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### Effects of birth spacing on adverse childhood health outcomes: Evidence from 34 countries in Sub-Saharan Africa

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**Background & Aim:** Inter Pregnancy Intervals (IPI) are independently associated with perinatal, infant and child health outcomes. Proper birth spacing is a recommended tool to reduce adverse health outcomes especially among children. The study aimed to determine the prevalence of adverse child health outcomes in Sub-Saharan Africa (SSA) countries and to examine the association between the length of preceding birth interval and child health outcomes.

**Methods:** Secondary data from Demographic and Health Survey (DHS) in 34 SSA countries with 299,065 births, 2008-2017 was used in this study. The outcome variables were infant mortality, low birth weight, stunting, underweight, wasting, overweight and anemia. Percentage was adopted for summary statistics. Cox proportional hazard regression was used to examine association between preceding birth intervals and infant mortality. Multinomial and binary logistic regression models were used to examine the association between under-five children adverse health outcomes and inter-pregnancy birth interval.

**Results:** Infant mortality was highest in Sierra Leone (9.3%). Comoros (16.8%) accounted for the highest percentage of low birth weight (<2.5 kg). Child stunting was as high as 54.6% in Burundi. IPIs of <24 months, 24-36 months, 37-59 months and ≥60 months were 19.3%, 37.8%, 29.5% and 13.4%, respectively. Median IPI was 34 months. The prevalence of infant mortality decreased as IPIs increased as infant mortality was 9.3% in short IPIs (<24 months) and 4.2% in long IPIs (≥60 months). Childhood adverse health outcomes were higher with short birth intervals. Results from Cox proportional hazard regression showed that children with preceding birth interval <24 months had 57% higher risk of infant mortality, compared to children with IPI of 24-36 month (HR=1.57; 95% CI: 1.45, 1.69). More so, there were higher odds/risk of low birth weight, stunting, underweight, wasting, overweight and anemia among children with short birth interval (<24 months) after adjusting for other covariates.

**Conclusion:** The findings of this study suggest the need for urgent intervention to promote the WHO recommended IPI to reduce adverse child health outcomes. The findings show the importance of exclusive breastfeeding to prolong lactational amenorrhea and enhanced proper nutritional approach. Stakeholders would find this study interesting as the basis for policy formulation and implementation.

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