



Stunting in the first year of life: Pathway analysis of a birth cohort

This is a summary of the following paper: *Mwangome M, Ngari M, Brals D et al (2024) Stunting in the first year of life: Pathway analysis of a birth cohort. PLOS Global Public Health, 4, 2, e0002908. <https://doi.org/10.1371/journal.pgph.0002908>*

Malnutrition among infants aged under six months has often been overlooked, leading to gaps in our understanding of the causes of early infancy stunting. The World Health Organization (WHO) 2013 conceptual framework for childhood stunting divides contributing factors into three main domains: context (community and societal factors), causes (household and family, feeding, and infection-related factors), and short-

and long-term consequences of stunted growth (health, developmental, and economic outcomes). The framework itself does not elucidate potential pathways and relationships between factors that contribute to stunting, limiting application to prioritising and designing interventions.

This study was set up to examine pathways including parental and household characteristics, birth size and gestation, and illness in infancy with stunting at birth and months three, six, and 12 using an a priori hypothesised framework. It was a secondary analysis of a birth cohort of 1,017 infants recruited from four health facilities in Burkina Faso and followed up for one year.

Among the 1,017 infants included in the study, after excluding perinatal deaths, 522 (51%) were male. The median gestational age was 38.9 weeks (interquartile range: 38.2 to 40.2). Forty-eight (4.7%) infants were born prematurely, and 189 (19%) had low birth weight. Of the 48 infants born prematurely, 34 (71%) also had low birth weight. A total of 454 infants were born in a health facility (45%), while 399 (39%) and 164 (16%) were born at home with and without a community-based assistant present, respectively.

The prevalence of being stunted at birth and at months three, six, and 12 was 7.4%, 23%, 20%, and 18% respectively. The fractions of

month 12 stunting attributable to being stunted at birth, month three, and month six were 11% (95% CI 5.0–16%), 32% (95% CI 22–41%), and 40% (95% CI 31–49%) respectively. Modelling showed male sex and maternal characteristics had direct effects on stunting at birth and three months, but not subsequently. Premature birth, twin birth, and being stunted at a previous time point were directly associated with stunting at months three, six, and 12. Both maternal and paternal characteristics were directly associated with preterm birth. Non-exclusive breastfeeding had a borderline positive direct effect on stunting at month six but not at month 12.

The study's limitations lie in its reliance on an older dataset from an untreated birth cohort, which makes replication challenging. Changes in healthcare services since 2004 may have influenced associations. Estimating gestational age using less accurate methods and the lack of variables such as maternal mental health status are among the limitations. Future studies, through treated cohorts, should encompass all factors in the WHO framework for childhood stunting and additional items identified here for a comprehensive pathway view.

Through this review, the authors uncover complex connections among child, maternal, paternal, and household characteristics. To improve birth size, it is crucial to focus on improving women's nutritional status before conception and during the first trimester of pregnancy, improving socioeconomic conditions, and promoting exclusive breastfeeding. By analysing pathways, we can better understand the shared and distinct links between wasting, stunting, and underweight, fostering collaboration across communities of practice to develop more unified strategies.



Community-based health worker in Burkina Faso conducts education session with mother-to-be

Intimate partner violence and child stunting in South Asia

This is a summary of the following paper: *Lakhdar MP, Ambreen S, Sameen S et al (2024) Association between maternal experiences of intimate partner violence and child stunting: A secondary analysis of the Demographic Health Surveys of four South Asian countries. BMJ Open, 14, 1, e071882. <https://doi.org/10.1136/bmjopen-2023-071882>*

Women experiencing intimate partner violence (IPV) may face adverse health outcomes and behaviours during pregnancy, leading to unfavourable pregnancy outcomes. Physical abuse during pregnancy can directly result in injuries, impacting pregnancy outcomes, including miscarriages and maternal and foetal mortality. Women subject to IPV are more likely to miss prenatal check-ups, potentially resulting in adverse pregnancy outcomes such as low birthweight and preterm births. Maternal IPV is also linked to poor nutrition and inadequate weight gain during pregnancy, as well as increased stress and depression. These can indirectly affect maternal and neonatal outcomes such as foetal death, preterm birth, low birthweight, and small for gestational age infants. In turn, these

outcomes may significantly impact a child's early growth and physical development, potentially leading to wasting and stunting.

Researchers aimed to determine whether there was an association between maternal exposure to IPV – i.e. sexual violence, physical violence, or both – and child stunting, measured based on the height-for-age z-score of children aged 6–59 months. The authors used data from the seventh round of the demographic and health surveys in four South Asian countries (Pakistan, Nepal, India, and the Maldives). A Cox proportional regression method conducted separately on each country's data was used to estimate the association between maternal IPV and child stunting.

The prevalence of women who were ever exposed to IPV (since age 15) ranged from 10%

(Maldives) to 31% (India). The burden of child stunting was the lowest in the Maldives (14%), followed by Nepal (33%), and then highest in both India and Pakistan (around 36%).

Although crude data showed a higher prevalence of child stunting in women who experienced IPV across all four countries, only India and Nepal demonstrated a significant association after adjusting for maternal age, education, number of children, household wealth ranking, and place of residence. In India, children whose mothers were exposed to IPV showed a 7% increase in the prevalence of moderate and severe child stunting (OR 1.07, 95% CI 1.01–1.14). In Nepal, severe stunting was strongly associated with the prevalence of physical IPV (OR 1.66, 95% CI 1.01–2.87). There were no other statistically significant associations that showed a higher prevalence of stunting among ever-abused women.

The study findings suggest that maternal exposure to IPV could be associated with child stunting. However, further research investigating the relationship between IPV and child outcomes, and using improved and advanced statistical analyses, is required. Further research may provide substantial evidence to enhance public awareness and potentially reduce the burden of child stunting in South Asian countries.