Methodological Assessment and Multilevel Regression Analysis of Maternal Care Facilities Systems in Ghana: A Comprehensive Review

Kofi Aidoo[1,2]**, Edna Afriyani**[3]**, Ama Darko**[4]**, Yaw Asare**[3,5]

[1] Department of Internal Medicine, University of Professional Studies, Accra (UPSA)

[2] Ghana Institute of Management and Public Administration (GIMPA)

[3] Council for Scientific and Industrial Research (CSIR-Ghana)

[4] University for Development Studies (UDS)

[5] Department of Public Health, University of Professional Studies, Accra (UPSA)

Correspondence: kaidoo@yahoo.com

Author notes

Kofi Aidoo is affiliated with Department of Internal Medicine, University of Professional Studies, Accra (UPSA) and focuses on Medicine research in Africa.

Edna Afriyani is affiliated with Council for Scientific and Industrial Research (CSIR-Ghana) and focuses on Medicine research in Africa.

Ama Darko is affiliated with University for Development Studies (UDS) and focuses on Medicine research in Africa.

Yaw Asare is affiliated with Council for Scientific and Industrial Research (CSIR-Ghana) and focuses on Medicine research in Africa.

Abstract

Maternal care facilities in Ghana are critical for improving maternal health outcomes, yet their effectiveness varies across different regions and levels of service provision. The review will employ systematic literature searches using databases such as PubMed and Scopus. Methodological quality assessment will be conducted using the Cochrane Risk of Bias Tool, with a focus on randomised controlled trials (RCTs) and observational studies. A key finding is that there is significant variation in clinical outcomes across different regions, with certain facilities achieving better results than others due to factors such as access to skilled birth attendants and adequate infrastructure. Multilevel regression analysis revealed that contextual variables at the community level (such as socioeconomic status) significantly influence maternal health outcomes, while facility-level characteristics also play a crucial role in improving clinical outcomes. Policy makers should invest more resources in upgrading facilities with poor performance and address regional disparities to enhance overall maternal care quality in Ghana. Maternal Care Facilities, Ghana, Multilevel Regression Analysis, Clinical Outcomes Treatment effect was estimated with $text\{logit\}(\pi)=beta\,0+\beta^{\rightarrow}\,p\,X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Geographic, Sub-Saharan, Maternal Health, Multilevel Modelling, Regression Analysis, Care Delivery, Outcome Evaluation*

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