Maternal and foeto-neonatal characteristics of childbirth in Ethiopia: a multi-level mixed-effect analysis

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Introduction

- **Ethiopia has MMR of 401 per 100,000 live births, and only 49.80% of births is attended by skilled health personnel (WHO, 2021a).**
- **Poverty and accessibility issues were the two major factors that explain high rates of homebirth in Africa including Ethiopia (Moyer, 2013). Besides, the COVID-19 pandemic has also caused a major disruption to the healthcare system and service delivery scheme which in turn increase the homebirth practices (WHO, 2021b).**
- **Thus, our study aimed to investigate multilevel predictors of maternal and foeto-neonatal characteristics of home and institutional childbirths in Ethiopia.**

Methods

- **A weighted sample of 7,590 women who had childbirths within five years preceding the survey using a most recent Ethiopian DHS data available at https://www.dhsprogram.com/ was used.**
- **STATA V15 software were used for the analysis.**
- **The Kriging spatial interpolation, and the Gettis-OrdGi geospatial analysis were used to visualize the childbirth practices across the nation.**
- **A mixed-method multilevel regression models were employed, accounting for design and clustering effects. Null model (I): using a Likelihood Ratio Test (LRT), Intraclass Correlation Coefficient (ICC), Median Odds Ratio (MOR) and Proportional Change in Variance (PCV)**
  - ✓ **Model II: multilevel model at ind'l level**
  - ✓ **Model III: Multilevel at community level**
  - ✓ **Model IV: Adjusted for both level (mixed)**
  - ✓ **Pseudo-multi-collinearity Dx (VIF>10 and CI>30 units) were used to adjust confounders.**

Results

- **Prevalence of homebirth in Ethiopia is 68.30% and common among multiparous women *(P<.001).***
- **Women who had home births were 4.58 times (AOR = 4.58; 95% CI: 3.89–5.19, p<0.001) more likely to be attended by unskilled birth attendants.**

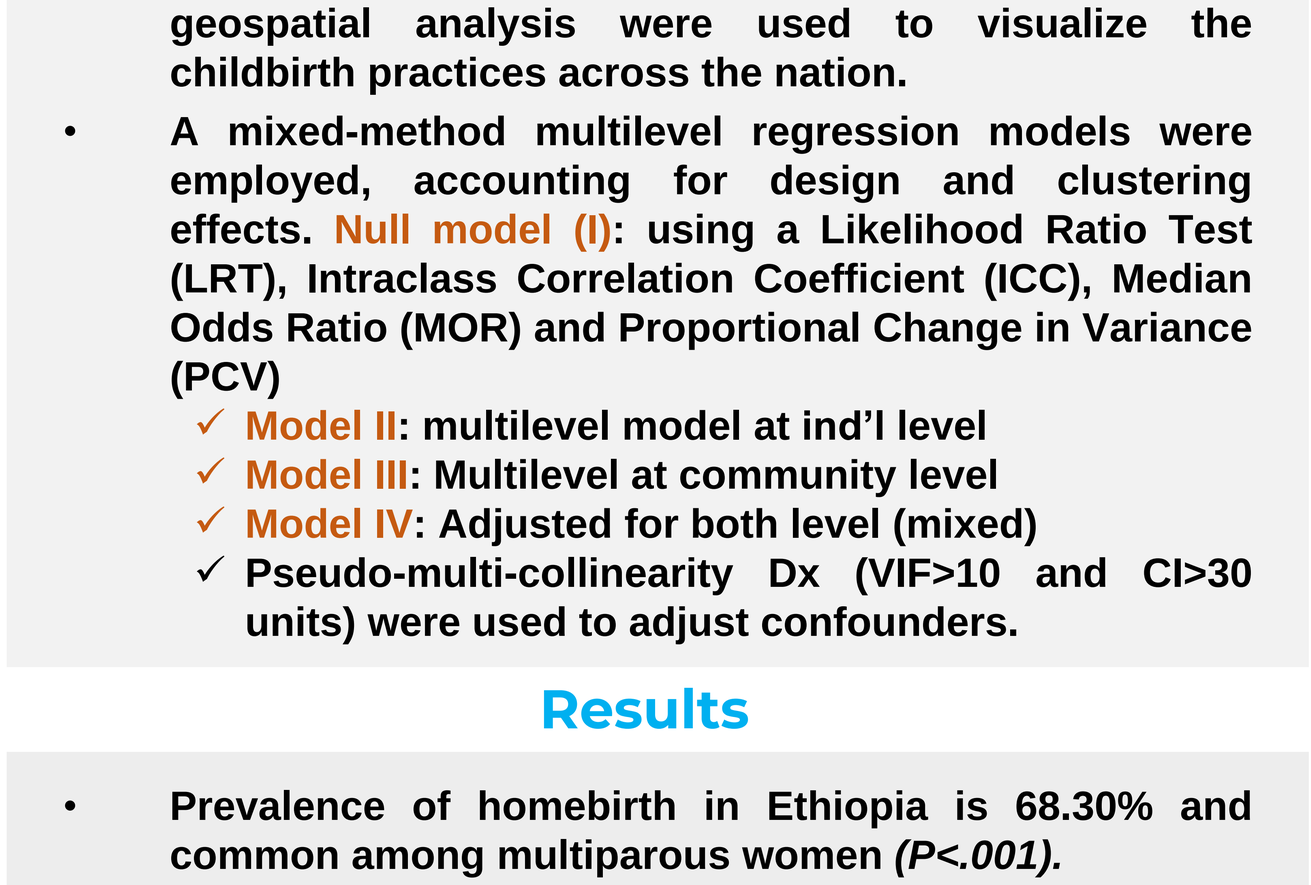

Figure 1: childbirth practices by region (per population size) in Ethiopia

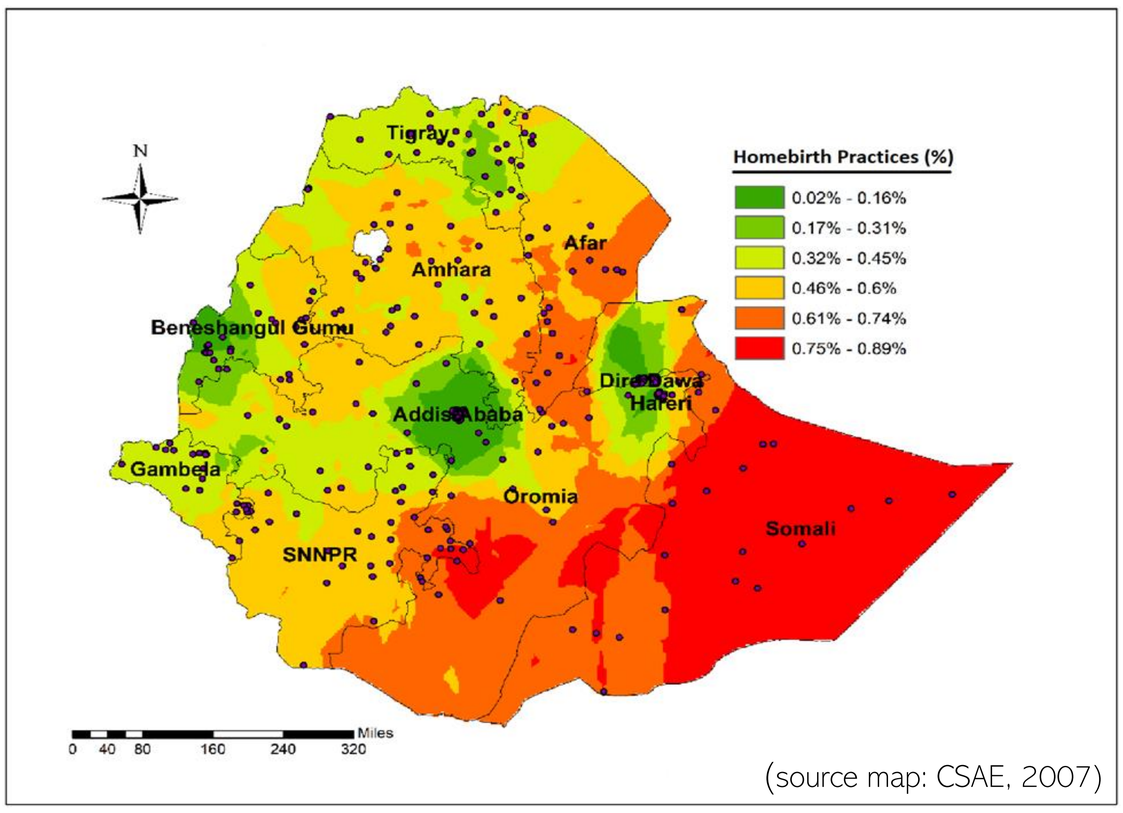

Figure 2: Prevalence of homebirth practices in Ethiopia (kerning's interpolation)

Table 1: Key findings of foeto-maternal birth characteristics by birthplace in Ethiopia.

Characteristics	Homebirth	Institutional birth	*p*
No ANC visit	49.81%	9.91%	*< 0.001*
Skilled birth	2.70%	99.1%	*< 0.001*
Caesarean sections (Cs)	-	7.60%	-
Perinatal mortality	4.50%	2.80%	*< 0.001*

Conclusion

- ❖ **Improving perinatal care services with well-trained birth attendants and strict risk identification, regardless of the place of birth, will improve the outcome of childbirth and would be cheaper and easier to carry out instead of persuading women to give birth institutionally.**

References

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- ➢ **World Health Organization (2021b). New global targets to prevent maternal deaths [Internet]. Departamental News. 2021 [cited 2021 Dec 19]. Available from: https://www.who.int/news/item/05-10-2021-new-global-targets-to-prevent-maternal-deaths**

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