Table S1: The variables description and their categorization used in this analysis

Variables	Description and categorisation
Intermediate *(Socioeconomic factors)*	
Location of household	1= Urban; 2 = Rural
Household wealth status	Composite index of household possession: 1= highest quintile; 2= 4th quintile; 3= middle quintile; 4= 2nd lowest quintile; 5= lowest quintile
Mother's education	Mother's highest levels of education: 1 = Primary or more education; 2 = No education
Mother's working status	1= Working; 2= Not working
Maternal marital status	1= Currently married; 2 = Formerly married
Intermediate (household factors)	
Main household material of the wall	Type of main household material of the wall categorised as: 1= Finished (cement, stone with lime or cement, bricks, cement blocks, covered adobe, and wood planks or shingles); 2= Rudimentary (mashed bamboo or stone with mud, uncovered adobe, plywood, cardboard, and reused wood planks); 3=Natural (No wall, cane, palm, trunks, leaves dirt)
Main household material of the roof	Type of main household material of the roof categorised as: 1= Finished (metal, wood, calamine or cement fibre, ceramic tiles, cement, and roofing shingles); and 2= Rudimentary (rustic-mat, palm, bamboo, wood planks, and cardboard); 3=Natural (thatch, palm leaf, sod)
Cooking location	1= Cooking is done in a separate building; 2 = Cooking is usually done in the house; 3= Outdoors
Separate room for cooking	1=Yes; and 2=No
Improved sanitation facilities	Household have access to improved sanitation facilities: 1=Yes; 2= No
Improved source of drinking water	Household have access to improved source of drinking water: 1=Yes; 2=No
Type of cooking fuel	1= Clean fuels (electricity, LPG, natural gas, biogas); 2 = Polluting fuels (coal/lignite, charcoal, wood, straw/shrubs, agricultural crop, animal dung)
Environmental tobacco smoke	Household members indoor smoking status: 1=No, 2= Yes
Proximate (individuals' factors)	
Mother's current age (years)	Age of a mother on her last birthday: 1= 20-29 years; 2= < 20 years; 3= 30-39 years; 4= ≥40 years

Mothers smoking status	1=Never smoke; 2= yes smoke
Current use of contraception method	Mother's current use of contraception by type of method: 1= Modern method; 2= traditional/ no method
Desire for pregnancy	Mother's intention to become pregnant: 1=wanted then; 2=wanted later/ wanted no more
Ever had a terminated pregnancy	Mother experience previous loss of pregnancy: 1=yes; 2 = No
Sex of child	1=Female, 2 = Male
Birth rank	1 = 1st birth rank; 2 = 2nd to 3rd birth rank; and 3 = birth rank $\geq$4th
Preceding birth	The time elapsed between the birth of a previous child and the birth of a subsequent 'index child categorised as: 1=1st child; 2= birth interval <3 years, 3=birth interval >3 years
Delivery assistant	Birth attendance during delivery: 1 = Health professional; 2 = Non/traditional birth attendant/ others)
Place of delivery	1 = Home; and 2 = Health facility
Mode of delivery	1 = Non-caesarean; 2 = Caesarean section
Child's breastfeeding status	1= Ever-breastfeed; and 2= Never breastfeed
Birthweight (kilograms)	Neonatal birthweight: 1 = 2500-3500 kilograms; 2 = <2500 kilograms; 3 = >3500 kilograms; 4 = not weighed at birth
Birth size	Neonatal birth size: 1 = Average; 2 = Smaller than average; 3 = Larger than average
Post neonatal mortality	The probability of dying between the first month of life and first birthday: 0 = for living child; and 1 = a child death
Child mortality	The probability of dying between the first and fifth birthday: 0 = for living child; and 1 = a child death