



Effect of the COVID-19 Pandemic on Childhood Malnutrition in Mexico



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Instituto Nacional
de Salud Pública

This project was developed by the National Institute of Public Health in Mexico, and received financing from the World Bank and from Standing Together for Nutrition Consortium (ST4N), a multidisciplinary consortium of nutrition, gender, economics, food and health system experts, working to address the scale and reach of COVID-19, climate events, and the Ukraine crisis on nutrition.



Standing Together
for Nutrition



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Background

- The COVID-19 pandemic and increasing food prices due to the Russian invasion of Ukraine **threatens to undo three decades of progress to end childhood malnutrition in Mexico.**
- **Malnutrition is suggested to be driven by** reduced income, increased food insecurity, as well as interrupted health and nutrition services caused by the pandemic, along with changes in social program coverage. These risks are greater in vulnerable groups.
- **Malnutrition increases** childhood morbidity and mortality, lowers school performance, and has lifelong effects on health and productivity.
- **Nutritional interventions prevent and reduce malnutrition in children and pregnant women.** Micronutrient powders and vitamin A supplementation for children, multiple micronutrient supplementation for pregnant women, and infant and young child feeding education interventions are cost-effective ways to address malnutrition.

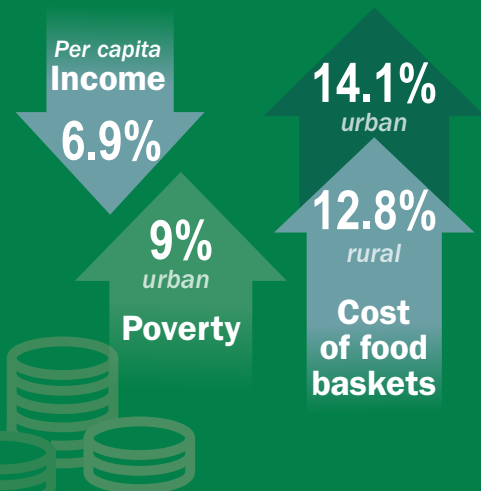


Approach

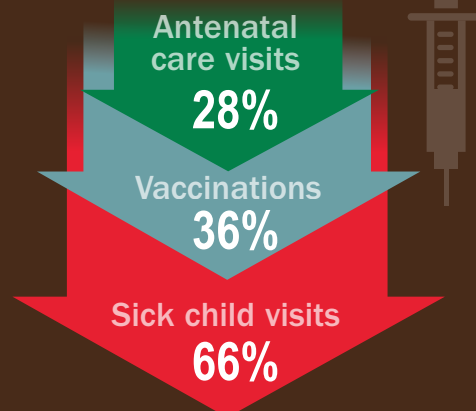
To support policy dialogue and inform decision-making at all levels, an economic modeling approach was used to demonstrate the importance of programs and policies that address malnutrition in Mexico.

The approach used information from the National Health and Nutrition Survey (ENSANUT) with data representing over 25,000 children and 17,000 households since 2006, and Maternal and Child Health and Nutrition (MCHN) services coverage and cost from the Ministry of Health.

Economic Effects in 2020



Healthcare Effects for People with Social Security



Source: Doubova S V, Leslie HH, Kruk ME, Pérez-Cuevas R, Arsenault C. Disruption in essential health services in Mexico during COVID-19: an interrupted time series analysis of health information system data. *BMJ Glob Heal.* 2021;6(9):e006204

1. Model



Changes in food insecurity and malnutrition associated with COVID-19 were modeled using ENSANUT.

2. Simulate



Malnutrition and infant mortality trends (2022–2030) due to disruption in MCHN and food insecurity were simulated using the Lives Saved Tool (LiST-tool).

3. Estimate



The potential effect and cost of increasing coverage of maternal and child health and nutrition services was estimated using Optima Nutrition tool.



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Key Findings

Overview

Changes in food insecurity and malnutrition

1. Households with children under five years old across the country, and particularly in the South, were more likely to be food insecure in 2021 compared to 2018.
2. Households with children that did not receive cash transfers were also more likely to be food insecure.

Predicted trends in stunting and infant mortality

3. Stunting and infant mortality are predicted to increase due to higher food insecurity and disruptions in health and nutrition services.

The economic cost of childhood malnutrition in Mexico

4. The predicted increase in malnutrition due to the pandemic would cost an extra US\$5,290 million in 2021 vs 2018 from productivity loss and premature death.

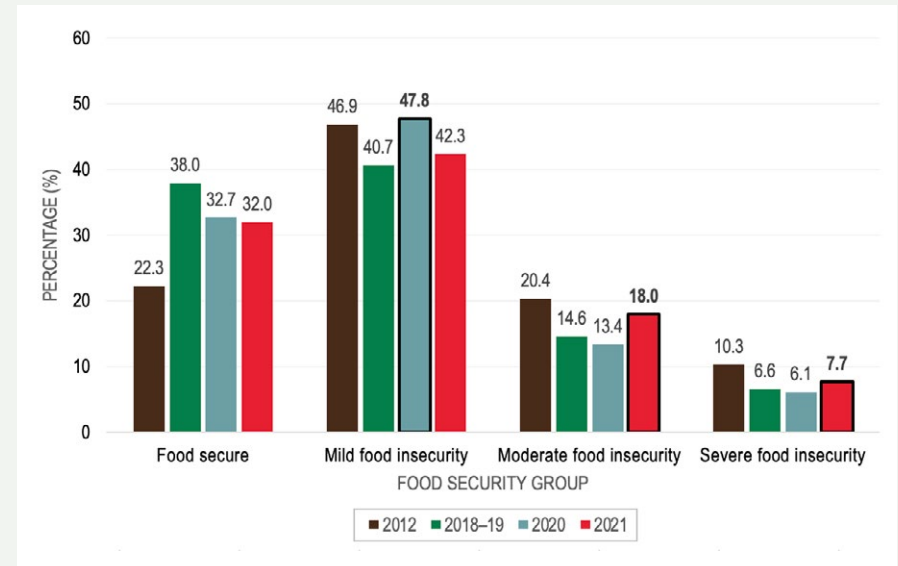
Effect and cost of increasing coverage of health and nutrition services for children under five years old

5. Increasing funds for nutrition interventions by US\$100 million per year from 2022 to 2030 would reduce malnutrition to pre-pandemic levels by 2030.

Changes in food insecurity and malnutrition

1. Households with children under five years old across the country, and particularly in the South, were more likely to be food insecure in 2021 compared to 2018.
 - Food insecurity (moderate and severe) increased 20% in 2021 vs 2018.

Figure 1. Adjusted Prevalence of Food Insecurity in Households with Children Under Five Years Old in Mexico



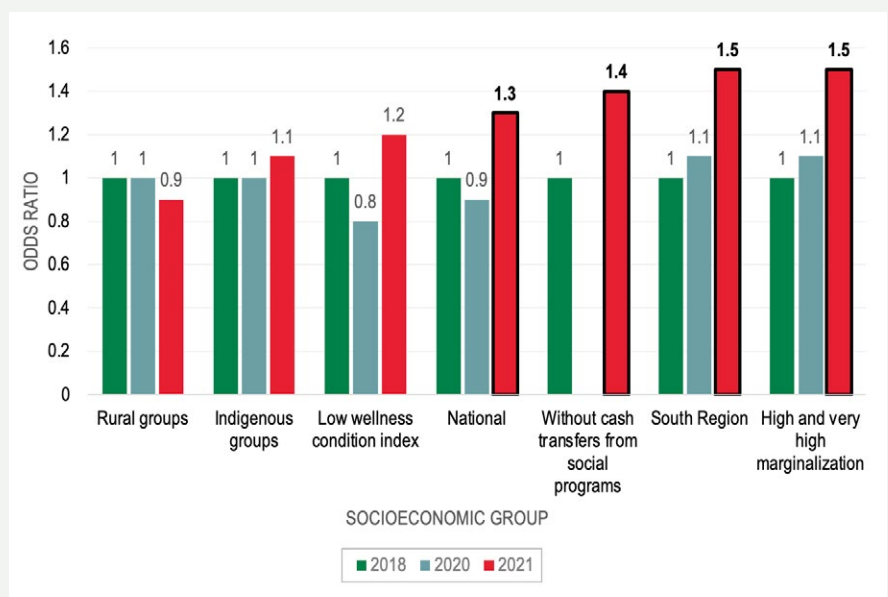
Note: Bolded values are statistically significant (p<0.05)
 Source: Unar-Munguía et al. Modelling the effects of COVID-19 pandemic on food insecurity and malnutrition and the cost of increasing the coverage of health and nutrition services for children in Mexico. 2022.

Key Findings

2. Households with children that did not receive cash transfers were also more likely to be food insecure.

- Households without cash transfers from social programs were 1.4 times more likely to be food insecure in 2021 vs 2018.

Figure 2. Odds Ratio of Food Insecurity in Households with Children Under Five Years Old in Mexico

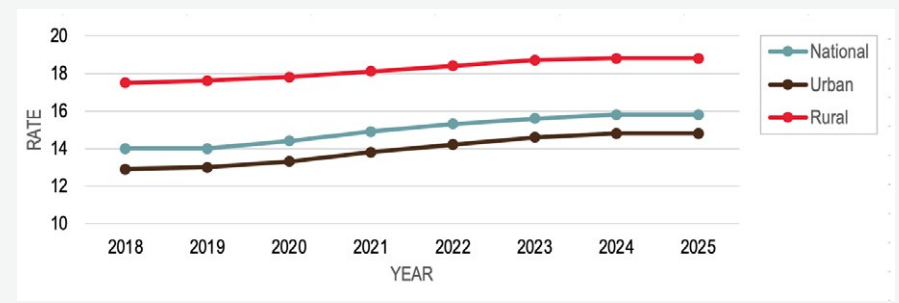


Note: Bolded values are statistically significant (p<0.05)
Source: Unar-Munguía et al.

Predicted trends in stunting and infant mortality

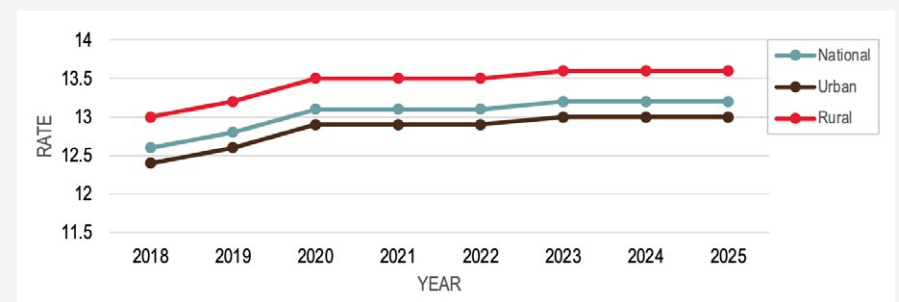
3. Stunting and infant mortality are predicted to increase due to higher food insecurity, and if coverage in health and nutrition services does not recover to pre-pandemic levels.

Figure 3. Predicted Stunting in Mexico, 2018-2025



Source: Unar-Munguía et al.

Figure 4. Predicted Infant Mortality per 1,000 Births in Mexico, 2018-2025



Source: Unar-Munguía et al.

Key Findings

The economic cost of childhood malnutrition in Mexico

4. The predicted increase in malnutrition due to the pandemic would cost an extra US\$5,290 million in 2021 vs 2018 from productivity loss and premature death.

- Total economic cost of malnutrition and mortality in 2021 US\$51,193 million/US\$1,089 million annualized.
- The economic cost was US\$32,148 per stunting case and US\$150,253 per child death.

Figure 5. Estimated Economic Cost of Malnutrition and Child Mortality Before and During the COVID-19 Pandemic



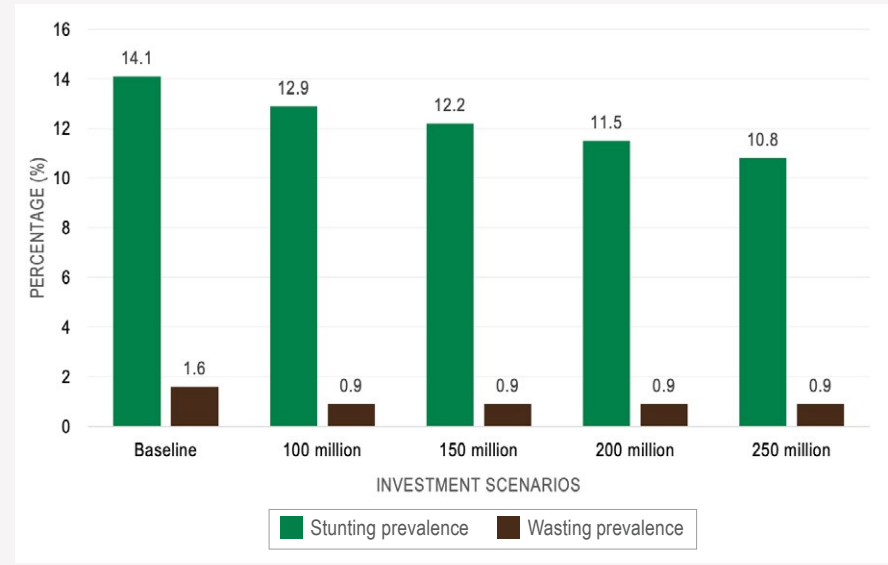
Source: Unar-Munguía et al.

Effect and cost of increasing coverage of health and nutrition services for children under five years old

5. Increasing funds for nutrition interventions by US\$100 million per year from 2022 to 2030 would reduce malnutrition to pre-pandemic levels by 2030.

- Increasing the additional investment from US\$100 million to US\$250 million per year from 2022 to 2030 would lead to greater reductions in stunting and child deaths.

Figure 6. Estimated Effect on Malnutrition of Additional Funds for a Package of Nutrition Interventions in Mexico



Source: Unar-Munguía et al.

Key Takeaways



The **COVID-19 pandemic raised food insecurity** and disrupted the provision of health and nutrition services, these factors could lead to increased malnutrition and mortality.



Social programs and nutrition interventions to address malnutrition before, during, and after crisis and emergency situations are essential.



Invest in nutritional interventions for pregnant women and children. This is a cost-benefit strategy that can prevent malnutrition and its long-term effects on child development and economic burden.



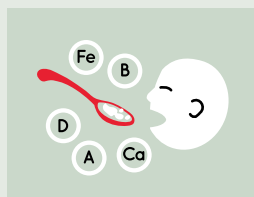
Guarantee the best start in life by immediately implementing a consolidated program for the control and prevention of malnutrition in the first 1,000 days of life.

Table 1. Maternal and Child Health Nutrition Interventions to Prevent Malnutrition

Nutrition intervention	Description
Multiple micronutrient supplementation in pregnancy	Tablets with iron, folic acid, and other vitamins and minerals in pregnancy provide better birth outcomes and health benefits to mother and child.
Iron and folic acid supplementation in pregnancy	Tablets with iron and folic acid in pregnancy prevent maternal anemia, preterm birth, and neural tube defects.
Micronutrient powders for children	Vitamins and mineral powders mixed with food at home prevent anemia and support optimal growth and development.
Infant and young child feeding promotion	Adequate feeding practices include exclusive breastfeeding for six months, continued breastfeeding until two years or more, and complementary feeding for 6–24 months.
Vitamin A supplementation	One yearly dose of vitamin A administered in health facilities to eliminate deficiencies reduce morbidity and mortality in children.
Treatment for moderate acute malnutrition (MAM)	Supplementation with ready-to-use complementary foods and maternal education.
Treatment of severe acute malnutrition (SAM)	Therapeutic feeding with ready-to-use therapeutic food supplementation, antibiotics to treat infection, and maternal education.

Nutrition Interventions to Reduce Malnutrition

These reductions could be achieved with the following nutrition intervention coverage by investing US\$100 million per year.



95% coverage of micronutrient powders for children, vitamin A supplementation, multiple micronutrient supplementation in pregnancy, and treatment of severe acute malnutrition.



50% coverage of infant and young child feeding promotion in health facilities, community, and mass media.



5.3% coverage in iron and folic acid supplementation for pregnant women.

For additional information regarding the study contact:
Mishel Unar, National Institute of Public Health at munar@insp.mx or
Jeremy Veillard, World Bank at jveillard@worldbank.org.