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RESEARCH

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# The public health challenges of female migration: the Venezuelan diaspora in Andean countries

Sarahí Rueda-Salazar<sup>1,2,5\*</sup>  and Jenny García<sup>3,4</sup> 

## Abstract

**Background** Venezuelan migration has experienced an unprecedented increase in the last decade, with approximately 7.7 million Venezuelan-born individuals residing in other countries as of 2024. Our study aims to identify the potential and actual demand for healthcare services (SRH) in the Venezuelan diaspora's four primary destinations within the Andean Countries: Colombia, Ecuador, Peru, and Chile.

**Methods** Using official data from administrative records, censuses, and sample surveys reported by the host countries and international agencies, we estimate the annual evolution of Venezuelan-born women of reproductive age (WRA) and their offspring. Additionally, we conduct two case studies focusing on Colombia and Chile to analyse the groups most vulnerable to unmet health needs.

**Results** The population of WRA has increased to between 5 and 6.8%, and births have risen to approximately 3–8% in host countries due to Venezuelan migration. Yet, we found a general decrease in health coverage for certain age groups of Venezuelan female migrants in host countries for the period 2017–2022, particularly in Chile. By 2022, an estimated 20% of healthcare needs remained unmet among children, girls, and younger Venezuelan women, contributing to greater health inequalities between Venezuelan-born adolescents and those from other countries of birth.

**Conclusions** Our findings highlight the escalating demand for and limited access to healthcare services among Venezuelan WRA in their destinations. Unmet healthcare needs are particularly prevalent among younger women by 2022, underscoring the urgency for health system to incorporate gender-responsive, equitable interventions and ensuring health rights for high-risk migrant groups such as infants, children, adolescents, and younger women. Addressing these challenges remains a critical task for the regional public health agenda in Latin America.

**Keywords** Health system, Healthcare access, Venezuelan migration, Surplus of births, Unmet health needs, Girls and adolescents' health, Gender health inequalities

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## Introduction

Sexual and reproductive health constitutes a fundamental lifelong right for women, indispensable for the development and well-being of entire populations [1]. Both international and national legal frameworks have established various measures to advance the right to gender-responsive health [2]. These efforts entail implementing strategies to ensure uninterrupted and high-quality access to health services, with the overarching goal of mitigating persistent health inequalities [3, 4]. However, individuals in situations of human mobility, namely migrants and refugees, are identified as among the most vulnerable groups in terms of accessing health services, particularly sexual and reproductive health services [5, 6].

Migration can significantly impact health outcomes, especially for women who face greater risks than their male counterparts. This heightened vulnerability among the displaced stems from various factors, including the socioeconomic conditions at their place of origin, the modality of migration, their experiences during transit, and reception upon arrival at the destination [7]. These factors can undermine the health of women, adolescents, and girls throughout their life cycle in destination countries or upon return [5, 8]. Migrant women also encounter multiple barriers when accessing health services, such as limited financial resources, discrimination by local health providers [9], and obstacles in the regularisation process, all of which hinder access to health insurance and social protection. Additionally, they often lack information about how and where to obtain health services [10].

The migratory flows from Venezuela have had a profound impact on the Americas, with the volume of displaced populations reaching levels comparable to the Syrian refugee crisis [11] and accounting for the largest population displaced in the world in 2022 [12]. Many Venezuelans resorted to emigration as a survival strategy in response to the escalating social and economic crisis that has beset the country since 2014. The beginning of the crisis (2014–2016) was marked by hyperinflation, shortages of food and medicine, rising crime rates, and pervasive human rights violations. Subsequently, a period of socioeconomic upheaval (2016–2020) ensued, during which time inflation increased exponentially, reaching 1,000,000% in 2018. This had a significant impact on the deterioration of living conditions, including the collapse of the healthcare system, which resulted in a substantial increase in case fatality ratios for malaria (1.6% in 2016 vs. 8.6% in 2018), for diarrhoea (1.1% in 2016 vs. 6.9% in 2018), outbreaks of diphtheria in 2016 and measles in 2017. Additionally, there was an alarming rise in infant deaths (30.1%) and maternal deaths (65.4%) in 2016 compared to 2015 [13]. As a result, approximately 90% of these displacements occurred between 2016 and 2019

and, by the end of 2018, Venezuelans constituted the most numerous asylum seekers globally [15]. As of early 2024, the Venezuelan diaspora has grown to 7.7 million people, with 84% of them located in the Latin American region. The primary recipients of Venezuelan migrants are four Andean countries, namely Colombia, Peru, Ecuador and Chile [14].

The current and future health status of Venezuelan migrants is determined by the deteriorating socioeconomic conditions and health crisis in Venezuela [16, 17], compounded by the precarious nature of their mobility [18]. One of the primary reasons cited for leaving their country has consistently been difficulties in accessing quality healthcare services, particularly, antenatal and postnatal care [19]. Consequently, a significant proportion of recent Venezuelan migrants faces substantive vulnerabilities in their overall health status, as well as in their sexual, reproductive, and mental health [10, 20, 21]. This profound state of vulnerability has implications for the social protection and healthcare needs of Venezuelan migrants in host countries [19, 22–24].

Numerous studies have examined the health needs of Venezuelan migrant women and the barriers they face, but few have quantified their unmet health needs based on demographic profiles and changes over time, as this study does. The aim of this research is to evaluate the potential demand for sexual and reproductive health services among Venezuelan migrant women in their primary Latin American destinations during the period of greatest mobility, 2017–2022. To achieve this, we initially estimate potential demand scenarios based on the migration flows by age and sex groups in four countries: Colombia, Chile, Ecuador, and Peru. Our focus lies on the surplus of women of reproductive age (WRA) and their offspring relative to the local population's composition, thus enabling us to establish a threshold for potential healthcare demand in each host country. Subsequently, we conduct two case studies, focusing on Colombia and Chile, to evaluate the actual access to health services and effective healthcare coverage for Venezuelan women during the same period. These countries were selected due to their disparate scenarios regarding the timing and magnitude of migration flows, as well as the availability of information on healthcare access for this population.

## Data and methods

### Data

Official migration reports and population data sources from the selected countries were used to estimate the evolution of Venezuelan flows by age and sex in Colombia, Peru, Ecuador and Chile (Tab.-1). The number of births to Venezuelan women was determined using the official Vital Statistics of these countries. Therefore, the target population comprises individuals born in

Venezuela and their offspring, regardless of their migration status. Additionally, population estimates from the World Population Prospect [25] were employed as the baseline for each country. These estimates were chosen because they exclude recent arrivals of Venezuelan-born migrants, which enabled the analysis of the surplus of events linked to the Venezuelan migration.

The use of healthcare system in Colombia and Chile was obtained from two official channels of information in both countries: administrative records and a national survey. For Colombia, we used data from the Integrated Information System (SISPRO), managed by the Quality Office of the Ministry of Health and Social Protection, covering the years 2017–2022 [26]. For Chile, cross sectional data were used from the National Socioeconomic Characterisation Survey (CASEN), conducted in 2015, 2017, 2020, and 2022.

The variables employed in the case studies were as follows:

Healthcare access information of migrants in Colombian were: sex, men and women; age groups, infants (0–5), children (6–11), adolescents (12–17), younger (18–28), younger adults (29–45), adults (46–59), older people (60+); birth country, Venezuela, and other birth country; healthcare attention type, urgencies, hospitalisations, primary attention consultation and health procedures; and calendar year.

The health needs and access to the healthcare system in Chile were derived from the followed variables: perceived need for health through the question ¿Did you have any health problems or accidents in the last three months? yes, no. Access to healthcare system: ¿Have you received medical attention? Yes, no. Access to the Chilean health system: Health insurance affiliation, yes, or no; And, type of health insurance, public (FONASA), private (ISA-PRE), army (FFAA), other, none, no response. Sociodemographic information used was sex, men and women,

single ages; birth country was explored by the question of residence country of the mother at the moment of his/her birth.

**Method**

The *potential* demand of Venezuelan Women for health services was estimated based on the age and sex structure of both the nationals of each country (Colombia, Peru, Ecuador and Chile) and the Venezuelan-born stock within those countries. Initially, we calculated the yearly population of Venezuelan-born individuals. Subsequently, we obtained the age-and-sex relative composition of the stock from continuous sources in each country for each year. Finally, we combined the calculations to computed the total annual population. This strategy assumes that: (1) the country-specific sources used for the age and sex distribution represent the composition rather than the total; and (2) the sources used to estimate the total annual stock are comprehensive regardless of available demographic information (Sup-1). Our estimates of the Venezuelan migrants stem from the definition of “migrant” used in the data collected by destination countries, which likely results in an underestimation of the population in transit. Consequently, the potential demand here may be underestimated. We were able to shed light on changes in the potential demand for maternal and infant healthcare in each country, by tracking the evolution of two indicators:

- 1) *The additional demand for sexual and reproductive health services, given the potential demand of Venezuelan WRA.* This indicator was measured as the additional proportion of the Venezuelan WRA population relative to the native population.
- 2) *The surplus of births in each country per year.* For this indicator, we calculated the additional births in each destination resulting from arrivals of

**Table 1** Data sources of venezuelan migrants by destination

Reference year	Country				Type of data	
	Colombia	Chile	Ecuador	Peru		
2015	rfea	rs	f	r	Stock	<b>x</b>
2016	rfea	r	f	r	Retrospective Stock	<b>r</b>
2017	rfea	xs	f	x	Flows	<b>f</b>
2018	xfea	e	f	x	Official estimates	<b>e</b>
2019	xfea	e	f		Healthcare access	<b>a</b>
2020	xfea	s	f		Health needs and medical attention	<b>s</b>
2021	xfea		f	x		
2022	ea	es	e	e		

Source *Colombia*: Population and Housing Census 2018 (r) (x), The Integrated Household Survey “Gran Encuesta Integrada de Hogares” (x), flow of inflows and outflows by Migration Institute Colombia (f), population stock estimates by Migration Colombia (e), administrative registers from the Integrated Social Protection Information System- Sistema Integrado de Información de la Protección Social- SISPRO (a). *Chile*: Population and Housing Census (r) (x), population estimates of venezuelan by the National Institute of Statistics and Migration (e), National Socioeconomic Characterisation Survey “Encuesta de Caracterización Socioeconómica” CASEN. *Ecuador*: migration inflows and outflows, National Institute of Statistics and Census of Ecuador (f), estimates from the R4V platform (e). *Peru*: Population and Housing Census 2017 (r) (x), Survey of Venezuelan Population: “Encuesta de la población venezolana” ENPOVE 2018 y ENPOVE 2022 (x) from the National Instituto of Statistics of Peru, estimates from the R4V platform (e)

Venezuelan WRA. This surplus is the proportional extra total number of births –categorised by mother’s age group– relative to the native population in each destination country. In instances where Vital Statistics are unavailable, we estimated the potential number of births by assuming the continuation of the most recent observed trend in the age-specific fertility rates of Venezuelan-born women in the destination country, couple with the estimated number of Venezuelan WRA for the given year.

Use of healthcare services indicators were calculated for the case studies as follows:

*Access to health services in Colombia:* We computed two indicators: (a) the annual population percentage of migrant’s healthcare access by sex, age group, and birth country for the period 2017–2022. For instance, the healthcare utilisation for 2017 by Venezuelan women is determined by dividing the number of Venezuelan women in specific age groups and years by the total number of Venezuelan populations across age groups and years. (b) the health service utilisation rate by sex, birth country, and year as follows, the total number of healthcare attentions by sex, birth country, and year is divided by the total number of migrant individuals receiving healthcare attention by sex, birth country, and year.

*Effective use of healthcare among migrant women in Chile:* This indicator was computed using the number of women by birth country and age group in x year who had access to health services, divided by the total female population that expressed having health needs by birth country and age group in x year. This indicator showed the percentage of migrant women with access to healthcare and those excluded from the health system by age for the years 2017, 2020, and 2022.

### Limitations and scope

This article examines the official population statistics in Colombia, Chile, Ecuador, and Peru, with focus on the intersection of migration, gender, and health. The data exploration reveals challenges in collecting and disseminating timely information on migrant women and their specific health needs. Our estimates of potential and actual demands for health services are limited. The data presented omit the transit population, who may possess an even more pressing demand for SRH services than residents. Furthermore, while the data enabled us to assess the demand for healthcare services in general, official information on the precise scale by birth country in host countries is unavailable, as observed in Peru and Ecuador. Producers of official health statistics should incorporate an intersectional perspective encompassing gender, migration, health, and life course into national health statistical systems.

### Results

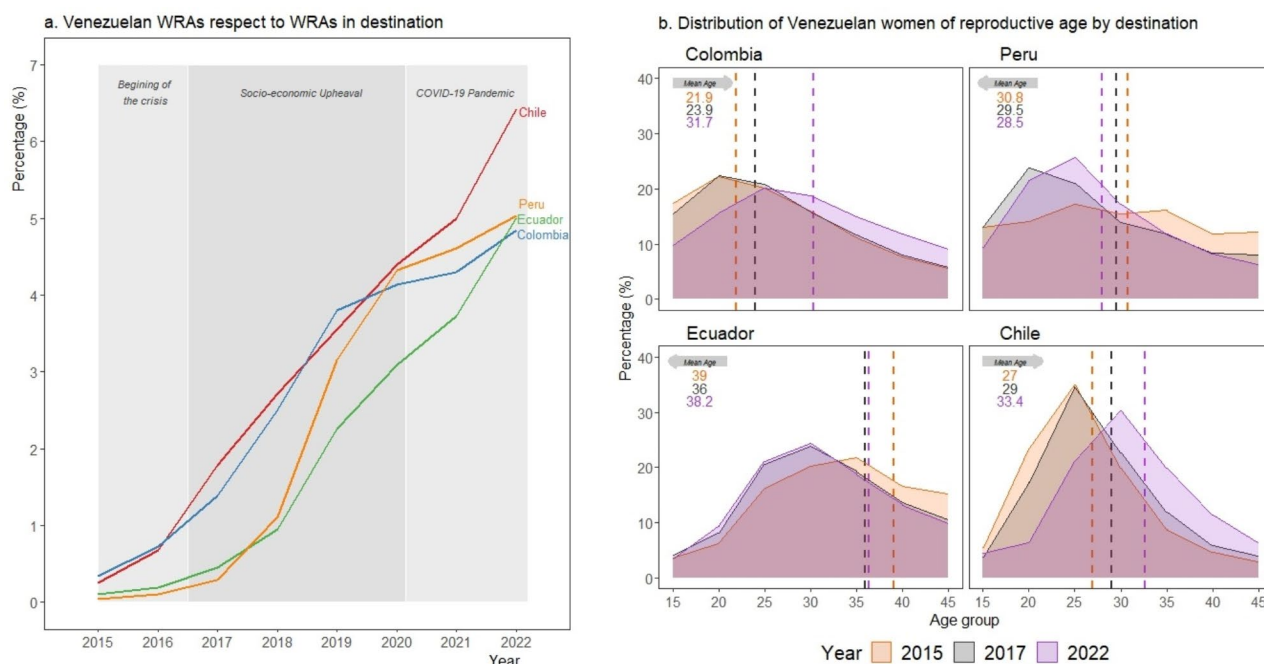
To ascertain the potential demand for health and reproductive services in the host countries, we first present the evolution of Venezuelan WRA and their offspring from 2015 to 2022. Subsequently, we analyse the requisite response of the health system by examining the surpluses of both WRA and births relative to the native population. Following this, we conduct two case studies to evaluate the actual demand for healthcare and access among migrants in two host countries, Colombia and Chile. The results of our calculations are presented below.

#### Evolution of Venezuelan WRA and their offspring in four host countries: Chile, Colombia, Ecuador, and Peru

The age and sex distribution of the Venezuelan-born population in host countries has fluctuated over the past five years and across destinations as migration flows have increased, with the crisis in Venezuela having resulted in a notable rise in the proportion of 15-to-49-year-olds in this segment of the diaspora, particularly among women (Sup. 2). For instance, in Colombia, the Venezuelan-born population steadily increased until 2015, mainly due to binational families [27]. During the period of the deepest crisis (2016–2020), the size of the Venezuelan diaspora in Colombia had already reached half a million, while the Venezuelan inflows to other countries remained incipient. Despite being by far the largest recipient of Venezuelan flows, Colombia exhibited the smallest relative increase in WRA by 2022 (Fig. 1a). In 2015, Venezuelan WRA represented only 0.4% of the total WRA in Colombia and up to 4.8% by 2022. This can be attributed to Colombia having the largest population size among the four countries and its relatively young demographic profile.

In contrast, although Chile hosts a smaller stock of Venezuelan migrants, its population experienced a more pronounced impact from the influx of WRA. In 2015, Venezuelan WRA represented only 0.3% in Chile, but by 2022, this proportion surged to 6.8%. Similarly, the Venezuelan WRA population in Peru and Ecuador reached approximately 5% of the total population by 2022, albeit with a delayed increase compared to Colombia and Chile.

The age distribution of WRA underwent notable changes in the four countries (Fig. 1b). In Ecuador and particularly in Peru, the proportion of younger women (aged 15–30) increased since the onset of the crisis (2015–2016). Conversely, Colombia and Chile exhibited contrasting trends, with both experiencing an uptick in the proportion of adult women and the average age of WRA as the socioeconomic crisis intensified, albeit starting from different points. Colombia boasts the youngest age composition among WRA, with the average age fluctuating considerably from 22 years in 2015 to 31.7 years in 2022. Conversely, the change in age profile was



**Fig. 1** Evolution of Venezuelan women of reproductive age relative to native women in destination countries, 2015–2022. **a** displays the percentage of Venezuelan-born WRA relative to local WRA (Y-axis), with the period divided into three sub-periods separated by grey backgrounds: the crisis onset (2015–2016), socioeconomic upheaval (2016–2020), and the COVID-19 pandemic (2020–2022). **b** illustrates the proportional distribution of Venezuelan WRA, calculated as the ratio of Venezuelan women by five-year age groups relative to the total number of Venezuelan WRA. The crisis onset (2015) is marked in orange, socioeconomic upheaval (2017) in grey, and the final year of the pandemic (2022) in purple. *Source* Own estimates based on data reported by R4V, the Coordination Platform for Refugees and Migrants from Venezuela. [retrieved 2022 05 04], supplemented by age and sex data from various official sources in the respective countries. The native population is sourced from WPP2019

less pronounced in other countries. Peru’s average age decreased from 30.8 to 28.5, Ecuador’s from 39 to 38.2, and Chile’s increased from 27 to 33.4.

Equally, the contribution of Venezuelan WRA to the birth rate in their destinations showed a steady increase over time (Fig. 2a). Since 2018, expected births increased by at least 1% in all destinations due to the contribution of Venezuelan WRA. However, as Venezuelan inflows declined, the annual surplus of births stabilised in their destinations. As anticipated, the birth surplus attributed to age groups (Fig. 2b) is determined by the age distribution of WRA as identified in Fig. 1b. From 2020 onwards, contributions to the birth surplus became apparent across all mother’s age groups.

Colombia exhibited a birth surplus of approximately 8% in 2020, which is attributed to the high concentration of young Venezuelan women in the country. The surplus was distributed across all age groups after 2018, including women aged 45–49. However, the 15–24 age group accounted for an additional 2% of births compared to the expected number.

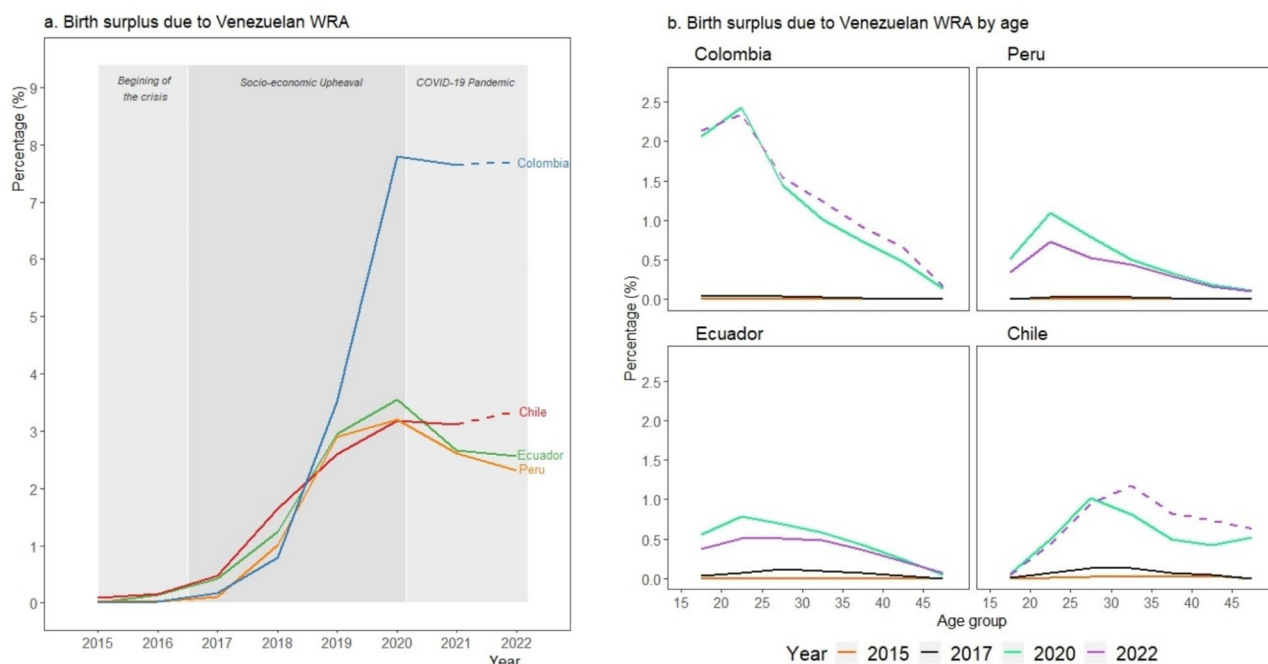
In Chile, the birth surplus was mainly reliant on Venezuelan WRA over 25 years old. Conversely, in Peru and Ecuador, the greatest contribution to the birth surplus stemmed from the youngest WRA, with a total impact

of less than 4% by 2022. In these countries, Venezuelan WRA are predominantly young women, indicating a sustained significant birth surplus in the foreseeable future. A similar trend could be expected in Colombia due to the concentration of young Venezuelan WRA.

**Demand for health services among Venezuelan migrants in Colombia and Chile**

**Health care access for Venezuelan women: Colombia, 2017–2022**

Administrative data on health care service access by sex and age group for the years 2017 to 2022 show significant changes in primary healthcare access, correlating with the escalating migration influx to Colombia since 2017. Across all observed years, women consistently exhibited higher service access rates than men, likely attributable to two factors: (1) the slightly large representation of women within the Venezuelan migrant population, and (2) the typically higher utilisation of health services by women compared to men [28]. From 2018 onward, a notable rise is observed in healthcare utilisation among Venezuelan-born individuals, contrasting with a marginal increase among migrants from other countries of origin. This trend persisted throughout the pandemic years of 2020–2021. However, in 2022, records indicate a



**Fig. 2** Birth surplus (%) introduced by the inflow of Venezuelan WRA in each destination, 2015–2022. The birth surplus due to migrant Venezuelan WRA, calculated as a proportion of births among Venezuelan-born migrant mothers in each destination compared to the expected number of births without migration. Dashed lines indicate our estimates, based on the potential number of births calculated using age-specific fertility trends from the previous year and the estimated number of Venezuelan WRA. **a** displays the total number of surplus births during the study period, divided into three sub-periods separated by grey backgrounds: crisis onset, socioeconomic upheaval, and the COVID-19 pandemic. **b** depicts the birth surplus categorized by maternal age for the years 2015, 2017, 2020, and 2022. *Source* Own estimates based on figures reported by, R4V, the Coordination Platform for Refugees and Migrants from Venezuela [retrieved 2022 05 04], supplemented by age and sex data from various official sources in the respective countries. Birth figures are sourced from the official Vital Statistics of each country, while native population data is sourced from WPP2019

significant decline in healthcare service access for all sex and age groups, with rates dropping even below pre-pandemic levels for the Venezuelan-born population.

Figure 3a depicts the rate of utilisation of healthcare services of the migrant population in Colombia by sex and birth country. Figures show the typical sex differential -in favour of women- on the rate of utilisation of health care services among Venezuelans and migrants of other origins during the period of analysis. However, the decline in the utilisation rates was particularly pronounced among women (-3.2%), who initially exhibited a rate of approximately 9%. This rate decreased to 8% during the mid-years and further plunged to 5.8% by the end of the period. In contrast, men had a 2.7% reduction in utilisation rates, declining from 7.8% in 2017 to 5.2% in 2022. When comparing the healthcare utilisation rates of the migrant population from other birth countries, lower rates are equally observed among both men and women (Sup.-3).

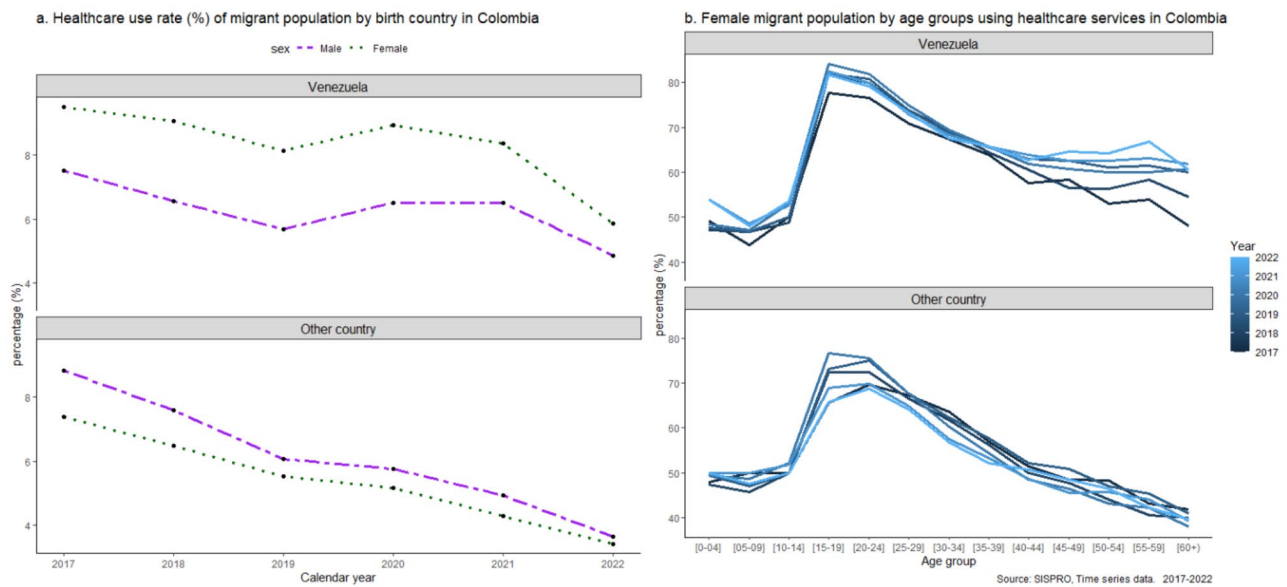
Figure 3b depicts the age distribution of female healthcare service users. The greatest demand for services is observed among adolescents (aged 12–17) and young women (aged 18–28), aligning with the age distribution of Venezuelan migrant women in Colombia. Within this demographic, young women exhibit the highest

healthcare service utilisation. A similar albeit less pronounced pattern is also observed among foreign women from other countries of birth (see Sup. 4). Vigilance in monitoring the healthcare access of these groups is crucial, as unmet health needs during early stages may predispose individuals to vulnerability across the women’s life cycle.

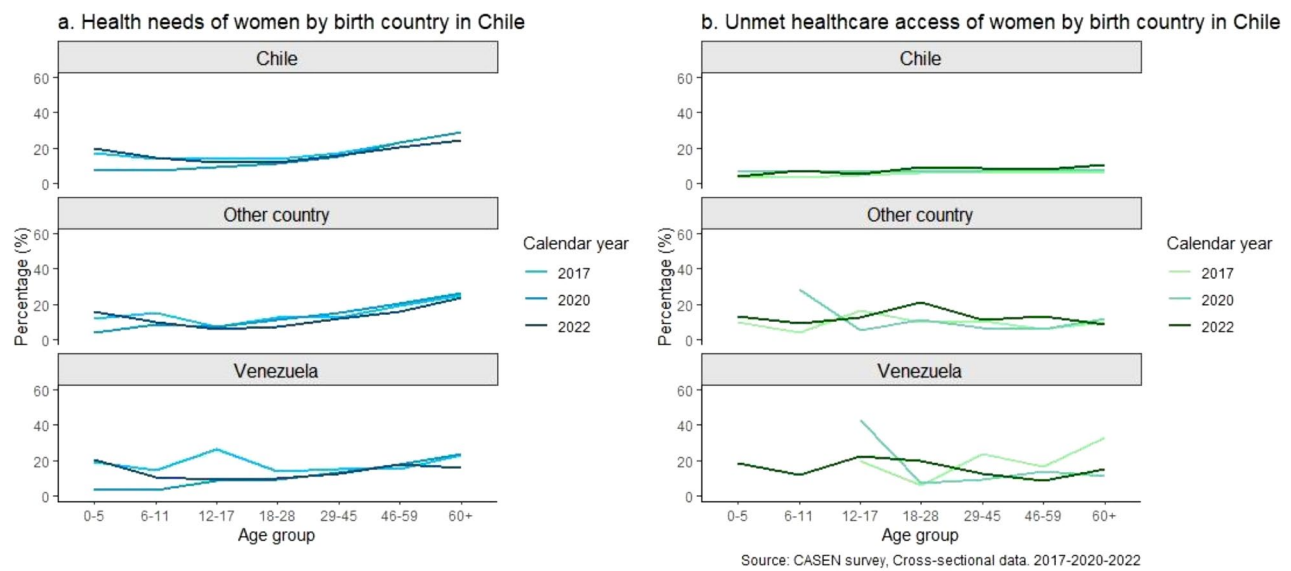
Moreover, Venezuelan migration has precipitated a birth surplus, resulting in an increase in the number of Venezuelan children under the age of five requiring healthcare in Colombia. The number of children receiving health services surged from fewer than 500 in 2017 to over 4,000 in 2018, escalating to approximately 10,000 by 2021.

**Effective demand for the use of health services by Venezuelan women: Chile, 2017–2022**

We examine the use of healthcare services by Venezuelan migrants in Chile, with a specific focus on their effective demand for healthcare. Throughout the analysis period, the Venezuelan population experienced the highest percentage increases among all migrants, rising from 4.5% in 2017 to 49% of the total migrant population by 2022. Figure 4a displays the healthcare needs of female Venezuelan migrants in Chile by age and year. The data shows



**Fig. 3** Migrant utilisation of health services in Colombia, by age and sex, 2017–2022. **a** indicates the utilisation rates, including the number of attentions of migrant populations by sex, year, and birth country, divided by the total migrant population attended by healthcare services by sex, year, and birth country. **b** displays the age distribution of female migrants accessing healthcare services in Colombia. *Source* Own calculations based on SISPRO register, Colombia 2017–2022



**Fig. 4** Healthcare needs and access to services in Chile by age, sex, and country of birth, 2017, 2020 and 2022. *Source* Own calculation based on CASEN Survey, Chile, 2017–2022

little variation compared to other groups of migrant and Chilean women. The most significant differences are observed among the youngest age groups and across the years of analysis. In 2017, Venezuelan adolescents exhibited a higher percentage of health needs compared to 2022. However, by 2022, the percentage of health needs increased for infants (0–5) and girls (6–11), with infants at 22% and girls at 18%. This rise is attributed to the higher number of children in 2022 relative to 2017 (see

Sup. 5). In contrast, this trend is less pronounced among Chilean infants and girls.

According to the data, unmet needs increased for Venezuelan women in specific age groups during the observation period of 2017–2022, namely among infants (0–5 years), girls (6–11 years), and young adult women (18–28 years). Additionally, gaps in access widened among adolescent migrants. In 2017 and 2020, health services for Venezuelan female infants and girls under 12 years of age were almost completely covered. However, this coverage



decreased considerably by 2022, leaving 20% of their health needs unmet by the Chilean health system due to an increase in not only the Venezuelan population but also this age range arriving in the country. SERMIG and INE (2023) estimate an increase of about 35% in children and 39% in adolescents (10–14) from Venezuela by 2022 compared to 2020. In contrast, the female Chilean population by age shows a consistent trend without significant variations over time, with access gaps not exceeding 10%.

Regarding access to the healthcare system, unmet health needs have risen 15% among young Venezuelan women aged 18–28 in recent years. Moreover, Venezuelan adolescent girls face a significant health gap, with approximately 25% of their needs remaining unmet by 2022. However, their access to the health system has improved compared to previous years, when nearly 50% of their needs were unmet. In 2020, half of the adolescent girls in Venezuela were unable to access the health system, but by 2022, this figure had decreased to one in four.

Unmet health needs in the Venezuelan population are predominantly concentrated among high-risk groups, particularly children and adolescents. This correlates directly with the migratory and socioeconomic status of their parents, creating significant barriers to accessing healthcare in Chile and leading to a higher rate of uninsured immigrants compared to the local population. In 2020, migrants from Venezuela exhibited the highest percentage of uninsured individuals (Sup.-8), particularly among minors and young women, at around 30%, which is consistent with findings from previous years [28].

## Discussion

This study offers a comprehensive understanding of the demographic profile of Venezuelan migrants in four Andean countries (Chile, Colombia, Ecuador, and Peru) from a gender perspective. We evaluated the potential implications of migration trends on the public health system of these nations, with a focused analysis conducted on Colombia and Chile to assess the unmet health needs and healthcare service usage among Venezuelan migrants. This analysis could not be replicated in Ecuador and Peru due to data limitations within their healthcare systems, specifically related to the lack of information regarding birth country. The most vulnerable age groups were identified according to their current and future demands for healthcare services.

Our findings revealed shifts in the size and composition of WRA across the four destination countries. In Peru and Ecuador, the age distribution of Venezuelan WRA has skewed younger, while Colombia and Chile have seen a shift towards older adult ages. The age pattern of Venezuelan WRA is diverse, requiring a range of sexual and reproductive health services from the healthcare system. This includes tailored approaches for adolescent,

younger, and adult females. The concentration of Venezuelan WRA is currently notably higher among younger age groups, suggesting a potential future increase in demand for sexual and reproductive health services in Colombia and Peru. In contrast, Ecuador and Chile exhibit a higher density of older WRA. In any case, an increase in total fertility was observed in these countries as a consequence of migration flows of the Venezuelan population. This has important repercussions on the demand for health care services, including pregnancy control, childbirth, neonatal and postnatal care, and maternal health. In Chile, our findings indicated that Venezuelan migration could potentially offset the significant decline in the country's fertility rate that has been observed in recent years [29]. This phenomenon demonstrates how immigration could be advantageous and contribute to pro-natal policies in countries experiencing below-replacement-level fertility [30, 31].

The case studies highlighted substantial unmet health needs among female Venezuelan migrants in Chile and Colombia, particularly among at-risk age groups such as infants, children, adolescents, and young women. Differences in health needs between local population and migrants in these countries are due to a number of factors, including population distribution, demographic dynamics, socio-economic and structural factors. In Colombia, the health challenges faced by the local population are shown in gaps in accessibility and equity in access to medical care, particularly in rural areas and in areas on the periphery of large urban centres [32]. Additionally, there are systemic barriers in conflict-affected areas [33]. With regard to SRH, unmet health needs were identified among Colombian women associated to contraceptive methods, particularly among adolescents (13–19 years) and young women (19–29 years) [34].

In Chile, a country experiencing an accelerated ageing process and a significant decline in fertility, health inequalities in locals are mainly driven by household income (76%) with educational level, gender, and health insurance type also contributing substantially [35]. Consequently, a major social crisis has arisen highlighting the necessity for improved access to healthcare and universal coverage [36]. There is also a growing need for preventive health services as cancer screening and mental health interventions [37]. In SRH, even overall fertility rates are low and still declining, unplanned pregnancies among Chilean adolescents are identified as a public health concern among vulnerable groups [38].

Comparing locals and migrants, Venezuelan migrant women in Colombia were found to have undergone fewer antenatal health check-ups and experienced high rates of maternal morbidity than the local population. These findings indicate a significant disparity in maternal healthcare between the two groups [39] and also in perinatal

conditions (premature birth and low birth weight) [40]. Access to insurance coverage remains lower for Venezuelan migrants (3.6%) than for locals (73.6%), which severely limits their access to healthcare attention [41]. Therefore, Venezuelan migrant shown larger gaps in healthcare use compared to Colombian population [42]. Moreover, the fear of being deported due to an irregular migratory status also serves as a contributing factor in the decision not to seek medical attention [43]. The main barriers are not only economic but also legal and bureaucratic, which are more prevalent in urban areas [44]. A similar situation is observed in Chile, where migrants are 7.5 times more likely to be uninsured compared to locals [45], with higher rates of non-consultation, indicating a lack of opportunity to seek healthcare [28]. The percentage of hospitalisations due to childbirth is markedly higher among migrant women (58%) than among Chilean women (16%) [46]. This reflects not only elevated maternal morbidity, but also low levels of perinatal medical care, which are important to reduce avoidable complications during childbirth.

The pre-existing health system issues related to coverage and access to healthcare affect the overall population in Chile and Colombia. However, the differences in demographic characteristics between the migrant and local populations in these countries, in conjunction with structural factors, result in disparate health needs between the local and migrant populations. The two populations exhibit distinct types of health demands, and structural barriers impact differently on the way in which the local and migrant populations experience access to health services. The migrant population presents the largest gaps in access to services due to legal status, discrimination and lack of insurance capability. These aspects pose specific challenges to migrants' ability to access healthcare and also impact negatively medical seeking behaviours compared to the local population, as reported globally [47–51].

The accelerated dynamics of migratory flows from Venezuela to these countries place a significant additional burden on a health system that is already facing challenges in terms of access to services and healthcare coverage both in primary attention and in specialised care. Part of the challenge is to adapt the response of health systems to the needs of this migrant population, with a high prevalence of sexual and reproductive health among a significant proportion of female migrants and children. This is particularly relevant given that health systems are often focused on addressing other health priorities that are inherent to the demographic and epidemiological dynamics of the national pattern. In the case of Chile, for example, the health system's priorities are focused on the care and treatment of chronic degenerative diseases. However, the population requiring medical

attention and chronic care has exceeded the healthcare system's capacity to respond [52], with older age groups being particularly affected due to their high propensity to experience severe chronic conditions [53] and their larger population size within the country.

Venezuela currently persists in facing extremely adverse conditions, such as extreme poverty (77%), high infant mortality (25 per 1000 live births), elevated child mortality (29 per 1000 children), and a significant percentage of underweight children (30%) [54], which can worsen during transit and negatively impact the health and risk exposure of Venezuelan women in destination countries. Accordingly, reports indicate the socioeconomic and health conditions of Venezuelan migrants have deteriorated in destination countries, particularly during the COVID-19 pandemic [55, 56]. In Chile, Venezuelans arriving during the period 2021–2022 experienced higher rates of income poverty (IP) and multidimensional poverty (MDP) compared to those who arrived later in 2022 (IP in 2021: 18.7% and 2022: 12.4%; MDP in 2021: 19.7% and 2022: 15%). Female migrants and migrants under 18 years of age were particularly affected, with women experiencing a poverty rate of 12.1% compared to 10% for men [57].

The upsurge in migratory flows from Venezuela, along with the precarious health conditions endured by Venezuelan migrants amidst the escalating crisis in their homeland, exacerbate their vulnerabilities in destination countries [58]. This could potentially transform the paradox of the healthy migrant, given that some demographic groups as Venezuelan pregnant women, have been shown to have higher morbidity rates [59], adverse perinatal conditions [40] and a heightened infant mortality rate [27] compared to general population in host countries. Meanwhile, those who are uninsured and have only completed primary education have been found to have worst health outcomes compared to locals [60]. The confluence of social determinants of the Venezuelan migrants and the processes of migratory regularisation has resulted in a substantial proportion of Venezuelans lacking regular status [28, 44]. This convergence of factors presents an adverse situation that limits their ability to access the health system, which in turn is unable to meet the evolving needs of this migrant population.

Moreover, recent changes to the legal framework governing resident visa issuance for Venezuelans have further complicated the integration of Venezuelans into the health systems of their destination countries. According to the OAS report [61], 46% of visa applications in Chile were denied in 2020. Additionally, as of 2023, 6.6% of migrants residing in Chile were in an irregular situation, with 66% of them being Venezuelans [62]. Access to the health system for irregular migrants is restricted to life-threatening health conditions or maternal and infant

care. Even with regular status, access to health services is largely contingent on enrolment in public (FONASA) or private (ISAPRE) health insurance [63]. Evidence indicates that over 25% of Venezuelan migrants in Chile are not enrolled in any health insurance system. The population aged 18 to 28 years exhibits the highest lack of coverage, at approximately 40%, followed by the population under seventeen years old, with roughly 25–30% lacking coverage (see Annex 9). Consequently, the population under 28 years old experiences the greatest unmet healthcare needs by 2022.

Similarly, studies on migrant healthcare in Chile underscore that Venezuelan women encounter specific unmet sexual and reproductive health needs as a result of adverse circumstances during their migration journey [64]. This is particularly evident among adolescent girls, who have been identified as a higher-risk group [9, 65]. Comparable situations have been reported in other host countries, including Brazil [19, 24], and among migrant women in other regions [66]. In Peru, only 20% of Venezuelan WRA have access to modern contraceptive methods [67]. Discrimination, lack of information, low socioeconomic status, and lack of health insurance constitute the primary barriers to navigating the healthcare system [68–70]. Furthermore, additional risk factors such as food insecurity and mental health issues are identified as potential exacerbating factors for the situation of Venezuelan women in this country [71]. Social stigma in host countries can also undermine migrants' access to healthcare. In Ecuador, studies indicate that 16% of health practitioners report instances of discrimination against migrant women by the healthcare system [72].

In Colombia, the healthcare needs of the Venezuelan population have escalated markedly due to the burgeoning Venezuelan population in the country. Consequently, healthcare utilisation rates among Venezuelans have doubled compared to migrants from other countries, but Colombians reported high care use (77%) compared to Venezuelans (70%) [41]. However, official data does not provide information about Venezuelan migrants in Colombia who are unable to access the healthcare system, despite social programs that facilitate healthcare access for Venezuelans in Colombia [73]. Furthermore, when official health data is available that identifies migrant situation, concerns arise regarding data quality, indicating an underestimation in public figures that ultimately impacts the evidence generated and used by policymakers in their decision-making process [74].

The upsurge in births associated with Venezuelan migration poses other major public health implications for ensuring the well-being of mothers and newborns [75–77]. The number of children receiving healthcare in Colombia surged from 8,000 in 2017 to approximately 16,500 in 2018, escalating to over 97,200 cases in 2021

(+303%). Similarly, healthcare for the 5 to 10 age group also expanded from less than 1,600 in 2018 to 45,300 in 2021 (+127% per year). In Chile, the healthcare needs of the under-five population more than doubled between 2020 and 2022, with unmet demand increasing by up to 40%. These figures underscore the substantial challenges that governments and healthcare systems will encounter in the ensuing years as they try to meet the increasing demands of child healthcare.

## Conclusions

This study examines the impact of migration on the demand for and utilisation of health services in host countries with a growing migratory flow from Venezuela. It highlights the necessity for health systems to be gender-responsive, equitable [78], and also to be able to respond to migrant populations from a rights-based approach. While some countries demonstrate efforts to address the health of migrants, such as Colombia [79], the healthcare and child protection initiatives rolled out by host governments fall short of fully meeting the health needs of migrants or fully complying with the right to health outlined in migration frameworks. The interplay of pre-existing health issues and structural barriers in host countries, along with the distinct health needs of Venezuelan migrants in comparison to the local population, serve as pivotal factors that constrain the capacity of the health system to respond to the health concerns of migrants. It is imperative to design and monitor policies and actions that consider differentiated health needs across the life cycle, as evidenced by the higher unmet needs among adolescents and younger women aged 18–28.

In order to guarantee access to and coverage of the health needs of migrant populations, health systems are encouraged to engage in dialogue with migration governance processes with the aim of promoting migrant-sensitive health policies including legal and social protection [4]. Multi-sectoral interventions are necessary to integrate the migrant perspective, life-course events and their specific needs based on evidence as this study. Providing health services for migrant populations entails numerous challenges in integrating the health needs of the incoming population while also meeting the needs of the local population [80]. Consequently, implementing inclusive, people-centred healthcare services will ensure the inclusion of migrant health in the regional agenda [4]. Several evidence position migrant health as a public health issue, therefore, multi-sectoral strategies should be implemented in order to achieve global health equity and reduce the excess of morbidity and mortality risk of migrant populations [81].

## Supplementary Information

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Supplementary Material 1

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### Author contributions

All authors contributed to the study conception and design. Material preparation, data collection, analysis and first draft were performed by S.R. and J.G. All authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.

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### Data availability

No datasets were generated or analysed during the current study.

### Declarations

#### Ethical approval

Ethical approval was not required because all data used in this study were anonymized.

#### Competing interests

The authors declare no competing interests.

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