Advancements in Agricultural Development
Volume 5, Issue 3, 2024
agdevresearch.org

Rural Youth Migration Intentions in Ecuador: The Role of Agricultural Education Programs

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Abstract

In the last decade, rural youth worldwide have grappled with a crisis marked by limited economic opportunities, inadequate services, and underdeveloped infrastructure in their home communities. This has driven a significant uptick in rural-to-urban migration, especially among young people in developing countries. Despite its lower urbanization rate compared to neighboring nations, Ecuador has seen a consistent rise in rural-to-urban youth migration. This trend is primarily attributed to environmental degradation, community conflicts, and rural areas' lack of educational and employment prospects. This study investigated the migration intentions of high school students in rural Ecuador, specifically those enrolled in agricultural and non-agricultural programs. The findings reveal that agricultural programs significantly influence youth migration intentions. Those in agricultural programs express an inclination to migrate. Moreover, students who have migrated before are more likely to migrate. These results underscore the importance of tailoring educational initiatives to inspire youth to explore opportunities within their rural communities. Future research should delve into the perspectives of rural youth and evaluate the effectiveness of agricultural education programs, contributing to a more comprehensive understanding of rural development and strategies for retaining youth in rural areas.

Article History

Received: November 11, 2023
Accepted: April 1, 2024
Published: April 19, 2024

Keywords

rural migration; agricultural education; rural youth migration; Ecuador

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Introduction and Problem Statement

In the past decade, rural youth globally have been driven to migrate to urban areas due to limited income opportunities, restricted access to services, and inadequate community infrastructure (Food and Agriculture Organization [FAO], 2018). While rural-to-urban migration is not new, it has recently gained prominence among youth, particularly in low and middle-income countries (Maunaye, 2013). For example, 50% of young people in Latin America have expressed a desire to leave their communities of origin and try their luck in urban centers (Baez et al., 2017).

To address the urgent need for practical solutions, our research is focused on exploring the potential of agricultural education programs in rural Ecuador. This is important since education is a crucial factor in the migration dynamic (Corbett, 2007; Kodrzycki, 2001). Our investigation aims to shed light on how these programs influence youth to leverage local resources and enhance their lifestyles (Rodríguez-Vignoli & Rowe, 2018). These programs, designed to educate students on improved agricultural practices and inspire their application on local lands, have the potential to make a tangible impact (Rhoda, 1983).

Ecuador, with a population of 17 million, has experienced a consistent surge in rural-to-urban migration among its youth since 2001 (Estévez, 2017). Recent estimates reveal that 10% of Ecuador's rural youth population intends to migrate to urban areas, enticed by perceived opportunities (Cisneros et al., 1988; Royuela & Ordóñez, 2018). In response to this phenomenon, our study seeks to bridge existing gaps by delving into the impact of agricultural education programs on youth migration decisions (Roth & Hartnett, 2018). Through our exploration, we aim to offer practical insights that can inform field practitioners and contribute to the formulation of effective strategies for addressing this pressing issue.

Theoretical and Conceptual Framework

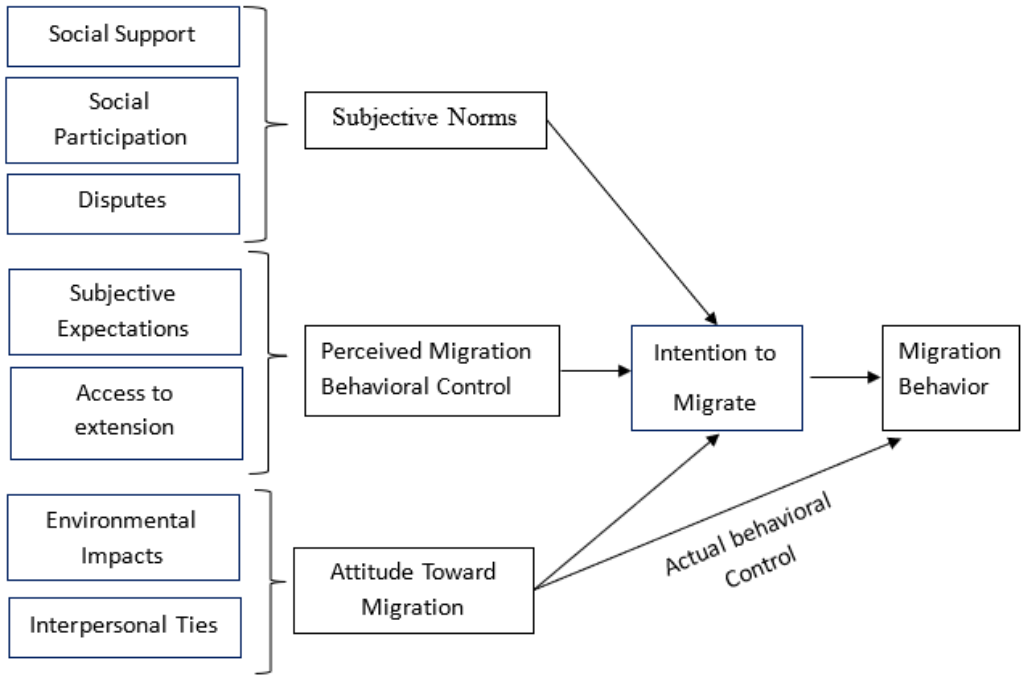
The Theory of Planned Behavior (TPB), proposed by Ajzen (1991), was the framework used in this study. The TPB seeks to predict behavioral intentions centered on three principal components: attitudes toward behavior, subjective norms, and perceived behavioral control. Attitudes toward behavior are the degree to which a person has a positive or negative assessment of the behavior of interest. Subjective norms are the second component and are based on the perceived perception people around have about the behavior of interest. Finally, perceived behavioral control focuses on the person’s perception of the difficulty of performing the behavior of interest (Ajzen, 1991). Therefore, according to each component of the TPB, those who have a positive attitude toward migration, perceive the same attitude from their peers, and feel it is going to be an easy process, should have a solid intention to migrate (Yazdan-Panah & Zobeidi, 2017). However, it is important to notice that Ajzen (1991) argued that other variables could help to explain better and increase the model’s utility "if it can be shown that they capture a significant proportion of the variation in intention or behavior” (p. 179).

This research study will replicate the TPB adaptation used by Lamiño Jaramillo et al. (2021), in which subjective norms are considered as the perception that other community members have regarding migration. Subjective norms are composed of social support, social participation, and disputes. The perceived migration behavioral control, the perceived difficulty of migrating, comprises access to extension activities, subjective expectations, and residential satisfaction. The attitude toward migration, the positive or negative idea of migration, comprises environmental impacts and interpersonal ties (Ajzen, 1985; De Jong, 2000; Lamiño Jaramillo et al., 2021; Yazdan-Panah et al., 2017).

In the context of addressing rural youth migration, the TPB provides a comprehensive lens to analyze attitudes, community perceptions, and perceived challenges, offering a robust foundation for exploring the impact of agricultural education programs on migration decisions in Ecuador. Given the prevalence of rural-to-urban and international migration, it is essential to compare the migration drivers of students enrolled in agricultural-based programs with those in non-agricultural programs (Cisneros et al., 1988; Royuela & Ordóñez, 2018). By understanding the variables associated with youth migration behavior, implementers can strategically channel their developmental program efforts toward these crucial aspects, tailoring interventions based on the audience characteristics. This targeted approach holds the potential to subsequently mitigate youth intentions to migrate. Figure 1 shows how selected migration drivers were adapted to TPB variables.

Figure 1

Theory of Planned Behavior



Note. This figure shows the relationship that each component has with the predictable behavior. Adapted from the study (Ajzen, 1991; Lamiño Jaramillo et al., 2021).

Purpose

The study aims to identify and compare the migration intentions of high school students in agricultural programs (AGP) and non-agricultural programs (non-AGP) from two rural neighbor communities in Rumiñahui, Ecuador. The research questions answered in this study were:

1. Compare students' intention to migrate by academic program.
2. Determine the main and interaction effects of intention to migrate, country of origin, and academic program based on the different migration drivers.
3. To predict the youth's intentions to migrate based on the academic program, gender, migratory background, and access to land.

Methods

For this quantitative study, a non-probabilistic convenience sample was used for the data collection. Researchers recruited Rumiñahui high school students from two neighboring rural communities that shared similar socio-economic characteristics. One group participated in a formal AGP (*n* = 95), located in Cotogchoa, and the other group was part of a non-AGP (*n* = 104) in Rumipamba.

A 50-question paper-pencil survey was designed with five sections: demographic information, participants' academic and agricultural background, migration drivers, and intention to migrate. For the "Migration Drivers" section, 34 5-point Likert-type questions (1 = *Completely Disagree*, 2 = *Disagree*, 3 = *Neither Agree nor Disagree Agree*, 4 = *Agree*, 5 = *Completely Agree*) were designed to measure the following drivers: social participation, social support, access to extension activities, environmental impacts, interpersonal ties, disputes, residential satisfaction, and subjective expectations. The drivers were chosen based on existing literature (De Jong, 2000; Lamiño Jaramillo et al., 2021; Yazdan-Panah & Zobeidi, 2017). Finally, the average number of migration drivers gives the intention to migrate (Yazdan-Panah & Zobeidi, 2017).

Field (2013) stated that an instrument can only be reliable if it is previously validated. For this study, seven experts were asked to examine the content and make suggestions to improve the instruments' accuracy. The instrument was previously implemented in other Latin American countries to increase validity (Boren Alpízar et al., 2019; Lamiño Jaramillo et al., 2021). Expert recommendations included adapting the instrument to each country's context to ensure the questions would be transferred and understood correctly. Cronbach's alpha was calculated to measure the constructs' reliability. For social participation, the reliability was .71, social support .70, access to extension activities .77, environmental impact .70, interpersonal ties .70, disputes .71, residential satisfaction .87, and subjective expectations .72. Results ranged from .70 to .87 which means that they were acceptable (Rubin & Babbie, 2009).

Data were collected with permission from the Human Research Protection Program (IRB2016-697), transcribed and coded in Excel, and analyzed using the Statistical Package for Social Sciences (SPSS) v.26. To address missing values, which accounted for approximately 2% of the

total dataset and were determined to be missing at random, multiple imputations were performed. According to Enders (2017), multiple imputation is a suggested tool for behavioral science since it allows the researcher to tailor the missing handling data to match the goal of the statistical analysis. Ten multiple imputations were run, and the mean was used to create the corrected final database. Data were analyzed based on the objectives.

Descriptive statistics were used to understand the study participants. For this study, the intention to migrate was measured in two ways, based on a 3-option question (“yes,” “I do not know,” “no”) and by averaging the seven migration drivers.

For objective one, the 3-option question was used to compare agricultural and non-agricultural students' intention to migrate. An independent chi-square was conducted to compare migration intention depending on the academic program.

For objective two, a 2 x 2 x 3 x 2 Factorial Multiple Analysis of Variance (MANOVA) was used to examine the main effects and interactions effects of the independent variables academic program ("AGP" vs. "non-AGP"), gender (“male” vs. “female”), intention to migrate (“yes” vs. “I do not know” vs. “no”), and access to land (landowner Family vs. non-landowner family) on the seven migration drivers access to extension activities, environmental impacts, social participation, social support, interpersonal ties, disputes, and subjective expectations.

For objective three, a multiple regression analysis was performed. A new variable was constructed by averaging the scores of the seven migration drivers. The Cronbach's alpha coefficient for this composite variable was calculated to be 0.74, indicating acceptable internal consistency. The predictors used in the regression model included academic program, gender, migratory background, and access to land. A 0.05 alpha was established *a priori.*

Findings

The sample contained 95 participants in an AGP and 104 in a non-AGP. Overall, 109 women and 90 males participated in this study. In both groups, most participants were female, AGP (*n* = 54, 56.80%), and non-AGP (*n* = 55, 52.9%). In AGP (*n* = 55, 57.9%) and non-AGP (*n* = 63, 60.6%), youth with a migration background comprised the majority. There was a greater number of students from non-landowners’ families (*n* = 108, 54.3 %) compared to landowners (*n* = 91, 45.7 %) in both groups AGP (*n* = 49, 51.2%) and non-AGP (*n* = 59, 56.7%). Table 1 shows the general and specific distribution by gender, migratory background, and access to land based on academic programs.

Table 1

Summary of Sociodemographic Information

Characteristics	Total (*N* = 199)		AGP (*n* = 95)		non-AGP (*n* = 104)	
	f	%	*F*	%	*F*	%
Gender						
Male	90	45.2	41	43.2	49	47.1
Female	109	54.8	54	56.8	55	52.9
Intention to Migrate						
Yes	41	20.6	21	22.1	20	19.2
I do not know	59	29.6	21	22.1	38	36.5
No	99	49.7	53	55.8	46	44.2
Migratory Background						
Migrated	119	59.8	55	57.9	64	61.5
Never Moved	80	40.2	40	42.1	40	38.5
Access to Land						
Landowners	91	45.7	46	48.4	45	43.3
Non-Landowners	108	54.3	49	51.2	59	56.7

To answer objective one, four Chi-Square tests of independence were conducted to compare the intention to migrate (yes = 1, I do not know = 2, and no = 3) based on academic programs ("AGP" and "non-AGP"), gender (“male” and “female”), migratory background (“migrated” and “never moved”), and access to land (“landowners” and “non-landowners”). The Chi-square results indicated a significant association between the intention to migrate with academic programs (χ^2 (2) = 5.02, p = 0.04) and migratory background (χ^2 (2) = 11.26, p < 0.01).

Overall, 55.8% of the youth in the agricultural program did not intend to migrate, while 22.1% said yes, and 22.1% were undecided. For non-AGP, 44.2 % of students did not intend to migrate, 36.5% were undecided, and 19.2% considered migration an option. The strength of the association was low, with a Cramer's value of 0.16 (Cohen, 1988). Table 2 details the results of the Chi-square for intention to migrate based on academic programs.

Table 2

Chi-Square Results for Intention to Migrate Based on Academic Program (N = 199)

Intention to migrate	AGP (*n* = 95)		Non-AGP (*n* = 104)		c^2 (2)	Cramer's V
	n	%	*n*	%		
Yes	21	22.1	20	19.2	5.02*	0.16
I don't know	21	22.1	38	36.5		
No	53	55.8	46	44.2		

Note. *p < .05

For migratory background, 40.3% of youth who had migrated before intended to migrate, while 22.7% said yes, and 33.0% were undecided. For youth who never moved, 63.7% did not intend

to migrate, 18.8% were undecided, and 17.5% considered migration an option. The strength of the association was medium, with a Cramer's value of 0.24 (Cohen, 1988). Table 3 details the results of the Chi-square for intention to migrate based on migratory background. Gender ($\chi^2(2) = .82$, $p = 0.66$) and landowner status (χ^2 (2) = 3.08, $p = 0.21$) were not statistically associated with youth intention to migrate.

Table 3

Chi-Square Results for Intention to Migrate Based on Migratory Background (N = 199)

Intention to migrate	Migrated (*n* = 119)		Never Moved (*n* = 80)		c^2 (2)	Cramer's V
	n	%	*n*	%		
Yes	27	22.7	14	17.5	11.26*	0.24
I don't know	44	37.0	15	18.8		
No	48	40.3	51	63.7		

Note. *$p < .05$

For objective two, a 2 x 2 x 3 x 2 Factorial MANOVA was used to examine the main effects and interactions effects of independent variables academic program (“AGP” vs “non-AGP”), gender (“male” vs “female”), migration intentions (“yes” vs “I do not know” vs “no”) access to land (“landowner family” vs “non-landowner family”) on the seven migration drivers access to extension activities, environmental impacts, social participation, social support, interpersonal ties, disputes and subjective expectations.

The dataset was tested for linearity, normality, and homogeneity of variance assumptions. The person correlations results showed a linear relationship among the variables, which indicates that the linearity assumption has been met. The normality assumption was also met, as skewness and kurtosis values ranged within +/- 2, and histograms showed a normal distribution. However, the box’s Test of Equality of Covariance Matrices was significant and violated the assumption of equal covariance matrices, so Wilks’ Lambda was considered for the multivariate test interpretations.

The analysis revealed a significant medium effect for the academic program variable, Wilks’Λ = .76, $F(7,148) = 6.64$, $p < .001$, η2=. 24, for the seven migration variables. Additionally, the intention to migrate variable showed a statistically significant small effect, Wilks’Λ = .83, $F(14, 296) = 2.01$, $p = .02$, η2= .17. However, there was no significant effect found for gender, Wilks’Λ = .95, $F(7, 148) = 1.12$, $p = .35$, η2= .05, migratory background, Wilks’Λ = .96, $F(7, 148) = 1.05$, $p = .40$, η2= .04, or access to land, Wilks’Λ = .95, $F(7, 148) = 1.28$, $p = .26$, η2= .05. Table 4 provides a comprehensive presentation of the findings of the independent variables that demonstrated statistical significance.

Table 4

Multivariate Analysis of Variance for Migration Drivers

Source	*F*	*p*	*η2*
Academic Program	6.64	.01**	.24
Gender	1.12	.38	.05
Migratory Background	1.05	.46	.04
Access to Land	1.28	.18	.05
Intention to migrate	2.02	.02*	.17

Note. *p < .05; ** p < .001; None of the significant independent variable interactions were significant

To better understand the interaction effects of independent variables on migration drivers, a set of univariate Analyses of Variances (ANOVAs) was conducted as a complementary test to the significant MANOVA. The results showed that academic program had a significant main effect on the migration driver, interpersonal ties, $F(1,154) = 4.62$, $p = .03$, and η2 = 0.6. AGP students ($M = 2.80$, SD = .85) have more extension activities than non-AGP students ($M = 2.53$, SD = .99). Additionally, academic program had a significant effect on the access to extension activities construct, $F(1,154) = 43.53$, $p < .001$, and η2 =24. AGP ($M = 3.11$, SD = .87). AGP ($M = 3.11$, SD = .87) students have more access to extension activities than non-AGP students ($M = 1.92$, SD = .86). The intention to migrate also showed a significant effect on the access to extension activities construct, $F(2,154) = 3.99$, $p = .04$, and η2 = 0.4. Table 5 summarizes the significant ANOVAs.

Table 5

Univariate Analysis of Variance for Interpersonal Ties and Access to Extension Activities as a Function of Main and Interaction Effects of Academic Program and Intention to Migrate

Source	*F*	*P*	*η 2*
		Interpersonal Ties	
Academic Program	4.62	.03*	.06
		Access to Extension Activities	
Academic Program	43.53	.01**	.24
Intention to Migrate	3.99	.02*	.04

Note. *p < .05; ** p < .001; The variables environmental impacts, social support, social participation, and disputes were not significant for any source.

A post hoc test was conducted for the intention to migrate construct because it was the only independent variable with more than two levels. The researchers assumed that the sample sizes per condition were equal; therefore, Bonferroni was implemented. This test is well-known for being conservative and has strong statistical power (Field, 2013). The Bonferroni test showed that the migration option “yes” ($M = 2.80$, $SD = 1.03$) had a significant difference with the option “I do not know” ($M = 2.31$, $SD = 1.05$). However, there was not a significant effect

with “no” (*M* = 2.49, *SD* = 1.04), and either between the options “no” and “I do not know” for access to extension activities.

To achieve objective three, the intention to migrate variable was created by averaging the seven migration drivers. This variable was then used as the dependent variable for multiple regression analysis. Four predictors were considered in the analysis: students' academic program, gender, migratory background, and access to land. In addition to predicting the intention to migrate, regression was used to confirm the findings from objective one.

The assumptions analysis showed that the residuals were independent, as assessed by Durbin-Watson statistics of 1.97. We also found that the data were homoscedastic, as evaluated by a plot of studentized residuals versus unstandardized predicted values. There was no multicollinearity, as evaluated by tolerance values greater than 0.1. Furthermore, no studentized deleted residuals were over ±3 standard deviations, and no leverage values greater than 0.2 or values for Cook's distance were above 1.

The prediction model for the intention to migrate variable was significant, $F(4,198) = 4.42$, $p = .02$, $R^2 = .08$, adj. $R^2 = .07$. The significant predictors were academic program (B = -.18, SE= .06, β = -.22, *p* = .01) and migratory background (B = .12, SE = .06, β = .15, *p* = .04). Similar to the results from the Chi-square, gender, and landowner were not statistically significant predictors. The intention to migrate attitude among AGP students was .18 higher than that of non-AGP. Students who had migrated before had .12 higher attitude intention to migrate attitude. Table 6 shows the findings of the multiple regression.

Table 6

Multiple Regression Predicting Students’ Intention to Migrate

Predictors	*B*	SE	B
Intercept	3.37	.17	
Academic Program	.18	.06	.22**
Gender	.09	.06	.11
Migratory Background	.12	.06	.15*
Landowner	-.02	.06	-.03

Note. **p <.001; *p <.05

Conclusions, Discussion, and Recommendations

According to the Migration Data Portal (MDP; 2023), migration in Latin America and the Caribbean has increased dramatically due to economic, climate, and natural resource pressures. Recent reports on migration in this region indicate that men migrate more than women (Boyd, 2021; MDP, 2023). However, this study found that sex was not an influential factor in young Ecuadorians' intentions to migrate. These results align with recent statistics that demonstrate a global increase in migration among women for professional and economic reasons, mirroring statistics historically achieved only by men (Boyd, 2021; MDP, 2023). These findings open

several opportunities for research and action focused on the needs of migrant women, such as preventing the high incidence of discrimination experienced by migrant women compared to their male peers (MDP, 2023).

Young Ecuadorians with a migratory history are more attracted to migration than those who have never left their communities. These results agree with those of Nouwen et al. (2015), who found that young people of migrant origin are more willing to migrate in search of new areas of employment and will drop out of school to do so. The literature indicates that young migrants face more challenges at an educational and professional level, including more difficulty in inserting themselves into a new educational system and indecisiveness about future professional endeavors (Kalalahti et al., 2017; Van Caudenberg et al., 2020). Contrary to the results of Lamiño Jaramillo et al. (2021), which found that youth from agricultural programs had more intentions to migrate than those from other educational programs, this study found no differences in intentions to migrate between youth who study agricultural-related sciences and those who study other technical or professional areas. In both groups, approximately 20% of the participants are undecided about migration and could be influenced to migrate or to remain in their current location. Recognizing the importance of this undecided group, it is critical to prioritize their needs and concerns in strategies aimed at reducing youth migration. This presents an opportunity to implement specific programs such as awareness campaigns, counseling services, and vocational guidance initiatives. By working with this group and providing them with relevant information and realistic alternatives to migration, these interventions can give individuals the power to make informed choices about their future, ultimately reducing overall youth migration rates.

To improve the negative perception of working in agriculture and promote it as a viable and fulfilling career path, it is essential for practitioners to actively engage in promoting agricultural education (Rhoda, 1983). Collaboration with educational institutions, industry stakeholders, and government bodies is key to amplifying the message about the pivotal role of agriculture in securing future food, fiber, and energy supplies. By partnering with educational institutions, practitioners can contribute to developing comprehensive agricultural education programs. These programs should not only focus on imparting technical skills but also emphasize the broader significance of agriculture in sustaining communities and meeting essential needs. Industry stakeholders and government bodies can support these programs by providing resources, advocating for policy changes, and showcasing successful role models in the agricultural sector. However, the effectiveness of these efforts depends on establishing robust monitoring and evaluation mechanisms. Practitioners should prioritize the implementation of systematic assessments to measure the impact of agricultural education programs on influencing youth migration decisions. Regular reviews, based on participant feedback and adaptability to changing circumstances, are crucial for ensuring interventions' continued relevance and effectiveness.

The results of this study are not representative of the entire country of Ecuador. Still, they offer relevant insight on integrating and promoting efforts targeting youth intending to migrate. Other studies have shown the potential of agricultural education to reduce young people's

intentions to migrate (Rhoda, 1983). When encouraging agricultural education as a future career path, the growing and acute trend of the unwillingness of young people to work in agriculture must be considered (Girdziute et al., 2022; Lamiño Jaramillo et al., 2023), or the perception of migration as a better option will lead to migratory behavior (Migali & Scipioni, 2018). Finally, similarly to (Lamiño Jaramillo et al., 2021), this study continues the development of national profiles on youth migration that could serve to inform local, national, and regional initiatives contributing to inform inclusive and effective mechanisms to cultivate the future agricultural workforce for future generations in low- and middle-income countries.

Acknowledgments

Author Contributions: **P. Lamino -** methodology, software, formal analysis, investigation, resources, data curation, writing-original draft, writing- review & editing, and visualization; **C. Millares Forno -** conceptualization, methodology, investigation, and writing-original draft; **R. Landaverde -** conceptualization, investigation, writing-original draft, and writing- review & editing; **A.E. Boren-Alpízar-** conceptualization, writing-original draft, and writing- review & editing

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