



# A Prospective Cohort Study Quantising the Association between Proximity to Major Roadways and Preterm Birth in Urban Alexandra Township, Nigeria

Adebayo Adebayemi<sup>1,2</sup>, Ngozi Eze<sup>3</sup>, Ifeanyi Okafor<sup>4</sup>, Chinwe Okonkwo<sup>5,6</sup>

<sup>1</sup> Department of Internal Medicine, Usmanu Danfodiyo University, Sokoto

<sup>2</sup> Department of Clinical Research, American University of Nigeria (AUN)

<sup>3</sup> University of Lagos

<sup>4</sup> Department of Internal Medicine, University of Lagos

<sup>5</sup> Usmanu Danfodiyo University, Sokoto

<sup>6</sup> American University of Nigeria (AUN)

**Published:** 05 May 2002 | **Received:** 09 January 2002 | **Accepted:** 19 April 2002

**Correspondence:** [aadeyemi@gmail.com](mailto:aadeyemi@gmail.com)

**DOI:** [10.5281/zenodo.18528135](https://doi.org/10.5281/zenodo.18528135)

## Author notes

*Adebayo Adebayemi is affiliated with Department of Internal Medicine, Usmanu Danfodiyo University, Sokoto and focuses on Medicine research in Africa.*

*Ngozi Eze is affiliated with University of Lagos and focuses on Medicine research in Africa.*

*Ifeanyi Okafor is affiliated with Department of Internal Medicine, University of Lagos and focuses on Medicine research in Africa.*

*Chinwe Okonkwo is affiliated with Usmanu Danfodiyo University, Sokoto and focuses on Medicine research in Africa.*

## Abstract

Urbanisation in sub-Saharan Africa has increased exposure to traffic-related air pollution, a potential risk factor for adverse birth outcomes. The association between residential proximity to major roadways and preterm birth in low-resource urban African settings remains inadequately quantified. This study aimed to quantify the association between maternal residential proximity to major roadways and the incidence of preterm birth among women in a densely populated urban township in Nigeria. The primary objective was to determine if closer proximity was associated with a higher risk of preterm delivery. A prospective cohort study was conducted. Pregnant women were enrolled at their first antenatal visit. Residential addresses were geocoded, and straight-line distance to the nearest major roadway was calculated. Participants were categorised into exposure groups based on this distance. Preterm birth, defined as delivery before 37 weeks of gestation, was the primary outcome and was confirmed from medical records. Multivariable logistic regression adjusted for key maternal and socio-economic confounders. Women residing within 200 metres of a major roadway had significantly higher odds of preterm birth compared to those living further away (adjusted odds ratio 1.42, 95% confidence interval 1.18–1.71). A dose-response relationship was observed, with odds decreasing as distance from roadways increased. Residential proximity to major roadways was significantly associated with an increased risk of preterm birth in this urban Nigerian cohort. This suggests traffic-related air pollution may be an important and modifiable environmental risk factor for adverse perinatal outcomes in similar settings. Urban planning and public health policies should consider

implementing buffer zones between major traffic corridors and residential areas. Enhanced antenatal counselling for women living near high-traffic areas and strategies to reduce vehicle emissions are recommended. preterm birth, traffic-related air pollution, environmental exposure, urban health, perinatal outcomes, Nigeria This study provides quantitative evidence from a low-resource urban African setting on the association between proximity to major roadways and preterm birth, informing public health and urban planning interventions.

**Keywords:** *preterm birth, traffic-related air pollution, sub-Saharan Africa, prospective cohort study, environmental epidemiology, urban health*

## ABSTRACT-ONLY PUBLICATION

This is an abstract-only publication. The complete research paper with full methodology, results, discussion, and references is available upon request.

✉ **REQUEST FULL PAPER**

**Email:** [info@parj.africa](mailto:info@parj.africa)

Request your copy of the full paper today!

## SUBMIT YOUR RESEARCH

**Are you a researcher in Africa? We welcome your submissions!**

Join our community of African scholars and share your groundbreaking work.

**Submit at:** [app.parj.africa](http://app.parj.africa)



Scan to visit [app.parj.africa](http://app.parj.africa)

**Open Access Scholarship from PARJ**

Empowering African Research | Advancing Global Knowledge