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Self-reported COVID-19 vaccination coverage in Venezuela: Results of national sample surveys (June-December 2021)

Cobertura de vacunación contra el COVID-19 auto informada en Venezuela: Resultados de las encuestas nacionales por muestreo (junio-diciembre de 2021)

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SUMMARY

Introduction: *Unlike many Latin American countries, Venezuela has not had an official record of COVID-19 vaccine doses administered during the pandemic. This paper is the first report on COVID-19 vaccination coverage using household sample surveys.*
Methods: *The paper systematizes preliminary reports with results of questions included in national surveys conducted in Venezuela in June, August, September, November, and December 2021, to estimate COVID-19 vaccination coverage. All surveys were conducted in population centers of 1 000 and more inhabitants. In each survey, 1 200 persons aged 18 years and older were interviewed in their homes.*
Results: *Full coverage (two doses of COVID-19 vaccine) increased from 8.1 % of the total population in August to 50 % in the 18 years and older age group in December 2021. The age group with consistently higher coverage is 50 years and older. At the end of 2021, the full coverage of this population group was 72.3 %. Full coverage is higher in the Metropolitan District of Caracas (MDC). Refusal to vaccinate, within the unvaccinated population, decreased from 25 % in August to 9.6 % in November 2021. The most frequent reason for not wanting to be vaccinated is distrust of the vaccine (34.1 %). The Sinopharm and Sinovac vaccines (together) were the most frequently administered (72.7 %).*
Discussion: *Venezuela has registered vaccination coverage against COVID-19, which places it among the lowest-performing countries in the region. Complete vaccination coverage against COVID-19 had not exceeded 50 % of the population aged 18 years and older by the end of 2021.*
Conclusions: *The failure in Venezuela to develop a high-performing COVID-19 vaccination program has conditioned both the management of the pandemic and the weighing of its effects.*

Keywords: *Venezuela, COVID-19, pandemic, vaccination coverage, household surveys.*

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RESUMEN

Introducción: *A diferencia de muchos países de América Latina, Venezuela no ha tenido un registro oficial de las dosis de vacunas contra COVID-19 administradas durante la pandemia. El trabajo es el*

primer reporte de cobertura de vacunaciones contra COVID-19 con la utilización de encuestas de hogares por muestreo.

Métodos: *El trabajo sistematiza reportes preliminares con resultados de preguntas incluidas en encuestas nacionales realizadas en Venezuela en junio, agosto, septiembre, noviembre y diciembre de 2021, para estimar la cobertura de vacunaciones contra COVID-19. Todas las encuestas se realizaron en centros poblados de 1 000 y más habitantes. En cada una de ellas se entrevistaron en sus hogares a 1 200 personas de 18 años y más.*

Resultados: *La cobertura completa (dos dosis de vacuna contra COVID-19) aumentó de 8,1 % de la población total en agosto a 50 % en el grupo de 18 años y más en diciembre de 2021. El grupo de edad con mayor cobertura sistemáticamente es el de 50 años y más. A finales de 2021, la cobertura completa de este grupo poblacional era 72,3 %. Se constata que la cobertura completa es mayor en el Distrito Metropolitana de Caracas (MDC). El rechazo a vacunarse, dentro de la población no vacunada, se redujo de 25 % en agosto a 9,6 % en noviembre de 2021. La razón más frecuente para no querer vacunarse es la desconfianza en la vacuna (34,1 %). Las vacunas Sinopharm y Sinovac (en conjunto) fueron las que se administraron con más frecuencia (72,7 %).*

Discusión*: Venezuela ha registrado coberturas de vacunaciones contra COVID-19 que la colocan entre los países de menor desempeño en la región. La cobertura completa de vacunación contra COVID-19 no había superado el 50 % de la población de 18 años y más a finales de 2021.*

Conclusiones: *El hecho de que en Venezuela no se haya podido desarrollar un programa de vacunaciones contra COVID-19 de alto desempeño, ha condicionado tanto la gestión de la pandemia como la ponderación de sus efectos.*

Palabras clave: *Venezuela, pandemia, cobertura de vacunación, encuestas de hogares.*

INTRODUCTION

Unlike many Latin American countries, Venezuela has not had an official registry of COVID-19 vaccine doses administered during the pandemic. As of mid-May 2022, the latest information available on the Pan American Health Organization website (1) corresponds to March 25, 2022. This is also the latest information available from Our World in Data (2). Household sample surveys have been an alternative to obtain information on COVID-19 vaccination coverage in Venezuela.

Household sample surveys have been used in different aspects related to the COVID-19 pandemic. A review in PUBMED as of May 18, 2022, identified publications on the following aspects: impact on food security (3), effect on household health expenditure (4), data collection (5), effects of control restrictions (6,7), educational effects (8), social distancing (9), effects on family well-being (10-12), relationship with smoking (13), prevalence (14-17). In the specific topic of vaccines, only one publication was identified in which the use of household surveys to explore the acceptance of vaccines against COVID-19 was reported (18).

To date, no publications have been identified in which the use of surveys for the estimation of vaccination coverage against COVID-19 has been reported. This paper systematizes preliminary reports (19-23) with results from national surveys conducted in Venezuela between June and December 2021 between the Unit of Public Policy at the Simón Bolívar University and the Delphos Institute, estimate vaccination coverage against COVID-19. This publication is the first report on COVID-19 vaccination coverage using household sample surveys.

METHODS

The objective of the research was to explore COVID-19 vaccination coverage in Venezuela by incorporating questions in national sample surveys of persons aged 18 years and older. These national surveys are those conducted by the Delphos Institute on a regular basis. Table 1 shows the surveys conducted in the period June-December 2021.

All surveys were conducted in population centers of 1 000 and more inhabitants. In each of them, 1 200 people aged 18 and over were interviewed. The interviews were conducted directly in the homes of the individuals. Sampling was upper semi-probabilistic, stratified multistage. Precision is ± 2.0 % for most simple frequency estimates, under the assumption of equivalence with probability designs.

Table 1

Venezuela: household surveys to estimate COVID-19 vaccination coverage (June-December 2021)

Household survey	Fiel work	Questions
June 2021	June 13-30	Have you already a dose against COVID-19? Was it in Venezuela or abroad?
August 2021	August 18-28	Are you vaccinated against COVID-19? How many doses? Do you want to get vaccinated?
September 2021	September 15-25	
November 2021	November 2-9	Are you vaccinated against COVID-19? How many doses? Do you want to be vaccinated? People who did no want to be vaccinated were also asked what was the reason for that position.
December 2021	December 13-19	Are you vaccinated against COVID-19? How many doses? Do you want to be vaccinated? The second question for the vaccinated its: What vaccine did you receive?

Source: Delphos Institute national surveys.

RESULTS

In the first survey (June 2021), coverage of at least one dose was explored, but without establishing whether two doses were available. Figure 1 shows coverage percentages by vaccination site. Since the vaccination against COVID-19 was indicated at that time for persons 18 years of age or older (24), coverage was calculated assuming that the population under 18 years of age corresponded to 28.2 % of the total population (this percentage was obtained through a national survey by the Delphos Institute in December 2020). According to this survey, the country's population corresponds to approximately 28 million inhabitants. In this way, it is possible to compare with international data.

According to these estimates, 6.96 % of the population had received a dose of vaccine against COVID-19 in the country by June 30, 2021. The proportion that had received the vaccine abroad was 1.04 % of the population. Total coverage corresponded to 8.00 %. Consequently, by that date, 92 % of the population had not received any dose of vaccine against COVID-19.

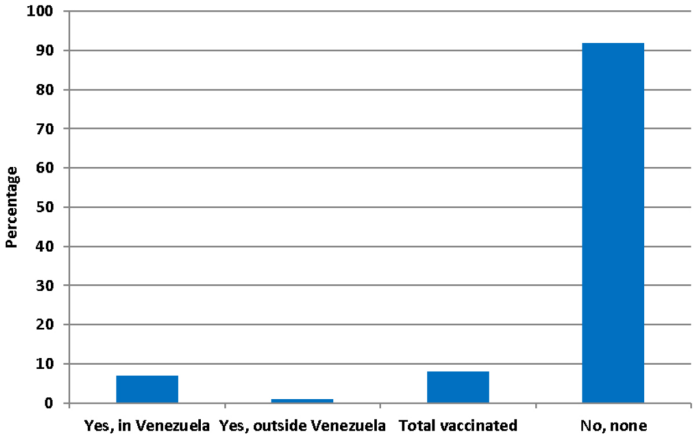

Figure 1. Venezuela: percentage of the population with at least one dose against COVID-19 by vaccination site (June 2021). Source: Delphos Institute national surveys.

The following four surveys (August, September, November, and December 2021) allow us to compare the evolution of full coverage (two doses of COVID-19 vaccine) and some of the characteristics of the vaccinated individuals.

Full coverage increased from 8.1 % in August to 50 % in December 2021 (Figure 2). The December estimate corresponds only to the population aged 18 years and older, because vaccinations began to be administered to those older than 12 years, and therefore were not included in the respective samples. In the first three surveys, the estimate of complete coverage corresponds to the general population.

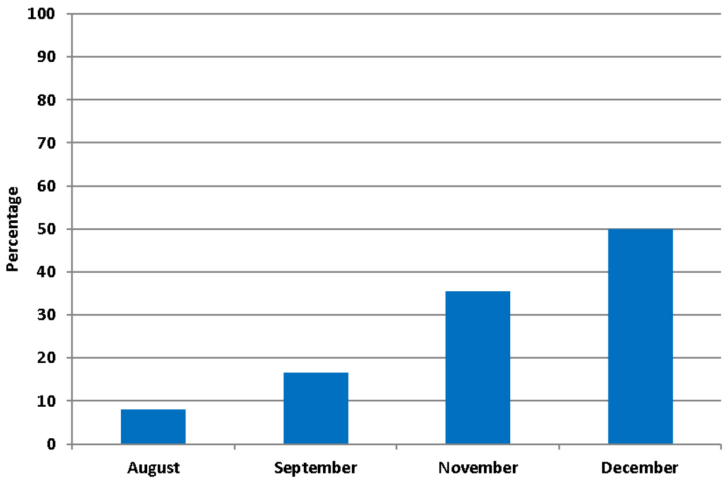

Figure 2. Venezuela: percentage of the population fully vaccinated against COVID-19 (August-December 2021). Source: Delphos Institute national surveys, own calculations.
Note: The December figure corresponds to the population over 18 years of age. In the August, September, and November surveys, the figures correspond to the total population.

Table 2 shows the variations in COVID-19 vaccination coverage according to age groups. The age group with consistently higher coverage is 50 years and older. By the end of 2021, coverage in this population group was 72.3 %. By the same date, the age group with the lowest coverage was 18-24 years of age, slightly less than half the coverage of the 50 years and older group.

Table 2

Venezuela: percentage of the population fully vaccinated against COVID-19 by age group (August – December 2021)

Age group	August	September	November	December
18-24 years old	6.4	13.8	32.3	34.0
25-34 years old	8.4	16.8	28.7	42.0
35-49 ears old	12.8	25.7	46.0	55.6
50 years andover	16.0	39.5	70.4	72.3

Source: Delphos Institute national surveys.

When analyzing complete vaccination coverage according to the geographic area of the country (Table 3), it is systematically higher in the Metropolitan District of Caracas (MDC). In December 2021, coverage in the MDC is 59 %, ten points higher than in the rest of the country, and almost fifteen points higher than coverage in the main cities.

Table 3

Venezuela: percentage of the population fully vaccinated against COVID-19 by geographic area (August-December 2021)

Geographic area	August	September	November	December
MDC	11.3	22.8	40.7	59.0
Principal cities	7.5	15.7	32.6	45.5
Rest of the country	7.0	15.8	35.6	50.1

Source: Delphos Institute national surveys.

To analyze coverage by socio-economic level, the estimation made with the December survey is taken as a reference, since the criteria for classification by socio-economic level were not identical in all surveys. Figure 3 shows that level E (the lowest socioeconomic level) has the highest complete vaccination coverage in December 2021.

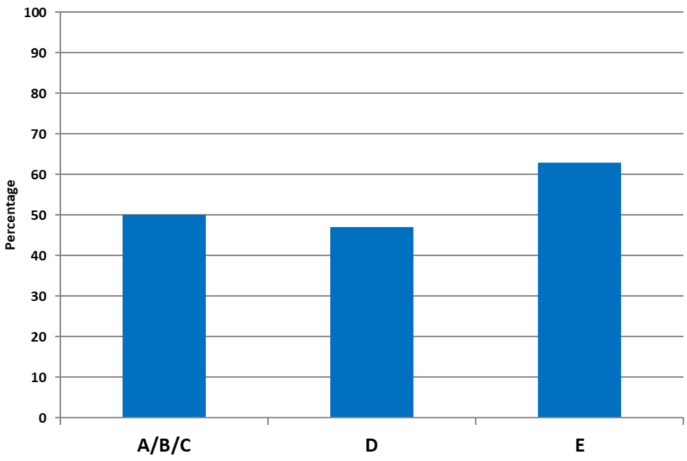

Figure 3. Venezuela: percentage of population aged 18 years and older with complete coverage against COVID-19 by socioeconomic level (December 2021). Source. Delphos Institute National Survey, December 2021.

Refusal to vaccinate, within the unvaccinated population, decreased from 25 % in August to 9.6 % in November 2021 (Figure 4). However, in the December 2021 survey, there was an increase to 13.4 %. When analyzing the estimate of the difference between the two periods, it was found to be statistically significant. The frequency of not wanting to be vaccinated in December 2021 is registered more in women than men, more in the 25-34 years age group than in the other age groups, more in people of socio-economic level D, and more in the principal cities.

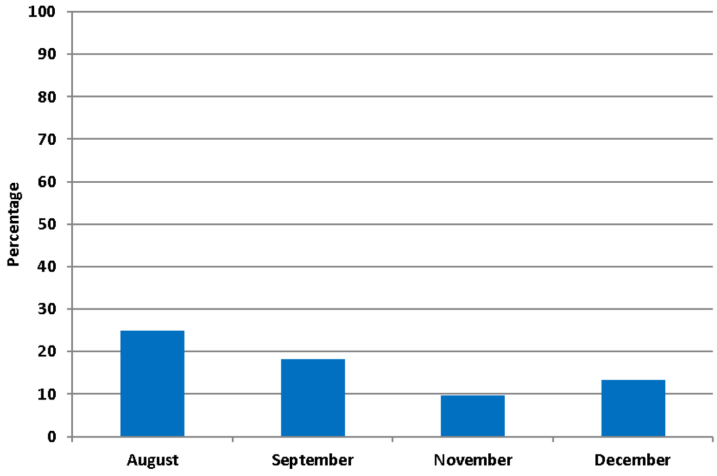

Figure 4. Venezuela: percentage of the population aged 18 years and older not vaccinated against COVID-19 who do not want to be vaccinated (August - December 2021). Source: Delphos Institute national surveys.

The exploration of reasons for not wanting to be vaccinated was only conducted in the November 2021 survey. Figure 5 shows the most frequent reasons given by people who do not want to be vaccinated. These reasons are as follows: distrust of the vaccine (34.1 %), fear of the vaccine (22.7 %), the vaccine is useless (10.2 %), and not believing in the vaccine (9.1 %).

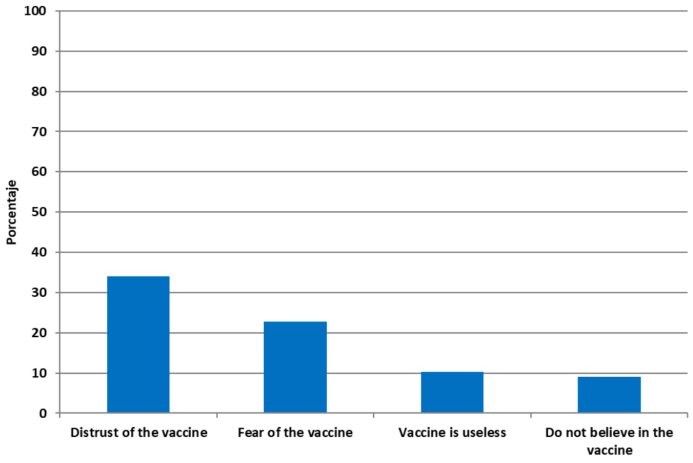

Figure 5. Venezuela: reasons given by people who do not want to be vaccinated (November 2021). Source. Delphos Institute National Survey, November 2021.

The type of vaccine administered is explored only in the December 2021 survey. Figure 6 shows the percentages of the vaccinated population according to the types of vaccines administered. The Sinopharm and Sinovac vaccines have been administered to 72.7 % of people aged 18 and over. Sputnik vaccine was administered to 19.5 %, Abdala and Soberana to 5.1 %. Pfizer/BioNTech, Moderna, Oxford/AstraZeneca, and Janssen (Johnson & Johnson) vaccines have been administered to 1.3 % of the population aged 18 years and older.

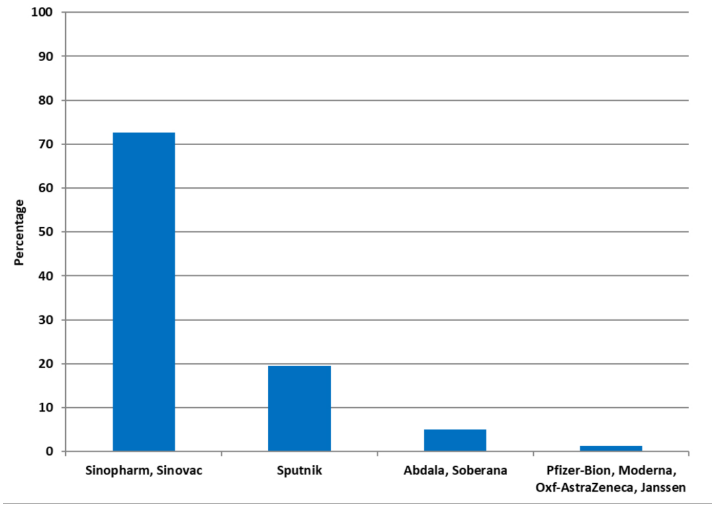

Figure 6. Venezuela: percentage of the vaccinated population aged 18 years and older by type of vaccines administered (December 2021). Source. Delphos Institute National Survey, December 2021.

DISCUSSION

As of May 24, 2022 (Figure 7), Venezuela is the only country in Latin America without information on coverage of the population fully vaccinated against COVID-19 in Our World in Data (2). The latest information available for Venezuela is as of March 25, 2022.

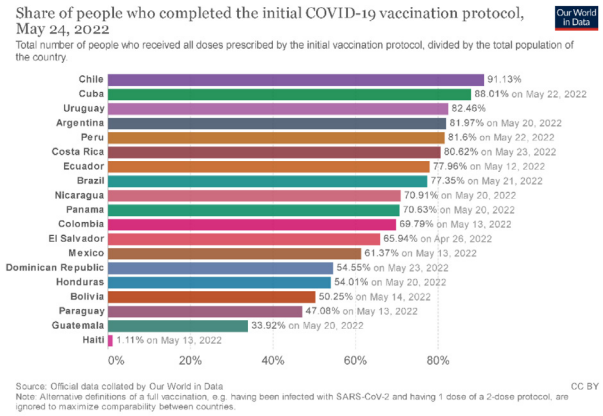

Figure 7. Latin America: percentage of the population fully vaccinated against COVID-19 (initial protocol) May 24th, 2022. Source: (2).

The research carried out to know the complete vaccination coverage, systematized in this work, constitutes an alternative to analyzing the progression of the vaccination program in Venezuela.

According to Figures 8-12, Venezuela has registered vaccination coverage against COVID-19, which places it among the countries with the lowest performance in the region. Coverage estimates from the June, August, and September 2021 surveys are lower than the coverage available in Our World in Data (Figures 8-10). In contrast, the coverage estimates from the November and December surveys are higher. The estimates made by Monitor COVID-19 (25) in surveys conducted in August, September, and November are similar to those obtained in the surveys reported in this paper.

According to the findings described, full COVID-19 vaccination coverage in the population aged 18 years and older had not exceeded 50 % by the end of 2021. By March 25, 2022 (the last record available in Venezuela's Our World in Data) it still did not reach 50 %. Even in the 50 and over age group, coverage did not exceed 75 %.

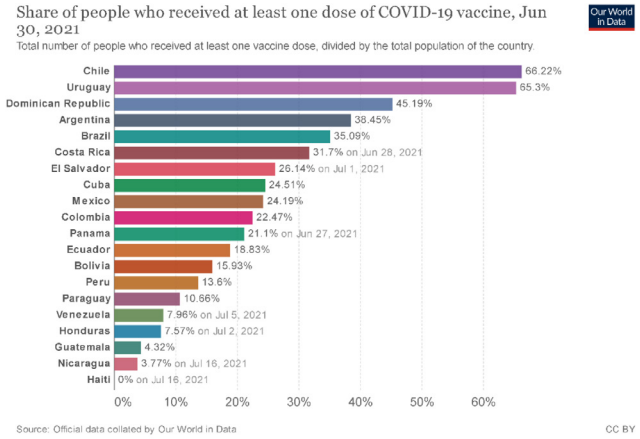

Figure 8. Latin America: percentage of the population with at least one dose of the COVID-19 vaccine June 30th, 2021. Source: (2)

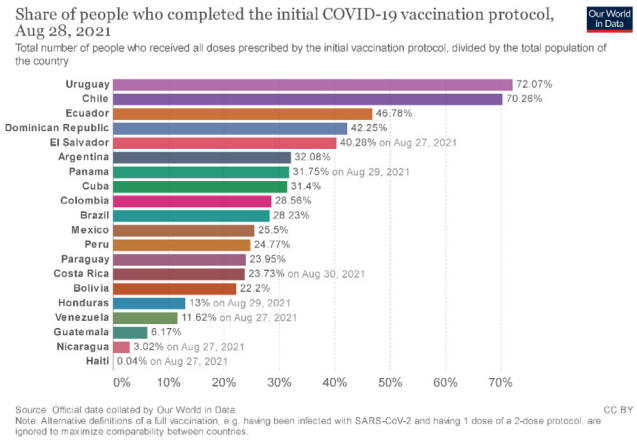

Figure 9. Latin America: percentage of the population fully vaccinated against COVID-19 (initial protocol) August 28th, 2021. Source: (2).

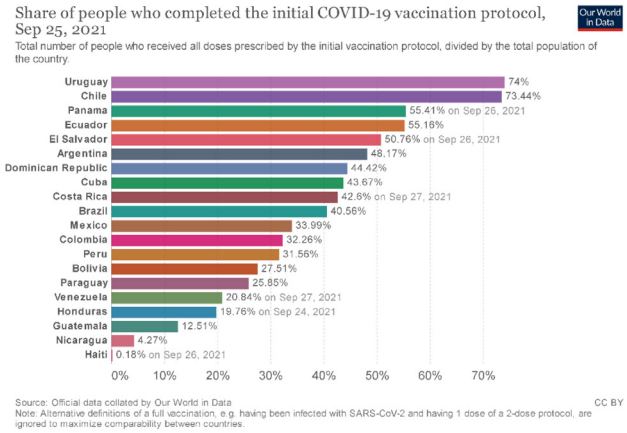

Figure 10. Latin America: percentage of the population fully vaccinated against COVID-19 (initial protocol) September 25th, 2021. Source: (2).

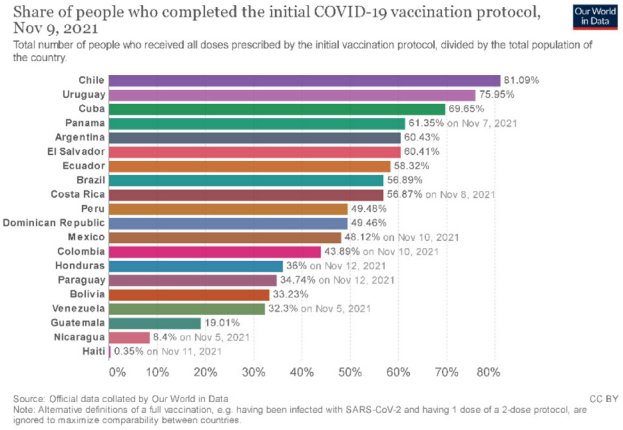

Figure 11. Latin America: percentage of the population fully vaccinated against COVID-19 (initial protocol) November 9th, 2021. Source: (2).

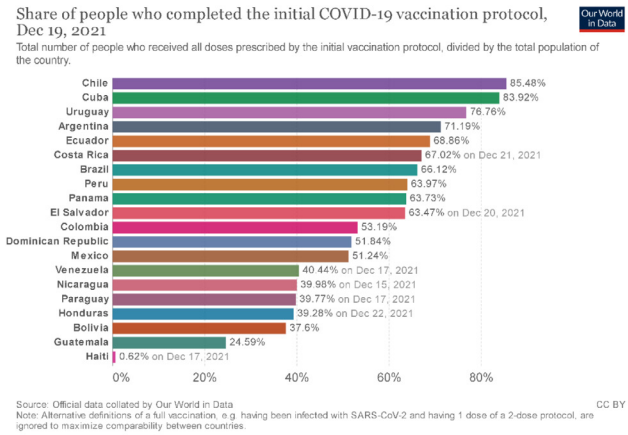

Figure 12. Latin America: Percentage of the population fully vaccinated against COVID-19 (initial protocol) December 19th, 2021. Source: (2).

CONCLUSIONS

The fact that Venezuela has not been able to develop a high-performance COVID-19 vaccination program, as was rapidly implemented in Chile and Uruguay, has conditioned both the management of the pandemic and the assessment of its effects. The correction of these deficiencies is at the core of the requirements for the adequate control of the pandemic, as well as the preparation of the health system to successfully face infectious diseases in the next decade.

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Conflicts of interest: None

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