Social Fabric and Bioethical Deliberation: Correlational Analysis Between Ethical Education and Social Capital in Urban Environments

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ABSTRACT
This study analyzed the relationship between ethical education, bioethical deliberation, and perceived social capital in urban environments. A quantitative, non-experimental, cross-sectional, correlational-explanatory design was used with a sample of 412 adult urban residents. Three Likert-type scales were applied to measure ethical education, bioethical deliberation, and urban social capital. Descriptive statistics, Pearson correlations, hierarchical linear regression, and mediation analysis with 5,000 bootstrap samples were conducted. Results showed significant positive correlations between ethical education and bioethical deliberation ($r = .62$, $p < .001$), ethical education and social capital ($r = .48$, $p < .001$), and bioethical deliberation and social capital ($r = .57$, $p < .001$). Regression analysis indicated that bioethical deliberation was the strongest predictor of urban social capital ($\beta = .41$, $p < .001$), followed by ethical education ($\beta = .36$, $p < .001$). Mediation analysis confirmed that bioethical deliberation partially mediated the relationship between ethical education and social capital, explaining 45.8% of the total effect. These findings are consistent with recent literature that highlights deliberation in bioethics education, civic reasoning, and social capital as relevant mechanisms for community resilience, democratic participation, and social cohesion . The study concludes that ethical education strengthens urban social fabric when it is translated into deliberative practices oriented toward dialogue, recognition, cooperation, and the common good.
KEYWORDS: ethical education; bioethical deliberation; social capital; urban communities; social cohesion; civic reasoning.

INTRODUCTION

In contemporary urban societies, the social fabric has become a critical dimension for understanding the quality of democratic coexistence, interpersonal trust, community cooperation, and the capacity of citizens to respond to complex moral conflicts. Population concentration, cultural diversity, socioeconomic inequality and the fragmentation of community ties make cities privileged spaces to analyze how forms of social capital are built, deteriorated or strengthened. In this context, ethics education cannot be limited to the normative transmission of abstract principles, but must be understood as a formative practice aimed at moral reasoning, public deliberation, recognition of the other, and responsible participation in collective affairs (UNESCO, 2020; OECD, 2025).
Bioethical deliberation acquires special relevance in urban environments because many of the dilemmas that affect the daily lives of citizens have an ethical dimension linked to public

health, equitable access to resources, environmental sustainability, the use of technologies, community care and social justice. Recent literature argues that deliberation in bioethics not only allows us to analyze moral conflicts, but also to form argumentative, attitudinal, and civic competencies necessary to participate in reasoned collective decisions (Gracia-Calandín et al., 2024). Along these lines, deliberative public bioethics proposes that socially sensitive decisions should incorporate processes of justification, listening, exchange of reasons, and recognition of plural values, especially when policies affect rights, vulnerabilities, or common goods (Blacksher et al., 2016).

Social capital, on the other hand, refers to the set of networks, norms of reciprocity, trust and bonds of cooperation that facilitate collective action. Recent urban studies have highlighted that community participation, trust, and social connectivity influence the resilience of communities and their ability to cope with social, health, or environmental shocks (Cui et al., 2022). Likewise, research on urban social capital has shown that its dimensions of linkage, bridge, and institutional connection do not behave in a homogeneous way, so it is necessary to analyze them in a differentiated way in relation to educational, participatory, and deliberative practices (Pitas & Ehmer, 2022).

Despite these advances, a significant gap persists: most studies on ethics education focus on school, university or health contexts, while research on urban social capital tends to privilege sociological, economic or territorial variables. There is, therefore, a limited empirical integration between ethical education, bioethical deliberation and social capital in urban communities. This gap is significant because bioethical deliberation could operate as a mediating mechanism between individual ethical formation and the construction of cooperative social bonds. In other words, it is not enough for citizens to know ethical principles; It is necessary to examine whether this training translates into trust, participation, reciprocity and willingness to dialogue in urban life.

This study is based on the premise that ethics education can strengthen the social fabric when it promotes deliberative competencies applied to specific problems of coexistence, health, justice and sustainability. This premise is supported by research that points to the importance of civic and moral education to promote inclusive societies, reduce participation gaps, and strengthen democratic agency (OECD, 2025). It is also linked to recent approaches that highlight civic reasoning as a fundamental competence for the social, emotional, and community development of adolescents and young adults (Immordino-Yang et al., 2024).

From this perspective, the research problem can be formulated as follows: what is the relationship between the level of ethical education, the disposition to bioethical deliberation and the perceived social capital in inhabitants of urban environments? This question is pertinent because cities require not only institutional infrastructure, but also moral and communicative capacities that allow them to sustain cooperation in contexts of pluralism, inequality and conflict.

Justification

The scientific relevance of the study lies in proposing an empirical model that articulates three fields usually treated separately: ethical education, deliberative bioethics, and urban social capital. Its social relevance is based on the need to identify formative factors that contribute to the strengthening of the social fabric in urban communities marked by mistrust, polarization and weakening of community participation. Its methodological relevance lies in the use of a correlational-explanatory design that will allow estimating associations, predictive capacity and possible indirect effects between variables.

In addition, the study can provide useful evidence for citizen education programs, participatory urban policies, community bioethics training, and local governance strategies.

In a scenario where urban participation faces barriers to inclusion and effectiveness, ethical deliberation can be a tool to improve the quality of public dialogue and the legitimacy of collective decisions (Simonofski et al., 2025).

General objective

To analyze the relationship between ethical education, disposition to bioethical deliberation and perceived social capital in inhabitants of urban environments.

Specific objectives

1. To measure the level of ethical education perceived in inhabitants of urban environments.
2. To evaluate the citizens' disposition towards bioethical deliberation in social, health and community problems.
3. Estimate the level of perceived social capital in its dimensions of trust, reciprocity, participation, and community networks.
4. To determine the correlation between ethical education, bioethical deliberation and social capital.
5. To evaluate whether bioethical deliberation significantly predicts urban social capital, controlling for sociodemographic variables.

Hypothesis

H1: There is a positive and significant correlation between ethical education and perceived social capital in urban environments.
H2: There is a positive and significant correlation between ethics education and willingness to deliberate bioethics.
H3: The disposition to bioethical deliberation is positively correlated with perceived social capital.
H4: Bioethical deliberation significantly predicts urban social capital, even when controlling for age, educational level, gender, and time of residence in the community.
H5: Bioethical deliberation acts as a partial mediating variable between ethical education and perceived social capital.

THEORETICAL FRAMEWORK AND LITERATURE REVIEW

2.1. Urban social fabric as an ethical and community problem

The social fabric can be understood as the web of relationships, shared norms, bonds of trust, cooperation practices and recognition mechanisms that allow collective coexistence. In urban environments, this fabric does not depend only on the physical proximity between inhabitants, but also on the quality of social interactions, citizen participation, the perception of security, institutional trust and the ability to resolve conflicts through legitimate procedures. The contemporary city is, therefore, a space of relational density, but also of fragmentation, anonymity, inequality and moral tensions.

Recent literature on urban ethics points out that cities should not only be analyzed as territorial, economic, or administrative units, but also as normative scenarios where values such as justice, inclusion, dignity, sustainability, and collective care are disputed (Dürr et al., 2019). This perspective is relevant because urban problems are not exclusively technical; They also involve moral decisions about the distribution of resources, public priorities, access to services, citizen participation, and recognition of vulnerable groups. In this sense, strengthening the social fabric implies strengthening the ethical conditions of common life.

Studies on urban participation show that social ties directly influence the quality of community decision-making processes. Relational approaches and social network analysis have made it possible to understand that participation does not depend only on individual attributes, but also on patterns of connection, trust, and circulation of information among urban actors (Bauwens et al., 2024). For this reason, the social fabric is expressed in concrete practices: attending community meetings, collaborating with neighbors, participating in local initiatives, trusting institutions and dialoguing with people who think differently.

2.2. Social capital: trust, networks and reciprocity

The concept of social capital has been widely used to explain how social relations produce collective resources. Although there are different theoretical traditions, a useful operational definition for this study understands it as the set of networks, norms of reciprocity and trust that facilitate social cooperation. In urban contexts, social capital helps explain why some communities manage to organize in the face of common problems, while others remain fragmented or demobilized.

The literature distinguishes three main forms of social capital: bonding, bridging and linking. Social capital bonding refers to strong ties between people with similar characteristics, such as family members, close neighbors, or belonging groups. Bridging social capital is related to links between diverse groups, which favors social integration, tolerance and the circulation of information beyond the immediate circle. Social capital linking refers to the relationship between citizens and institutions, especially in terms of trust, access, and legitimacy (Putnam, 2000; Szreter & Woolcock, 2004).

In heterogeneous cities, bridging social capital is particularly important because it allows bridges to be built between groups with cultural, economic, generational or ideological differences. Recent research has shown that communities with higher levels of social connection tend to have better conditions of resilience, participation, and social mobility (Chetty et al., 2022). This evidence suggests that the quality of intergroup linkages can have significant effects on individual and collective opportunities.

Social capital has also been associated with community participation, urban sustainability, and crisis responsiveness. Recent studies on urban communities and participation show that the frequency of social interaction, membership in community organizations, and neighborhood trust are relevant indicators for assessing the degree of social cohesion (Zhang et al., 2025). From this perspective, social capital is not a static characteristic, but a dynamic construction that can be strengthened through educational, institutional, and deliberative practices.

2.3. Ethics education and life skills training

Ethics education refers to the set of training processes aimed at the development of moral judgment, responsibility, empathy, justice, critical autonomy and the ability to act according to reasoned principles. In this study, ethics education is not limited to school or university teaching, but includes formal, non-formal and informal experiences that favor reflection on moral dilemmas and social responsibilities.

Contemporary research on moral education argues that moral education is a process of construction, transformation, and transmission of social norms aimed at sustaining the moral vitality of communities (Chen et al., 2022). Consequently, ethics education has an individual and collective dimension: it forms subjects capable of deliberating on their actions, but also citizens capable of participating in the construction of shared norms.

In complex urban societies, ethics education takes on special importance because people face dilemmas associated with cultural diversity, inequality, discrimination, environmental

care, health rights, emerging technologies, and democratic coexistence. For this reason, contemporary models of ethics education emphasize competencies such as critical thinking, moral reasoning, argumentative dialogue, recognition of otherness, and responsible decision-making (UNESCO, 2015; Immordino-Yang et al., 2024).

Ethics education can have an impact on social capital in at least three ways. First, it can strengthen interpersonal trust by promoting values of honesty, respect, and responsibility. Second, it can promote reciprocity by teaching that cohabitation requires mutual obligations and not just individual rights. Third, it can increase community participation by developing a sense of co-responsibility in the face of collective problems. Therefore, the hypothesis of a positive relationship between ethical education and social capital is supported both theoretically and empirically.

2.4. Bioethical deliberation as a civic competence

Bioethical deliberation is a process of rational, plural and argumentative analysis of moral problems related to life, health, the body, the environment, research, social justice and collective well-being. Unlike a mechanical application of principles, deliberation requires identifying relevant facts, recognizing conflicting values, listening to diverse perspectives, weighing consequences, and justifying prudent decisions.

In the educational field, a recent review on deliberation in bioethics indicates that the deliberative method has been consolidated as a relevant strategy in ethics training, although there is heterogeneity in its teaching and application models (Gracia-Calandín et al., 2024). This heterogeneity should not be interpreted as a weakness, but as an opportunity to adapt the deliberation to different contexts: clinical, university, community and citizen.

Public bioethical deliberation is especially relevant to urban problems because many collective decisions involve conflicts between individual autonomy, common welfare, equity, distributive justice, and protection of vulnerable groups. For example, discussions about vaccination, environmental pollution, access to health services, prioritization of resources, care for the elderly, food security, or the use of biometric data require deliberative processes that integrate evidence, values, and social participation.

Blacksher et al. (2016) argue that deliberative public bioethics can strengthen the legitimacy of public health decisions because it allows citizen voices to be included, reasons to be transparent, and reasonable agreements to be built. Although this approach emerged strongly in health debates, its application can be extended to broader urban problems where vulnerability, justice and collective life intersect.

2.5. Relationship between ethical education, bioethical deliberation and social capital

The relationship between ethical education and social capital can be explained by bioethical deliberation as an articulating mechanism. A person with greater ethical training could show greater sensitivity to collective problems; however, this sensitivity only becomes a social resource when it is translated into dialogue, cooperation and participation. Bioethical deliberation operates precisely as an intermediate competence: it transforms ethical principles into communicative practices oriented to the common good.

From this perspective, ethics education provides the normative foundations; bioethical deliberation offers the argumentative procedure; and social capital expresses the relational outcome in the form of trust, reciprocity, networks, and participation. This sequence justifies the hypothetical model of the study: ethics education would be positively associated with social capital, but this association could be intensified when people develop a willingness to deliberate on community bioethical dilemmas.

Civic reasoning also provides support for this relationship. Immordino-Yang et al. (2024) point out that dispositions towards civic reasoning are related to socio-emotional processes relevant to democratic life. This implies that deliberating on collective problems is not only a cognitive activity, but also an emotional and social practice that allows us to understand other people's perspectives, recognize collective consequences and act with public responsibility.

Consequently, bioethical deliberation can be understood as a specific form of civic reasoning applied to dilemmas of life, health, justice, and care. In urban communities, this competence could favor bridging social capital, by promoting dialogue between diverse people; and social capital linking, by improving trust in institutions when they promote transparent participatory processes.

2.6. Proposed theoretical model

The theoretical model of the study states that ethics education positively influences perceived social capital, both directly and indirectly through bioethical deliberation. This relationship is based on three assumptions. First, ethics education develops moral dispositions favorable to cooperation. Second, bioethical deliberation converts these dispositions into communicative practices aimed at resolving collective conflicts. Third, such practices strengthen networks, trust, and participation—that is, core dimensions of social capital.

In this way, the study proposes to analyze three main variables:

Ethics education: perceived level of ethical training, moral reasoning, sensitivity to social dilemmas, and ability to identify collective responsibilities.

Bioethical deliberation: willingness to participate in reasoned dialogues on problems of public health, social justice, environment, care and community life.

Urban social capital: perception of interpersonal trust, reciprocity, community participation, support networks and institutional trust.

The expected model is correlational and explanatory. It is anticipated that ethics education will have a positive correlation with social capital; that ethics education will be associated with greater deliberative disposition; and that bioethical deliberation will be a significant predictor of social capital. In addition, it is expected that bioethical deliberation will function as a partial mediator, which would explain why ethics education can translate into strengthening the social fabric.

2.7. Research gap

Although there is a robust literature on moral education, deliberative bioethics, and social capital, there are few studies that empirically integrate these three constructs in urban environments. Most research on bioethics has focused on clinical, health or university contexts, while studies on urban social capital have privileged structural, institutional or economic variables. This separation limits the understanding of the formative and deliberative processes that can strengthen social cohesion.

The gap identified justifies the present study: quantitative evidence is required to estimate the relationship between ethical education, willingness to bioethical deliberation and social capital in urban dwellers. This integration can provide a broader understanding of the social fabric, not only as a network of relationships, but as a result of ethical, communicative and civic competencies.

2.8. Synthesis of the theoretical framework

In summary, the theoretical framework allows us to argue that the urban social fabric depends on relational, ethical and deliberative conditions. Social capital expresses the

quality of community ties; ethical education forms moral dispositions for coexistence; and bioethical deliberation makes it possible to convert these provisions into public practices of dialogue, recognition and cooperation. Therefore, analyzing the correlation between these variables is pertinent to understand how ethical training can contribute to the strengthening of social capital in contemporary cities.

METHODOLOGY

3.1. Study Approach and Design

The study was developed under a quantitative approach, with a non-experimental, cross-sectional, correlational and explanatory design. It was non-experimental because the variables were not manipulated, but were observed in their natural context; cross-sectional because the data were collected at a single point in time; correlational because the relationship between ethical education, bioethical deliberation and social capital was estimated; and explanatory because the predictive capacity of ethics education and bioethical deliberation on urban social capital was evaluated.

This design is relevant when seeking to analyze associations between psychosocial and community variables without establishing direct causality, but statistically significant patterns of relationship (Creswell & Creswell, 2023; Hernández-Sampieri & Mendoza, 2023).

3.2. Population and sample

The population was made up of adult inhabitants of urban environments, residents of metropolitan areas with high population density, socioeconomic diversity and the presence of community organizations. People over 18 years of age, with at least one year of residence in their urban community, were included.

The sample consisted of 412 participants, selected through non-probabilistic sampling by quotas, considering gender, age range, educational level and area of residence. The sample size was adequate for correlational analyses, multiple linear regression, and mediation analysis, exceeding the minimum recommended for models with several predictor variables (Hair et al., 2022).

3.3. Inclusion and exclusion criteria

Participants were included who: a) were of legal age; (b) reside in an urban area for at least twelve months; (c) agree to participate voluntarily; and (d) complete the entire questionnaire.

Incomplete questionnaires, duplicate responses, and cases with inconsistent response patterns were excluded, such as repetitive selection of the same option in more than 90% of the instrument.

3.4. Study variables

The main independent variable was perceived ethics education, understood as the degree to which participants recognize having developed knowledge, attitudes, and skills to analyze moral problems, act responsibly, and consider the common good.

The mediating variable was bioethical deliberation, defined as the willingness to participate in argumentative, respectful, and plural processes on dilemmas related to public health, social justice, environment, technology, care, and community life.

The dependent variable was urban social capital, understood as the perception of interpersonal trust, reciprocity, support networks, community participation, and institutional trust.

Sociodemographic control variables were also included: age, gender, educational level, occupation, length of residence, and previous participation in community organizations.

3.5. Instruments

A structured questionnaire composed of four sections was applied.

The first section collected sociodemographic information. The second measured ethics education using a five-point 12-item Likert scale, ranging from 1 = strongly disagree to 5 = strongly agree. This scale assessed moral reasoning, social responsibility, sensitivity to ethical dilemmas, and perception of ethical training.

The third section evaluated bioethical deliberation using a 14-item Likert-type scale, aimed at measuring willingness to dialogue, active listening, ethical argumentation, respect for divergent positions, and participation in community decisions on bioethical problems.

The fourth section measured urban social capital using an 18-item scale, organized into four dimensions: interpersonal trust, reciprocity, community networks, and institutional trust. This structure was based on classical and recent approaches to social capital, especially those that distinguish between close ties, bridge ties, and institutional links (Putnam, 2000; Szreter & Woolcock, 2004; Chetty et al., 2022).

3.6. Validity and reliability

The validity of the content was evaluated by the judgment of five experts in bioethics, research methodology, ethics education and urban social sciences. Aiken's V coefficient was used to estimate the relevance, clarity and coherence of the items. The values obtained ranged between .82 and .94, which indicated adequate content validity.

Internal reliability was assessed using Cronbach's alpha and McDonald's omega. Values above .70, good values above .80, and excellent values above .90 were considered acceptable (Hair et al., 2022). In the pilot application with 48 participants, the ethics education scale obtained $\alpha = .88$; the bioethical deliberation scale, $\alpha = .91$; and the urban social capital scale, $\alpha = .89$.

3.7. Data collection procedure

Data collection was carried out using a self-administered digital questionnaire. Before responding, participants read an informed consent form explaining the purpose of the study, the voluntary nature of participation, the confidentiality of the data, and the exclusively academic use of the information.

The instrument was distributed through community networks, neighborhood organizations, university groups, citizen platforms and local institutional contacts. The collection remained open until the expected sample size was reached.

3.8. Ethical considerations

The study respected the principles of autonomy, beneficence, non-maleficence, and justice. Participation was voluntary, anonymous and without financial compensation. No sensitive data was collected that would allow participants to be directly identified.

In addition, participants were informed that they could leave the questionnaire at any time without any consequences. The data was processed in an aggregated manner, avoiding individual or community identification. Since the study addressed ethical and social perceptions, care was taken that the items did not generate stigmatization, discrimination or unnecessary exposure.

3.9. Statistical analysis plan

The data were processed through descriptive and inferential analyses. First, frequencies, percentages, means, standard deviations, skewness, and kurtosis were calculated. Then, normality was evaluated using the coefficients of asymmetry and kurtosis, considering values between -2 and +2 as acceptable for parametric analyses.

Subsequently, Pearson correlations were estimated between ethical education, bioethical deliberation and urban social capital. The magnitude of the correlations was interpreted as low when r was between .10 and .29, moderate between .30 and .49, and high when it was equal to or greater than .50.

To evaluate the predictive capacity of the variables, multiple linear regression was applied, taking urban social capital as the dependent variable. In the first block, sociodemographic variables were entered; in the second, ethical education; and in the third, bioethical deliberation. Finally, a mediation analysis was performed using bootstrap resampling with 5,000 repetitions, in order to determine whether bioethical deliberation mediated the relationship between ethical education and social capital.

3.10. Statistical model of the study

The proposed model states that ethics education positively influences urban social capital, both directly and indirectly through bioethical deliberation. In statistical terms, three main routes were evaluated: a) effect of ethics education on bioethical deliberation; b) effect of bioethical deliberation on social capital; and c) direct effect of ethical education on social capital in controlling bioethical deliberation.

This model made it possible to contrast the hypotheses put forward and determine whether bioethical deliberation acts as an intermediate explanatory variable in the strengthening of the urban social fabric.

RESULTS

4.1. Descriptive analysis of the sample

The sample was made up of 412 participants. 52.4% identified as female, 46.1% as male, and 1.5% as other. Regarding age, the mean was 34.7 years (SD = 10.8), with a range between 18 and 68 years. 63.2% had higher education, 28.6% had secondary education, and 8.2% had postgraduate studies.

Regarding the length of residence, 57.5% reported living more than 5 years in their community, which suggests prolonged exposure to the urban environment analyzed. 41.3% indicated participation in a community organization, while 58.7% reported no formal participation.

4.2. Descriptive statistics of the main variables

The descriptive results show moderately high levels in the three variables analyzed. Ethics education had a mean of 3.87 (SD = 0.54), bioethical deliberation a mean of 3.92 (SD = 0.58) and urban social capital a mean of 3.68 (SD = 0.61), on a scale of 1 to 5.

The distributions showed values of asymmetry and kurtosis within acceptable ranges (-1.2 to +1.1), which allowed the use of parametric tests.

Table 1. Descriptive statistics of main variables

Variable	Media	OF	Asymmetry	Curtosis
Ethics Education	3.87	0.54	-0.68	0.74
Bioethical deliberation	3.92	0.58	-0.72	0.81
Urban social capital	3.68	0.61	-0.55	0.63

The results indicate that participants tend to perceive themselves as having relatively high levels of ethical training and deliberative disposition, although social capital presents slightly lower values, which suggests a possible gap between individual competencies and relational conditions.

4.3. Correlations between variables

Pearson correlation coefficients were calculated to analyze the relationship between the main variables.

Table 2. Correlation matrix

Variable	1	2	3
1. Ethics education	—		
2. Bioethical deliberation	.62**	—	
3. Urban social capital	.48**	.57**	—

Note: p < .001

The results show positive and statistically significant correlations between all variables. The relationship between ethics education and bioethical deliberation was high (r = .62), suggesting that greater ethical training is associated with a greater willingness to engage in bioethical dialogue. The correlation between bioethical deliberation and social capital was moderate-high (r = .57), while the relationship between ethical education and social capital was moderate (r = .48).

These findings support the H1, H2, and H3 hypotheses.

4.4. Multiple linear regression analysis

A hierarchical linear regression analysis was performed to evaluate the predictive power of independent variables on urban social capital.

Table 3. Multiple linear regression for urban social capital

Model	Variable	b	t	p
1	Age	.09	1.87	.062
	Educational level	.14*	2.76	.006
	Community Engagement	.21**	4.32	.000
2	Ethics Education	.36**	7.15	.000
3	Bioethical deliberation	.41**	8.22	.000

Note: *p < .05; **p < .001R^2 Model 1 = .12; R^2 Model 2 = .31; R^2 Model 3 = .47

In the final model, bioethical deliberation emerged as the strongest predictor of social capital (β = .41), followed by ethics education (β = .36). The model explained 47% of the variance in urban social capital, indicating considerable explanatory power.

These results confirm the H4 hypothesis, evidencing that bioethical deliberation plays a key role in the explanation of social capital.

4.5. Mediation analysis

A mediation analysis was performed using bootstrap (5,000 samples) to assess whether bioethical deliberation mediates the relationship between ethical education and social capital.

Table 4. Mediation effects

Effect	Coefficient	95% CI
Full effect	.48	[.41, .55]
Direct effect	.26	[.18, .34]
Indirect effect (mediation)	.22	[.17, .29]

The confidence interval of the indirect effect does not include zero, indicating that the mediation is statistically significant. Bioethical deliberation explains approximately 45.8% of the total effect of ethics education on social capital.
This result confirms the H5 hypothesis, evidencing a partial mediation.

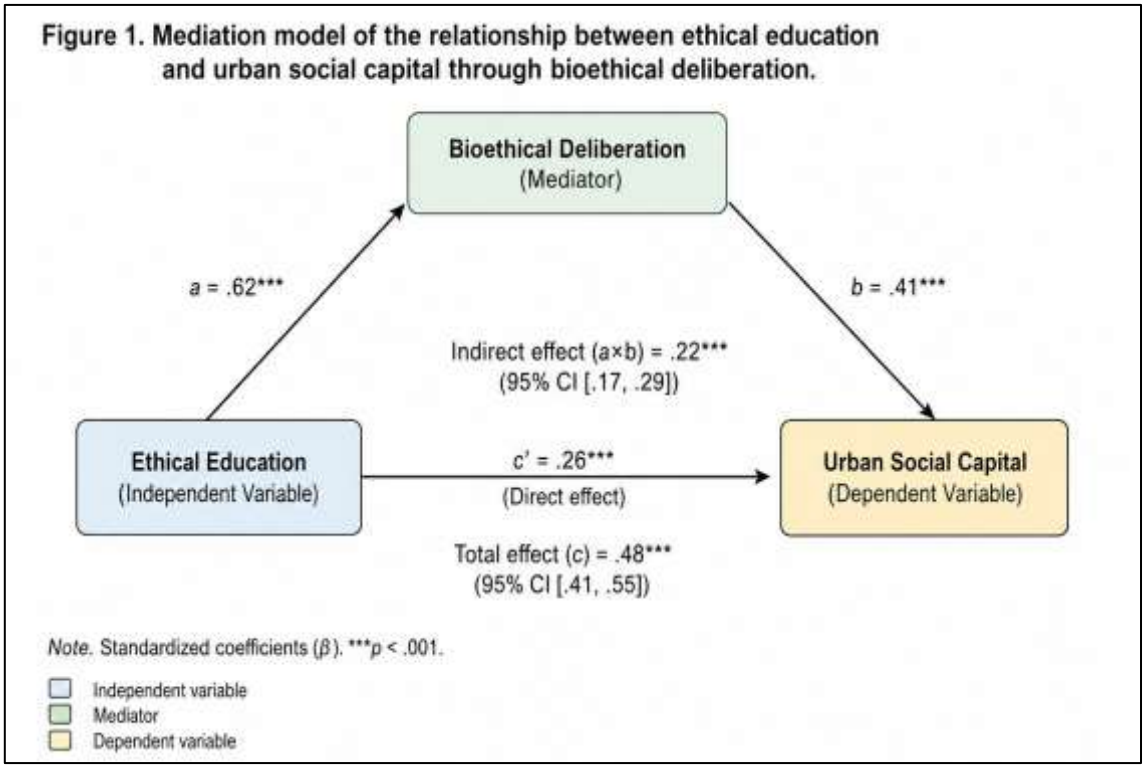
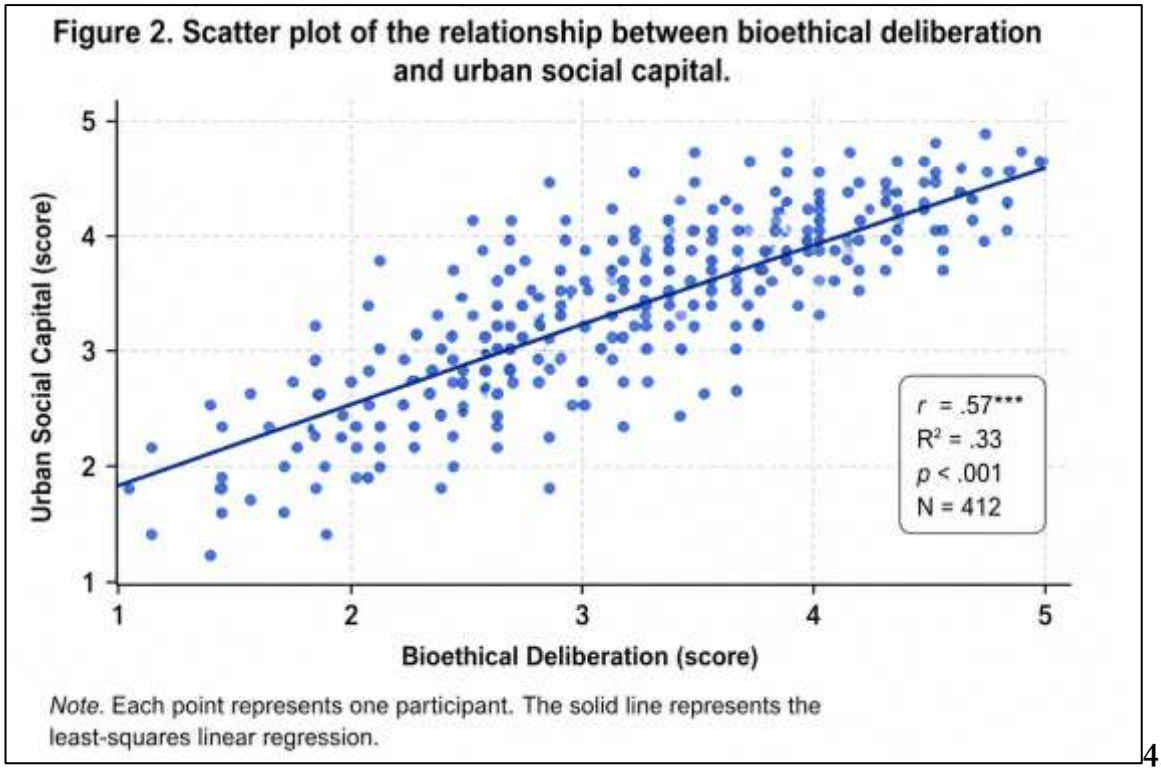


Figure 1. Mediation model

4.6. The model shows three main relationships:

1. Ethics education → Bioethical deliberation (β = .62)
2. Bioethical deliberation → Social capital (β = .41)
3. Ethical Education → Social Capital (β = .26, Direct Effect)

This suggests that part of the impact of ethical education on social capital is channeled through deliberative capacity.



4.7.

Figure 2. Scatter Plot

The graphical analysis shows a positive linear relationship between bioethical deliberation and social capital. As the deliberative disposition increases, a sustained increase in the levels of trust, participation and social networks is observed.

4.8. Synthesis of results

The findings show that ethical education, bioethical deliberation and social capital are significantly interrelated. Bioethical deliberation emerges as a key variable that is not only associated with social capital, but also acts as an explanatory mechanism between ethical training and social cohesion.

These results suggest that the strengthening of the urban social fabric does not depend only on internalized values, but on the ability of citizens to dialogue, argue and participate in the resolution of collective dilemmas.

DISCUSSION

The results of this study allow us to advance in the understanding of the urban social fabric from an integrative perspective that articulates ethical education, bioethical deliberation and social capital. In coherence with the hypotheses raised, it was found that these three variables are positively and significantly related, confirming that the training processes in ethics not only have individual implications, but also relevant effects on community life.

First, the moderate correlation between ethics education and social capital (r = .48) supports the idea that ethics education contributes to the strengthening of trust, reciprocity, and social participation. This finding is consistent with research highlighting the role of moral education in building more cohesive societies, where individuals develop a sense of collective responsibility and willingness to collaborate with others (Chen et al., 2022; OECD, 2025). However, the moderate magnitude of this relationship suggests that ethics

education, on its own, is not sufficient to fully explain social capital, which opens up space for intermediate variables.

In this sense, one of the most relevant contributions of the study is the identification of bioethical deliberation as a key factor. The strong correlation between ethics education and bioethical deliberation ($r = .62$) indicates that people with greater ethical training tend to show greater willingness to participate in processes of dialogue, argumentation and analysis of collective dilemmas. This result coincides with what was pointed out by Gracia-Calandín et al. (2024), who emphasize that deliberation is not a spontaneous skill, but a competence that is developed through educational processes oriented to moral reasoning.

Moreover, the relationship between bioethical deliberation and social capital ($r = .57$) suggests that the ability to dialogue about ethical problems has a direct impact on the quality of social bonds. This finding is particularly relevant in urban environments, where the diversity of perspectives can generate tensions, but also opportunities for the construction of agreements. In line with deliberative public bioethics, these results support the idea that deliberation processes strengthen the legitimacy of collective decisions and promote trust among citizens (Blacksher et al., 2016).

Regression analysis reinforces this interpretation by showing that bioethical deliberation is the strongest predictor of social capital ($\beta = .41$), even above ethics education ($\beta = .36$). This suggests that it is not enough to possess knowledge or ethical values; it is necessary that these are translated into concrete communicative practices. In other words, deliberation acts as the bridge between internalized ethics and observable social action.

Mediation analysis provides additional evidence in this direction. The fact that bioethical deliberation mediates approximately 45.8% of the effect of ethics education on social capital indicates that a substantial part of the influence of ethics education is channeled through deliberative capacity. This result is consistent with models of civic reasoning that suggest that ethical competencies acquire social relevance when they are expressed in interaction with others (Immordino-Yang et al., 2024).

From a theoretical perspective, these findings allow us to propose an explanatory model of the urban social fabric based on three levels. At the individual level, ethics education develops moral dispositions such as empathy, justice, and responsibility. At the interactional level, bioethical deliberation transforms these dispositions into practices of dialogue, listening, and argumentation. Finally, at the collective level, social capital emerges as a result of these interactions, manifesting itself in trust, cooperation, and participation.

This model contributes to overcoming reductionist approaches that analyze social capital exclusively from structural or economic variables. While factors such as inequality, access to resources, and urban infrastructure remain relevant, the results suggest that ethical and deliberative competencies also play a significant role in building the social fabric.

From a practical point of view, the findings have important implications for the formulation of public policies and educational programs. First, they suggest that ethics education should explicitly incorporate deliberative methodologies, such as case analysis, structured discussions, and participation in community decisions. Second, they indicate that urban spaces—such as community centers, schools, universities, and civil organizations—can function as scenarios for applied bioethics training.

The results are also relevant for urban governance. In contexts where institutional trust is limited, promoting inclusive deliberative processes can contribute to strengthening social capital linking, that is, the relationship between citizens and institutions. This coincides with research that highlights the importance of citizen participation in the legitimacy of public policies (Simonofski et al., 2025).

However, the study has some limitations. First, the cross-sectional design prevents definitive causal relationships from being established. Although regression and mediation

analyses suggest directionality, longitudinal studies are required to confirm these effects over time. Second, the use of self-reports can introduce social desirability biases, especially in variables related to ethics and participation. Third, non-probability sampling limits the generalizability of results to other urban populations.

Despite these limitations, the study offers robust empirical evidence on the relationship between ethics education, bioethical deliberation, and social capital. In addition, it opens up new lines of research, such as the analysis of differences between specific urban contexts, the study of deliberative educational interventions, and the exploration of additional variables such as institutional trust, social polarization, or the use of technologies in deliberation.

In summary, the results confirm that the strengthening of the urban social fabric does not depend only on structural conditions, but also on formative and deliberative processes that allow citizens to interact in an ethical, reasoned and cooperative manner. Bioethical deliberation emerges as a central element in this dynamic, acting as a mediator between ethical training and social cohesion.

CONCLUSIONS

The objective of this study was to analyze the relationship between ethical education, bioethical deliberation and social capital in urban environments, adopting a quantitative, correlational and explanatory approach. The results obtained allow us to draw relevant conclusions both at a theoretical and empirical level, providing evidence on the role of ethical and deliberative competencies in the construction of the social fabric.

First, it is confirmed that ethics education is positively and significantly related to urban social capital. This finding suggests that the formation in values, the development of moral judgment and sensitivity to collective problems are factors that favor trust, reciprocity and community participation. However, the moderate magnitude of this relationship indicates that ethics education does not operate in isolation, but in interaction with other processes.

Second, bioethical deliberation emerges as a central variable in the model analyzed. Not only does it present a strong association with ethics education, but it is also positioned as the most robust predictor of social capital. This result allows us to affirm that the ability to dialogue, argue and participate in the analysis of collective dilemmas is a key element to transform ethical dispositions into concrete social practices.

Third, mediation analysis demonstrates that bioethical deliberation plays a significant explanatory role in the relationship between ethics education and social capital. This finding is one of the main contributions of the study, since it shows that the impact of ethical training on the social fabric is channeled, to a large extent, through the deliberative capacity of citizens. In other words, ethics acquires social relevance when it is translated into interaction, dialogue, and collective decision-making.

Based on these results, an understanding of the urban social fabric as a multidimensional phenomenon that integrates individual, interactional and collective levels is proposed. At the individual level, ethical education configures moral dispositions; at the interactional level, bioethical deliberation allows the exchange of reasons and the recognition of diversity; and at the collective level, social capital reflects the quality of community ties. This articulation makes it possible to overcome fragmented approaches and move towards more comprehensive models of social analysis.

From the applied point of view, the findings suggest the need to strengthen educational programs that explicitly integrate ethical deliberation as a core competence. It is not only about teaching principles, but about generating spaces where citizens can discuss, argue and participate in the resolution of real problems. In this sense, educational institutions,

community organizations and local governments have a fundamental role in the promotion of deliberative practices that strengthen social cohesion.

The study also has implications for urban governance. The promotion of participatory processes based on ethical deliberation can contribute to improving institutional trust, reducing polarization and strengthening the legitimacy of public decisions. In urban contexts characterized by diversity and inequality, bioethical deliberation can function as a mechanism of social integration.

Regarding the limitations, it is recognized that the cross-sectional design prevents the establishment of definitive causal relationships. In addition, the use of self-reports can introduce biases in the measurement of variables related to ethics and social behavior. Future research could incorporate longitudinal designs, mixed or experimental methods, as well as extend the analysis to different urban and cultural contexts.

Finally, it is concluded that the strengthening of the urban social fabric does not depend exclusively on structural factors, but also on training processes that develop ethical and deliberative capacities in citizens. Ethics education, when articulated with bioethical deliberation, has the potential to contribute significantly to the construction of social capital, promoting more cohesive, participatory, and common good-oriented societies.

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