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RESEARCH THESIS

Antenatal Care as a Determinant of Perinatal Mortality in
Nigeria: Population-Based Study

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DECLARATION

I, Tukur Dahiru, declare that this research report is my original work. It is being submitted in fulfilment of the requirements for the award of the degree of Masters in Demography and Population Studies of the University of the Witwatersrand. This work has never been submitted for the award of any degree in this university or another, to the best of my knowledge.

.....day of, 2015

DEDICATION

I dedicate this research report to the Almighty God and my late mother and father: Sa'adatu and Dahiru. May Allah rest their souls in Al-Jannah Firdausi.

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List of Abbreviations

ANC	Antenatal Care
BP	Blood pressure
DHS	Demographic and Health Survey
FANC	Focused Antenatal Care
NDHS	Nigeria Demographic and Health Survey
WHO	World Health Organization
MDG	Millennium Development Goal
MSS	Midwifery Service Scheme
NPC	National Population Commission
UNICEF	United Nations Children's Fund

Abstract

Background

The World Health Organization has recommended focused antenatal care as a strategy for reducing the burden of perinatal mortality and for the overall improvement of maternal and child health. Fragmentary studies in Nigeria indicate that lack of ANC or inadequate ANC is a predictor of perinatal death. However, most of these studies are hospital-based and suffer heavily from selection bias and therefore do not adequately represent the general population. This study examined the association between focused antenatal care and perinatal mortality in Nigeria.

Data Source and Methods

The data for this study comes from the 2013 Nigeria Demographic and Health Survey (DHS). The 2013 Nigeria DHS is the fifth round of nation-wide organized data collection system supported by USAID and implemented by the National Population Commission (NPC 2014). The 2013 survey consists of nationally representative sample of 38,945 women aged 15-49 years and 17,359 men aged 15-59 years living in 38,904 households. The unique feature of the 2013 survey is the collection of information that allows the estimation of perinatal mortality possible.

The main outcome variables are stillbirth (death of fetus after 7 months of pregnancy or 22 weeks of gestation), early neonatal death (death within 6 days of delivery) and perinatal mortality (sum of stillbirths and early neonatal death). The main exposure variable is having at least four antenatal care visits in the most recent pregnancy within the five year period preceding the survey as recommended by WHO. Cox proportional hazard models were fitted to answer the research question.

Results

There were 396 stillbirths and 925 early neonatal deaths and use of focused ANC is 61%; perinatal mortality rate as a whole is 41 per 1000 births. About 29% of all the early neonatal deaths occurred on the day they were born while 61% within 48 hours of delivery. Use of ANC varies significantly with maternal age, geopolitical zone (North/South), place of residence (rural/urban), maternal education, wealth index, religion, and parity, sex of household head, marital status and type of marriage (polygyny/monogamy). Further, perinatal mortality rate vary according to some previously established trends: more at the extremes of maternal ages, higher in northern than in the southern geopolitical zone, highest among those with primary level of education and among lowest wealth quintile; among parity one and five or

more, male child, very small babies and small babies (<2.5Kg) and those delivered in health facility.

In the final model, factors significantly reducing the risk of perinatal mortality are use of focused ANC (HR=0.69, 95%CI: 0.65-0.73); being in the middle or rich wealth quintile (HR=0.87, 95%CI: 0.83-0.92); living in southern zone of the country (HR=0.87, 95%CI: 0.84-0.89); being of parity between two and four (HR=0.91, 95%CI: 0.83-0.99); having had a urine test (HR=0.86, 95%CI: 0.81-0.91) and receiving all the six components of antenatal care (HR=0.18, 95%CI: 0.13-0.25). Those factors found to increase the risk perinatal death include living in rural area of the country (HR=1.32, 95%CI: 1.27-1.38); having between one and three cowives (HR=1.21, 95%CI: 1.17-1.26) having had a complication during the pregnancy (HR=1.20, 95%CI: 1.16-1.25); having a female as the head of the household (HR=1.05, 95%CI: 1.02-1.09) and taking iron tablets for more than six months (HR=1.24, 95%CI: 1.15-1.34).

Conclusion

The results of the analysis show that use of focused ANC significantly reduces the risk of perinatal mortality by about 31%; varying between 26% (risk reduction for early neonatal death) and 28% (risk reduction for stillbirths). Other factors that are significantly associated with reduction of perinatal mortality are residing in Southern part of the country, being of parity of between two and four, being in the middle and/or rich wealth quintile, having had a urine test during ANC visits and receiving all the six elements of antenatal care.

Policy implication

This results calls for the more investment in maternal and child health services particularly antenatal care to make it more easily accessible in the overall framework of improving maternal and child health. It specifically implies that socioeconomic development programs should target basic schooling (especially female education), economic welfare/poverty eradication, women empowerment as well as allocating more health resources in the disadvantaged rural areas and Northern part of Nigeria.

Research implication

While this research has corroborated the recommendations of WHO it has also opened up new areas of future research. There is the need to test the validity of World Health Organization's recommendations on the role of focused ANC on perinatal mortality using more advanced statistical methods and designs such multi-level modelling, instrumental variable and propensity score matching. To have a smooth transition from research to practice, operations research have to be conducted in specific cultural and health systems contexts to deal with issues specific to these contexts. Such operations research will involve assessing the capacity of the health system on how to implement the new model of ANC in terms infrastructure, staffing,

training and re-training of staff and supplies. Attitudes and perception of providers and clients about the new model needs to be determined also. It is also important to conduct a multi-country analysis to assess the claim of WHO knowing fully that WHO conducted the trial of this model in only four countries none of which is from sub-Saharan Africa.

