

## Effect of Distance to Health Facilities on Maternal Service Use and Neonatal Mortality in Ethiopia

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**Abstract :** Introduction: In Ethiopia, more than half of newborn babies do not have access to Emergency Obstetric and Neonatal Care (EmONC) services. Understanding the effect of distance to health facilities on service use and neonatal survival is crucial to recommend policymakers and improve resource distribution. We aimed to investigate the effect of distance to health services on maternal service use and neonatal mortality. Methods: We implemented a data linkage method based on geographic coordinates and calculated straight-line (Euclidean) distances from the Ethiopian 2016 demographic and health survey clusters to the closest health facility. We computed the distance in ESRI ArcGIS Version 10.3 using the geographic coordinates of DHS clusters and health facilities. Generalised Structural Equation Modelling (GSEM) was used to estimate the effect of distance on neonatal mortality. Results: Poor geographic accessibility to health facilities affects maternal service usage and increases the risk of newborn mortality. For every ten kilometres (km) increase in distance to a health facility, the odds of neonatal mortality increased by 1.33% (95% CI: 1.06% to 1.67%). Distance also negatively affected antenatal care, facility delivery and postnatal counselling service use. Conclusions: A lack of geographical access to health facilities decreases the likelihood of newborns surviving their first month of life and affects health services use during pregnancy and immediately after birth. The study also showed that antenatal care use was positively associated with facility delivery service use and that both positively influenced postnatal care use, demonstrating the interconnectedness of the continuum of care for maternal and neonatal care services. Policymakers can leverage the findings from this study to improve accessibility barriers to health services.

**Keywords :** accessibility, distance, maternal health service, neonatal mortality

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