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



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## Perinatal death in Northern Uganda: incidence and risk factors in a community-based prospective cohort study

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### ABSTRACT

**Background:** Perinatal mortality in Uganda remains high at 38 deaths/1,000 births, an estimate greater than the every newborn action plan (ENAP) target of  $\leq 24/1,000$  births by 2030. To improve perinatal survival, there is a need to understand the persisting risk factors for death.

**Objective:** We determined the incidence, risk factors, and causes of perinatal death in Lira district, Northern Uganda.

**Methods:** This was a community-based prospective cohort study among pregnant women in Lira district, Northern Uganda. Female community volunteers identified pregnant women in each household who were recruited at  $\geq 28$  weeks of gestation and followed until 50 days postpartum. Information on perinatal survival was gathered from participants within 24 hours after childbirth and at 7 days postpartum. The cause of death was ascertained using verbal autopsies. We used generalized estimating equations of the Poisson family to determine the risk factors for perinatal death.

**Results:** Of the 1,877 women enrolled, the majority were  $\leq 30$  years old (79.8%), married or cohabiting (91.3%), and had attained only a primary education (77.7%). There were 81 perinatal deaths among them, giving a perinatal mortality rate of 43/1,000 births [95% confidence interval (95% CI: 35, 53)], of these 37 were stillbirths (20 deaths/1,000 total births) and 44 were early neonatal deaths (23 deaths/1,000 live births). Birth asphyxia, respiratory failure, infections and intra-partum events were the major probable contributors to perinatal death. The risk factors for perinatal death were nulliparity at enrolment (adjusted IRR 2.7, [95% CI: 1.3, 5.6]) and maternal age  $>30$  years (adjusted IRR 2.5, [95% CI: 1.1, 5.8]).

**Conclusion:** The incidence of perinatal death in this region was higher than had previously been reported in Uganda. Risk factors for perinatal mortality were nulliparity and maternal age  $>30$  years. Pregnant women in this region need improved access to care during pregnancy and childbirth.

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## Background

Perinatal mortality is a major public health concern worldwide with estimated 2 million stillbirths and 1.8 million early neonatal deaths reported in 2019 [1]. Most of these deaths (98%) occur in low- and middle-income countries (LMIC), with sub-Saharan Africa and South Asia being the most affected [2]. A recent meta-analysis of data from sub-Saharan Africa reported an overall perinatal mortality rate of 34.7 per 1,000 births [3]. This is higher than the

global estimate of 26.7 deaths per 1,000 births [1] and doubles the perinatal mortality rate of 13.6 per 1,000 births reported in Georgia, a country with the highest perinatal mortality in Europe [4].

The effects of perinatal death are so devastating for mothers and their families, it is associated with long-lasting economic, psychological and social consequences [5–7]. Several studies have drawn attention to the risk factors for perinatal death [8–14]. However, most of these studies were hospital-based or in an urban/peri-urban setting, excluding home births.

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