



Investigating an Association between HIV infection and postpartum haemorrhage in a low-middle income setting



Introduction



Image credit: GettyImages

- ❖ 300,000 women each year die during pregnancy and childbirth¹
- ❖ 94% of these deaths occur in low and low-middle income countries
- ❖ This reflects global healthcare inequalities

- ❖ Similar global trends are observed in deaths related to Human Immunodeficiency Virus (HIV)²
- ❖ In Sub-Saharan Africa, adolescent girls are twice as likely to contract HIV than boys
- ❖ This puts many young pregnant women at risk



Image credit: Pinterest

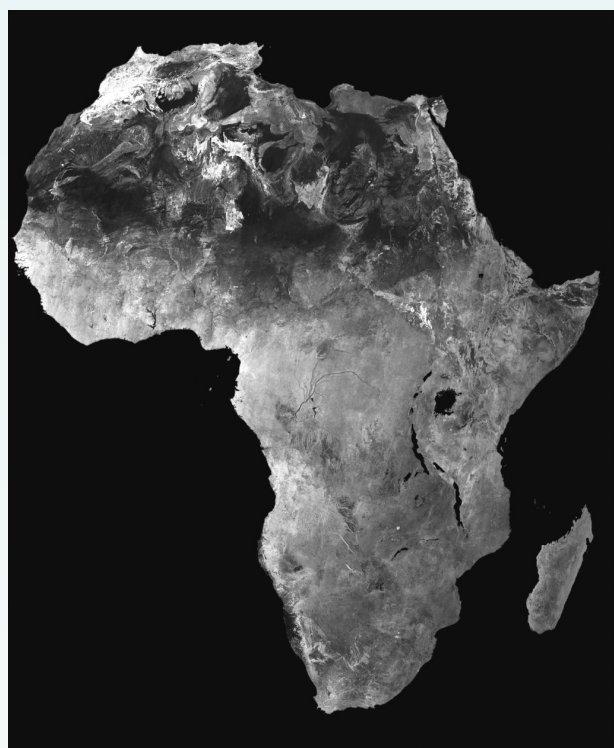


Image credit: RADAR1 Satellite

- ❖ 3.28 million women with HIV give birth each year, 75% of these in Sub-Saharan Africa²
- ❖ Current literature indicates HIV infection significantly increases risk of maternal death
- ❖ There is little research on the mechanisms behind this relationship

Justification

- ❖ Tanzania suffers from high rates of maternal death and HIV infection³
- ❖ Staff at Muhimbili Hospital gave anecdotal evidence of an association between HIV infection and postpartum haemorrhage
- ❖ Existing literature on this topic is inconclusive and scarce
- ❖ Research within a Sub-Saharan African population is a priority

Aims

This study aims to provide further insight into the relationship between HIV and maternal death by comparing prevalences of postpartum haemorrhage and anaemia for HIV negative and HIV positive groups within Muhimbili National Hospital, Tanzania.

Methodology

Setting: Muhimbili National Hospital, Dar Es Salaam, Tanzania

A 1,259-bed public tertiary referral centre which receives high risk pregnancies, including those with HIV.

Population: all deliveries at MNH from 01/11/2021 to 31/01/2022

All 1,105 women who delivered at Muhimbili National Hospital from 01/11/2021 to 31/01/2022. Excluded were 5 women for missing HIV status

Design:

This study follows a retrospective cross-sectional study design

Data collection:

Data was collected from the medical records at Muhimbili Hospital, following approval from three independent ethics committees. The medical records were a mixture of digital and physical files

Statistical methods:

Data was exported to STATA analytical software package for analysis. Demographic statistics were summarized using descriptive statistics, and odds ratios calculated with 95% confidence interval (CI)

Approval granted by:

Muhimbili University Ethics Committee, National Institute of Medical Research (Tanzania), University of Birmingham Internal Research Ethics Committee

Postpartum Haemorrhage
Estimated Blood loss of 500 ml or more after delivery of the baby.

Anaemia
Haemoglobin level of 10.5 g/dl or less (for the third trimester of pregnancy)



Maternity ward, Muhimbili National Hospital. Photo credits: DailyNewsTz

Results

	HIV-	HIV +	Odds ratio (95% CI)
Postpartum Haemorrhage	41.4%	31.7%	0.66 (0.3,1.3)
Anaemia	32.1 %	47.5%	1.91 (0.97, 3.79)

Table 2: Main findings

- ❖ HIV positive groups and HIV negative groups had no notable differences in demographic characteristics
- ❖ Table 2 demonstrates the differences in odds for HIV positive and HIV negative groups, showing no significant relationship between HIV status and postpartum haemorrhage
- ❖ The percentage of women affected by anaemia in the HIV positive group was much higher. The 95% confidence interval for odds ratio contained the null value, however the clinical importance of these results will need to be considered

Discussion

HIV and Postpartum Haemorrhage

- ❖ The lack of significant difference reflects existing literature which shows varying results
- ❖ More research in the field is required, a case control study or cohort study with a larger HIV positive sample size is advised

HIV and Anaemia

- ❖ Although not statistically significant, the results from this study agree with existing literature about an association between HIV and anaemia⁴
- ❖ Both HIV and anaemia are associated with low socio-economic status
- ❖ Therefore, in Tanzanian populations, it is important to be aware of this potential comorbidity

Limitations

- ❖ The number of HIV positive patients in the study population was much smaller than anticipated, resulting in large confidence intervals
- ❖ Time and resource constraints of the student researcher prevented investigation of a larger sample size
- ❖ Time and resource constraints of the student researcher prevented investigation of a larger sample size

Conclusions and Recommendations

- ❖ No statistically significant associations were made between HIV status and anaemia or postpartum haemorrhage
- ❖ Larger cohort or case-control studies would allow further investigation of the significance of the association with anaemia, and could include markers for socio-economic status
- ❖ This study contributes to the evidence base surrounding HIV and maternal mortality.

Acknowledgments

I would like to thank Dr Gilles de Wildt, Dr Sayeed Haque and Dr Connie Wiskin from the University of Birmingham along with Dr Belinda Balandya and Dr Timon Theophil from Muhimbili University and Muhimbili Hospital.

References: 1) WHO. Maternal Mortality (2019) Available from: <https://www.who.int/news-room/fact-sheets/detail/maternal-mortality>. 2) HIV.gov. Global Statistics (2021). Available from: <https://www.hiv.gov/hiv-basics/overview/data-and-trends/global-statistics>. 3) UNAIDS. Tanzania (2021). Available from: <https://www.unaids.org/en/regionscountries/countries/unitedrepublicoftanzania>. 4) Abioye et al. Anaemia, Iron Status and HIV (2020). Available from: <https://pubmed.ncbi.nlm.nih.gov/32383731/>