Check for updates

RESEARCH ARTICLE

Venezuelan migrant population in Colombia: health indicators in the context of the Sustainable Development Goals [version 1; peer review: awaiting peer review]

Laura Juliana Bonilla-Tinoco[1], Melissa Aguirre-Lemus [2], Julián Alfredo Fernández-Niño [2]

[1]Universidad Industrial de Santander, Bucaramanga, Colombia
[2]Universidad del Norte, Barranquilla, Colombia

v1 **First published:** 07 Jul 2020, **9**:684
https://doi.org/10.12688/f1000research.24997.1
Latest published: 07 Jul 2020, **9**:684
https://doi.org/10.12688/f1000research.24997.1

Abstract

Background: The number of Venezuelan migrants in Colombia has dramatically increased over the past years, which poses great challenges to the Colombian health system. Therefore, the aim of this study was to compare some health indicators related to the Sustainable Development Goals between the Venezuelan migrant population and the Colombian population.

Methods: A longitudinal, descriptive analysis of the maternal mortality ratio; the neonatal, infant and under-five mortality; the proportionate mortality due to undernourishment; and the rates of alleged sexual felony, intimate partner violence and domestic violence in the Venezuelan migrant population in Colombia and in the Colombian population in the 2015-2019 period was conducted. Maternal and child health and undernourishment indicators were estimated for the 2015-18 period, while the gender-based violence indicators were obtained only for 2018-19, since those were the years with information available for each of these indicators. Data was extracted from official sources, such as the National Administrative Department of Statistics (DANE), National Institute of Legal Medicine and Forensic Sciences (INMLCF) and Migración Colombia. The categorical and numerical variables were described through percentages and rates, respectively.

Results: Venezuelan migrants in Colombia had higher rates of maternal, neonatal, infant and under-five mortality, as well as proportionate mortality due to undernourishment, than the Colombian population throughout the study years, although the difference between them decreased at the end of the period. As for the gender-based violence indicators, the Colombian population showed higher rates than the Venezuelan migrants, and both Colombian and Venezuelan female victims showed higher rates in these violence indicators than their male counterparts of the same nationality.

Conclusions: Some apparent inequalities still persist despite the efforts of the Colombian government to attend to the health needs of the Venezuelan migrant population. Colombia must keep and strengthen migratory inclusion in its public policies to impact on migrants' health.

Open Peer Review

Reviewer Status *AWAITING PEER REVIEW*

Any reports and responses or comments on the article can be found at the end of the article.

Keywords
Transients and Migrants, Emigration and Immigration, Health Status Indicators, Colombia, Venezuela

Corresponding author: Melissa Aguirre-Lemus (melissaaglem@gmail.com)

Author roles: Bonilla-Tinoco LJ: Conceptualization, Data Curation, Formal Analysis, Methodology, Visualization, Writing – Original Draft Preparation, Writing – Review & Editing; **Aguirre-Lemus M**: Conceptualization, Validation, Writing – Original Draft Preparation, Writing – Review & Editing; **Fernández-Niño JA**: Conceptualization, Writing – Review & Editing

Competing interests: No competing interests were disclosed.

Grant information: The author(s) declared that no grants were involved in supporting this work.

Copyright: © 2020 Bonilla-Tinoco LJ *et al*. This is an open access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. Data associated with the article are available under the terms of the Creative Commons Zero "No rights reserved" data waiver (CC0 1.0 Public domain dedication).

How to cite this article: Bonilla-Tinoco LJ, Aguirre-Lemus M and Fernández-Niño JA. **Venezuelan migrant population in Colombia: health indicators in the context of the Sustainable Development Goals [version 1; peer review: awaiting peer review]** F1000Research 2020, **9**:684 https://doi.org/10.12688/f1000research.24997.1

First published: 07 Jul 2020, **9**:684 https://doi.org/10.12688/f1000research.24997.1

Introduction

Prior to recent years, Colombia had never experienced a massive immigratory wave in its whole history as a Republic. Contrarily, this country has registered three large emigration waves during the last century, in which many Colombian people migrated to the United States, Venezuela and Spain in the 60's, 80's and 90's, respectively. Consequently, Colombia has been historically considered an expelling country and had almost no experience as a recipient of international migrants[1].

Nonetheless, the number of Venezuelan migrants in Colombia has been increasing since the early 2000's, inasmuch as high-income Venezuelans progressively began to migrate to Colombia since 2005 as a consequence of the political and socioeconomic crisis in Venezuela. Furthermore, with the worsening of the crisis in 2014, Colombia started to experience new modalities of migratory movements from Venezuela, specifically from the Táchira, Carabobo, Zulia, Barinas and Lara states. The initial flow included mainly a large proportion of deported and returned Colombians, as well as of binational citizens and their families, but then began to be mainly constituted by migrants of irregular condition, including refugees, pendular migrants, migrants in transit and irregular migrants that intend to stay in Colombia[2]. Additionally, the migratory phenomenon from Venezuela has been dramatically growing, reaching a massive peak in 2017–2018[3], so that as of December 2019, roughly 1.7 million Venezuelan immigrants resided in Colombia. Bogotá D.C, Norte de Santander, Atlántico, La Guajira and Antioquia are the zones of highest concentration, with over 100,000 Venezuelan migrants reported in each zone[4]. Moreover, by that date only 754,085 were regular migrants, while the remaining majority (1,017,152) had an irregular migratory status. The latter indicates that, currently, more than half of the Venezuelan migrants in Colombia (57.43%) do not have any type of Colombian documentation that would allow them access to health insurance and formal jobs in Colombia[4].

Health status and healthcare access for Venezuelans have been considered big challenges for the Colombian government from the very beginning of the migratory crisis[2], considering that an increase in cases of public health interest events has been reported among migrants from Venezuela in Colombia, as indicated in the "27th Bulletin - Notification of public health interest events during the migratory phenomena"[5]. The events with the highest reported cases among people coming from Venezuela were malaria, gestational syphilis, domestic and gender based violence, extreme maternal morbidity, HIV/AIDS mortality and acute undernourishment in under-fives[5].

Given the growing dynamics of the Venezuelan migratory phenomenon, its impacts on the health sector and the challenges it represents, the Colombian government has generated a quick response to attend to the health problems and needs of the migrant population. Thus, the "Response Plan to the Migratory Phenomena from the Health Sector and the document of public policy by the National Council for Economic and Social Policy # 3950" (Conpes 3950 in Spanish) was designed[6]. The first document enabled health services access for regular migrants, indigenous people and Colombian returnees, and comprehensive care for pregnant women and children less than a year old, independently of their migratory status; while irregular migrants can only access emergency services and nationwide public health interventions[1]. The second document determined strategies and lines of action to identify needs in the supply of health services; provide technical assistance to increase health insurance for regular migrants and Colombian returnees; and promote monitoring of the irregular migrants' health care[6].

Considering all of the above, the analysis of the migratory phenomenon at the national level must include the characterization and health diagnosis of the Venezuelan migrant population in Colombia. In addition, it is necessary to evaluate health outcomes inequalities between Colombians and Venezuelans in Colombia as a potential and emergent issue. This assessment should be done taking into account the 2030 Agenda for Sustainable Development, which was set up by the World Sustainable Development Summit (WSDS) in 2015 in New York and describes the 17 Sustainable Development Goals (SDG) and their 169 universal targets that are valid for 15 years (as described by the International Organization for Migration). These SDGs are shared between countries and used to monitor progress under an equality perspective, so each country has to develop effective strategies and mechanisms to achieve the SDG according to their social needs.

Additionally, the SDGs not only have health-related objectives (maternal and child health, malnutrition and gender violence), but also consider migration to be an essential topic to contribute to the development on each country. This is stated in the 10.7 target from the 10th objective, which appeals for "orderly, safe, regular and responsible migration and mobility of people" and the design of well-managed migration policies[7]. Based on this, the comparison of health results between Venezuelan migrants and Colombian people allows us to ascertain the presence of gaps in the inclusion of the migrant population in the host population and the degree of fulfillment of the SDGs in Colombia. Thus, the objective of this study was to compare some key health indicators, related to the SDGs, between the Venezuelan migrant population in Colombia and the Colombian population.

Methods

Study design and data extraction

The current investigation is a longitudinal, descriptive analysis of some health indicators related to maternal and child health, undernourishment and gender-based violence in the Venezuelan migrant population in Colombia and in the Colombian population in the 2015–2019 period. The analyzed health indicators were chosen based on their relation to the second (zero hunger), third (good health and well-being) and fifth (gender equality) SDGs.

The study was conducted using official records from the following governmental institutions: National Administrative Department of Statistics (DANE, from its initials in Spanish), National Institute of Legal Medicine and Forensic Sciences (INMLCF,

from its initials in Spanish) and Migración Colombia, which is the Colombian migration agency. These records are publicly accessible on the institutes' websites and can be downloaded without any formal request.

Data from the DANE were taken from the Vital Statistics section, which is based on live birth and death certificates, and on the certificates issued by the Civil Registry officials when there has not been contact with a health professional. Information from this source allowed the construction of the following indicators: maternal mortality ratio, neonatal mortality, infant mortality, under-five mortality, and proportionate mortality due to undernourishment. Data extraction was made from the files corresponding to the years 2015–18; information from 2019 has not been published yet. In these files, nationality was ascertained through a question regarding the country of regular residence of the deceased person or of the mother of the newborn (for deaths in children less than a year and for the live births) when they resided in a country that was not Colombia.

Data from the INMLCF include all external cause of injury cases that occurred in any site of the Colombian territory, have a technical report and are directly or indirectly known by the INMLCF[8]. In the case of Migración Colombia, the estimated figures are based on the information obtained through the assessment and cross-referencing of administrative registries, such as the Special Residence Permit (PEP, from its initials in Spanish); the Administrative Registry of Venezuelan Migrants (RAMV, from its initials in Spanish); the Foreign Registry Information System (SIRE, from its initials in Spanish); migratory entries (hosting intention); and estimations of irregular migrants made by the migratory authority[4,9]. Furthermore, the population projections made by the DANE for the 2018–2023 period were also used; these are calculated based on the results from the National Population and Housing Census from 2018.

These three sources allowed the estimation of alleged sexual felony, intimate partner violence and domestic violence rates. The INMLCF makes a distinction between intimate partner violence and domestic violence in that the latter regards a wider type of violence that comprises violence against children, intimate partner violence, violence among other family members and violence against the elderly. Nonetheless, the indicators were estimated just for 2018 and 2019 because the victim's nationality started being registered in the INMLCF records as of 2018 and because public data from Migración Colombia regarding the number of Venezuelan people in the Colombian territory were more complete and specific as from this same year. It is worth clarifying that although information about non-fatal injuries of external cause for 2019 has a cut-off date of December 31st, it is still labeled as preliminary. Similarly, the latest 2019 infographic released by Migración Colombia was published in early 2020. The indicators for the Venezuelan population used data from Migración Colombia as denominators, while indicators for Colombian people used information from the DANE population projections. In both cases, the numerator was extracted from the INMLCF files.

Indicators

Maternal mortality ratio (MMR): refers to the ratio between the number of maternal deaths and the number of live births for a given time and space (expressed per 100,000 live births). According to the Pan-American Health Organization (PAHO), a maternal death refers to the death of any woman who died while pregnant or in the 42 days following the pregnancy ending, irrespective of the site and duration of the pregnancy, and whose cause of death was related or worsened either by the pregnancy or the care of it. The latter entails having an International Classification of Diseases, 10th revision (ICD-10) diagnosis of O00-O99 (except for O96 and O97) in the basic cause of death[10]. Based on the above, we included all records of women whose basic cause of death was any of the indicated ICD-10 diagnoses, who were of reproductive age (10–59 years for the present study) and who had a positive answer either to the question asking whether the woman was pregnant the moment she died or had been pregnant in the six weeks prior to the death.

Neonatal, infant and under-five mortality: all indicators use the number of live births (LB) as denominators, whereas the number of deaths in newborns aged 0–27 days; in children aged less than a year; and in children aged less than five years were used as the numerators for the neonatal, infant and under-five mortality, respectively[10]. Data extraction involved filtering by the age of the deceased person, so that all records that fulfilled the age criteria were included, irrespective of the diagnosis of the basic cause of death. The results are expressed per 1,000 LB.

Proportionate mortality due to undernourishment: was estimated as the percentage of deaths that occurred in each year of the study period due to undernourishment (number of deaths due to undernourishment divided by the total deaths per year). A death due to undernourishment was considered to be a death that had an ICD-10 diagnosis of E40-E46, E50-E64, D513, D520 or D5 in the basic cause of death; the selected diagnoses are based on the "Nutritional deficiencies and nutritional anemias" group from the PAHO's 6/67 mortality list[11]. Additionally, the age distribution of the deaths due to undernourishment was also assessed by dividing the number of undernourishment deaths in each age group of interest (less than a year, under five years and adults 65+ years) into the total number of undernourishment deaths per year.

Rates of alleged sexual felony, intimate partner violence and domestic violence: the number of cases of alleged sexual felony, intimate partner violence and domestic violence served as numerators, while the total population of Venezuelan people in Colombia (extracted from the Migración Colombia infographics) and the total Colombian population (population projections estimated by the DANE) served as the denominators for the Venezuelan and the Colombian indicators, respectively. Rates by sex were estimated only for 2018 because the information of the 2019 infographic was not disaggregated by sex. The results are reported per 100,000 habitants.

Statistical analysis

A descriptive analysis was conducted by means of numerical and graphical methods. The categorical and numerical variables were described through percentages and rates, respectively; and trend, bar and stacked bar charts were used to graph the estimates. All indicators were estimated using Microsoft Excel 2013 and graphics were done in Tableau 2019.2.1 for visualization purposes; however, graphics can also be constructed in Microsoft Excel.

Ethical considerations

The present study was based on administrative, secondary information, i.e. official national records, which are properly anonymized, preventing individual identification; are of public access; and do not contain personal information. Given the above and that it was not conducted on human participants, this investigation did not need approval of an ethics committee, according to the 8430 Resolution of 1993[12,13].

Results

Table 1 shows all the variables needed to estimate the health indicators. Broadly, maternal mortality ratio and neonatal, infant and under-five mortality (Figure 1 and Figure 2) were found to be higher in Venezuelans than in Colombians throughout the whole study period, even reaching values higher than the SDG 3 targets for maternal (<70 maternal deaths per 100.000 LB), neonatal (<12 neonatal deaths per 1,000 LB) and under-five mortality (<25 neonatal deaths per 1,000 LB). Nonetheless, these indicators also displayed a downward trend, even accomplishing the goals for neonatal mortality at some points (2017–18).

Table 1. Variables to estimate the health indicators in the Colombian and Venezuelan populations in Colombia, 2015–19.

Variables	Venezuelan population					Colombian population				
	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Live births	66	202	1086	3859	--	660825	646325	655508	645128	--
Number of maternal deaths	0	1	3	9	--	352	331	332	284	--
Number of deaths in newborns 0–27 days	2	3	3	31	--	4587	4505	4520	4444	--
Number of deaths in children less than a year old	4	8	23	72	--	7220	7200	7015	7203	--
Number of deaths in under-fives	5	16	35	95	--	8718	8812	8507	8766	--
Number of deaths due to under-nourishment	2	2	8	36	--	1673	1797	1596	1735	--
Number of deaths due to under-nourishment in children less than a year old	0	0	6	16	--	183	205	158	225	--
Number of deaths due to under-nourishment in under-fives	0	2	1	12	--	111	150	89	140	--
Number of deaths due to under-nourishment in adults aged 65+	1	0	1	4	--	1112	1144	1067	1101	--
Total deaths	76	130	252	615	--	218968	222445	227203	235057	--
Total cases of alleged sexual felonies	--	--	--	412	883	--	--	--	25567	24729
Cases of alleged sexual felonies in women	--	--	--	367	746	--	--	--	21870	21296
Cases of alleged sexual felonies in men	--	--	--	45	137	--	--	--	3697	3433
Total cases of intimate partner violence	--	--	--	575	1313	--	--	--	49010	46122
Cases of intimate partner violence in women	--	--	--	516	1179	--	--	--	42177	39525
Cases of intimate partner violence in men	--	--	--	59	134	--	--	--	6833	6597

Variables	Venezuelan population					Colombian population				
	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Total cases of domestic violence	--	--	--	825	1793	--	--	--	77349	71392
Cases of domestic violence in women	--	--	--	676	1462	--	--	--	59001	54623
Cases of domestic violence in men	--	--	--	149	331	--	--	--	18348	16769
Total population	--	--	--	1032016	1771237	--	--	--	48258494	49395678
Total female population	--	--	--	454884	--	--	--	--	24685207	25271995
Total male population	--	--	--	496413	--	--	--	--	23573287	24123683

This table presents the raw data necessary to estimate the health indicators analyzed in this study.

Latest vital statistics data (live birth and deaths) is from 2018.

Information about violence (alleged sexual felony, intimate partner violence and domestic violence) disaggregated by nationality was available only as of 2018.

Sex-disaggregated information about the total Venezuelan population in Colombia was available only for 2018.

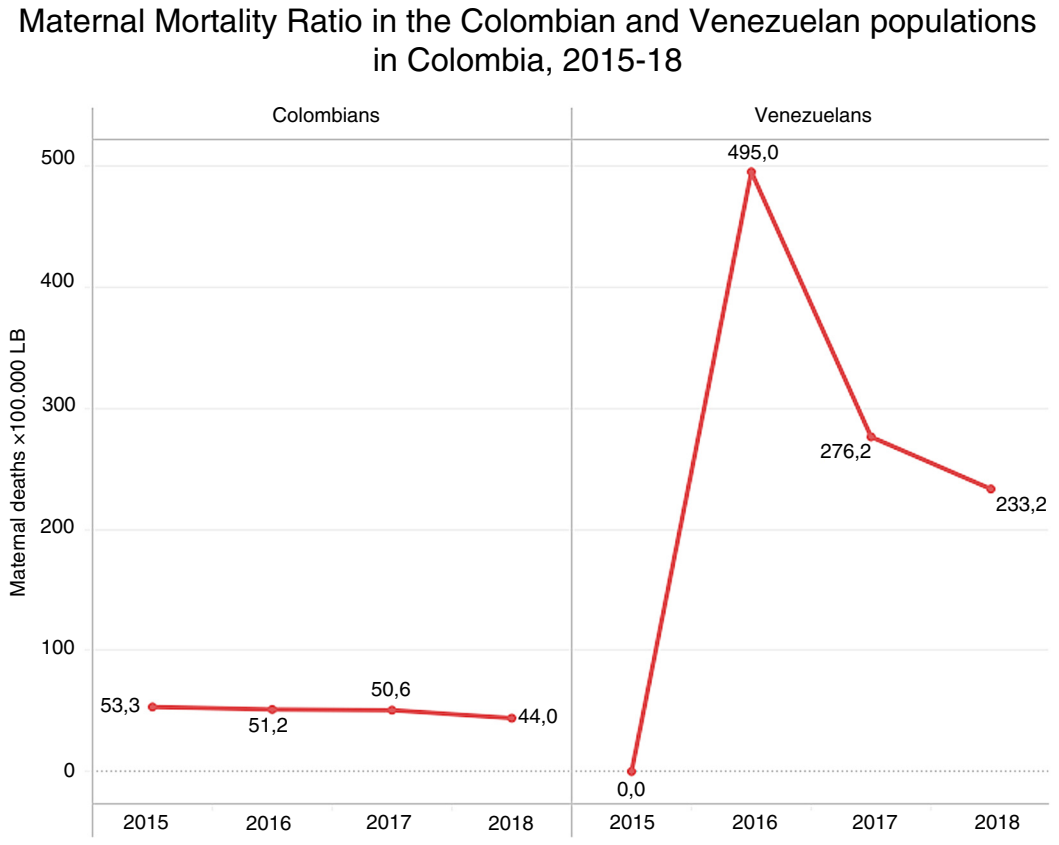


Figure 1. Maternal mortality ratio in the Colombian and Venezuelan populations in Colombia, 2015–18. The maternal mortality ratio trend was stable in the Colombian population throughout the study period, while it showed a downward trend in the Venezuelan migrants. Additionally, the Venezuelan migrants had notably higher figures than the Colombian population. LB: live births. Ratios are reported per 100,000 LB.

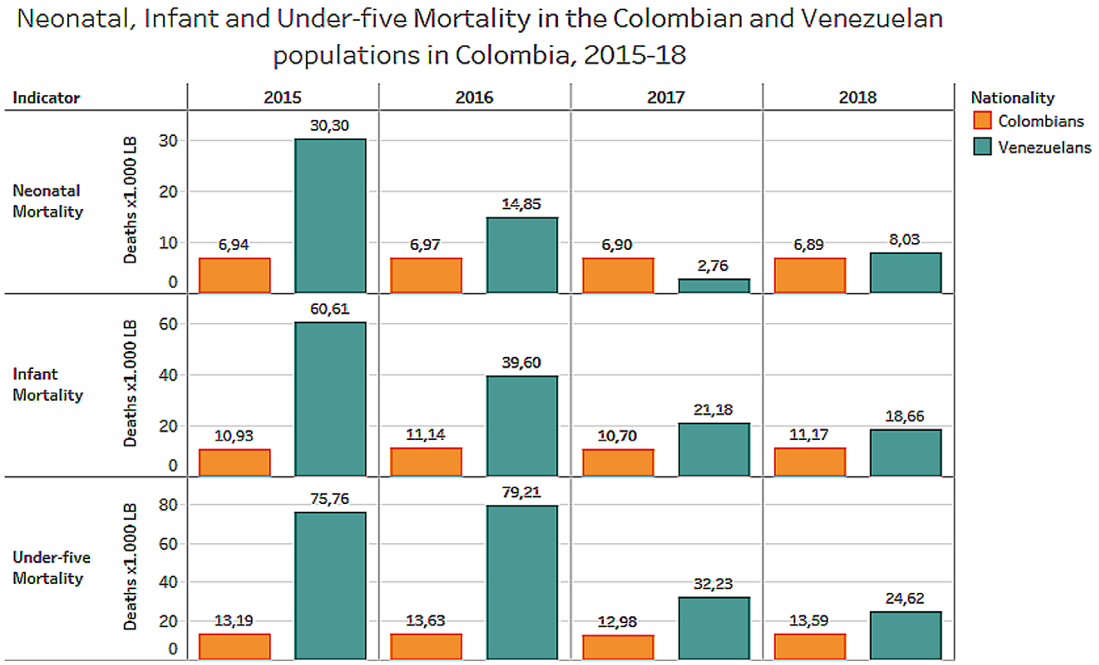


Figure 2. Neonatal, infant and under-five mortality in the Colombian and Venezuelan populations in Colombia, 2015–18. The mortality figures were always lower in the Colombian population than in the Venezuelan migrants, although figures for the latter had a downward trend during the study years, so that the difference in the mortality indicators between populations was smaller at the end of the period. LB: live births. Rates are reported per 1,000 LB.

On the other hand, trends of the indicators for Colombians were stable throughout the study years and their values were always within the expected goals.

Regarding proportionate mortality due to undernourishment, the Colombian population had a stable trend during the study period (0.8% in 2015–16 and 0.7% in 2017–18), while the Venezuelan population showed increasing values over time (2.6%, 1.5%, 3.2%, and 5.9% in 2015, 2016, 2017 and 2018, respectively). It can be seen that even the lowest value for the Venezuelan population is roughly two-fold the highest value of the Colombian population. Additionally, the age distribution of proportionate mortality due to undernourishment (Figure 3) showed a different epidemiological profile of affected people: whilst deaths due to undernourishment predominantly affected adults 65+ in Colombians (over 60% in each year of the study period), children were the most affected in Venezuelans (accounting for more than 75% of undernourishment deaths in 2016–18).

As for violence, the Colombian population had higher rates of all types of violence (alleged sexual felony, intimate partner violence and domestic violence) in both 2018 and 2019. However, the Colombian population had a slight decrease in its violence rates from 2018 to 2019, while the contrary occurred in the Venezuelan population, resulting in less pronounced differences between the two population's rates. In addition, domestic violence was the most frequent type of violence in both Colombians and Venezuelans (Figure 4). On the other hand, sex disaggregation revealed that, in 2018, female victims had higher rates in all of the gender-based violence indicators in comparison to male victims, and that Colombian women had higher violence rates than Venezuelan women. Once again, domestic violence was the most frequent type of violence in both Colombian and Venezuelan men and women (Figure 5).

Discussion

Currently, literature about Venezuelan migrants' health status is limited; even Colombia lacks sufficient information on this subject despite being the main receptor of said migratory phenomenon, though some research has been done[14]. Hence, the present study aimed to make a comparison of some SDG-related health indicators between the Venezuelan migrants in Colombia and the Colombian population, which showed that maternal and child and undernourishment indicators in the former were always worse than in the latter during the study period (although the gap between Colombians' and Venezuelan migrants' indicators tended to decrease throughout the years). Conversely, the Colombian population had higher violence rates than the Venezuelan migrants.

Some other efforts to characterize the Venezuelan migrants in Colombia and their health needs have been made. For example, a report made by Profamilia describes the unmet sexual and reproductive health needs of the Venezuelan migrants in Colombia, and also presents figures for the Venezuelan country for some of the indicators analyzed in this study[15], although they are likely to be inaccurate because the Venezuelan government has not produced official mortality statistics since 2013[16]. Thus,

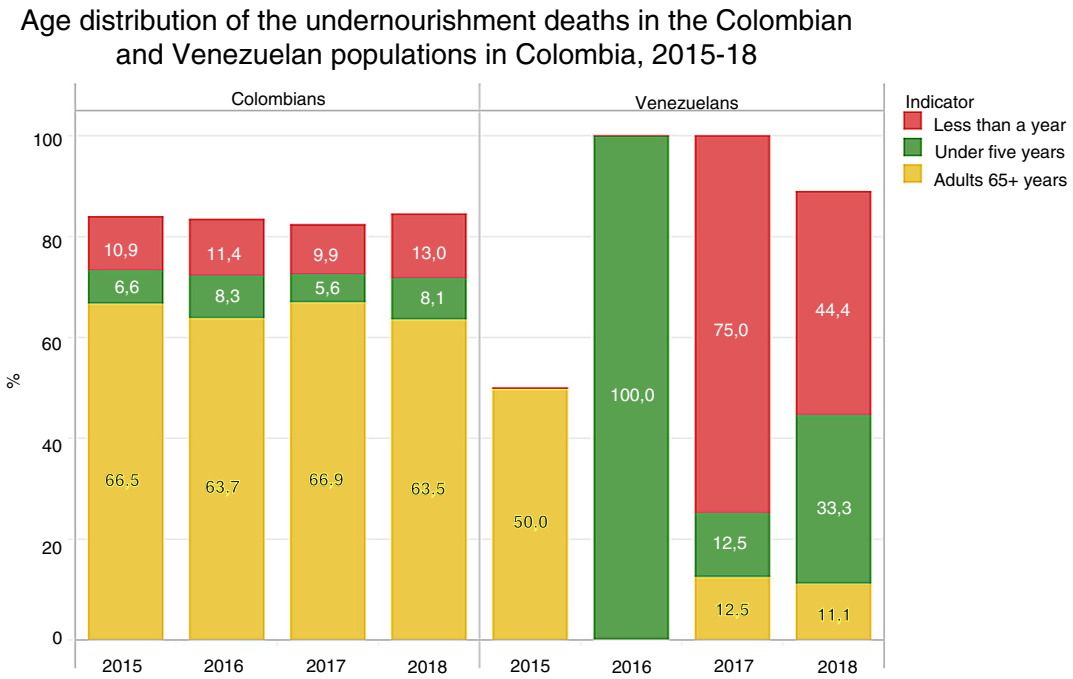


Figure 3. Age distribution of the undernourishment deaths in the Colombian and Venezuelan populations in Colombia, 2015–18. The age distribution of the undernourishment deaths clearly show a different profile of affected groups: while older adults are the most affected in the Colombian population, children represent the majority of those who died from undernourishment in the Venezuelan migrant population. Estimations were made by dividing the number of undernourishment deaths in each group of interest by the total number of undernourishment deaths per year. This means the reported percentages do not add up to 100% because only age groups of less than a year old, under-fives and adults aged 65+ were assessed.

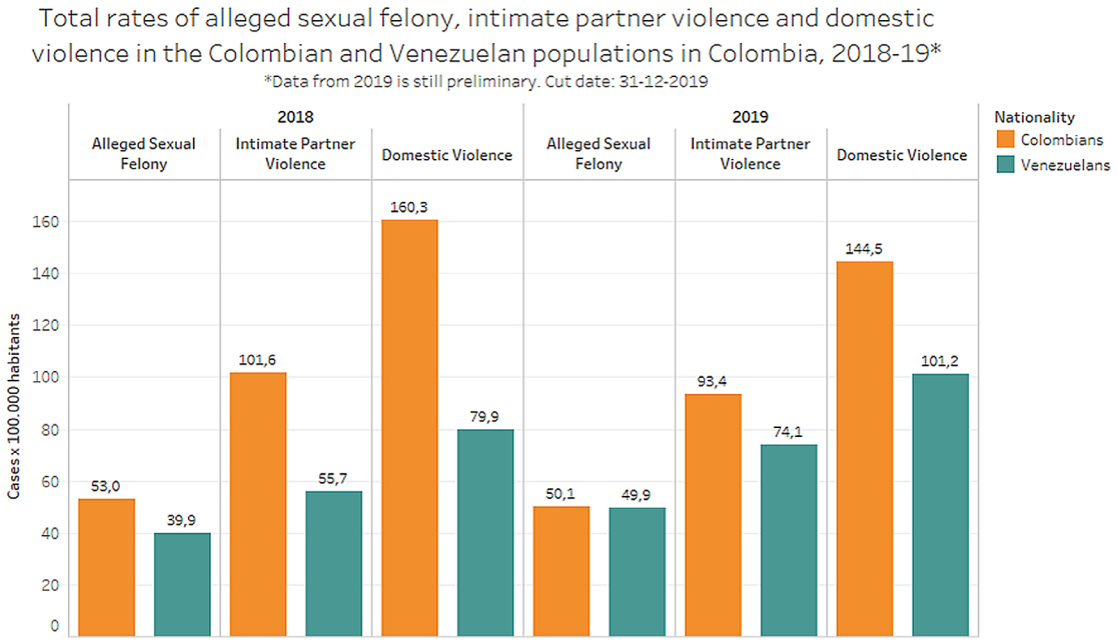


Figure 4. Total rates of alleged sexual felony, intimate partner violence and domestic violence by nationality, 2018–19. The Colombian population had higher violence rates than the Venezuelan migrants in all types of violence in both years. However, the violence rates increased in the Venezuelan migrant population in 2019, so the differences between populations decreased from one year to another. In both years and population groups, domestic violence was the most frequent type of violence. Data from 2019 is still preliminary. Cut date: 31-12-2019. Total rates are reported per 100,000 habitants. Domestic violence includes violence against children, intimate partner violence, violence among other family members and violence against the elderly.

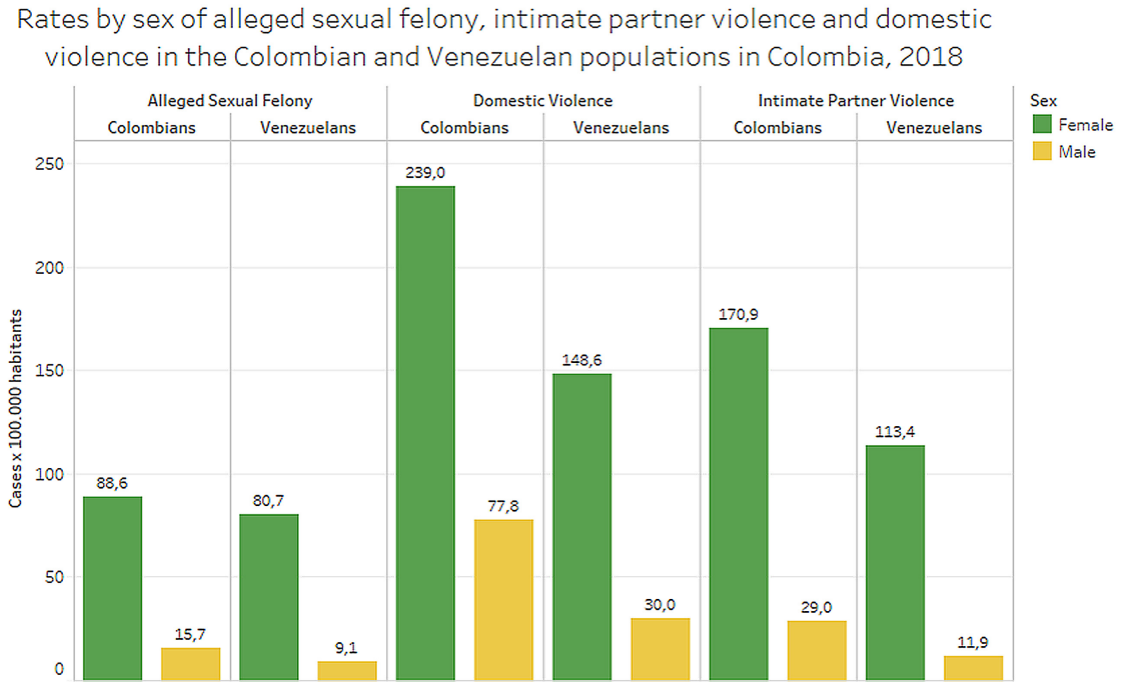


Figure 5. Alleged sexual felony, intimate partner violence and domestic violence rates by sex and nationality, 2018. It can be seen that both Colombian males and females showed higher violence rates than the Venezuelan migrants, but women were always more affected than men in every analyzed type of violence, so that violence rates were highest among Colombian female victims. As previously noted, domestic violence was the most frequent type of violence among women and men, and in both Colombians and Venezuelan migrants. Total rates are reported per 100,000 habitants. Domestic violence includes violence against children, intimate partner violence, violence among other family members and violence against the elderly.

the maternal mortality ratio in Venezuela in 2015 was reported to be 95 maternal deaths per 100,000 LB and the infant mortality in 2016 was 12.5 per 1,000 LB[15]. Another example is the "Migración Venezuela Project", whose report on migrants' use of health care services shows women and individuals aged 20–29 years were the ones who used health services the most. Furthermore, it indicates the principal causes for hospitalization were those related to pregnancy, delivery and puerperium, and that the number of legal-medical exams performed on victims of alleged sexual felony steadily increased from 2017–2019[17]. Although that report does not address the same indicators presented in this study, its information is complementary to our estimations and helps in understanding the health needs of the migrant population.

Despite all the efforts the Colombian government has made to attend the health needs of the Venezuelan migrants, there are still some apparent inequalities, as shown by the low accomplishment of the second and third SDGs in the Venezuelan migrant population, evidenced through the notable differences in the indicators related to maternal and child health and undernourishment. The above could be due to barriers to access health care services, which directly affects the migrants' health outcomes. Considering Andersen's Behavioral Model of Health Services Use and its subsequent revisions[18], the policies designed to respond to the migratory phenomenon can be framed within the enabling factors because they enable and regulate health care for regular migrants, pregnant women and children aged less than a year, and prepare the territories and the strengthen the health system in response to the increasing health care demand by migrants. Additionally, migratory status is also an enabling factor, since an irregular migratory status serves as a barrier to use the health services not only because it grants access to just emergency services, hindering the appropriate monitoring of other health conditions, but also because these particular migrants might avoid using health services out of fear of being deported. At the same time, this fear of being forcefully returned to their country of origin can be considered a predisposing factor, given the status of these individuals in the community (social structure); sex, age and education are also predisposing factors. Furthermore, perceived health status and health conditions that clearly require medical attention (pregnancy, undernourishment, etc.) represent the need component of the model.

Additional to the difficulties in accessing health services, another possible explanation for the Venezuelan migrants having worse indicators might be the previous and chronic exposure they had to medicine, food and basic public services shortages, and to an undermined health system in their country of origin. Venezuela's socioeconomic crisis has produced numerous public health issues, such as alarming increases in neonatal, infant and maternal mortality, undernourishment and vector-borne diseases[16,19,20]. Added to this vastly poor health situation, a great number of Venezuelan migrants who come to Colombia

cross the boarders by walking, thereby walking long distances, exposing themselves to extreme temperatures and other multiple risks[21], which can also negatively impact their health.

On the other hand, the apparent gap in the health indicators for the analyzed populations might be overestimated due to difficulties related to the data and its collection. First, there might be a low quality of the registered data before 2017, when two national directives, the external circulars 012 and 029, were given in order to systematize and improve the reporting of data of the health services given to foreigners in health facilities from border[22] and non-border zones[23]. These two documents, which describe the process of sending a series of files from the health service facilities and indicating the nationality of the patient, helped to enhance information systems regarding the Venezuelan migrants' health data that was available to characterize them. Second, there was also a low level of surveillance, registry and reporting of health events in the migrant population at the beginning of the migratory crisis, which could also have impacted the registered data. Third, data limitations can also be another factor, since estimates from Venezuelan migrants are more unstable due to their small denominators, which is clearly seen in the maternal mortality ratio results. Fourth, the apparent lower violence indicators in Venezuelan migrants might be a reflection of a higher reluctance to report a case of violence out of fear of being deported or for the reversal of the process against them. Another currently documented reason is the lack of empowerment and leadership of the institutions in charge of attending violence cases, which increases misinformation in the migrant population, who do not know where to go and which entities could provide support[24–26]. However, it should be noted that over the past two years, different sectors, such as health, protection, justice, education, and the public ministry, have been coordinating efforts to strengthen the route against gender-based violence in the territories, which varies according to the institutional capacity in each territory. Similarly, some Colombian departments have received technical support and accompaniment from international organizations and the health ministry in order to establish strategies that contribute to mitigate gender-based violence in the migrant population (such as the UN Women 'Valiantes' strategy, UN Women and National Planning Department workshops, the UN Women 'Diálogos entre Lideresas colombianas y venezolanas' initiative and the Ministry of Health's 'Comprehensive approach to gender violence').

Considering the Venezuelan migrants' characteristics, their health needs and the growing demand on health services, the public policy Conpes 3950[6] was designed as part of the Colombian government's response to the migratory phenomenon. Its strategies and lines of action include: 1) identification of the needs of health services in territories that are affected by the Venezuelan migration to define the needs for strengthening the installed capacity in infrastructure, human talent and biomedical supplies of health facilities; 2) provision of technical assistance to increase the Venezuelan migrants' and Colombian returnees' affiliation to the health system, and to keep a follow-up of the health events of irregular migrants; 3) improvement of the public health response capacity of the host territories and communities, emphasizing the strengthening of the public health surveillance response capacity for a timely detection of public health interest events and the issuance of early alerts; and 4) establishment of migratory flexibility mechanisms for the incorporation of the Venezuelan migrant population. Additionally, different institutions, organizations and cooperatives have established alliances and articulated efforts to form a balanced offer of health care according to the needs of the population, implementing "Mobile Units" in the territories to support institutional capacity. These units allow the provision of advice, guidance, and health care to the Colombian and Venezuelan population, which promotes prioritization and attendance of events of public health interest and strengthening information and processes (for example, the Colombian Institute for Family Welfare (ICBF) and the United Nations Agency for Refugees (UNHCR) agreement to strengthen care for refugee and migrant children from Venezuela, the introduction of mobile justice units in Bogotá by the Ministry of Justice and Law, and the 'Salud para la paz' initiative).

Some administrative difficulties in accessing health care persist despite the establishment and implementation of the lines of action of Conpes 3950, which relate to the Venezuelan migrants' lack of knowledge and disinformation about the functioning of the Colombian health system and of the process to effectively affiliate to it. For example, although migrants who have the PEP have the chance to affiliate to the Colombian health system, a lot of them prefer to engage in other activities instead of completing the administrative procedures because they imply a time and money investment, which usually they cannot afford. Furthermore, it has been seen that even when a Venezuelan migrant affiliates to the Beneficiary Selection System for Social Programs (SISBEN, from its initials in Spanish), obstacles to access health care still persist[27].

Based on the above and on the Venezuelan migrants' panorama from the last five years, the Colombian government must keep and strengthen migratory inclusion in its public policies to achieve a direct and positive impact on the social determinants of health. Said restructuring would respond to the obligation of states to respect and guarantee the rights and freedoms recognized internationally to all people, regardless of their immigration status[28]; therefore, Colombia must take measures to balance, adapt and redistribute resources, in order to improve the health status of its residing population, regardless of their nationality. In addition, it must take into account universal health coverage, which emphasizes comprehensive access to all health services and equity in health without financial deprivation.

On the other hand, it also has to be kept in mind that the migratory phenomenon coming from Venezuela is classified as a South-South Migration, which is characterized by a movement of migrants between low- and middle- income countries[29,30], so that a poor social response capacity within origin and destination countries is evidenced. This translates into less access to health, education and work; and increased susceptibility to irregular migration; migrant smuggling; and human trafficking[31]. Given this context and that Colombia is the main recipient of Venezuelan migrants, the migratory phenomenon can be seen and faced as an opportunity to progress at the regional level in the accomplishment of the SDGs, not only in those directly related to the health status of its inhabitants, but also in the tenth objective, which pertains to the reduction of inequalities. This would

indicate that despite one of the main strategies of the National Development Plan 2018–2022 is to intervene in the determinants of inequality in the country[32], migrants cannot be excluded from public policies in order to comply with the SDG targets, since the reduction of inequalities implies the social, economic and political inclusion of all people without any distinction; the guarantee of equality in opportunities; and the facilitation of an orderly, safe, regular and responsible migration and mobility of people.

Finally, the present study shows the need for accurate, reliable and up-to-date information to facilitate the decision-making process and the design and assessment of public policies. This supports continuing to improve the already available information systems through more frequent updates and the inclusion of some basic demographic variables in the reports. Likewise, the design and implementation of better sources of information are required to comprehensively assess the health status of Venezuelan migrants and to overcome the obstacles of the currently available data. The latter could be achieved through a population survey focused on migrants, with the objective to assess their health status and other processes related to it, including migrants who meet inclusion criteria not related to their migratory status or to their history of previous contact with a health or justice entity. Such an information source would allow primary data to be obtained that is actually focused on assessing the health status of the Venezuelan migrant population, which would allow more valid estimates.

Strengths and limitations

Within the strengths of this research are its originality and novelty, considering that literature on the Venezuelan migrants' health status is scarce and Colombia does not currently have an updated report of public health interest events that compares health indicators (especially those related to the SDGs) between Venezuelan migrants and the Colombian population. Therefore, our investigation contributes new information about this important topic, enabling a bigger and more updated picture of the migrants' health status, which may enhance the restructuring of actions and the decision-making process to strengthen information systems and the responses from the health sector. In addition, the analysis was conducted with the latest data available in official records at the national level, which are one of the few sources of information at the moment, since other data are not official and no population surveys or other types of studies have been conducted to collect health status information about the Venezuelan migrant population. Finally, our results might help in assessing the degree of accomplishment of the SDGs in the Colombian territory and serve as guidance for future assessment of the health strategies used to comply with such goals.

On the other hand, there are also limitations that have to be discussed. First, some data from certain sources might be underestimated due to under-registration. This is the case for data from the INMLCF because they only register cases that have been denounced and whose victim did not desist from the medical-legal examination. Under-registration is also an issue in the estimations from Migración Colombia due to the highly-mobile migrant population (pendular and in-transit migrants) and to the high number or irregular migrants who use non-authorized crossing points in the borders. However, Migración Colombia tries to make the most accurate estimation possible of the number of Venezuelan migrants in Colombia by cross-referencing data from different information systems. Second, a selection bias is likely to affect the data used for the analysis, since the collected information comes from people who survived the migratory journey, while others die while trying to reach other countries[21], and those who have had any contact with a health or justice institution. Therefore, subjects who cannot access health care or any other institution that makes a report are excluded from the official records. This is the case of irregular migrants, who can only access emergency health care services or who might not go to a health or justice facility out of fear of being deported. Additionally, the high mobility of the Venezuelan migrant population also hinders monitoring and data collection related to the health of these individuals. Third, an information bias (classification bias) cannot be ruled out in the estimations that were based on the information from vital statistics since "nationality" was not actually assessed; instead, the country of regular residence of the deceased person or of the mother of the deceased child/live birth was recorded. This does not allow the differentiation of Colombian returnees, foreigners who have been living in Colombia for several years or people who hold dual nationality (the latter hinders even more the distinction between Colombians and Venezuelan). This would be more relevant for the estimations of the Venezuelan population present in Colombia, inasmuch as their estimates are more unstable given their small denominators. Fourth, the total rates of alleged sexual felony, intimate partner violence and domestic violence could only be estimated since 2018 because that was the year from which the INMLCF started to register the victim's nationality. Additionally, the rates by sex of the abovementioned indicators could only be estimated for 2018 because Migración Colombia did not provide the sex distribution of the total number of Venezuelan migrants in Colombia in the latest report of 2019. This is an aspect that should be enhanced for future publications.

Conclusion

The health indicators evaluated in this study show an apparent inequality in the fulfillment of some SDG targets between the Colombian population and the Venezuelan migrants in Colombia, with the former having better results in terms of lower maternal, neonatal, infant and under-five mortalities, and lower proportionate mortality due to undernourishment. In order to face the migratory phenomenon, the Colombian government has established a health response plan, which is still relatively recent, and for this reason the evaluation of the indicators analyzed here should be continued to make the relevant modifications and adjustments, since the absence of adjusted and correctly designed policies to respond to identified needs could increase the problem. On the other hand, although responding adequately and assertively to the Venezuelan migration is a complex situation, which involves an adaptation process spanning from the receiving population to its different institutions, it is important to bear in mind that the migrants' poor quality of life has an impact on the receiving population. Therefore, Colombia must remember that as long as a country generates more opportunities for incorporation into society and suitable environments and conditions,

it will have greater possibilities of forming healthier population groups that minimize health costs in the medium and long term, and of having a higher compliance of the SDGs related to the health-disease process, thus improving the quality of life of its inhabitants.

Data availability

Source data

All data used to conduct this study are of public access and can be downloaded from the official websites of each institute without any formal request. The links to access them are shown below:

Vital statistics, DANE. "Defunciones" (deaths) or "No Fetal" (which refers to non-fetal deaths) and "Nacimientos" (live births) files from 2015–18: http://microdatos.dane.gov.co/index.php/catalog/MICRODATOS/about_collection/22/5.

Population projections, DANE. "Serie de proyecciones de población por área y sexo" file: https://www.dane.gov.co/index.php/estadisticas-por-tema/demografia-y-poblacion/proyecciones-de-poblacion.

Figures of injuries of external cause in Colombia, Violence Observatory (INMLCF). "Exámenes médico legales por presunto delito sexual. Colombia, 2018"; "Violencia intrafamiliar. Colombia, 2018" and "Información preliminar lesiones no fatales de causa externa en Colombia. Enero a diciembre de 2019" files: https://www.medicinalegal.gov.co/cifras-de-lesiones-de-causa-externa.

Infographics of the number of Venezuelan migrants in Colombia (2018 and 2019; the latest 2019 infographic was released in early 2020), Migración Colombia: https://www.migracioncolombia.gov.co/index.php/infografias.

References

1. Ministerio de Salud de la República de Colombia: **Plan de Respuesta del Sector Salud al Fenómeno Migratorio.** *Bogotá, D.C.* 2018; 49–69.
Reference Source
2. Banco Mundial: **Migración desde Venezuela a Colombia: impactos y estrategia de respuesta en el corto y mediano plazo.** 2018; 208.
Reference Source
3. Migración Colombia: **Así ha sido la evolución de la crisis migratoria venezolana: corte 30 de septiembre de 2019.** 2019; **9**: 32.
Reference Source
4. Migración Colombia: **Venezolanos en Colombia.** 2019.
Reference Source
5. Instituto Nacional de Salud: **Boletín N° 27 - Notificación eventos de interés en salud pública durante el fenómeno migratorio.** 2020.
Reference Source
6. Departamento Nacional de Planeación de la República de Colombia: **Documento CONPES (Consejo Nacional de Política Económica y Social) 3950. Estrategia para la atención de la migración desde Venezuela.** *Bogotá, D.C.* 2018.
Reference Source
7. Organización Internacional para las Migraciones: **La migración en la Agenda 2030. Ginebra, Suiza.** 2018; 156.
Reference Source
8. Grupo Centro de Referencia Nacional sobre Violencia: **Instituto Nacional de Medicina Legal y Ciencias Forenses Forensis - Datos para la vida.** *Bogotá, D.C.* 2018.
Reference Source
9. Migración Colombia: **Todo lo que debe saber sobre la migración Venezolana** *y no le han contado.* 2018.
Reference Source
10. Organización Panamericana de la Salud: **Unidad de Información y Análisis de Salud.** Glosario de Indicadores Básicos de la OPS. Iniciativa Regional de Datos Básicos en Salud; Glosario de Indicadores. Washington DC; 2015; 10–1.
Reference Source
11. Organización Panamericana de la Salud: **Nueva lista OPS 6/67 para la tabulación de datos de mortalidad CIE-10.** *Boletín Epidemiológico.* 1999; **20**(3): 4–9.
Reference Source
12. Ministerio de Salud de la República de Colombia: **Resolución número 8430 de 1993**. Colombia; 1993; 1–19.
Reference Source
13. Angarita Álvarez OL: **Bioética en estudios de vida real retrospectivos con fuente secundaria**. Universidad de La Sabana. Universidad de La Sabana; 2019.
Reference Source
14. Doocy S, Page KR, de la Hoz F, *et al.*: **Venezuelan Migration and the Border Health Crisis in Colombia and Brazil.** *J Migr Hum Secur.* 2019; **7**(3): 79–91.
Publisher Full Text
15. Profamilia: **Evaluation of unmet sexual and reproductive health needs of the Venezuelan migrant population in four cities of the Colombia-Venezuela border: Arauca, Cúcuta, Riohacha, and Valledupar**. Bogotá, D.C.; 2019; 34–36.
Reference Source
16. García J, Correa G, Rousset B: **Trends in infant mortality in Venezuela between 1985 and 2016: a systematic analysis of demographic data.** *Lancet Glob Heal.* 2019; **7**(3): e331–e336.
PubMed Abstract | Publisher Full Text
17. Proyecto Migración Venezuela: **Necesidades en salud de la población migrante venezolana en Colombia**. 2019.
Reference Source
18. Andersen RM: **Revisiting the behavioral model and access to medical care: does it matter?** *J Health Soc Behav.* 1995; **36**(1): 1–10.
PubMed Abstract
19. Jaime RT, Julio SC: **Venezuela's migration crisis: a growing health threat to the region requiring immediate attention.** *J Travel Med.* 2018; **26**(2): tay141.
PubMed Abstract | Publisher Full Text
20. Page KR, Doocy S, Reyna Ganteaume F, *et al.*: **Venezuela's public health crisis: a regional emergency.** *Lancet.* 2019; **393**(10177): 1254–60.
PubMed Abstract | Publisher Full Text
21. Human Rights Watch: **El éxodo venezolano - Urge una respuesta regional ante una crisis migratoria sin precedentes.** 2018.
Reference Source
22. Ministerio de Salud y Protección Social: **Circular externa 012.** Colombia; 2017.
Reference Source
23. Ministerio de Salud y Protección Social: **Circular externa 029.** Colombia; 2017.
Reference Source
24. Cala-Carrillo MJ, García-Jiménez M, González-Monteagudo J, *et al.*: **Migrant women's experiences of sexual and gender-based violence and help-seeking journeys: Focus on**. Seville, Spain;.
Publisher Full Text
25. Miranda M: **Gender-Based Violence: A Global Crisis that is Handled Ineffectually**. Trinity College; 2020.
Reference Source
26. Zulver J, Idler A: **Gendering the border effect: the double impact of Colombian insecurity and the Venezuelan refugee crisis.** *Third World Q.* 2020; 1–19.
Publisher Full Text
27. Asociación Profamilia y Oficina de los Estados Unidos de Asistencia para Desastres en el Extranjero (OFDA-USAID): Desigualdades en salud de la población migrante y refugiada venezolana en Colombia ¿Cómo manejar la respuesta local dentro de la emergencia humanitaria? Bogotá, D.C.; 2020.
Reference Source
28. Organización Panamericana de la Salud, Organización Mundial de la Salud: Estrategia para el acceso universal a la salud y cobertura universal de salud. 53° Consejo Directivo de la OPS 66a Sesión del Comité Regional de la OMS para las Américas. Washington, D.C.; 2014.
Reference Source
29. Stefoni C: **Panorama de la migración internacional en América del Sur**. Documento elaborado en el marco de la Reunión Regional Latinoamericana y Caribeña de Expertas y Expertos en Migración Internacional preparatoria del Pacto Mundial para una Migración Segura, Ordena. Población y Desarollo. 2018; **123**.
Reference Source
30. Fernández Castilla R: **Migraciones y Remesas en el Contexto de la Globalización**. Okinawa; 2005.
Reference Source
31. International Organization for Migrations (IOM): **La Migración Sur-Sur: Asociarse de Manera Estratégica en pos del desarrollo** [Internet]. 2014.
Reference Source
32. Departamento Nacional de Planeación de la República de Colombia: **Bases del Plan Nacional de Desarrollo 2018-2022: Pacto por Colombia, pacto por la equidad.** Bogotá, D.C.; 2019.
Reference Source

The benefits of publishing with F1000Research:

- Your article is published within days, with no editorial bias
- You can publish traditional articles, null/negative results, case reports, data notes and more
- The peer review process is transparent and collaborative
- Your article is indexed in PubMed after passing peer review
- Dedicated customer support at every stage

For pre-submission enquiries, contact research@f1000.com

F1000Research