Education and Health Disparities of Refugees in the Latin Americas: Evidence from High Frequency Survey Data

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Content

Key Terms

Refugee	"Refugees are persons outside their countries of origin who are in need of international protection because of feared persecution, or a serious threat to their life, physical integrity or freedom in their country of origin as a result of persecution, armed conflict, violence or serious public disorder." https://www.unhcr.org/glossary/
Asylum-seeker	"A general term for any person who is seeking international protection." https://www.unhcr.org/glossary/
Forced Displacement	"The movement of persons who have been forced or obliged to flee or to leave their homes or places of habitual residence (whether within their own country or across an international border), in particular as a result of or in order to avoid the effects of armed conflict, situations of generalized violence, violations of human rights or natural or human-made disasters." https://www.unhcr.org/glossary/
Refugee Flows	"Flows illustrate movements, capturing the arrival or departure of refugees in a country during a period of time." https://www.unhcr.org/refugee-statistics/insights/explainers/forcibly-displaced-flow-data.html#:~:text=Flows%20illustrate%20movements%2C%20capturing%20the,and%20not%20in%20stock%20numbers.
xenophobia	"Fear and contempt of strangers or foreigners or of anything designated as foreign, or a conviction that certain foreign individuals and cultures represent a threat to the authentic identity of one's own nation-state and cannot integrate into the local society peacefully." https://www.britannica.com/science/xenophobia
Migrants	"For the specific purposes of global statistics on international migration, the United Nations Department of Economic and Social Affairs (UN DESA) defines an international migrant as any person who changes their country of usual residence (excluding short-term movement for purposes of recreation, holiday, visits to friends and relatives, business, medical treatment or religious pilgrimage)...[However, there is no universally accepted definition of the term migrant, and the term is not defined by international law.]" https://www.unhcr.org/glossary/
Internally Displaced Person (IDP)	"A person who has been forced or obliged to flee from their home or place of habitual residence, in particular as a result of or in order to avoid the effects of armed conflicts, situations of generalized violence, violations of human rights or natural or human-made disasters, and who has not crossed an internationally recognized State border." https://www.unhcr.org/glossary/
United Nations Educational, Scientific and Cultural Organization (UNESCO)	The UNESCO aims to contribute to peace and security around the world by promoting international cooperation in education, sciences, culture, communication, and information. It focuses on sharing knowledge and free flow of ideas to accelerate mutual understanding and achieve Sustainable Development Goals in the 2040 Agenda by the UN General Assembly.

Education and Health Disparities of Refugees in the Americas: Evidence from High Frequency Survey Data

According to the UNHCR, refugees are people who cross international borders to find safety in another country to escape war, violence, conflict, or persecution. At the end of 2022, about 108.4 million people were forcibly displaced worldwide with a dramatic increase since 2012 (UNHCR, 2022). UNHCR protects and/or assists 112.6 million refugees including internally displaced people (IDPs), stateless people, asylum-seekers, and refugee/IDP returns. Recently, the invasion of Ukraine caused a significant forced displacement, of Afghans in the Islamic Republic of Iran and Venezuelans additionally (UNHCR, 2022).

Last year, the United States, the largest recipient, received 730,400 asylum applications, a fourfold increase from 2021 (UNHCR, 2022). Costa Rica and Mexico ranked third and fifth in the world's largest five recipient regions of new individual applications except the US (UNHCR, 2022). In the Americas, Venezuela, Honduras, El Salvador, and Guatemala are four countries currently experiencing a severe refugee crisis. Venezuelans have fled to the US and other countries to escape severe economic collapse, characterized by hyperinflation and scarcity of basic goods, and to seek refuge from political instability and human rights violations. The number of asylum-seekers and refugees from El Salvador, Guatemala, and Honduras worldwide has reached 665,200, and more than 318,000 are internally displaced within the region. According to the USA for UNHCR, more than 1 million people have been uprooted from their homes in Central America due to violence, insecurity, and persecution, mainly by criminal organizations. The fleeing flows and these numerous numbers request major countries to promptly adjust strategies along with policies

corresponding to higher demand for refugee acceptance. Therefore, addressing the refugee crisis in the Central and South Americas is not only a matter of upholding moral and legal obligations but also of maintaining regional stability, promoting social cohesion, and managing resources effectively.

The tremendous extent of forcible displacements raises challenges for countries of asylum in the Americas to guarantee the human rights of refugees and maintain social stability simultaneously. The process of migration determines the health and well-being of refugees and members of the host country (World Health Organization, 2022). Governments and organizations must recognize various barriers including access to services, legal, income, education, etc. when refugees seek adequate physical and psychological treatment (World Health Organization, 2022). Livelihood initiative is the starting point for social integration, and education fosters social cohesion. Unfortunately, estimation shows 51 percent of school-aged refugee children cannot attend school by the end of 2022, which is more than 7 million child population (UNHCR, 2023).

USA for UNHCR plays an irreplaceable role in the whole refugee and displacement journey from beginning escape to resettlement. The agency contributes to emergency response, defends fundamental human rights and long-term benefits, and pursues durable solutions in health services and child education. Building on the remarkable work, this project provides insights into obstacles in health and education faced by refugees located in the Americas and possible resolutions through thorough metadata analysis on the High Frequency Survey (HFS) data across 2020 Q4 and 2022 Q1 and an interactive dashboard. The major goal is to increase awareness of the public on refugee issues and motivate more

citizens to assist with refugee settlement. This report also demonstrates the step-by-step data-dealing process of survey data, intending to encourage replication for other regions in the world.

Literature Review

Fleeing Flows and Intention to Move

The Global Trends Report shows that 75 percent of refugees and asylum-seekers remain in their original region after being forcibly displaced between 1975 and 2022. The Americas align with the phenomenon with more than 90 percent of refugees staying close to their home countries (UNHCR, 2023). The Forced Displacement Flow Dataset and UNHCR's 2023 Global Appeal in the Americas both underline the main fleeing directions of Venezuelans in Central and South America (UNHCR, 2022; UNHCR, 2023). According to the dataset, 6.7 million Venezuelans displaced in 2017 primarily entered Colombia, Ecuador, and Peru for asylum (UNHCR, 2023). Columbia is not only one of the main hosting countries for 2.5 million refugees but also suffers from armed violence which causes 6.8 million internal displacement (UNHCR, 2022). As of the conclusion of 2022, there were 61,100 individuals from Colombia seeking refuge or asylum in Ecuador, establishing Ecuador as the most preferred destination for Colombian refugees (UNHCR, 2022). The intertwined population flows pave the complexity of studying the demographics of refugees. Despite this, the countries of asylum must gather as detailed statistics as possible on the nationality, identity, and number of companions of refugees to respond to the crisis strategically.

Traced back to the 1984 Executive Committee Meeting, UNHCR has emphasized the broad effect of identity documentation on activities like hospital care and entering

educational institutions. A valid identity provides more options for refugees, whether they travel legally or enter the resettlement process smoothly compared to undocumented individuals. Besides legal identity, other critical considerations for displaced refugees to choose where to transit are family reunification, access to protection, and socioeconomic conditions (Crawley & Hagen-Zanker, 2018). People go through tortuous trips after leaving their hometowns, thereby having a strong desire for a secure and promising life with dignity in new destinations. Refugees' intention is also driven by their contrast in the sense of belonging and attachment between their origin and host countries (Chosn et al., 2021). Fair treatment by the community of asylum is conducive to the well-being of refugees and transforms refugees into contributors to local society.

Educational Disparities and Responses

The intricate relationship between forced displacement and education may result in an impact on the continuity and quality of education. Whether resulting from a conflict, persecution, or other humanitarian crises, many young students suffer from the consequences of forced displacement that creates a volatile environment and disrupts the regular rhythms of daily life. In the 2023 UNHCR Education Report, more than half of 14.8 million school-aged refugee children stay out of formal education in the world, and are unable to receive proper educational opportunities for their future prosperity (UNHCR, 2023). According to UNESCO's report on refugee education statistics, this is nearly half of all refugee children—48 percent (UNESCO-UIS, 2021). This is a grave issue in specific South American regions, where "over a quarter of Venezuelan migrant children living in Lima and La Libertad, two of the most populated regions in Peru, are not attending school" (Save the Children,

2022). The research underscored some main obstacles to education encountered by Venezuelan children, encompassing insufficient available space (45%), lack of access to the internet to enroll (29%), and arrival late for enrolment (23%) among various other factors" (Save the Children, 2022). However, the reasons for refugee children being out of school are not uniform across different crises. For Mexico, some main reasons for dropping out of school were family moving and health. In Costa Rica, financial constraints, discrimination, and waiting for face-to-face classes to resume were the main reasons (UNHCR, 2022).

According to the 2023 UNHCR Education Report, forcibly displaced populations are about 21 percentage points less likely to attend school compared to the national population, ranging from 8 percentage points to 56 percentage points by countries (UNHCR, 2022). The gap in education access between the two groups is considerably smaller for South American countries compared to other regions. For example, refugees, protected civilians, and internally displaced people in Costa Rica (Nicaraguans, Venezuelans, and Cubans, among others) showed about a 13 percentage point difference in school enrollment compared to the national populations. In Costa Rica, primary education is free and mandatory for all children, irrespective of their migratory situation. In reaction to the growing number of Nicaraguan migrants, numerous schools "have begun to simplify their requirements to allow children with no official documentation to register" (UNHCR, 2019). The difference was slightly greater in Mexico (Hondurans, Salvadoreans, Haitians, and Cubans, among others) with about 17 percentage points between the displaced group of people and the national population (UNHCR, 2022).

Compared to children of African and Middle Eastern countries, learning activity

participation in Latin American countries such as Costa Rica and Mexico remained considerably high during COVID-19 school closures. For example, about 94 percent of children of forcibly displaced households in Mexico—predominantly from Venezuela and Honduras—who attended school before closures still participated in learning activities. Predominantly, traditional lessons with teachers persisted, with 95 percent of households in both Costa Rica and Mexico continuing to use them despite the pandemic. The percentage presents a sharp contrast with countries in other continents such as Chad and Ethiopia, which showed a low participation in education for both nationals and refugee groups (UNHCR, 2022).

Ideal and the Real: Access to Health Service

According to the 1951 Refugee Convention, refugees should have access to the same or similar healthcare as host populations (UNHCR US). However, refugees represent a diverse group with a wide range of health needs, including those related to physical and mental health, which may differ from the host populations likely due to their journey to reach safety. As a result, refugees remain among society's most vulnerable members. They often encounter challenges such as xenophobia, discrimination, substandard living conditions, inadequate housing and working environments, and limited or restricted access to mainstream health services (WHO, 2022). Moreover, the pandemic has exacerbated the situation by highlighting the existing inequities in the access to and utilization of health services. The negative economic impacts of lockdowns and travel restrictions have particularly affected refugees (WHO, 2022). Countries like Venezuela, El Salvador, Guatemala, and Honduras reveal gaps in medical care, with refugees often at the most disadvantage.

In Latin America, disparities in healthcare access and quality are evident. Both Costa Rica and the Republic of Dominic, as per UNHCR survey data from 2022 and 2020 respectively, shared a common barrier to healthcare access for refugees: financial constraints. The lack of money and insurance emerges as a critical hurdle, underlining the economic challenges in accessing healthcare. Similarly, the situation in El Salvador, as detailed by the US Embassy in 2023, is marked by a dearth of adequately equipped and staffed emergency services. This is especially evident in San Salvador, where state-funded ambulance services lack both well-trained personnel and essential life-saving equipment, highlighting a need for improved training and resource allocation (US Embassy in El Salvador, 2023). Other than these nations, Venezuela also has a fragile healthcare system. Venezuela's previously robust healthcare system has deteriorated due to economic and political turmoil, resulting in pronounced shortages of medications and medical professionals in 2019 (Human Rights Watch, 2019). Meanwhile, both Guatemala and Honduras, which operate a mix of public and private healthcare, showcase distinct differences in care between urban and rural regions. Specifically, these two countries' rural areas often face a dearth of adequate facilities, and their public health institutions grapple with resource constraints and outdated equipment (International Health Partners, n.d.).

Given these challenges, it is crucial to pay attention to the healthcare needs of refugees in Latin America. Improving access to and the quality of healthcare services for this vulnerable group is not only a matter of fulfilling international obligations but also vital for addressing broader public health concerns.

Method

The datasets utilized in this study were sourced from the UNHCR Microdata Library. To adhere to the standardized application process set by UNHCR, core researchers applied for access to 83 licensed data files, initially focusing on American countries. High Frequency Surveys were specifically chosen as the primary data source due to their extensive data volume and consistent structure. The 46 High Frequency Surveys are produced by UNHCR, encompassing data collected from 15 nations, including Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, Guatemala, Honduras, Panama, Paraguay, Peru, Suriname, and Uruguay. The dataset includes variables such as the nationality of the refugee, relocation intention, family size, documentation status, school enrollment status of their children, and medical coverage status. Besides, binary variables are used to categorize different reasons behind the lack of education or medical coverage. Notably, these surveys are updated quarterly, providing a dynamic and comprehensive overview of the refugee situation across Central and South American countries between 2020 and 2022. This periodic updating allows for insightful comparisons and analysis of ongoing changes.

Variables

Narrowing down topics of interest, health, education, and demographics were chosen due to their frequency and importance. Out of the 103 variables collected from the High Frequency Surveys, 63 were related to health. Additionally, access to education and demographic statistics are of particular interest to UNHCR. Chosen demographic variables that capture key aspects of the refugee experience in Central and South America included: year, quarter, Country of Asylum, Nationality, ethnicity, intentionMove, TotalMinor,

TotalAdult, documentation_id, and AppliedRefugee.

"Year" and "quarter" describe the year and quarter in which the survey was collected, enabling a nuanced analysis of migration patterns, and shedding light on seasonal variations and policy influences. "Country of Asylum" is the country the respondent currently resides in and "Nationality" is the country the respondent was originally from, allowing for analysis revealing specific geopolitical trends to inform targeted interventions. "Ethnicity" gives further insight into the demographics of the respondents. "IntentionMove" records the refugee's intention to either stay or relocate from the country of asylum, which can illuminate if resources are needed where they currently reside. "TotalMinor" and "TotalAdult" are the number of children under the age of 18 and the number of adults in a household, respectively. This can aid in identifying the education and medical needs of refugees. "AppliedRefugee" is whether the respondent has applied or plans to apply for refugee status in the country of asylum. "Documentation_id" indicates whether the respondent has a valid identity card or document. Both "AppliedRefugee" and "Documentation_id" help gauge legal status, relevant for assessing rights and entitlements, particularly concerning education and medical support.

To explore education access, two main variables were chosen: "Childinschool" and "Childvirtualed". The first indicates if the refugee's children were enrolled in school and the latter is if the refugee's children have the resources and access to receive their education virtually. In addition to these main variables, the binary variables give the reason why a respondent's children are not enrolled in school (Appendix 1). These variables are crucial for assessing and addressing the educational needs of refugee children, especially in contexts where traditional schooling may be challenging.

Variables regarding medical access include disabilityacc_disabilityserv, medicalReceived, RiskYes, RiskReturn_medical, and RiskStay_medical. "Disabilityacc_disabilityserv" assesses whether the respondent had difficulty accessing services for a disability. "medicalReceived" indicates whether the respondent feels like they received the required medical attention. "RiskYes" and "RiskReturn_medical" assess safety concerns and potential risks related to limited medical services upon return. "RiskStay_medical" assesses if respondents would risk not being able to access medical services if they remain in their current location. Similar to education, several variables indicate the reason for not accessing medical care (Appendix 1). This comprehensive set of variables provides a holistic understanding of the complex challenges faced by refugees, informing where interventions should be targeted.

Data Cleaning Process

The first step of data cleaning was creating new datasets from each of the 46 surveys to include only the variables of interest. Not every survey had all of the variables indicating why a respondent did not have access to medical care or education, thus those variables were not included in the new data frames for those surveys. These new datasets were subsequently saved as a new csv file and were renamed as "HFS"_Countryname_Year_Quarternumber". If there was no quarter number for a survey, no quarter number was included in the title.

Next, these datasets were concatenated into a single dataset with an added unique "index" for each data entry to ensure traceability. These datasets were then further divided into three different datasets: "HFS_Countryname_Demo", "HFS_Countryname_School Reason", and "HFS_Countryname_Medical Reason". The "demo" dataset only contained

demographic variables within the specified country.

The “School Reason” and “Medical Reason” datasets were designed to encapsulate the reasons behind the lack of school attendance and medical services access, respectively. Initially presented in a wide format in the source dataset from the UN Library, the responses were binary-coded:with a “1” indicating the reason was applicable to the respondent’s situation and a “0” indicating it was not.

To aid in ease of analysis, we transformed these datasets into a long format. This was achieved by harnessing the “melt” function from pandas, which allowed us to filter rows where the response was affirmative (“Agree” == 1) and subsequently document the specific reasons in a newly created "Reason" column. A similar transformation was applied to the medical care dataset, resulting in two long-format data frames that succinctly conveyed the barriers to education and healthcare.

After evaluating missing values through calculating the percentage of NA’s in each column, variables were further narrowed down. Columns with significant missing values that were not particularly meaningful were dropped. These variables included: index ID, Ethnicity, Disabilityacc_disabilityserv, and RiskStay_medical. For variables with a lot of missing values that were useful for analysis were imputed in various ways. Missing “TotalAdult” and “TotalMinor " values were imputed using the median of the data as the data distribution were not heavily skewed. For respondents with no children, variables regarding education were not applicable and thus these variables were not truly missing. To clarify this distinction, for every row where “TotalMinor” was 0, the education related variables were set to “Not Applicable”.

For rows where “TotalMinor” was greater than 0 and “Childvirtualed” or “Childinschool” was missing, a value was imputed for both by using the mode. For “CountryofAsylum”, certain nationalities are only found in specific countries, this relationship was used to impute any missing values. Lastly, for “intentionmove”, “AppliedRefugee”, “MedicalReceived”, “RiskYes”, missing values were changed to “unknown” to signify instances where candidates abstained from providing answers.

To model trends in the data, various Ordinary Least Squares (OLS) regression models were adopted in Python and R Studio. Specifically, an investigation was conducted into the nexus between individuals' intentions to permanently reside in the hosting country and their family members' proclivity towards migration. Subsequently, an exploration into the correlation between disability and healthcare accessibility was conducted, scrutinizing the impact of disability severity on the attainability of healthcare services. Furthermore, an evaluation of the predictive capacity of the intention to relocate with their children's educational attainment was undertaken. Additionally, an inquiry was made into whether the perception of risk influences the decision to seek asylum or refugee status in the current country.

Discussion

Total Statistics

The distribution of refugees with different nationalities in American countries across 2020 Q4 to 2022 Q1 is visualized via a map. Over half of the total population (51.16%) are moving to Argentina, followed by 23.01% of the population moving to Costa Rica, 16.20% of the population moving to Guatemala, and other small percentages of the population moving

to other nations. Take Colombia for a specific example, 87.08% of the refugees in Colombia are moving to Ecuador, 2.84% of the asylum seekers in Colombia enter Costa Rica, and the rest of the population is moving to Colombia, Brazil, and Guatemala.

Country of Asylum Most

The diagram illustrates the proportion of responders hosted by each country of asylum. It contains the same numbers as "Total Statistics" which covers all quarters and indicates the most popular hosting country choices by asylum seekers. Ranging from the top to the fifth are Argentina (51.16%), Costa Rica (23.01%), Guatemala (16.20%), Ecuador (6.25%), and Panama (2.51%).

Nationality Most

The bar chart reveals the nationalities of refugees who responded to the surveys in percentages. The diagram indicates that the majority of asylum seekers, 51.16%, come from Venezuela. The second largest group by nationality is from Nicaragua, accounting for 22.42%, followed by Guatemala at 13.52%, then Colombia at 7.17%, with the remainder coming from various other nations.

Intention to Move

The area graph reveals an increasing trend in the number of refugees who choose to stay in the country of asylum from 2020 Q4 to 2021 Q4. The number reaches the summit at 2021Q4 with 13,292 respondents, which is 30.39% of the overall respondents. The number of respondents claiming that they tend to relocate is also increasing from 0.47% to 3.97%. The proportions of all choices for 2022 Q1 have dropped significantly, possibly due to the limited survey coverage. The large difference between choices of stay and relocation implies that

most hosting countries or communities provide a sense of belonging to refugees, probably by guaranteeing fair treatment and socioeconomic conditions.

Applied Refugees

The pie chart illustrates the distribution of refugees based on their refugee application status. Approximately 39.30% of refugees have applied for refugee status, while 22.19% have not. Notably, about 1.98% of respondents indicated that they do not intend to seek refugee identity. Moreover, about 36.53% of the respondents remain unknown.

Total Adults & Total Minors

The diagram compares the total number of adults and minors within the refugee population. In chronological order, both adults and minors illustrate a similar trend. Reaching their peak in 2021 Q4, the population comprised 42,777 adults and 27,461 minors among the respondents. Subsequently, there was a decline in the total number for both groups during 2022 Q1. However, in contrast to previous quarters, the minor population showed a slightly higher count compared to the adult population during this period. Specifically, the adult population was approximately 9,631, while the minor population was 5,344 among the respondents.

Reason Not Attending School

Among the entire refugee children population, only about 59.23% attended school. The primary obstacles, ranked in descending order, include financial constraints, absence of essential documentation, limited available space, recent arrival, and arrival after the designated enrollment period. Among the top five reasons, 1,436 of the respondents chose financial constraints, 1,338 claimed no proper documentation is a barrier, 784 chose limited

space, 516 selected recent arrival, and 451 chose arrival after enrollment as reasons for their children not attending school. Quartering the year, financial constraints reached their peak in Q3 as the predominant factor that prevented refugee children from attending school.

Examining the situation in Peru, refugees identified financial constraints as their primary obstacle to accessing education, totaling 213 responses. Following, limited available space ranked second most prevalent challenge with 197 responses, while the absence of essential documentation ranked third, with 187 responses. The top three reasons of Peru for not attending school closely mirrored those of the South American refugee population, despite its slightly varied ranking. All three reasons identified in Peru were represented within the top three concerns of the South American refugees in education.

Reason without Medical Care

The primary obstacles hindering respondents from medical care are financial constraints, absence of insurance, no legal ID, being rejected by the service, and unavailability to approach. Among the top five most frequent reasons, 2,408 of the respondents claimed that they didn't have money, followed by 2,054 of the respondents who said they didn't have access to insurance, 1,181 of the respondents declared valid IDs were obstacles, 1,076 of the respondents stated they were being denied to medical care, and 549 of the respondents mentioned that medical care was not available for them. The data supported the statement that financial constraints are the common barriers to the healthcare system in Latin American countries.

Take Colombia as an example, the top three reasons for asylum seekers in Colombia without medical care are without insurance, totaling 879 responses, not having enough money

with 719 claims, and not having valid IDs with 633 responses. When comparing data between the top five reasons for 15 countries in total and the top three reasons for Columbia specifically, two common reasons are recognized: lack of money and absence of insurance plans.

Sankey Flow

The Sankey Flow diagram transparently presents the fleeing flows of respondents based on the data points included in the High Frequency Survey. Venezuelans, the largest refugee population with 52.06% responded to the survey, all flowed into Argentina. The finding is inconsistent with the existing conclusion that Colombia, Ecuador, and Peru are the three major hosting countries for Venezuelans. The inconsistency prompts UNHCR to improve the sampling methods to accurately and comprehensively survey the representative population. Nicaragua as the second largest sending country with 19.15% of respondents is primarily paired with Costa Rica. Distinctively, all refugees in Guatemala (16.2%) seek asylum in the same region. In line with UNHCR's data, Ecuador is the most popular destination among Columbians (7.6%), accepting 6,101 refugees according to the data. Overall, refugees prefer neighboring countries to be a foothold, which costs less to return home and arranges space for psychological reassurance.

Discussion on Regression Analysis

A significant correlation was found between "attending school" and "Total minor" ($p < .01$), which indicates that when the refugee takes more children with them, their children are more likely to get educated (each unit increase in child number increases the education likelihood by 6.55%). Education is indeed a considerable need for refugees. As more children

require education and social support to thrive in life, guardians are more eager for resources.

The log odds of attending school decrease by 0.19 when the plan is to relocate, which is statistically significant ($p < .01$). This suggests that the intention to relocate is associated with a lower likelihood of children attending school. The log odds decreased by 0.43 for "Unknown" intentions, suggesting a significantly lower likelihood of school attendance compared to the reference category ($p < .01$). There is also a statistically positive correlation between intention to stay and the number of minors ($p < .01$), suggesting that refugees skew to stay in the country of asylum when more children stay with them (each unit increase in child number increases the stay likelihood by 7.68%). The above findings support the assumption that stability is a prerequisite for respondents before children receive appropriate education. In addition to objective reasons such as money and valid identity, the intent of relocation and the uncertainty about where the future goes hinder admission rates of refugee children. Adults' decision to stay in the present destination is also related to their commitment to educating more minors. It is a prompt to design transitional flexible programs in institutions to fill the gap before children eventually settle down and are formally educated.

Conclusion

The analysis of High Frequency Surveys spanning from 2020 Q4 to 2022 Q1 provides valuable insights into the demographics and challenges faced by refugees in Latin America, particularly in the realms of education and healthcare. The breakdown of nationalities underscores the prominence of Venezuelans in the respondents, showcasing the need for targeted interventions. Hosting countries, notably Costa Rica, and Guatemala, and Ecuador play pivotal roles in providing refuge. A noteworthy trend in population distribution reveals

Argentina as the preferred destination for over half of the refugees, which are Venezuelans, emphasizing the need for careful consideration of sampling and data collection methodologies. The inconsistency between the High Frequency Survey data and existing UNHCR global trends prompts a call for improving survey methods to ensure representative data points.

Given the substantial number of minors, it is essential to develop approachable education resources, which are grounds for children constructing resilience and social support networks. Barriers to schooling, such as financial constraints, documentation issues, and instability, demand nuanced solutions. While the government processes the legal application of refugee children, collaboration with social organizations to convey the critical importance of attending school and reduce expenses is crucial as well. Correlation analysis and t-tests reveal insightful relationships between stability, intentions, and education, emphasizing the need for flexible and specifically designed programs in host countries to prepare refugees for higher-level education.

In the healthcare domain, financial constraints emerge as a common barrier, indicating the economic challenges of refugees in accessing essential medical services. Targeted interventions, including financial assistance programs, partnerships with local healthcare providers, or initiatives to improve job opportunities are pivotal for refugees' livelihood. On the other hand, addressing disparities in healthcare quality necessitates capacity building, professional training, and infrastructure improvement. Healthcare institutes, instead of denying services, guide refugees on accessing available treatments based on their physical and psychological needs. As the situation evolves, continuous monitoring of education and

healthcare variables is fundamental. Adaptive strategies should be employed based on real-time data to address emerging challenges and changing healthcare needs.

In essence, the findings illuminate the multifaceted challenges faced by refugees in the Latin Americas, emphasizing the importance of tailored strategies. As we navigate the complexities of forced displacement, understanding the dynamic interactions between demographic trends, intentions, and barriers to education and healthcare becomes paramount. The analysis not only enriches our comprehension of the refugee landscape but paves the way for policies and interventions that address the unique needs of this vulnerable population.

References

Broner, T. T. (2023). *Venezuela's humanitarian emergency.* Human Rights Watch. https://www.hrw.org/report/2019/04/04/venezuelas-humanitarian-emergency/large-scale-un-response-needed-address-health#:~:text=The%2071%2Dpage%20report%2C%20%E2%80%9C,increases%20in%20the%20transmission%20of

Crawley, H., & Hagen-Zanker, J. (2018). Deciding where to go: Policies, people and perceptions shaping destination preferences. *International Migration*, *57*(1), 20–35. https://doi.org/10.1111/imig.12537

Doocy, S. (2019). Venezuela's humanitarian emergency. Human Rights Watch.

Ghosn, F., Chu, T. S., Simon, M., Braithwaite, A., Frith, M., & Jandali, J. (2021). The journey home: Violence, anchoring, and refugee decisions to return. American *Political Science Review, 115*(3), 982–998. https://doi.org/10.1017/s0003055421000344

International Health Partners. (n.d.). *Creating a better healthcare reality in Honduras*. https://www.ihpuk.org/stories/creating-a-better-healthcare-reality-in-honduras

Mora, J. P. (2019). *Costa Rican schools open their doors to displaced Nicaraguan children*. UNHCR US. https://www.unhcr.org/us/news/stories/costa-rican-schools-open-their-doors-displaced-nicaraguan-children

Save the Children. (2022). *One in Four Venezuelan Migrant Children in Peru Not in School*. OCHA Services: ReliefWeb. https://reliefweb.int/report/peru/one-four-venezuelan-migrant-children-peru-not-school

UNHCR. (1984). *Identity Documents for Refugees*. https://www.unhcr.org/us/publications/identity-documents-refugees-0

UNHCR. (n.d.-a) *Access to Healthcare*. https://www.unhcr.org/us/what-we-do/safeguard-human-rights/public-health/access-healthcare

UNHCR. (2022). *Education Access for the Forcibly Displaced: during and in the aftermath of the COVID-19 pandemic*. https://www.unhcr.org/us/media/education-access-forcibly-displaced-during-and-aftermath-covid-19-pandemic

UNESCO Institute for Statistics and UNHCR. (2021). *Refugee Education Statistics: Issues and Recommendations*. Montreal and Copenhagen, UIS and UNHCR. https://www.unhcr.org/us/media/refugee-education-statistics-issues-and-recommendations

UNHCR. (2023). *UNHCR Education Report 2023 – Unlocking Potential: The Right to Education and Opportunity*. https://www.unhcr.org/media/unhcr-education-report-2023-unlocking-potential-right-education-and-opportunity

UNHCR. (2022). *The Americas.* https://reporting.unhcr.org/globalreport/americas

UNHCR. (2023). *Global trends report 2022*. https://www.unhcr.org/global-trends-report-2022

UNHCR Refugee Statistics. (2023). *Forced displacement flow dataset.* UNHCR. https://www.unhcr.org/refugee-statistics/insights/explainers/forcibly-displaced-flow-data.html

U.S. Embassy in El Salvador. (2023). *Medical assistance*.

https://sv.usembassy.gov/u-s-citizen-services/doctors/

World Health Organization. (2022). *Refugee and migrant health.*

https://www.who.int/news-room/fact-sheets/detail/refugee-and-migrant-health

Appendix 1 Binary Variables

Binary variables giving the reason why children are not attending school:

Childwhynotschool_nodocs

Childwhynotschool_nomoney

Childwhynotschool_failedschool

Childwhynotschool_childwork

Childwhynotschool_fearschool

Childwhynotschool_disease

Childwhynotschool_disability

Childwhynotschool_helphome

Childwhynotschool_familynot

Childwhynotschool_noschools

Childwhynotschool_nointerest

Childwhynotschool_pregnancy

Childwhynotschool_nospot

Childwhynotschool_notransport

Childwhynotschool_discrimnation

Childwhynotschool_discrimethnic

Childwhynotschool_finished

Childwhynotschool_recentlyarrive

Childwhynotschool_intransit

Childwhynotschool_noinfo

Childwhynotschool_toolate

Childwhynotschool_nolanguage

Binary variables giving the reason why respondents do not get medical care:

whynotMedical_nomoney

whynotMedical_noinsurance

whynotMedical_noID

whynotMedical_noinfo

whynotMedical_feararrested

whynotMedical_distance

whynotMedical_notavailable

whynotMedical_denied

Appendix 2 Exploration Analysis

1. When family members migrate too, does it influence their intention to stay permanently in the country they migrated to?

   (1) Correlation between total number of group (total minor + total adult) with intention to move

```r
```{r}
data <- read.csv("C:/Users/ASUS/Documents/Practicum/Merged_Clean_dataset1.csv")

# colnames(data)

# Checking if there are any minors who travelled alone without adults
minors_only <- subset(data, TotalMinor > 0 & TotalAdult == 0)

# Checking for Adults without Minors
adults_only <- subset(data, TotalAdult > 0 & TotalMinor == 0)

# Create new variable "family size" which is the sum of TotalAdult + TotalMinor
data$FamilySize <- data$TotalAdult + data$TotalMinor

# unique(data$intentionmove)

# Recode intentionmove to numeric
# stay - 1; relocate - 2; dontknow - 3; notell - 4; unknown - 5
data$intentionmove_numeric <- as.numeric(factor(data$intentionmove, labels = c(1, 2, 3, 4, 5)))

# Calculate the correlation between FamilySize and intentionmove
res <- cor.test(data$FamilySize, data$intentionmove_numeric,
                    method = "pearson")
res


#
```
```

```
        Pearson's product-moment correlation

data:  data$FamilySize and data$intentionmove_numeric
t = -26.534, df = 43731, p-value < 2.2e-16
alternative hypothesis: true correlation is not equal to 0
95 percent confidence interval:
 -0.1350883 -0.1166407
sample estimates:
       cor
-0.1258754
```

Interpretation: the bigger the family size, the less intention to move

2. What is the correlation between disability and access to healthcare? (eg. Does disability severity influence access to healthcare?)

   (1) Correlation between Risk_yes and medical received

```
[[2024    0    0    0 1221]
 [ 767    0    0    0  603]
 [1692    0    0    0 1341]
 [ 332    0    0    0  229]
 [ 729    0    0    0 4182]]
              precision    recall  f1-score   support

           0       0.37      0.62      0.46      3245
           1       0.00      0.00      0.00      1370
           2       0.00      0.00      0.00      3033
           3       0.00      0.00      0.00       561
           4       0.55      0.85      0.67      4911

    accuracy                           0.47     13120
   macro avg       0.18      0.30      0.23     13120
weighted avg       0.30      0.47      0.36     13120
```

```
                            OLS Regression Results
==============================================================================
Dep. Variable:        RiskYes_encoded   R-squared:                       0.161
Model:                            OLS   Adj. R-squared:                  0.161
Method:                 Least Squares   F-statistic:                     8404.
Date:                Wed, 15 Nov 2023   Prob (F-statistic):               0.00
Time:                        17:22:03   Log-Likelihood:                -79212.
No. Observations:               43733   AIC:                         1.584e+05
Df Residuals:                   43731   BIC:                         1.584e+05
Df Model:                           1
Covariance Type:            nonrobust
==============================================================================================
                             coef    std err          t      P>|t|      [0.025      0.975]
----------------------------------------------------------------------------------------------
const                      1.1394      0.013     85.204      0.000       1.113       1.166
medicalReceived_encoded    0.3900      0.004     91.674      0.000       0.382       0.398
==============================================================================
Omnibus:                     5748.572   Durbin-Watson:                   1.426
Prob(Omnibus):                  0.000   Jarque-Bera (JB):             1797.193
Skew:                          -0.233   Prob(JB):                        0.00
Kurtosis:                       2.123   Cond. No.                        6.38
==============================

Notes:
[1] Standard Errors assume that the covariance matrix of the errors is correctly specified.
```

Interpretation: The OLS regression results indicate a statistically significant relationship between 'medicalReceived_encoded' and 'RiskYes_encoded', with an R-squared value of 0.161, suggesting that the model explains about 16.1% of the variance in the dependent variable. The coefficient for 'medicalReceived_encoded' is 0.3900, indicating a moderate positive effect on 'RiskYes_encoded'. Both the intercept and slope are statistically significant, as shown by their p-values. However, the low R-squared value and tests for normality of residuals (Omnibus and Jarque-Bera) suggest that the model has limited explanatory power

and potential issues with the normality of residuals, which could affect the reliability of the model's predictions.

3. Does the intention to move predict if their children are in school or not?

```
Coefficients:
                          Estimate Std. Error z value Pr(>|z|)
(Intercept)            -2.657e+01  6.432e+03  -0.004    0.997
intentionmovenotell     3.093e-24  3.121e+04   0.000    1.000
intentionmoverelocate   3.484e-24  8.725e+03   0.000    1.000
intentionmovestay      -2.573e-13  6.785e+03   0.000    1.000
intentionmoveUnknown    3.515e-24  7.378e+03   0.000    1.000
```

Interpretation: Not significant at all.

4. Does the decision to apply for asylum affect whether they access school/medical care?

   (1) School

y.level <chr>	term <chr>	estimate <dbl>	std.error <dbl>	statistic <dbl>	p.value <dbl>	conf.low <dbl>	conf.high <dbl>
yes	(Intercept)	5.1005124	0.3790674	13.4554223	2.860999e-41	4.3575539	5.84347095
yes	AppliedRefugeeyes	19.3413069	0.1791156	107.9822792	0.000000e+00	18.9902468	19.69236695
yes	AppliedRefugeenointention	-1.3178374	0.4603004	-2.8629946	4.196578e-03	-2.2200096	-0.41566531
yes	AppliedRefugeeunknown	-0.7067889	0.4291589	-1.6469165	9.957522e-02	-1.5479249	0.13434713
dontknow	(Intercept)	0.6189210	0.4687590	1.3203397	1.867216e-01	-0.2998296	1.53767172
dontknow	AppliedRefugeeyes	20.9883821	0.3313426	63.3434456	0.000000e+00	20.3389625	21.63780164
dontknow	AppliedRefugeenointention	-1.5350378	0.6730824	-2.2806089	2.257160e-02	-2.8542551	-0.21582044
dontknow	AppliedRefugeeunknown	-0.2003260	0.5348263	-0.3745627	7.079857e-01	-1.2485663	0.84791429
notell	(Intercept)	6.7715198	0.3781342	17.9077151	1.026643e-71	6.0303903	7.51264923
notell	AppliedRefugeeyes	19.2149049	0.1711033	112.3000202	0.000000e+00	18.8795486	19.55026120

   (2) Medical care

A tibble: 16 × 8

y.level <chr>	term <chr>	estimate <dbl>	std.error <dbl>	statistic <dbl>	p.value <dbl>	conf.low <dbl>
Disagree	(Intercept)	-2.24352571	0.06190698	-36.2402680	1.414375e-287	-2.36486117
Disagree	AppliedRefugeeyes	0.26003629	0.24662820	1.0543656	2.917156e-01	-0.22334610
Disagree	AppliedRefugeenointention	0.24457214	0.10927638	2.2381060	2.521414e-02	0.03039436
Disagree	AppliedRefugeeunknown	0.34916792	0.07651518	4.5633812	5.033629e-06	0.19920093
Undecided	(Intercept)	-0.51505531	0.03134939	-16.4295171	1.175917e-60	-0.57649899
Undecided	AppliedRefugeeyes	0.91310145	0.11182840	8.1652018	3.208983e-16	0.69392182
Undecided	AppliedRefugeenointention	-0.72109540	0.07266844	-9.9230888	3.303708e-23	-0.86352293
Undecided	AppliedRefugeeunknown	0.37285529	0.03939488	9.4645630	2.947911e-21	0.29564275
Agree	(Intercept)	-3.78161687	0.12844885	-29.4406433	1.658827e-190	-4.03337200
Agree	AppliedRefugeeyes	0.88405187	0.38518142	2.2951571	2.172412e-02	0.12911016

Interpretation: We ran a multinomial logistic regression on the intention to apply for refugee status with access to education and medical care separately. Looks like there are a lot

of significant results here. We used a multinomial logistic regression, but would love to think more about what categories to include or not before going much further

5. Does the perception of risk predict if they decide to apply for asylum or refugee status in the current country?

   (1) Riskyes and Applied_Refugee

```
predictions = model.predict(X_test)
print(confusion_matrix(y_test, predictions))
print(classification_report(y_test, predictions))
```

```
[[1104 2119]
 [ 735 4370]]
              precision    recall  f1-score   support

         0.0       0.60      0.34      0.44      3223
         1.0       0.67      0.86      0.75      5105

    accuracy                           0.66      8328
   macro avg       0.64      0.60      0.60      8328
weighted avg       0.65      0.66      0.63      8328
```

```
                            OLS Regression Results
==============================================================================
Dep. Variable:         AppliedRefugee   R-squared:                       0.083
Model:                            OLS   Adj. R-squared:                  0.083
Method:                 Least Squares   F-statistic:                     610.9
Date:                Tue, 14 Nov 2023   Prob (F-statistic):               0.00
Time:                        00:58:20   Log-Likelihood:                -17263.
No. Observations:               26889   AIC:                         3.454e+04
Df Residuals:                   26884   BIC:                         3.458e+04
Df Model:                           4
Covariance Type:            nonrobust
================================================================================================
                                   coef    std err          t      P>|t|      [0.025      0.975]
------------------------------------------------------------------------------------------------
const                            0.6333      0.005    137.424      0.000       0.624       0.642
RiskYes_Disagree                -0.2430      0.009    -28.573      0.000      -0.260      -0.226
RiskYes_StronglyAgree            0.1595      0.007     23.828      0.000       0.146       0.173
RiskYes_StronglyDisagree        -0.1658      0.012    -13.501      0.000      -0.190      -0.142
RiskYes_Undecided                0.0002      0.011      0.019      0.985      -0.021       0.022
==============================================================================
Omnibus:                   615709.180   Durbin-Watson:                   1.533
Prob(Omnibus):                  0.000   Jarque-Bera (JB):          3266.890
Skew:                          -0.525   Prob(JB):                        0.00
Kurtosis:                       1.654   Cond. No.                        5.27
==============================================================================
```

Interpretation: We have run two regression models, the logistic regression for initial insights into prediction accuracy and an OLS regression to detail the influence of each risk perception factor. The analysis concludes that perception of risk is a significant predictor of asylum-seeking behavior. Refugees who perceive a high risk in returning to their home country are more likely to apply for asylum. However, the R-squared is only 0.083 suggests

that there are other significant factors at play. Further research should include additional variables to better understand the complexities of asylum application decisions.