

Perinatal health outcomes of internal migrant women in Brazil: A nationwide data linkage study of the CIDACS birth cohort

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Migration



“Migrant is person who moves away from his or her place of usual residence, whether within a country or across an international border, temporarily or permanently, and for a variety of reasons” (IOM, 2019)

International Migration



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Women migration in Europe - Meta-analysis (65 studies):

Higher risk:

- 43% of low birth weight
- 24% of preterm
- 50% of neonatal mortality
- 61% of congenital anomalies

Behboudi-Gandevani, Samira, et al. *Annals of Global Health* 88.1 (2022).

Bollini, Paola, et al. *Social science & medicine* 68.3 (2009): 452-461.

International Migration



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Women migration in Europe - Meta-analysis (65 studies):

43% higher risk of low birth weight, 24% of pre-term delivery, 50% of perinatal mortality, and 61% of congenital malformations

Migration worldwide-Meta-analysis (126 studies):

Higher risk:

- 35% of small for gestational age
- 22% of low Apgar at 5’

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Internal migration



Scarcity of studies evaluating internal migration with the studies showing mixed results.

- Ranging from lower to increased utilization of healthcare services.
- Increase in under-five mortality to decrease in rates of preterm and low birth weight.

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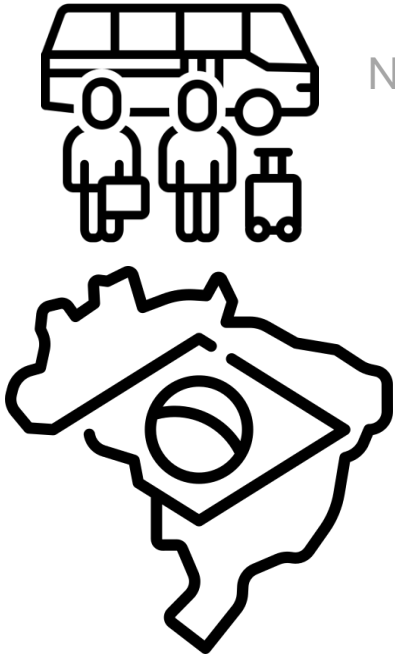


28 million of migrants (14% pop) (2010 census)

Considerable regional inequalities

Robust and Universal Healthcare System

Internal migration



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Objective:

Determine if the perinatal outcomes of internal migrant differ based on their migration to municipalities with different HDIs than their original municipalities.

Methods

- **Study designs:** Cohort and Sibling
- **National databases:** Unified Registry for Social programmes – CadÚnico

Live Birth Information System - SINASC

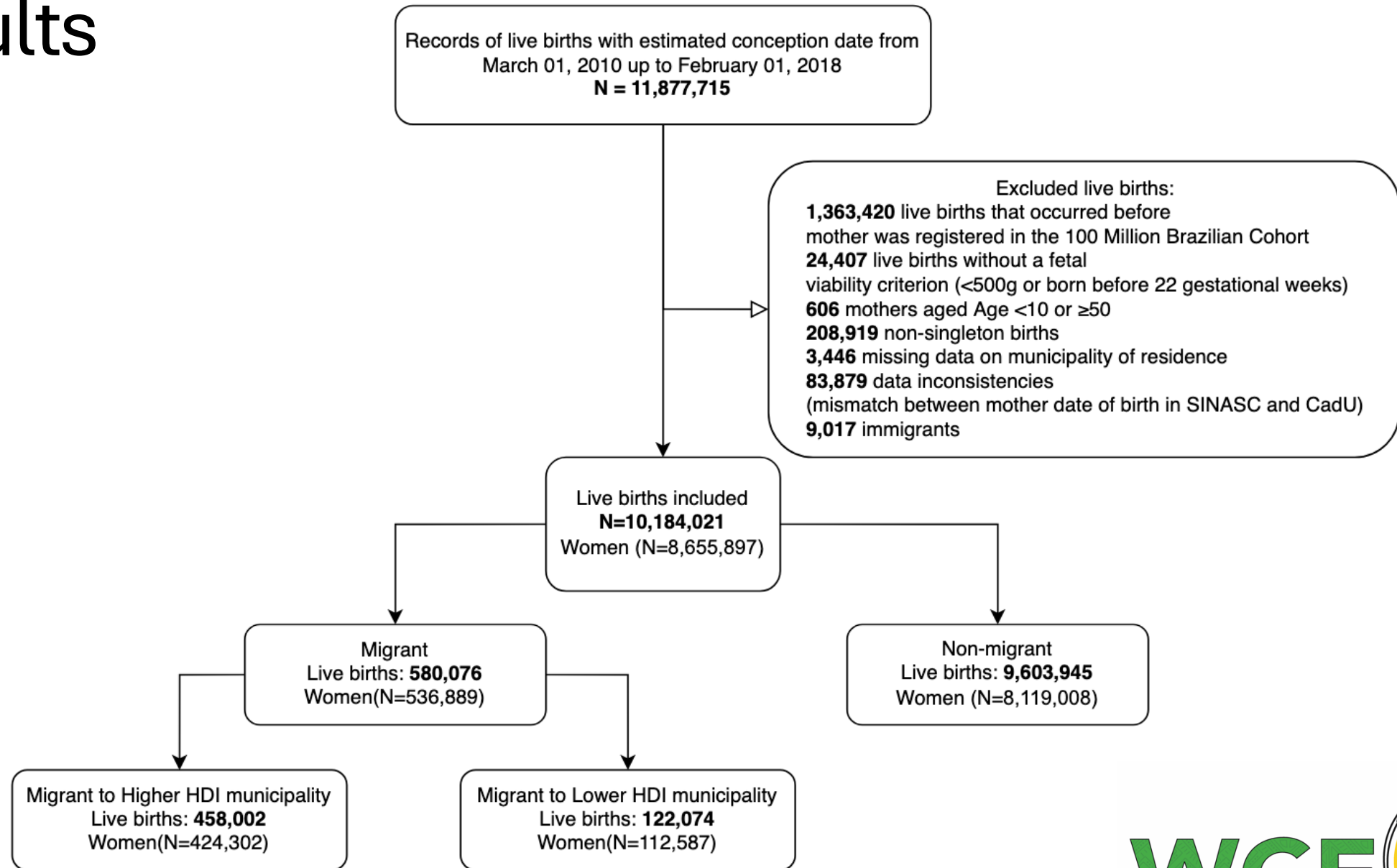
Mortality Information System – SIM

- **Timeline:** January 2011 to 31st December 2018
- **Exposure:** Internal migrants were defined as women who changed state of residence from registration in CadÚnico to birth (SINASC)
- **Outcomes:** (i) timely initiation of antenatal care; (ii) prematurity, (iii) low birth weight, (iv) small for gestational age, (v) low Apgar score 5', (vi) congenital anomaly at birth, and (vii) neonatal mortality

Methods

- Statistical Analysis
- Inverse probability weighting: Migration
 - age, education level, race/ethnicity, date of registration in CadUnico, state of residency, state of cohort registry different from birth, location of household, material of household , water system, waste disposal/garbage collection, HDI of the municipality
- Outcome modelling: Time varying variables
 - age of the mother, state of residence, number of antenatal visits, education level, year of conception, number of previous pregnancies, marital status, previous foetal loss, and receipt of conditional cash transfer benefit

Results



Results: Characteristics of the study sample

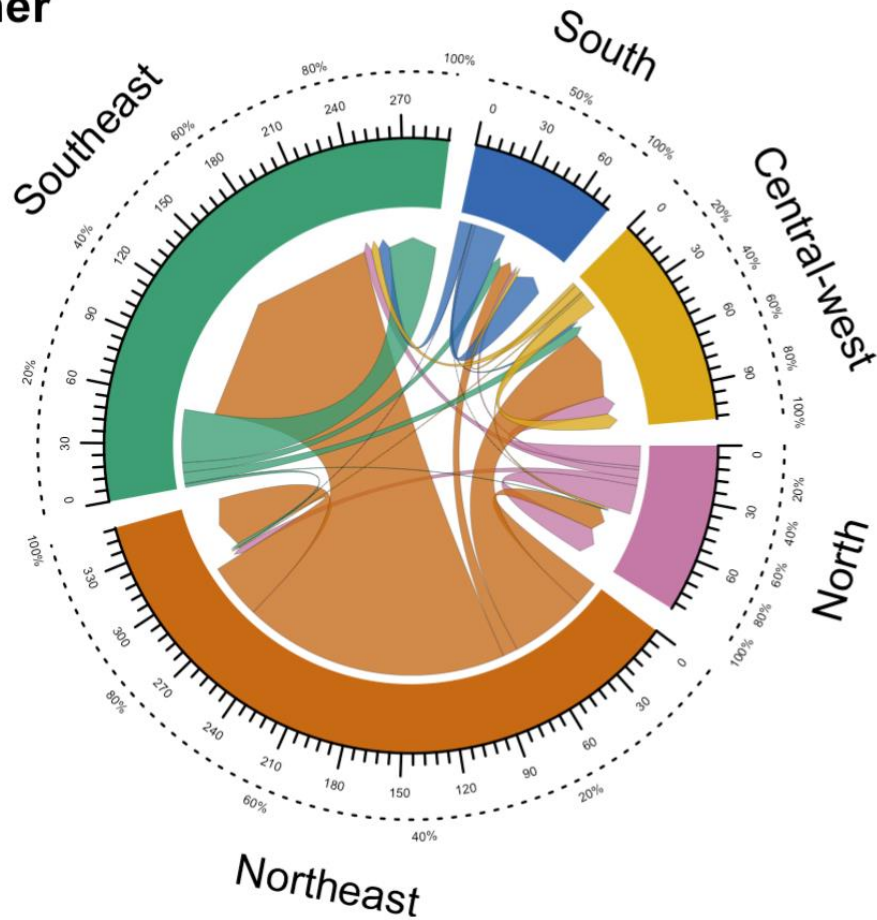
Characteristic	Higher/Equal HDI	Lower HDI	Non-migrants
Age registration - years median (IQR)	16 (12, 20)	17 (12, 23)	17 (12, 22)
Age at Pregnancy - years median (IQR)	24 (20, 28)	24 (20, 30)	24 (20, 29)
Water supply - Public system	246,161 (58.3%)	86,513 (76.7%)	6,334,017 (69.2%)
Location of household - Rural	167,355 (39.3%)	17,286 (15.2%)	2,275,200 (24.6%)
State of cohort registry different from birth	86,191 (19.3%)	51,579 (43.8%)	942,759 (10.6%)
HDI difference between municipalities			
≤0.1	160,317 (35.0%)	86,243 (70.6%)	-
>0.1	297,685 (65.0%)	35,831 (29.4%)	-

* Some variables contain missing data

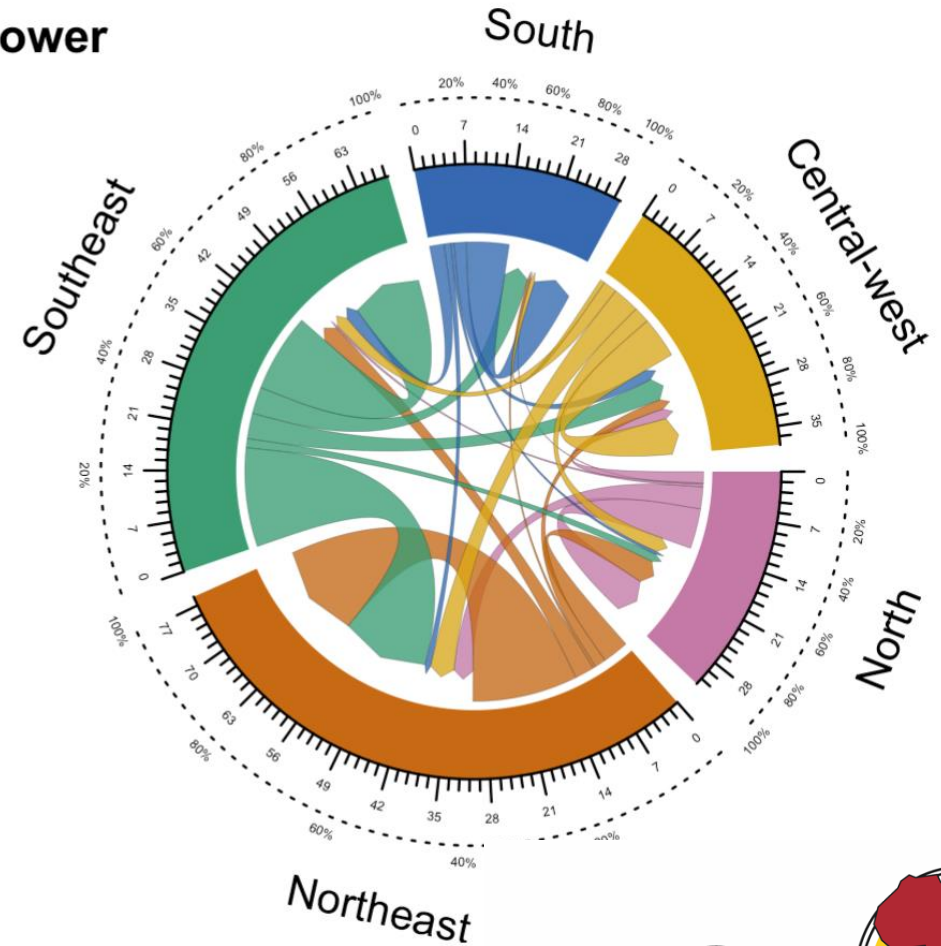


Results: Pregnant migration pattern

Higher



Lower

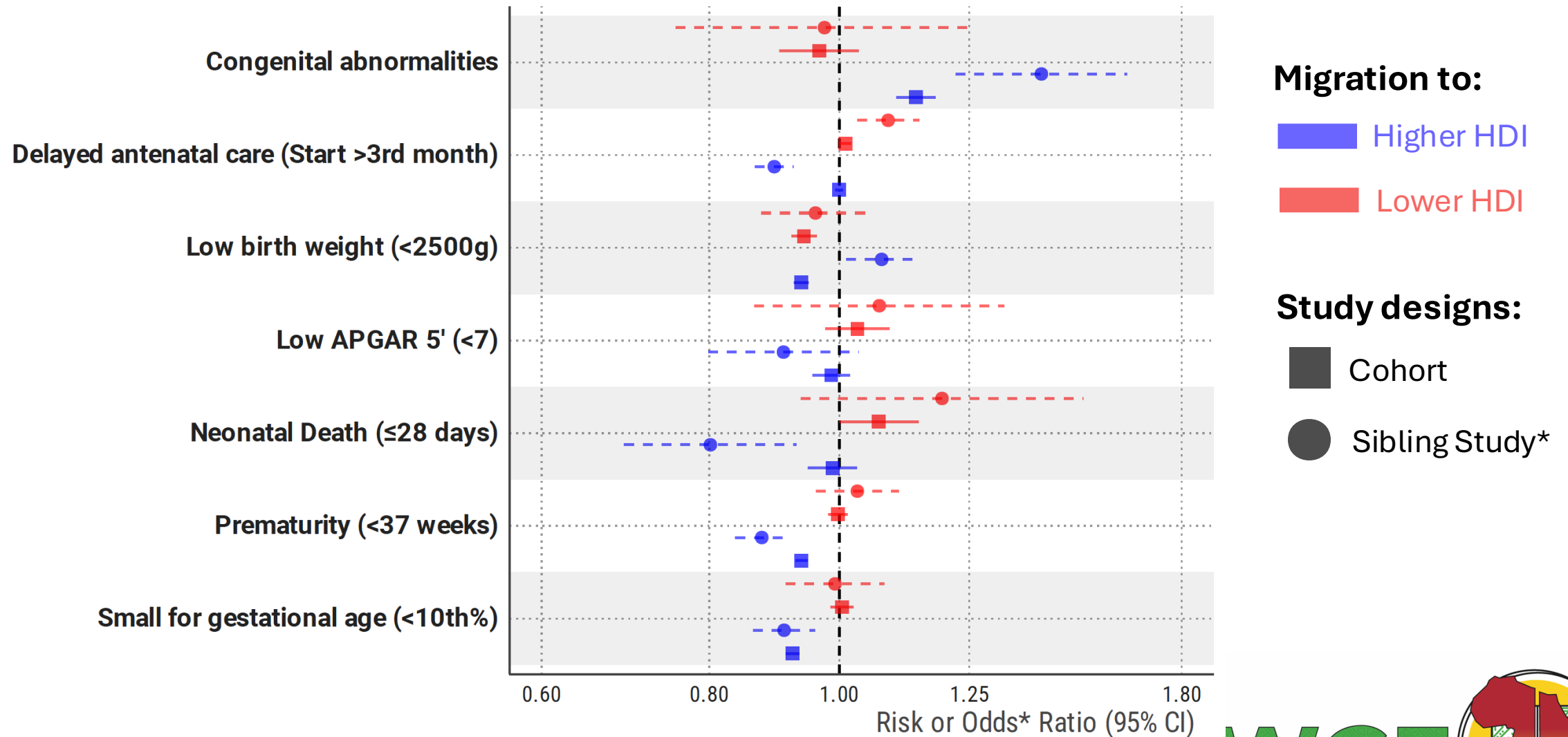


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Results: Migration's effect on perinatal health



Discussion

Issaka, Abukari I., *PLoS one* 11.10 (2016): e0163179.

Xie, Lulu, et al. *BMC Public Health* 24.1 (2024): 1179.

Gu, Hai, et al. *Tropical Medicine & International Health* 22.2 (2017): 124-132.

Mixed results on previous studies:

China:

Xie et. al.: Odds Ratio (OR): 0.87 (0.86 - 0.88) – Preterm | OR: 0.79 (0.78 - 0.80) – LBW

Gu et. al.: Lower odds for Adequate pre-natal or post-natal: OR: 0.49 (0.31 - 0.77) | 0.18
(0.12–0.27)

Sub-Saharan African (27 countries)

Issaka et. al.: Hazard Ratio: 1.20 (1.06–1.35) – under-five mortality.

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Limitations: No data on the exact timing of migration

Strengths:

Account for difference between HDI of origin and destination

Sibling study

Conclusion

Offspring of migrants to municipalities with higher HDIs have better perinatal outcomes, while migrants to lower HDIs follow a similar pattern to non-migrant women.

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Offspring of migrants to municipalities with higher HDIs have better perinatal outcomes, while migrants to lower HDIs follow a similar pattern to non-migrant women.

Intersectoral actions and policies should aim to improve the access and quality of the healthcare system, benefiting both migrants and Brazil's poorer populations.

Thank you! | Dankie !

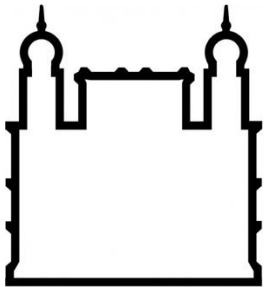
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