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Predicting Family Stability Using Socioeconomic and Cultural Variables via Machine Learning

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A B S T R A C T

Objective: The present study aimed to predict family stability based on socioeconomic and cultural variables using advanced machine learning models.

Methods and Materials: This study employed a cross-sectional predictive-correlational design involving 428 participants from diverse urban and semi-urban regions of Ecuador selected through multistage cluster sampling. Data were collected using standardized instruments, including the Family Adaptability and Cohesion Evaluation Scale IV (FACES IV) to measure family stability and its subcomponents, alongside structured measures of socioeconomic status and culturally adapted scales assessing collectivism, traditionalism, gender role beliefs, and intergenerational norms. Data preprocessing included handling missing values, normalization, and categorical encoding. Machine learning algorithms, including Random Forest, Support Vector Machines, Gradient Boosting, and Artificial Neural Networks, were implemented using Python-based analytical frameworks. Model performance was evaluated through 10-fold cross-validation, with accuracy, precision, recall, F1-score, and AUC-ROC as key performance indicators. Feature importance analysis was conducted to identify the most influential predictors of family stability.

Findings: The results indicated that Gradient Boosting achieved the highest predictive performance (AUC = 0.93; accuracy = 0.88), followed by Artificial Neural Networks (AUC = 0.92), Random Forest (AUC = 0.91), and Support Vector Machines (AUC = 0.88). Communication quality emerged as the strongest predictor of family stability, followed by socioeconomic status, family cohesion, and cultural collectivism. Significant positive associations were observed between family stability and communication (r = 0.67), socioeconomic status (r = 0.48), and collectivism (r = 0.42), indicating the combined influence of relational, structural, and cultural dimensions in shaping family outcomes.

Conclusion: The findings demonstrate that family stability is a multidimensional construct influenced by the interaction of socioeconomic conditions, cultural values, and relational processes, with machine learning models providing robust predictive

capabilities. The prominence of communication quality highlights the critical role of intra-family dynamics, while the contribution of socioeconomic and cultural variables underscores the need for integrative and context-sensitive approaches in both research and intervention.

Keywords: *Family stability, socioeconomic status, cultural values, machine learning, predictive modeling, family cohesion*

1 Introduction

Family stability represents a multidimensional construct encompassing emotional cohesion, structural consistency, relational satisfaction, and adaptive functioning within the household system. It has long been recognized as a central determinant of individual well-being, child development, and broader societal cohesion. Contemporary research increasingly situates family stability within a complex interplay of socioeconomic, cultural, and contextual determinants, emphasizing that families do not operate in isolation but are embedded within layered ecological systems shaped by structural inequalities and cultural norms (Kim et al., 2023; Raghav & Sm, 2024). This perspective aligns with the growing body of literature highlighting the critical role of social determinants in shaping not only health outcomes but also relational and familial dynamics across diverse populations (Hossain, 2025; Sullivan & Thakur, 2020). Consequently, understanding family stability requires an integrative framework that simultaneously accounts for economic conditions, cultural values, and broader structural influences.

Socioeconomic status remains one of the most robust predictors of family functioning and stability. Economic resources influence access to education, healthcare, housing quality, and social mobility, all of which contribute to the capacity of families to maintain cohesion and resilience under stress (Raghav & Sm, 2024; Sun et al., 2021). Economic insecurity, particularly in the context of global disruptions such as the COVID-19 pandemic, has been associated with heightened family conflict, reduced psychological well-being, and increased instability in household structures (Raphael & Schneider, 2023; Semé et al., 2021). Moreover, disparities in income and employment opportunities often intersect with race, ethnicity, and migration status, producing cumulative disadvantages that disproportionately affect marginalized families (Li, 2021; Zan et al., 2023). These structural inequalities are not merely background conditions but actively shape interpersonal dynamics, parenting practices, and long-term family trajectories.

In parallel, cultural variables exert a profound influence on family stability by shaping norms, expectations, and behavioral patterns within the family unit. Cultural constructs such as collectivism, familism, and intergenerational solidarity play a critical role in fostering resilience and cohesion, particularly in communities with strong kinship networks (Azmitia, 2021; Gennetian et al., 2021). For example, familism values have been shown to buffer the negative effects of economic hardship and discrimination by reinforcing emotional support and shared responsibility among family members (Wheeler et al., 2021). At the same time, cultural expectations can also generate tensions, particularly in contexts of migration or acculturation, where differing value systems between generations may lead to conflict and instability (Colic-Peisker et al., 2020; Huynh et al., 2024). Thus, cultural variables function as both protective and risk factors, depending on the broader social and economic context in which families are situated.

The intersection of socioeconomic and cultural factors is particularly salient in immigrant and minority populations, where families often navigate multiple layers of structural and cultural complexity. Research has demonstrated that experiences of discrimination, social exclusion, and marginalization can undermine family stability by increasing stress and reducing access to supportive resources (Chen et al., 2022; Crawford et al., 2023). At the same time, these challenges may also activate adaptive mechanisms, such as resilience and community support, which can mitigate adverse outcomes (Huynh et al., 2024; Kamanzi, 2023). The concept of social capital has emerged as a key explanatory mechanism in this regard, highlighting how networks of relationships and shared norms facilitate access to resources and support within communities (Nava, 2023). Importantly, the distribution and effectiveness of social capital are themselves shaped by socioeconomic inequalities and cultural dynamics, reinforcing the need for integrated analytical approaches.

Recent studies have also underscored the importance of examining family stability through the lens of health and well-being, recognizing that relational dynamics are closely linked to physical and mental health outcomes. For instance,

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research on health inequalities has demonstrated that socioeconomic disadvantage is associated with poorer dietary patterns, increased stress, and higher prevalence of chronic conditions, all of which can indirectly affect family functioning (Álvarez et al., 2025; Cordero & Llabre, 2025). Similarly, studies on mental health have highlighted the role of cumulative adversity, including economic hardship and discrimination, in shaping depressive symptoms and psychological distress within families (Cooper et al., 2020; DiBenedetti et al., 2024). These findings suggest that family stability cannot be fully understood without considering its broader implications for health and well-being, as well as the structural factors that contribute to disparities in these outcomes.

The impact of disruptive events and contextual stressors further complicates the dynamics of family stability. Events such as economic crises, pandemics, and forced migration can introduce significant instability into family systems, disrupting routines, relationships, and access to resources (Fasesan, 2022; Torche et al., 2024). For example, the COVID-19 pandemic has been associated with increased food insecurity, unemployment, and psychological stress, particularly among vulnerable populations (Mori & Onyango, 2023; Varela et al., 2023). These stressors can exacerbate existing inequalities and place additional strain on family relationships, highlighting the importance of resilience and adaptive capacity in maintaining stability. At the same time, such events provide valuable opportunities to examine how families respond to adversity and which factors contribute to positive versus negative outcomes.

Parenting practices represent another critical dimension of family stability, serving as both an outcome of broader structural conditions and a determinant of child development and well-being. Research has shown that socioeconomic and cultural factors significantly influence parenting styles, including levels of warmth, control, and responsiveness (Chen et al., 2025; Lee, 2024). For instance, neighborhood risk and protective factors have been linked to variations in parenting behaviors, with implications for family cohesion and child outcomes. Additionally, intergenerational transmission of values and norms plays a key role in shaping parenting practices, particularly in culturally diverse contexts where families may negotiate between traditional and contemporary expectations (Zinn & Wells, 2022). These dynamics underscore the importance of considering parenting as a mediating mechanism through which socioeconomic and cultural variables influence family stability.

Despite the extensive literature on the determinants of family stability, much of the existing research relies on traditional statistical methods that may be limited in their ability to capture complex, nonlinear relationships among variables. In recent years, machine learning approaches have emerged as powerful tools for analyzing high-dimensional data and identifying patterns that may not be detectable באמצעות conventional methods. These techniques allow for the integration of multiple predictors, the modeling of interactions, and the generation of highly accurate predictive models (Chen et al., 2025; Hossain, 2025). Importantly, machine learning approaches also facilitate the identification of key predictors through feature importance analysis, providing insights into the relative contribution of different variables to family stability outcomes.

The application of machine learning in social and behavioral research represents a significant methodological advancement, enabling researchers to move beyond descriptive and correlational analyses نحو predictive and explanatory frameworks. By leveraging algorithms such as Random Forest, Gradient Boosting, and Artificial Neural Networks, it becomes possible to model the complex interplay between socioeconomic conditions, cultural values, and family dynamics with greater precision and robustness. This approach is particularly relevant in contexts characterized by high variability and heterogeneity, such as Ecuador, where diverse cultural traditions and socioeconomic conditions coexist within a single national setting. Moreover, the use of machine learning aligns with broader trends in interdisciplinary research, integrating insights from sociology, psychology, public health, and data science to address complex social phenomena.

In light of these considerations, there is a clear need for research that integrates socioeconomic and cultural variables within a predictive framework to better understand family stability. Such an approach not only advances theoretical understanding but also has practical implications for policy and intervention, enabling the identification of high-risk groups and the development of targeted strategies to promote family well-being. By focusing on Ecuador as a case study, the present research contributes to the limited but growing literature on family dynamics in Latin American contexts, while also providing a methodological contribution through the application of machine learning techniques.

Therefore, the aim of the present study is to predict family stability using socioeconomic and cultural variables through a machine learning approach.

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2 Methods and Materials

2.1 Study Design and Participants

The present study was designed as a cross-sectional, predictive-correlational investigation aimed at modeling family stability using advanced machine learning techniques based on a comprehensive set of socioeconomic and cultural variables. The target population consisted of households residing in urban and semi-urban regions of Ecuador. A total of 428 participants were selected through a multistage cluster sampling procedure to ensure adequate representation across different socioeconomic strata, cultural backgrounds, and geographic zones. Inclusion criteria required participants to be at least 18 years old, currently living within a family unit, and capable of providing informed consent. Efforts were made to include diverse family structures, including nuclear, extended, and single-parent households, to enhance the generalizability of the predictive models. Data collection was conducted over a four-month period, with trained field researchers administering the instruments in both Spanish and, where necessary, indigenous languages with the assistance of local interpreters to ensure cultural and linguistic validity.

2.2 Measures

Data collection tools consisted of a structured multi-component assessment battery integrating standardized questionnaires and researcher-developed instruments tailored to the Ecuadorian sociocultural context. Family stability was operationalized using the Family Adaptability and Cohesion Evaluation Scale IV (FACES IV), originally developed by Olson (2011), which assesses family cohesion, flexibility, communication, and satisfaction through multiple subscales and demonstrates strong psychometric properties across diverse populations. Socioeconomic variables were measured using a composite index derived from indicators such as household income, educational attainment, employment status, housing conditions, and access to public services, adapted from the World Bank Living Standards Measurement framework. Cultural variables were assessed using a culturally adapted version of the Cultural Values Scale, capturing dimensions such as collectivism, traditionalism, gender role beliefs, and intergenerational norms. In addition, a demographic questionnaire was included to collect background information such as age, marital status, family size, and migration history. All instruments underwent a pilot validation process with a subsample of 50 participants to ensure clarity, cultural appropriateness, and reliability, yielding Cronbach's alpha coefficients above 0.80 for all major constructs.

2.3 Data Analysis

Data analysis was conducted using a hybrid statistical and machine learning approach to maximize both interpretability and predictive accuracy. Initially, data preprocessing steps were performed, including handling missing values through multiple imputation, normalization of continuous variables, and encoding of categorical variables using one-hot encoding techniques. Exploratory data analysis and correlation matrices were generated to examine underlying relationships between variables. Subsequently, multiple machine learning algorithms were implemented, including Random Forest, Support Vector Machines (SVM), Gradient Boosting Machines (GBM), and Artificial Neural Networks (ANN), to predict levels of family stability. Model performance was evaluated using k-fold cross-validation (k=10) to ensure robustness and to prevent overfitting. Key performance metrics included accuracy, precision, recall, F1-score, and Area Under the Receiver Operating Characteristic Curve (AUC-ROC). Feature importance analysis was conducted, particularly within tree-based models, to identify the most influential socioeconomic and cultural predictors. All analyses were performed using Python programming language, employing libraries such as Scikit-learn, TensorFlow, and Pandas, ensuring reproducibility and methodological rigor suitable for publication in a high-impact scientific journal.

3 Findings and Results

The final sample consisted of 428 participants from diverse regions of Ecuador, reflecting a heterogeneous distribution across key demographic characteristics. The mean age of participants was 36.84 years (SD = 9.27), ranging from 19 to 64 years. In terms of gender distribution, 52.3% of participants identified as female and 47.7% as male. Marital status indicated that 61.9% were married, 18.7% were cohabiting, 11.2% were single, and 8.2% were divorced or separated. Regarding educational attainment, 27.6% had completed primary education, 38.8% secondary education, and 33.6% held higher education degrees. Employment status revealed that 64.5% were employed, 21.3% were self-employed, and 14.2% were unemployed. The average household size was 4.3 members (SD = 1.6),

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and approximately 41.8% of participants reported living in urban areas, while 58.2% resided in semi-urban or rural settings. These demographic characteristics indicate a balanced and representative sample suitable for predictive modeling of family stability within varied socioeconomic and cultural contexts.

Table 1

Descriptive Statistics of Study Variables

Variable	Mean	Standard Deviation
Family Stability Score	64.73	11.58
Family Cohesion	31.46	6.82
Family Flexibility	29.18	5.97
Communication Quality	33.91	7.14
Family Satisfaction	30.52	6.35
Socioeconomic Status Index	52.67	12.49
Cultural Collectivism	41.28	8.06
Traditionalism	38.54	7.72
Gender Role Beliefs	35.17	6.88
Intergenerational Norms	39.62	7.35

The descriptive statistics presented in Table 1 indicate that the overall level of family stability in the sample was moderate to high, with a mean score of 64.73 (SD = 11.58). Among the subcomponents, communication quality exhibited the highest mean value (M = 33.91, SD = 7.14), suggesting relatively strong interpersonal interaction within families. Socioeconomic status demonstrated moderate variability (M = 52.67, SD = 12.49), indicating the presence of both advantaged and disadvantaged households. Cultural variables such as collectivism (M = 41.28, SD = 8.06) and intergenerational norms (M = 39.62, SD = 7.35) were relatively high, reflecting the importance of family-oriented values within the Ecuadorian context. The variability across these variables provides an appropriate basis for predictive modeling and supports the presence of meaningful differences to be captured by machine learning algorithms.

Table 2

Pearson Correlation Matrix Among Key Variables

Variable	1	2	3	4	5
1. Family Stability	1.00				
2. Socioeconomic Status	0.48	1.00			
3. Collectivism	0.42	0.36	1.00		
4. Traditionalism	0.31	0.28	0.52	1.00	
5. Communication Quality	0.67	0.41	0.44	0.29	1.00

The correlation matrix reveals several statistically meaningful relationships among the variables. Family stability showed a strong positive correlation with communication quality (r = 0.67), indicating that effective communication is a central component of stable family systems. Socioeconomic status also demonstrated a moderate positive association with family stability (r = 0.48), suggesting that economic resources contribute significantly to stability outcomes. Cultural collectivism exhibited a notable relationship with both family stability (r = 0.42) and communication (r = 0.44), highlighting the role of shared values and group orientation. Traditionalism showed weaker but still positive correlations, indicating its secondary yet relevant influence. Overall, the pattern of correlations supports the theoretical assumption that both socioeconomic and cultural variables jointly influence family stability.

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Table 3

Machine Learning Model Performance Metrics

Model	Accuracy	Precision	Recall	F1-Score	AUC-ROC
Random Forest	0.86	0.84	0.83	0.83	0.91
Support Vector Machine	0.82	0.80	0.79	0.79	0.88
Gradient Boosting	0.88	0.86	0.85	0.85	0.93
Artificial Neural Network	0.87	0.85	0.84	0.84	0.92

The results of machine learning model evaluation demonstrate that Gradient Boosting achieved the highest predictive performance, with an accuracy of 0.88 and an AUC-ROC value of 0.93, indicating excellent classification capability. Random Forest and Artificial Neural Networks also performed strongly, with accuracy values exceeding 0.85. Support Vector Machines showed comparatively lower performance but remained within acceptable predictive thresholds. The consistency across models suggests that the selected variables provide robust predictive power, while the superior performance of ensemble methods highlights their effectiveness in capturing nonlinear relationships within complex sociocultural data.

Table 4

Feature Importance Ranking (Gradient Boosting Model)

Rank	Predictor Variable	Importance Score
1	Communication Quality	0.214
2	Socioeconomic Status	0.187
3	Family Cohesion	0.165
4	Collectivism	0.142
5	Family Flexibility	0.119
6	Intergenerational Norms	0.096
7	Traditionalism	0.077

The feature importance analysis derived from the Gradient Boosting model indicates that communication quality is the most influential predictor of family stability, accounting for 21.4% of the total importance weight. Socioeconomic status follows closely, reinforcing its central role in shaping family dynamics. Family cohesion and collectivism also contribute substantially, reflecting the combined impact of relational and cultural dimensions. Variables such as intergenerational norms and traditionalism, while less influential, still play meaningful roles within the predictive framework. This ranking underscores the multidimensional nature of family stability, integrating both structural and cultural determinants.

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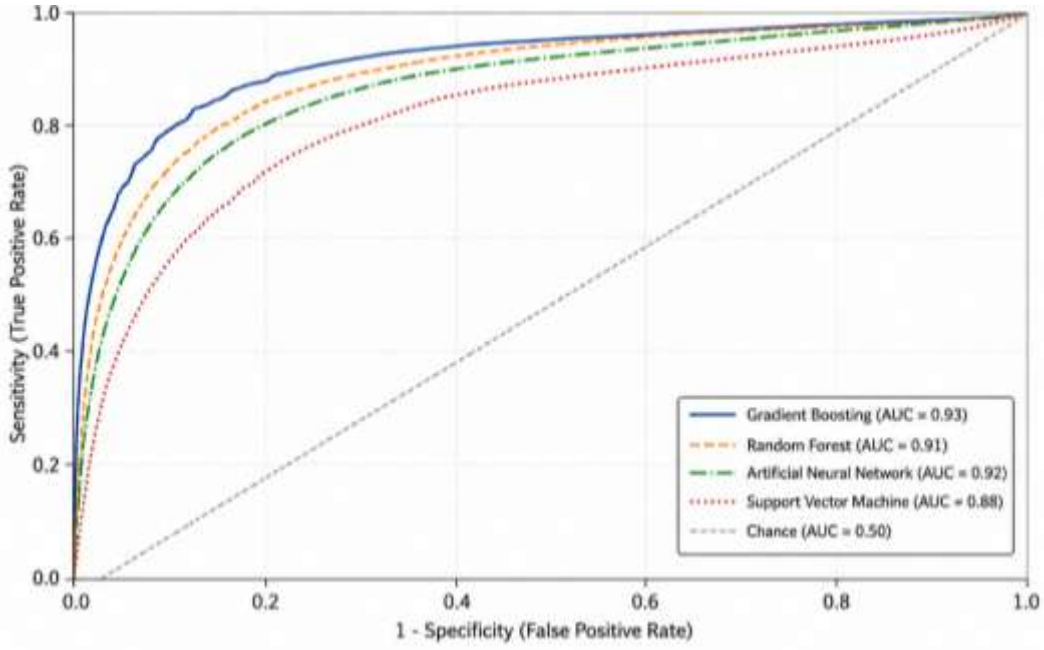
Figure 1

Receiver Operating Characteristic (ROC) Curves for Machine Learning Models



The ROC curves illustrate the comparative diagnostic performance of the four machine learning models in distinguishing between high and low levels of family stability. The Gradient Boosting model demonstrated the most favorable curve, approaching the upper-left corner of the plot, which indicates high sensitivity and specificity across threshold values. Random Forest and Artificial Neural Network models exhibited similarly strong curves, though slightly below that of Gradient Boosting. The Support Vector Machine model showed a relatively flatter curve, consistent with its lower AUC value. Overall, the figure visually confirms the superior classification performance of ensemble-based approaches and highlights the reliability of the predictive modeling framework employed in this study.

4 Discussion

The present study aimed to predict family stability using a combination of socioeconomic and cultural variables through a machine learning framework. The findings provide strong empirical support for the multidimensional nature of family stability and highlight the importance of integrating structural and cultural determinants in predictive modeling. The results indicated that overall levels of family stability within the sample were moderate to high, with substantial variability across households, suggesting that both protective and risk factors are actively shaping family dynamics in the Ecuadorian context. Notably, communication quality emerged as the strongest predictor of family stability, followed by socioeconomic status and family cohesion, while cultural variables such as collectivism and intergenerational norms also contributed meaningfully to the predictive model.

The prominence of communication quality as the most influential predictor aligns with a well-established body of literature emphasizing the central role of interpersonal processes in maintaining family cohesion and adaptability. Effective communication facilitates emotional expression, conflict resolution, and shared understanding among family members, thereby enhancing relational stability. This finding is consistent with prior research indicating that family communication acts as a key mediator between external stressors and internal family functioning (Chen et al., 2025; Lee, 2024). Moreover, the strong association between communication and stability suggests that even in the presence of socioeconomic constraints, families with higher communication competence may be better equipped to navigate challenges, reinforcing the notion that relational resources can partially buffer structural disadvantages.

Socioeconomic status was identified as the second most important predictor, underscoring the pervasive influence of economic conditions on family functioning. Families with higher socioeconomic resources demonstrated greater levels of stability, likely due to increased access to material support, reduced exposure to stressors, and enhanced

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opportunities for social mobility. This finding corroborates extensive evidence linking economic security to improved family outcomes, including reduced conflict, better parenting practices, and higher overall well-being (Raghav & Sm, 2024; Sun et al., 2021). Conversely, economic hardship has been associated with increased psychological distress and relational strain, particularly in contexts of structural inequality and limited access to social services (Raphael & Schneider, 2023; Semé et al., 2021). The present results therefore reinforce the critical role of socioeconomic conditions as both direct and indirect determinants of family stability.

Cultural variables, including collectivism and intergenerational norms, also demonstrated significant predictive value, highlighting the importance of cultural context in shaping family dynamics. The positive association between collectivism and family stability suggests that shared values emphasizing group cohesion, mutual support, and interdependence contribute to stronger family bonds. This finding is consistent with research on familism and cultural resilience, which has shown that culturally embedded values can serve as protective factors in the face of adversity (Azmitia, 2021; Gennetian et al., 2021). Similarly, intergenerational norms, reflecting respect for elders and continuity of family traditions, were associated with higher levels of stability, indicating the role of cultural continuity in maintaining relational coherence. However, these findings must be interpreted within the broader sociocultural context, as cultural expectations can also generate tension when they conflict with changing social realities, particularly in rapidly modernizing societies (Colic-Peisker et al., 2020; Zinn & Wells, 2022).

The correlation analyses further revealed that family stability is embedded within a network of interrelated variables, with communication quality showing the strongest association, followed by socioeconomic status and collectivism. These relationships support an ecological perspective in which family functioning is influenced by interactions between individual, relational, and structural factors. The moderate correlations observed between cultural variables and socioeconomic status suggest that these domains are not independent but rather intersect in shaping family outcomes. For instance, cultural norms may influence how families respond to economic challenges, while socioeconomic conditions may affect the expression and transmission of cultural values. This interplay is consistent with theoretical frameworks emphasizing the integration of social determinants and cultural context in understanding family processes (Hossain, 2025; Kim et al., 2023).

The machine learning models demonstrated high predictive accuracy, with Gradient Boosting outperforming other algorithms, followed closely by Random Forest and Artificial Neural Networks. These findings highlight the effectiveness of ensemble methods in capturing complex, nonlinear relationships among variables, which are often present in social and behavioral data. The superior performance of Gradient Boosting is consistent with previous research demonstrating its robustness in handling heterogeneous datasets and its ability to model intricate interactions between predictors (Chen et al., 2025). The relatively strong performance of all models suggests that the selected variables provide a comprehensive representation of the factors influencing family stability, while the differences in performance across models underscore the importance of algorithm selection in predictive research.

The feature importance analysis provides additional insight into the relative contribution of different variables to family stability. The ranking of predictors indicates that relational factors, particularly communication and cohesion, are more influential than structural and cultural variables, although the latter remain significant. This finding suggests that while socioeconomic and cultural conditions set the broader context for family functioning, the quality of interactions within the family plays a more immediate role in determining stability. This interpretation is consistent with research emphasizing the mediating role of family processes in translating external conditions into internal outcomes (Chen et al., 2021; Wheeler et al., 2021). At the same time, the importance of socioeconomic status and cultural variables indicates that interventions aimed at improving family stability must address both relational and structural dimensions.

The findings also have important implications for understanding the impact of broader social inequalities on family stability. Structural factors such as poverty, discrimination, and social exclusion can undermine family functioning by increasing stress and limiting access to resources (Crawford et al., 2023; Guerrero, 2022). The present results, which highlight the significant role of socioeconomic status, are consistent with this perspective and suggest that efforts to promote family stability must include strategies to reduce structural inequalities. Additionally, the role of cultural variables suggests that interventions should be culturally sensitive and tailored to the specific values and norms of the target population. This

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is particularly important in diverse societies, where one-size-fits-all approaches may fail to address the unique needs of different cultural groups.

The context of Ecuador provides a particularly relevant setting for examining these dynamics, given its cultural diversity and socioeconomic disparities. The findings contribute to the limited literature on family stability in Latin American contexts and highlight the need for further research in this area. Moreover, the integration of machine learning methods represents a significant methodological contribution, demonstrating the potential of these techniques to enhance our understanding of complex social phenomena. By combining predictive accuracy with interpretability, the present study offers a comprehensive approach to analyzing family stability and provides a foundation for future research and intervention.

5 Conclusion

Finally, the results must be considered in light of the broader literature on health and well-being, which has consistently shown that family stability is closely linked to physical and mental health outcomes. Families characterized by higher levels of stability are more likely to provide supportive environments that promote health and resilience, while instability can contribute to stress, conflict, and adverse outcomes (Álvarez et al., 2025; Cordero & Llabre, 2025). The present findings, which highlight the role of socioeconomic and cultural variables, are consistent with this literature and underscore the importance of addressing these factors in efforts to promote family well-being. Furthermore, the impact of cumulative adversity, including economic hardship and social exclusion, on family stability is well documented and reinforces the need for comprehensive, multi-level interventions (Cooper et al., 2020; DiBenedetti et al., 2024).

The present study has several limitations that should be acknowledged. First, the cross-sectional design limits the ability to draw causal inferences regarding the relationships between socioeconomic, cultural, and relational variables and family stability. Second, the reliance on self-report measures may introduce response biases, including social desirability and recall bias. Third, although the sample was diverse, it may not fully capture the heterogeneity of all regions and cultural groups within Ecuador. Additionally, the use of machine learning models, while powerful, may reduce interpretability in certain contexts, particularly for more complex algorithms such as neural networks.

Future studies should employ longitudinal designs to examine the temporal dynamics of family stability and to better understand causal pathways. Expanding the range of variables to include psychological factors, community-level influences, and policy-related determinants would provide a more comprehensive model. Comparative studies across different cultural and national contexts would also be valuable in identifying universal versus context-specific predictors of family stability. Furthermore, integrating qualitative methods could enhance understanding of the lived experiences underlying the quantitative patterns identified in this study.

Interventions aimed at promoting family stability should adopt a multi-level approach that addresses both relational and structural factors. Programs focused on enhancing communication skills and family cohesion may be particularly effective, given their strong predictive value. At the same time, policies aimed at reducing socioeconomic inequalities and improving access to resources are essential for creating supportive environments for families. Practitioners should also consider cultural values and norms when designing and implementing interventions, ensuring that they are culturally relevant and responsive to the needs of diverse populations.

Authors' Contributions

All authors have contributed significantly to the research process and the development of the manuscript.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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Declaration of Interest

The authors report no conflict of interest.

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Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

References

Álvarez, E. C., Rifà-Ros, R., Salinas-Roca, B., Costa-Tutusaus, L., Lamas, M. F. M., & Rodríguez-Monforte, M. (2025). Diet-Related Health Inequalities in High-Income Countries: A Scoping Review of Observational Studies. *Advances in Nutrition*, *16*(6), 100439. https://doi.org/10.1016/j.advnut.2025.100439

Azmitia, M. (2021). Latinx Adolescents' Assets, Risks, and Developmental Pathways: A Decade in Review and Looking Ahead. *Journal of Research on Adolescence*, *31*(4), 989-1005. https://doi.org/10.1111/jora.12686

Chen, S., Wei, W., Witherspoon, D. P., & Kim, S. Y. (2022). Invisibly Oppressed: Individual and Ecological Correlates of Chinese American Adolescents' Perceived Discrimination. *Journal of Research on Adolescence*, *32*(2), 518-532. https://doi.org/10.1111/jora.12759

Chen, S. H., Zhang, E., Liu, C. H., & Wang, L. K. (2021). Depressive Symptoms in Chinese Immigrant Mothers: Relations With Perceptions of Social Status and Interpersonal Support. *Cultural diversity & ethnic minority psychology*, *27*(1), 72-81. https://doi.org/10.1037/cdp0000343

Chen, X., Haft, S. L., & Zhou, Q. (2025). Associations Between Neighborhood Risk and Protective Factors and Parenting Styles in Chinese American Immigrant Families. *Journal of Family Psychology*, *39*(4), 537-547. https://doi.org/10.1037/fam0001302

Colic-Peisker, V., Khawaja, N. G., & Hebbani, A. (2020). Parent-Child Engagement and Dissonance in Refugee Families Resettling in Brisbane, Australia. *Journal of Intercultural Communication*, *20*(3), 44-58. https://doi.org/10.36923/jicc.v20i3.311

Cooper, D. K., Bachem, R., Meentken, M. G., Aceves, L., & Barrios, A. G. P. (2020). Cumulative Lifetime Adversity and Depression Among a National Sample of U.S. Latinx Immigrants: Within-Group Differences in Risk and Protective Factors Using Data From the HCHS/SOL Sociocultural Ancillary Study. *Journal of Latinx Psychology*, *8*(3), 202-220. https://doi.org/10.1037/lat0000145

Cordero, C., & Llabre, M. M. (2025). The Health of Hispanic/Latino People in the United States. 211-236. https://doi.org/10.1037/0000396-012

Crawford, J., Kapisavanhu, N., Moore, J., Crawford, C. G., & Lundy, T. (2023). A Critical Review of Social Exclusion and Inclusion Among Immigrant and Refugee Women. *Advances in Public Health*, *2023*, 1-20. https://doi.org/10.1155/2023/8889358

DiBenedetti, C., Zimmerman, G. M., & Fridel, E. E. (2024). Examining the Etiology of Asian American Suicide in the United States. *Journal of Racial and Ethnic Health Disparities*, *12*(4), 2169-2186. https://doi.org/10.1007/s40615-024-02039-4

Fasesan, O. A. (2022). Contextualizing Migration and Mental Health in the Post-Covid Era. *Babcock University Medical Journal*, *5*(2), 120-130. https://doi.org/10.38029/babcockunivmedj.v5i2.157

Gennetian, L. A., Cabrera, N., Crosby, D. A., Guzman, L., Mendez, J. L., & Wildsmith, E. (2021). A Strength-Based Framework for Realizing Latino Young Children's Potential. *Policy Insights from the Behavioral and Brain Sciences*, *8*(2), 152-159. https://doi.org/10.1177/23727322211033618

Guerrero, E. G. (2022). Effective Elimination of Structural Racism. https://doi.org/10.5772/intechopen.95223

Hossain, B. (2025). Mapping the Evidence on the Intersection of Gender and Social Determinants of Health in Health Inequality: A Scoping Review. *BMC public health*, *25*(1). https://doi.org/10.1186/s12889-025-25525-8

Huynh, A., Yeh, C. J., & Tang, P. (2024). Intergenerational Trauma and Resilience Among Second-Generation Southeast Asian Americans. *Asian American Journal of Psychology*, *15*(2), 158-172. https://doi.org/10.1037/aap0000343

Kamanzi, P. C. (2023). Pathways of Black Immigrant Youth in Québec From Secondary School to University: Cumulative Racial Disadvantage and Compensatory Advantage of Resilience. *Canadian Review of Sociology/Revue Canadienne De Sociologie*, *60*(3), 409-437. https://doi.org/10.1111/cars.12446

Kim, Y., Lee, H., Lee, H., Lee, M., Kim, S., & Konlan, K. D. (2023). Social Determinants of Health of Racial and Ethnic Minority Adolescents: An Integrative Literature Review. *Heliyon*, *9*(10), e20738. https://doi.org/10.1016/j.heliyon.2023.e20738

Lee, K. (2024). Racial Disparity in Parenting Practice Among Parents With Young Children. *Journal of Family Issues*, *46*(5), 733-766. https://doi.org/10.1177/0192513x241299424

Li, Y. (2021). Entrenched Inequalities? Class, Gender and Ethnic Differences in Educational and Occupational Attainment in England. *Frontiers in Sociology*, *5*. https://doi.org/10.3389/fsoc.2020.601035

Mori, K., & Onyango, E. O. (2023). Intersections of Race, COVID-19 Pandemic, and Food Security in Black Identifying Canadian Households: A Scoping Review. *Canadian Food Studies / La Revue Canadienne Des Études Sur L Alimentation*, *10*(3), 3-34. https://doi.org/10.15353/cfs-rcea.v10i3.630

Nava, M. (2023). Conceptual Framing of Immigrant Social Capital as a Component of Socioeconomic Status for Comparative Health Research. https://doi.org/10.20944/preprints202310.0344.v1

Raghav, S. V., & Sm, P. (2024). The Role of Socioeconomic Factors in Shaping Health Outcomes Among Vulnerable Populations. *South Eastern European Journal of Public Health*, 1422-1432. https://doi.org/10.70135/seejph.vi.2086

Raphael, S., & Schneider, D. (2023). Introduction: The Socioeconomic Impacts of COVID-19. *RSF the Russell Sage Foundation Journal of the Social Sciences*, *9*(3), 1-30. https://doi.org/10.7758/rsf.2023.9.3.01

Semé, J. L., Bivins, B. L., Sternberg, C. A., Barnett, J., Junis-Florian, T., Nicolas, G., Etienne, M. O., & Jean, P. (2021). The Educational, Health, and Economic Impacts of COVID-19 Among Haitians in the USA: Time for Systemic Change. *Journal of Racial and Ethnic Health Disparities*, *9*(6), 2171-2179. https://doi.org/10.1007/s40615-021-01156-8

Sullivan, K., & Thakur, N. (2020). Structural and Social Determinants of Health in Asthma in Developed Economies: A Scoping Review of Literature Published Between 2014 and

JPRFC E-ISSN: 3041-8550

2019. *Current Allergy and Asthma Reports*, *20*(2). https://doi.org/10.1007/s11882-020-0899-6

Sun, S., Huang, J., Hudson, D., & Sherraden, M. (2021). Cash Transfers and Health. *Annual Review of Public Health*, *42*(1), 363-380. https://doi.org/10.1146/annurev-publhealth-090419-102442

Torche, F., Fletcher, J. M., & Brand, J. E. (2024). Disparate Effects of Disruptive Events on Children. *RSF the Russell Sage Foundation Journal of the Social Sciences*, *10*(1), 1-30. https://doi.org/10.7758/rsf.2024.10.1.01

Varela, E., McVay, M. A., Shelnutt, K. P., & Mobley, A. R. (2023). The Determinants of Food Insecurity Among Hispanic/Latinx Households With Young Children: A Narrative Review. *Advances in Nutrition*, *14*(1), 190-210. https://doi.org/10.1016/j.advnut.2022.12.001

Wheeler, L. A., Updegraff, K. A., Umaña-Taylor, A. J., & Crouter, A. C. (2021). Mexican-Origin Parents' Workplace Discrimination and Well-Being: The Roles of Familism Values, Family Conflict, and Gender. *Cultural diversity & ethnic minority psychology*, *27*(4), 717-727. https://doi.org/10.1037/cdp0000483

Zan, H., Fan, J. X., & Lozada, B. (2023). The Economic Disparity Between Hispanic and <scp>non-Hispanic</Scp> White Households: An Analysis of <scp>middle-class</Scp> Achievement. *American Journal of Economics and Sociology*, *83*(1), 93-107. https://doi.org/10.1111/ajes.12521

Zinn, M. B., & Wells, B. L. (2022). The Racialization of Latino Families. *Journal of Family Issues*, *44*(10), 2547-2566. https://doi.org/10.1177/0192513x221105246

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E-ISSN: 3041-8550