

Choice and preference of values in Ecuadorian medical students

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Abstract

Value-based education is essential in medical training for the doctor-patient relationship and healthcare quality. However, its teaching is not always explicit, creating gaps in professional practice. This study analyzed the selection and preference of values in 136 medical interns from Universidad Técnica de Manabí, cohort May 2020—April 2021, using the test of valuative reaction with Cronbach's alpha=0.943. Bodily values were the most selected (mean=44.55, standard deviation=6.39), followed by affective (mean=44.27, standard deviation=7.47) and ecological values (mean=44.00, standard deviation=8.85). Significant differences in bodily and instrumental values were found by gender ($p=0.029$ and $p=0.018$), but not by age. Linear regression showed that moral and affective values have a significant impact ($p=0.000$).

Keywords: Social values. Education, medical. Ethics, medical. Analysis of variance. Multivariate analysis. Linear models.

Resumo

Escolha e preferência de valores em estudantes de medicina Equatorianos

A educação em valores é fundamental na formação médica para a relação médico-paciente e para a qualidade da atenção. No entanto, seu ensino nem sempre é explícito, gerando lacunas na prática profissional. Este estudo analisou a escolha e a preferência de valores em 136 internos de Medicina de uma universidade pública equatoriana, por meio do teste de reação valorativa, validado com alfa de Cronbach=0,943. Os resultados indicam que os valores corporais foram os mais escolhidos (média=44,55; desvio padrão=6,39), seguidos dos valores afetivos (média=44,27; desvio padrão=7,47) e ecológicos (média=44,00; desvio padrão=8,85). Foram encontradas diferenças significativas nos valores corporais e instrumentais por gênero ($p=0,029$ e $p=0,018$), mas não por grupo etário. A regressão linear mostrou que os valores morais e afetivos têm impacto significativo na hierarquização dos valores ($p=0,000$).

Palavras-chave: Valores sociais. Educação médica. Ética médica. Análise de variância. Análise multivariada. Modelos lineares.

Resumen

Elección y preferencia de valores en estudiantes de medicina ecuatorianos

La educación en valores es fundamental en la formación médica para la relación médico-paciente y la calidad de la atención. Sin embargo, su enseñanza no siempre es explícita, generando vacíos en la práctica profesional. Este estudio analizó la elección y preferencia de valores en 136 internos de medicina de una universidad pública ecuatoriana mediante el test de reacción valorativa validado con alpha de Cronbach=0,943. Los resultados indican que los valores corporales fueron los más elegidos (media=44,55, desviación estándar=6,39), seguidos de los afectivos (media=44,27; desviación estándar=7,47) y ecológicos (media=44,00; desviación estándar=8,85). Se hallaron diferencias significativas en valores corporales e instrumentales por género ($p=0,029$ y $p=0,018$), pero no por grupo de edad. La regresión lineal mostró que los valores morales y afectivos tienen un impacto significativo en la jerarquización de valores ($p=0,000$).

Palabras clave: Valores sociales. Educación médica. Ética médica. Análisis de varianza. Análisis multivariante. Modelos lineales.

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Contemporary medical training faces the challenge of combining clinical and scientific skills with a solid ethical education capable of responding to the dilemmas that arise in increasingly diverse and unequal societies¹. Teaching values is not merely a complement, but a cross-cutting theme that defines the quality of care and the social legitimacy of professional practice². In this regard, Cortina argues that values are not limited to normative transmission, but are constructed in social and personal life, in interaction with history and language³. Additionally, Freire, from a critical pedagogy perspective, argues that ethical training is developed through practice and reflective dialogue, recognizing historicity and language as mediators of moral experience⁴.

Roy and collaborators⁵ conducted a bibliometric analysis of the 100 most cited articles in ethics education and found a steady increase in publications since 2000, reflecting the consolidation of medical ethics as a priority area in professional training. This study highlights the influence of the “hidden curriculum” and curricular organization on the transmission of values and professionalism⁵. Along these lines, González-Blázquez and collaborators² have pointed out that bioethics training cannot be reduced to merely normative or principlist teaching, but must be integrated transversally into training and clinical practice, promoting reflective processes that enable the situated construction of ethical values in students and health professionals. Thus, ethical training involves a formative experience rooted in institutional culture and the concrete realities of clinical practice.

In this context, Vieira, Silva, and Feitosa propose that medical curricula incorporate complex and transdisciplinary approaches capable of integrating the ethical, social, and cultural dimensions of healthcare practice⁷. Junges and collaborators mapped ethical training in medicine and, while documenting recent efforts in Brazil and the region, highlighted some persistent gaps, such as heterogeneity in course loads, weak integration throughout the curriculum, the predominance of

declarative approaches, limited assessment of competencies, and insufficient attention to the hidden curriculum¹. Together, both perspectives converge on the need to transform curricula toward cross-cutting, socioculturally sensitive, and measurable approaches that articulate values, professionalism, and social justice in Latin American contexts. This underscores the relevance of examining the student’s axiological hierarchy as input for any curriculum redesign. The study by Weber and Silva, conducted at the Anáhuac University in Mexico, showed that although medical students recognize values such as respect and honesty, their practical application is limited. It also identified differences in the hierarchy of values according to gender and age⁸.

In Brazil, Barbosa and collaborators⁹ correlated the values developed during training with their application in the internship, in a qualitative study with 72 interns from a course that uses active methodologies. Based on content analysis, the results indicate that the moral values learned during training and the values practiced and considered essential in the boarding school were respect, responsibility, patience, and humility. Furthermore, learning about these moral/social values occurred more frequently when educational strategies characteristic of active methodologies were adopted⁹.

In other contexts, recent evidence shows a tension between stated values and their implementation during medical training. In Cuba, a cross-sectional study of 628 first-year students measured responsibility, honesty, and humanism in observable behaviors and found discrepancies such as deficits in academic responsibility, cases of dishonesty, and low empathy, highlighting the need for early ethical assessment and academic support¹⁰. In Chile, first-year students place academic integrity around honesty and respect, but describe institutional factors and academic pressure that hinder their daily experience¹¹. In Colombia, rather than providing recent numerical hierarchies, a qualitative analysis of the hidden curriculum shows how it shapes norms and values of professionalism during training, providing a framework for

understanding the gap between discourse and practice¹².

In Ecuador, evidence is sparser. A local study at the Technical University of Manabí (n=771) reported a hierarchy with moral, ecological, and individual values at the top and religious values at the bottom, suggesting context-specific axiological profiles¹³. However, no analysis is available for students undertaking rotational internships—a key moment of transition to clinical practice that allows us to understand how values are chosen and prioritized at the end of undergraduate training.

In this context, the problem lies in the lack of evidence on the hierarchy of values among medical interns in Ecuador. Therefore, the overall objective of this study is to analyze the choice and preference of values among medical interns at the Technical University of Manabí (UTM) in Ecuador.

Method

This study adopted a quantitative approach with a non-experimental, descriptive, cross-sectional design. The population consisted of 137 students in the rotating internship program for the medical degree; of these, 136 participated after providing informed consent, excluding those who did not complete the questionnaire.

The instrument used was the Value Reaction Test (TRV, for its acronym in Spanish) developed by the Emerging Values and Social Education research group at the University of Granada¹⁴, widely used to rank values among university students. The TRV comprises 250 items distributed across ten categories, including: bodily, intellectual, affective, aesthetic, individual, moral, social, ecological, instrumental, and religious, with five-point Likert scale responses (VP = very pleasant; P = pleasant; I = indifferent; U = unpleasant; VU = very unpleasant). For this sample, the overall internal consistency was $\alpha=0.943$.

Data analysis was performed using Microsoft Excel and SPSS version 23, employing descriptive statistics and inferential tests. Univariate analysis was performed to describe

the distribution of values, and multivariate analysis was conducted to examine correlations between sociodemographic variables and value categories. Student's t-tests and Levene's tests were applied to evaluate differences between groups based on gender and age. In addition, a multiple linear regression analysis was performed to identify correlations between value categories, considering dummy variables for age groups.

From an ethical standpoint, this study was approved by the Bioethics Committee of the Faculty of Health Sciences of the UTM. Data confidentiality and voluntary student participation were guaranteed. The findings were submitted to the academic authorities, and as a result of the pilot project: "For life and health: ethical values in the education of undergraduate health sciences students, UTM," Ecuador.

Results

This study revealed significant results regarding the sociodemographic characteristics of medical interns at the Technical University of Manabí. Among the 136 participating students, 87 were men (64%) and 49 were women (36%). There were no students under the age of 22; 117 were between 22 and 26 years old (86%), 18 were between 27 and 32 years old (13%), and only one person was over 32 years old (1%). In terms of marital status, 119 were single (87%), 9 were in a common-law relationship (7%), and 8 were married (6%). There were no divorced or widowed students.

Of the 136 students, only 22 (16%) had children, while 114 (84%) did not have children at the time of the survey. In terms of religion, 118 identified as Catholic (87%), 13 did not follow any religion (10%), 3 followed other unspecified religions (3%), and 2 were Evangelical (1%).

Regarding economic status, 65 students (48%) identified themselves as middle class, 60 as lower middle class (44%), 8 as upper middle class (6%), and 3 as lower class (2%). There were no respondents in the very low or very high classes.

In terms of origin, 123 interns lived in urban areas (90%), while 13 lived in rural areas (10%).

The distribution of the 136 medical students surveyed according to the institution where they completed their internship was as follows: Verdi Cevallos Balda Hospital had the highest proportion with 48 students (35%), followed by Miguel Hilario Alcívar Hospital with 24 (18%); thirteen students (9%) were from Portoviejo General Hospital, while twelve students (9%) were from each of Jipijapa General Hospital and Santo Domingo General Hospital; eleven students (8%) were from Gustavo Domínguez Hospital, and sixteen students (12%) were from Santo Domingo IESS Hospital.

The order corresponding to the choice and preference of values of UTM medical interns (Table 1) was: bodily, affective, ecological, moral,

intellectual, individual, instrumental, social, aesthetic, and religious. It should be noted that the category of bodily values had a 44.55 mean score (M) and a 6.39 standard deviation (SD) in the sum of all responses and differed only slightly from the other categories, followed by affective values (M=44.27; SD=7.47) and ecological values (M=44.00; SD=8.85). The category corresponding to moral values ranked fourth, trailing behind the three previous categories. In contrast, the least preferred values were aesthetic (M=36.88; SD=10.76) and religious (M=24.29; SD=14.81).

This result indicates that UTM medical interns prioritized bodily values (hygiene, eating, body, sports, massage, health, etc.), followed by affective, ecological, moral, intellectual, individual, instrumental, and social values, and to a lesser extent, aesthetic and religious values.

Table 1. Comparison of the choice and preference of values among medical interns, by categories and descriptive measures. Technical University of Manabí, Ecuador

Values by category	Minimum	Maximum	Mean (standard deviation)
Bodily	25	50	44.55 (6.391)
Affective	22	50	44.27 (7.466)
Ecological	23	50	44.00 (8.850)
Moral	16	50	42.53 (9.946)
Intellectual	16	50	41.49 (11.320)
Individual	16	50	40.91 (10.402)
Instrumental	2	50	39.14 (10.434)
Social	5	50	37.14 (11.497)
Aesthetic	7	50	36.88 (10.759)
Religious	50	50	24.29 (14.806)

Multivariate analysis

Significant differences were found in bodily values, with males obtaining an average of 46.14 (SD=4.37) compared to females with 43.66 (SD=7.15) ($p=0.029$). No significant differences were found in the other values (Table 2).

It also shows that 7 of the 10 values are significantly homogeneous at a 5% confidence level for both males and females. These

categories of values are intellectual, affective, aesthetic, individual, moral, ecological, and religious values.

For the remaining three categories, namely bodily, social, and instrumental values, the null hypothesis is rejected in favor of the alternative hypothesis at a 5% confidence level, which means that the differences between the variances are statistically significant.

Table 2. Choice and preference of values by category, according to gender, among medical interns. Technical University of Manabí, Ecuador

Values by category	Mean (standard deviation)		T-test for difference of means p^*
	Female	Male	
Bodily	43.66 (7.156)	46.14 (4.368)	0.029*
Intellectual	41.82 (11.726)	40.92 (10.655)	0.659
Affective	44.68 (7.995)	43.55 (6.463)	0.4
Aesthetic	37.14 (10.973)	36.43 (10.466)	0.714
Individual	40.29 (10.84)	42.02 (9.582)	0.353
Moral	42.08 (10.493)	43.33 (8.943)	0.485
Social	37.87 (12.323)	35.84 (9.847)	0.323
Ecological	43.97 (9.107)	44.06 (8.467)	0.952
Instrumental	37.56 (10.997)	41.94 (8.778)	0.018*
Ecological	26.1 (15.43)	21.06 (13.169)	0.056

*($p < 0.05$)

Results based on age

When comparing value preferences between the 22 to 26 and 27 to 32 age groups, no significant differences were found, since $p > 0.05$ in all cases, leading to the failure to reject the null hypothesis of equality of means.

The results in Table 3 indicate that, since the p -values of the Student's t -test were not all less

than 0.05, there is insufficient statistical evidence to conclude that the means of the value choices differ between the two selected age groups. Therefore, the null hypothesis of equality of population means was not rejected, and it was concluded that the means are equal. In other words, medical interns' choice and preference regarding values are not related to age group.

Table 3. Choice and preference of values by value categories, according to age group, among medical interns. Technical University of Manabí, Ecuador

Values by category	Mean (standard deviation)		T-test for difference of means p
	22 to 26	27 to 32	
Bodily	44.51 (6.507)	44.83 (5.943)	0.844
Intellectual	41.48 (11.239)	41.06 (12.255)	0.883
Affective	44.08 (7.660)	45.22 (6.255)	0.547
Aesthetic	36.38 (10.585)	39.39 (11.673)	0.271

continues...

Table 3. Continuation

Values by category	Mean (standard deviation)		T-test for difference of means <i>p</i>
	Age groups		
	22 to 26	27 to 32	
Individual	40.30 (10.533)	44.39 (9.050)	0.121
Moral	42.31 (10.031)	43.56 (9.715)	0.623
Social	36.61 (11.470)	39.89 (11.499)	0.261
Ecological	43.60 (9.142)	46.28 (6.560)	0.234
Instrumental	38.89 (10.404)	40.17 (10.842)	0.63
Religious	23.87 (14.910)	25.56 (13.500)	0.653

Multiple linear regression analysis

A multiple linear regression model was applied to determine the relationship between social values and the other value categories. The resulting equation was as follows: X1 corresponds to bodily values, X2 to affective

values, X3 to ecological values, X4 to moral values, and X5 and X6 to age groups.

As shown in Table 4, only affective values ($p=0.000$) and moral values ($p=0.000$) were statistically significant. This implies that these values have a relevant impact on interns' choices, while the other categories did not show a significant influence.

Table 4. Regression coefficients of the variables

Model	B	Standard error	<i>p</i> -value
(Constant)	-5.834	8.655	0.501
Bodily values	-0.080	0.138	0.561
Affective values	0.474	0.113	0.000*
Ecological values	0.059	0.094	0.529
Moral values	0.654	0.092	0.000*
Ages (22 to 26 years old)	-5.135	7.273	0.481
Ages (27 to 32 years old)	-3.345	7.424	0.653

Statistical testing and model validation

Table 5 (ANOVA) shows a $p>0.05$, confirming a significant relationship between social, moral, and affective values. In addition, tests of normality, homoscedasticity, and linearity confirmed that the model meets the required

statistical assumptions. These findings provide evidence that the choice and preference of values among medical interns is mainly influenced by affective and moral values, with no significant differences by age, but with some differences by gender.

Table 5. Regression coefficients of variables, sums, and means

Model	Sum of squares	df	Mean square	F	Sig.
Regression	11172.473	6	1862.079	36.003	.000b
Residual	6671.873	129	51.72		
Total	17844.346	135			

Discussion

This study found that UTM medical interns prioritize bodily, affective, and ecological values, while aesthetic and religious values occupy the lowest places in their hierarchy of preferences. This trend reflects an orientation toward functional and pragmatic values in medical practice, with less emphasis on transcendent or spiritual values. Junges and collaborators¹ point out that Latin American medical education reinforces values associated with caring for the body and social responsibility. Barbosa and collaborators⁹ also found that students, when working with active methodologies, prioritize instrumental values and practical utility. Likewise, Naipe-Delgado and collaborators¹⁰ and Quijano Magaña and collaborators¹⁵ reported that transcendental values were less important than practical and relational values among university students, which is consistent with the results of this study, demonstrating the influence of the sociocultural and educational context on the configuration of the axiological priorities of future health professionals.

Regarding the gender variable, significant differences were found in the choice of bodily and instrumental values ($p=0.029$ and $p=0.018$, respectively). Men prioritized values associated with health, sports, and strength, while women showed a greater inclination toward affective values and interpersonal relationships. This difference can be interpreted from the perspective of gender socialization and the persistence of stereotypes that shape the perception and selection of values.

On this point, Barbosa and collaborators⁹ note that female health students tend to focus on empathy, care, and responsibility, while males emphasize competitiveness and performance.

Similarly, Naipe-Delgado and collaborators¹⁰ and Ríos-Teillier and collaborators¹¹ confirm that gender continues to be a determining factor in the hierarchy of professional values in medical training.

Regarding age group, no significant differences were observed in the hierarchy of values between interns aged 22 to 26 and those aged 27 to 32 ($p>0.05$). This finding indicates a certain axiological stability at this formative stage, which could be explained by the homogeneity of the medical curriculum and the influence of the hidden curriculum as a normalizing factor. Osorio-Cock and collaborators¹² argue that the hidden curriculum acts as a mechanism for transmitting norms and values that tend to homogenize the educational experience. Similarly, Barbosa and collaborators⁹ found that academic progression, rather than age, is the variable that determines the configuration of values in medical students.

Multiple linear regression analysis revealed a positive correlation between social, moral, and affective values, suggesting that they tend to reinforce one another in students' value systems. In practical terms, the recognition of values such as justice and solidarity is associated with a greater orientation toward empathy and interpersonal relationships. These findings are consistent with recent studies in medical education that demonstrate how social variables, such as social support, are significantly associated with empathy in medical students, acting as predictors in multiple linear regression models⁶, which reinforces the idea that the construction of ethical values does not occur in an abstract manner, but rather through interaction with relational contexts and concrete formative experiences. Along these same lines, Vieira and collaborators⁷ highlight the need to incorporate transdisciplinary approaches into medical curricula, recognizing the interrelationship

between ethical, social, and human dimensions in professional training. Complementarily, Véliz and collaborators¹³ demonstrate that the integration of moral and social values into medical education responds to the need for a clinical practice that is more patient-centered and oriented toward respect for human dignity.

Thus, the findings of this study underscore the urgent need to incorporate explicit training in ethics, bioethics, and humanism into medical curricula, to complement technical skills. In this vein, González-Blázquez and collaborators² argue that the effectiveness of bioethics education depends not only on theoretical instruction but also on its integration with active methodologies and clinical experiences, which enable the development of lasting professional values.

Finally, we recommend conducting longitudinal research to explore how perceptions of values evolve throughout medical training, as well as qualitative studies to understand the underlying motivations behind the hierarchy of values. As Junges and collaborators¹, Vieira and collaborators⁷, and Naípe-Delgado and collaborators¹⁰ warn, strengthening values education in the field of health is essential for the humanization of care. The improvement of healthcare quality and the strengthening of the doctor-patient relationship are pillars of contemporary bioethics in Latin America.

Final Considerations

In terms of sociodemographic characteristics of the UTM medical interns, there was a predominance of male students (ratio of approximately 2:1), mainly in the 22-26 age group. Most of the students were single, without children, Catholic, and from urban areas. As for socioeconomic status, the data were more homogeneous, with a slight predominance of the middle class over the lower middle class.

Regarding the hierarchy of values, interns prioritized, in descending order, bodily, affective, ecological, moral, and intellectual values, placing individual, instrumental, social, aesthetic, and religious values in secondary positions. Significant

differences were found by gender in the categories of bodily and instrumental values: men showed a greater preference for bodily values, while women leaned toward affective values.

In the analysis by age (22-26 and 27-32 years), no significant differences were found, although a positive relationship was identified between social, affective, and moral values in both groups. This finding is consistent with recent Latin American studies that highlight how axiological construction in medical training is based on the interaction between moral, social, and affective values, rather than on isolated sociodemographic differences^{1,2}.

Consequently, it is necessary to design curricular strategies that strengthen these values and systematically integrate them into medical education.

Therefore, it is recommended to move forward with the implementation of specific actions such as the inclusion of compulsory courses on ethics and clinical bioethics in the first years; the development of practical workshops for the analysis of Latin American and Brazilian bioethical cases, addressing dilemmas related to inequality, access to health, patient autonomy, and social justice; the incorporation of active methodologies (problem-based learning, clinical simulation with ethical dilemmas); and the creation of a cross-cutting module on professionalism and medical humanism that extends throughout the entire degree program.

Although in this study bodily, affective, and ecological values ranked above moral values, the urgency of consolidating the teaching of moral values as a cross-cutting theme in medical training is emphasized, in line with complex and Latin American bioethical proposals that promote a humanistic and critical curriculum^{3,4}. Future research should explore the role of women in medicine today, as well as into perceptions of the professional practice of female doctors in the province of Manabí. Similarly, it is suggested that new cohorts of interns be analyzed to observe the evolution of the axiological hierarchy and assess whether the relationships between social, moral, and affective values persist or change.

In short, this research confirms the need for higher education in Ecuador and Latin America to commit to systematic and cross-cutting values education. The formalization of standards of conduct and the design of academic programs that integrate the axiological dimension will enable progress toward the essential purpose of medical education: to train technically competent and ethically responsible professionals who are engaged with society.

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Contribution of the authors

Sandra Linares Giler contributed to the conception of the project, mentoring and supervision of the study, academic guidance, critical analysis of the results, and the final review and editing of the manuscript. Ingebord Josephine Véliz Zevallos collaborated with methodological support, theoretical review, and editing of the text. Victor Manuel Delgado Burgos participated in the main conduct of the research, data collection and systematization, initial analysis, and writing of the original draft of the manuscript. Christopher Michael Granda Delgado contributed to the conduct of the research, support in data collection, analysis of results, preparation of tables, and writing of the preliminary discussion. Guido Andres Alava Linares contributed to the literature search, complementary technical review, and support in editing and formatting the manuscript.

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