. Strengthening these structured components in educational and organizational frameworks may represent a more effective strategy for enhancing moral sensitivity rather than relying on years of experiential accumulation.

Strengths and Limitations

Key strengths of this study include a relatively high response rate (84%), enhancing representativeness of the sample within the health network. The study included a diverse group of healthcare professionals across different clinical roles, age groups, and experience levels, allowing a comprehensive assessment of determinants. The use of a validated instrument with strong internal consistency further strengthens the reliability of the findings. Additionally, the application of multivariable regression analysis allowed for the identification of independent predictors, moving beyond simple bivariate associations.

Several limitations must be acknowledged. The cross-sectional design limits causal inference, and associations observed cannot be interpreted as causal relationships. The study was conducted within a single healthcare network, which may limit generalizability to other healthcare systems or regions. The small number of participants with Clinical Ethics Committee experience reduces the stability of estimates for this variable. Self-reported measures may also introduce response bias, including social desirability bias, particularly in assessing ethically sensitive constructs. Finally, unmeasured factors such as organizational ethical climate, workload intensity, and burnout were not included, which may have influenced moral sensitivity but were not accounted for in the model.

Conclusions

This study demonstrates that primary healthcare professionals within this integrated health network in Pakistan exhibit a moderate level of moral sensitivity. Crucially, moral sensitivity is not a static demographic trait; rather, it is an acquired professional competency heavily shaped by clinical roles and explicit ethical exposure. Nurses demonstrate significantly higher moral sensitivity than physicians, likely driven by sustained patient proximity and a deeply rooted care-oriented professional identity. Furthermore, structured bioethics education and experiential involvement in clinical ethics frameworks emerge as the strongest independent predictors of enhanced moral awareness. The pronounced deficit in sensitivity toward patient autonomy highlights a fundamental misalignment between Western-centric bioethical models and the relational, family-centered, and socially embedded culture of South Asia. Relying solely on years of clinical experience is insufficient to bridge this gap or organically develop ethical resilience.

Recommendations:

To cultivate a morally resilient healthcare workforce and mitigate the risks of unaddressed moral distress, a systemic paradigm shift is required. Institutional stakeholders must prioritize the integration of formal bioethics training into both undergraduate medical/nursing curricula and ongoing professional development programs. Concurrently, there is an urgent need to establish localized, culturally adaptive clinical ethics supports and expand access to Clinical Ethics Committees within primary care settings. Future longitudinal research should explore unmeasured environmental determinants, such as

organizational climate and burnout, to build comprehensive strategies that optimize ethical praxis and patient outcomes in primary care.

Abbreviations

CEC
Clinical Ethics Committee
IHHN
Indus Hospital and Health Network
MSQ
Moral Sensitivity Questionnaire
SPSS
Statistical Package for the Social Sciences

Declarations

Ethics approval and consent to participate

Ethical approval was obtained from the Institutional Review Board of the Indus Hospital & Health Network before data collection. Written informed consent was obtained from all participants. [IHHN_IRB_2021_12_009]

Consent for publication

Not applicable. The manuscript does not contain individual-level identifiable information, images, or case details.

Availability of data and materials

The datasets generated and/or analysed during the current study are not publicly available because they contain participant-level information and are subject to institutional confidentiality requirements, but may be available from the corresponding author on reasonable request and with appropriate institutional permission.

Competing interests

The authors declare that they have no competing interests.

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Authors' contributions

NIS¹: Conceptualization, literature search and investigation, formal analysis, interpretation of findings, and writing – original draft.

NA²: Data collection, interpretation of findings, and writing – original draft.

Both authors reviewed and approved the final manuscript and agreed to be accountable for all aspects of the work.

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