



Bayesian hierarchical analysis of equity in delivery care service coverage for adolescents in 54 low-and middle-income countries, 2000-2030

Md. Mizanur Rahman, PhD¹; Hiroko Taniguchi, MHS¹; Raïssa Shiyghan Nsashiyi, MPH¹; Md. Rashedul Islam, MSc¹; Sayed Riaz Mahmud, BSc²; Md. Shafiur Rahman, MHS¹; Jenny Jung, MIPH²; Shahjahan Khan, PhD³

¹Department of Global Health Policy, School of International Health, The University of Tokyo, Tokyo, Japan

²Global Public Health Research Foundation, Dhaka, Bangladesh

³School of Sciences, Centre for Health Research, University of Southern Queensland, Toowoomba, Australia

Abstract

Background

Limitations to accessing delivery care services increase the risks of adverse outcomes during pregnancy and delivery for all pregnant women, particularly among adolescents in the LMICs. In order to inform adolescent-specific delivery care initiatives and coverage, we conducted a comprehensive analysis of trends, projections and inequalities in accessing the delivery care services among adolescents at national, urban-rural, and socio-economic levels in LMICs.

Method

Using all available Demographic and Health Surveys and Multiple Indicator Cluster Surveys between 2000 and 2019 in 54 LMICs, we estimated proportions of institutional delivery (INSD) and skill birth attendants (SBA) among women aged 15-19, 20-35, and 36-49 years separately. Bayesian hierarchical regression models were used to estimate trends, projections, and determinants of INSD and SBA. Equity analysis was performed to assess the magnitude of wealth-based inequalities to access delivery care services.

Results

Coverage of delivery care services among adolescents increased substantially at national, urban and rural areas in most of countries between 2000 and 2018. By 2030, coverage of INSD and SBA is predicted to exceed 80% in all countries except Angola, Central African Republic, Chad, Guinea, Haiti, Madagascar, Myanmar, Niger, Nigeria, and Togo. Wealth-based inequalities in delivery care services is predicted to decrease substantially in most countries in 2030, however the urban-rural disparity is predicted to persist. Between 2018 and 2030, wealth-based inequalities are predicted to reduce by around 80% or more in India, Nepal, Cambodia, Vietnam, Burundi, Malawi, Rwanda, Sierra Leone, and Gambia.

Conclusion

More than three-quarters of the LMICs are predicted to achieve 80% coverage of INSD and SBA among adolescent mothers in 2030, although with sustained urban-rural and wealth-based inequalities. Community based analyses are necessary to inform delivery care scale up for the groups of adolescents that are lagging.

Keywords: Institutional delivery, skill birth attendants, delivery care, inequalities, prediction, adolescent, Bayesian model