

## Analysis of Gender Relation, Contraceptive Use and High-risk Births in Nigeria.

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### ABSTRACT

Globally, women at different times tend to exhibit different risky behaviour which are mostly at the detriments of their well-being and perhaps their health and that of their offspring. This study examined the influence of gender relation, contraceptive use on high-risk birth. The objectives of the study were to examine the level and magnitude of High-risk; determine the relationship between gender relation and High-risk births; and investigate the pathway through which gender relation, and contraceptive use influence high-risk births in Nigeria. This was with a view to providing additional information on the impact of gender relation, contraceptive use on high-risk births in Nigeria.

The study utilized secondary data from the 2013 Nigeria Demographic and Health Survey (NDHS) women and kids recode datasets. The 2013 NDHS gathered information from a total of 38,948 women aged 15-49 and 31, 828 births in the kids recode which were merged, and a weighted sample size of 34,838 women who have had at least one in the last five years preceding the survey were analyzed in the study using percentages, chi-square analysis and multinomial logistic regression models.

Results revealed that more than three out of every five women (63.43%) had avoidable high-risk birth. About 22% were in no risk while 14.66% were in unavoidable risk category. At bivariate level of analysis, gender relation showed a significant association with high-risk birth ( $\chi^2=20.3$   $P<0.05$ ). Other variables that showed significant association with high-risk birth include: respondents' current age, age at first birth, education, wealth index, contraceptive use, place of residence, region, marital status, and fertility preference, children ever born, number of living children ( $\chi^2=5975.2$   $P<0.01$ ;  $\chi^2=4656.1$   $P<0.01$ ;  $\chi^2=3125.89$   $P<0.01$ ;  $\chi^2=1184.8$ ;  $\chi^2=75.8$   $P<0.01$ ;  $\chi^2=474.6$   $P<0.01$ ;  $\chi^2=21200.0$   $P<0.01$ ;  $\chi^2=1349.4$   $P<0.01$ ;  $\chi^2=2279.70$   $P<0.01$ ;  $\chi^2=1338.4$   $P<0.01$ ;  $\chi^2=15400.0$   $P<0.01$ ) respectively.

At multivariate level, the pathway through gender relation, contraceptive use influence High-risk birth was investigated. Although, gender relation was not shown to be a strong predictor of High-risk birth as it was only significant for masculine gender relation to be in unavoidable risk relative to avoidable risk (RRR=0.79,  $P<0.05$ ). Contraceptive use was shown to be a predictor of High-risk birth as women who are using contraceptive currently are 64% significantly more likely to be in unavoidable risk category of high-risk birth relative to avoidable risk category (RRR=1.64,  $P<0.05$ ). The relative risk for education of the respondents shows that, as women educational attainment increases, they are more likely to be in unavoidable risk relative to avoidable risk category (RRR=1.32,  $P<0.05$ , RRR=2.14,  $P<0.05$  & RRR=3.18,  $P<0.05$ ) for primary, secondary

and higher education respectively using no education as the reference category and the result is significant.

The study concluded that efforts to raise women's status and reduce the persistently high-risk birth in tandem with the Sustainable Development Goals (SDGs) 3 and 5 aspirations of good and healthy lives for all; and gender equality should, among other interventions and programmes that specially target to increase the acceptance and continued uptake of contraceptive, thereby reducing the incidence of high-risk births among women be pursued.

## **Introduction**

The issue of high-risk birth (HRB) has been a major maternal and reproductive health concern across the globe. This is because maternal health is an essential pointer for measuring quality of health care in any country of the world. It refers to the health of women during conception, childbirth, and during postpartum period. The gains of an improved maternal health cut across the well-being of the mother and foetus through early discovery of risks in pregnancy, prevention of pregnancy and labour complications and safeguarding the delivery of child and well-being of mother (Rutaremw, Wandera, Jhamba, Akiror, & Kiconco, 2015).

Worldwide, women at different times tends to show different risky behaviour which are commonly at the peril of their well-being and possibly their health and that of their progenies. Women's fertility behaviour could be regarded as of high-risk" when mothers gave birth when they are 'too young' (less than 18 years), or 'too old' (above 34 years) or when the interval between one birth and the next is less than 24 months, or of a high birth order (the mother has previously given birth to three children) (National Population Commission, (NPC) [Nigeria] & ICF International, 2014).

Attendant risks of pregnancy and delivery are among the major causes of mortality for women, particularly in the less developed countries (Adjiwanou and LeGrand, 2014). Other than this, many previous studies in public health, demography and other disciplines show that use of reproductive health services by women is a function of availability of facilities and gender-based inequalities that influence women's access to social and economic resources, freedom of movement and decision-making power in matters that are significant to their wellbeing (Adjiwanou and LeGrand, 2014; Banda, Odimegwu, Ntoimo, & Muchiri, 2016)

Lately, women's autonomy and its link with reproductive health and behaviour have appeared as a pivotal point of investigations and interventions around the world. Particularly, since the Cairo International Conference on Population and Development in 1994, ICPD (United Nations, 1994), women's role has been a priority area not only for sustainable development, but also in reproductive health.

The proportion of high-risk births has been a source of concern in demographic and public health research because of its effects on fertility and because low-risk births have been shown to provide health benefits for both a mother and her children (Stover and Ross, 2013; Shiferaw S., Abdullah, Mekonnen, Maiga, Akinyemi, Amouzou, Friedman, Barros, & Hounton, 2015). However, empirical evidence on women's ability to make independent decision on their reproductive intentions in relation to high-risk births through the uptake of contraceptive is still relatively insufficient in Nigeria; hence this study. Specifically, this research aims to:

- (a) determine the level and magnitude of high-risk births in Nigeria;
- (b) examine the relationship between gender relation, and high-risk births in Nigeria; and
- (c) examine the pathway through which gender relation and contraceptive uptake, influence high-risk births in Nigeria.

## METHODS

This study employed cross sectional research design, as the survey involved the collection of information at a point. The 2013 NDHS is a nationally representative probability sample of women aged 15-49. A weighted probability sample of 40,680 households was selected for the 2013 NDHS. The sample was selected using a stratified, three-stage cluster design, consisting of 904 clusters, 372 in urban and 532 in rural areas were selected from a list of enumeration areas (used as the sample frame) developed from the 2006 population census with a minimum target of 943 completed interviews per state.

Out of the total number of women's interviewed, the study utilized samples of 34,615, representing, women of reproductive age 15-49, who had at least one high-risk birth in the five years prior to the survey interview, having merged 31,482 high-risk births reported by 38,948 women of age 15-49 in the survey. The rationale for including only women who gave birth during the five year period is that mothers may not be able to accurately answer questions asked about births that occurred prior to this interval seemingly due to memory lapse.

In order to capture high-risk birth, variable definition of High-risk birth was adopted as described by Nigeria Demographic health Survey code, particularly, the birth recode of kids. The main outcome variable was high-risk birth. The high-risk birth was categorized as 1) no risk, 2) unavoidable high-risk, and 3) avoidable high-risk. Births in the category of 'no risk' were second or third births to mothers between the ages of 18-34 years and with a preceding birth interval not less than 24 months, strictly representing lowest possible risk.

'Unavoidable high-risk' birth was first births to mothers between the ages of 18-34 years. 'Avoidable high-risk' birth-this is described as the cumulative of the following; single risk indicators such as mother age birth at less than 18 years, birth interval less than 24 months to preceding births, birth order greater than 3 as well as birth at age older than 34 years, first birth to mothers age 18-34 years (National Population Commission [NPC] and ICF International, 2014).

These earlier mentioned single risk categories make the multiple risk categories which are mutually exclusive (Stover and Ross, 2013; Akinyemi *et al*, 2015; Shiferaw *et al*, 2015). These are Mother's age <18 and birth interval < 24 months, Mother's age > 34 and birth interval < 24 months, Mother's age > 34 and birth order >3, Mother's age > 34 and birth interval < 24 months and birth order > 3, Birth interval < 24 months and birth order > 3. Involved was births in the preceding 5 years to the survey, to have sufficient numbers for the analysis of births by all demographic risk factors (maternal age, inter-birth interval, and higher order births).

The data analytical process for the variables was carried out using the Stata 13 software. The analysis included the use of appropriate weighting procedure to cater for biases that may occur as a result of over or under sampled respondents. Weighting procedure used is v005/1000000 being the weighting number for the Demographic and Health Survey women recode datasets. Univariate, bivariate and multivariate analyses were carried out to achieve the objectives of the study.

At the univariate level, descriptive analysis was done to show frequency and percentage distribution of the independent variables, intervening variables and also the outcome variable to suit the objectives of the study.

Involved at the bivariate level was the analysis carried out to see the relationship between independent variables and the outcome variable. At the bivariate level, analysis was done relating independent (gender relation and contraceptive use) and intervening variable (children ever born, fertility preference and number of living children) with high-risk birth was carried out. Chi-square test was used in determining the significance of the relationship between the independent variables and intervening variables on the outcome variable.

At the multivariate level, (the logistic regression was used to analyze the outcome variable which is high-risk birth. The outcome variable high-risk birth was trichotomized into ‘no risk=1’, ‘unavoidable risk=2’, and ‘avoidable risk=3’. Having categorized the dependent variable into three, multinomial logistic regression was used. Relative Risk Ratio RRR was used in the interpretation of results using “Avoidable risk” as the base category for comparison with those in no risk and unavoidable risk categories. Multinomial logistic regression was used because the outcome variable was categorical with more than two categories.

## RESULTS

### Bivariate Analysis

This section in table presents the results of bivariate analysis of gender relation, contraceptive use and socio-demographic characteristics of women, on high-risk birth in consonance with the second objective of this study. The outcome variable, that is, high-risk birth is measured by single risk factors and multiple risk factors earlier defined and described, is categorized as “no risk, unavoidable risk and avoidable risk”. The analysis was done using cross tabulation and chi-square test noting the p-value for significance of fit. The cross tabulations displayed the frequency of the variables while the chi-square tests measured potential association that are statistically significant.

### Cross-Tabulation of Gender Relation and High-Risk Birth in Nigeria

Considering gender relation, which is the main explanatory variable of this study, table 4 those that are in feminine gender relation had just few above one out of every five respondents were in the no risk category (21.11%), slightly above three out of five respondents were in the avoidable risk category (62.36%) while 16.53% were in unavoidable risk category. Egalitarian gender relation revealed that just few above two in every ten respondents were in no risk category (23.08%), 17.16% were in unavoidable risk category, while close to six out of every ten respondents were in the avoidable risk category (59.76%). Masculine gender relation showed that 21.87% of the respondents were in no risk category, 14.41% were in unavoidable risk category, while more than three out of every five respondents were in avoidable risk category (63.72%). The results shows that there is significant relationship between gender relation and high-risk birth ( $\chi^2 = 20.3$   $P < 0.05$ ).

**Table Showing Cross-Tabulation of Gender Relation and High-Risk Birth in Nigeria**

VARIABLES	HIGH RISK BIRTHS STATUS		
	No Risk	Unavoidable Risks	Avoidable Risks
<b>Gender Relation</b>			
Feminine	21.11	16.53	62.36
Egalitarian	23.08	17.16	59.76
Masculine	21.87	14.41	63.72

$$\chi^2=20.3 \text{ P}<0.05$$

### Cross-Tabulation of Contraceptive Use and High-Risk Birth in Nigeria

In respect of current contraceptive usage among respondents, table below showed that more than three-fifths of the respondents (64.38%) who are currently not using contraceptive were in avoidable risk category. 21.48% and 14.14% were in no risk and unavoidable risk categories respectively.

Close to three out every five respondents who are currently using contraceptive were in avoidable risk category, while slightly above one out of every ten respondents who are currently using contraceptive were in no risk category, and 14.66% were in unavoidable risk category. By this result, it is attestable that there is a significant relationship between current usage of contraceptive and high-risk birth ( $\chi^2=75.8 \text{ P}<0.01$ ).

**Table showing Cross-Tabulation of Contraceptive Use and High-Risk Birth in Nigeria**

Variables	High Risk Births Status		
	No Risk	Unavoidable Risks	Avoidable Risks
<b>INDEPENDENT VARIABLE</b>			
<b>Current Contraceptive Use</b>			
No	21.48	14.14	64.38
Yes	24.22	14.66	58.34
$\chi^2=75.8 \text{ P}<0.01$			

### Multinomial Logistic Regression for High-Risk Birth and Gender Relation of Women (Model I)

Model I controlled for gender relation of women on high-risk birth. The relative risk ratio (RRR) for being in no risk category and unavoidable risk category relative to avoidable risk category given that the other variables in the model are held constant were estimated.

The table reveals that the relative risk for women who are in egalitarian gender relation and masculine gender relation are 14% and 1.01 times more likely to be in no risk of high-risk birth relative to avoidable risk (RRR=1.14, P>0.05 and RRR=1.01, P>0.05) respectively compared to feminine gender relation as the reference category, although the result is not significant.

In respect of unavoidable risk category relative to avoidable risk category, the table shows that the relative risk for women who are in egalitarian gender relation are 1.08 times more likely to be in unavoidable risk category of high-risk birth relative to avoidable risk category (RRR=1.08, P>0.05), while women who are in masculine gender relation are 15% less likely to be in unavoidable risk category of high-risk birth relative to avoidable risk category (RRR=0.85, P>0.05) and the result is not significant.

**Table showing Multinomial Logistic Regression for High-Risk Birth and Gender Relation of Women (Model I)**

Model I	High-Risk Birth Status							
	No Risk				Unavoidable Risk			
	RRR	P value	95% C.I		RRR	P value	95% C.I	
Gender Relation								
Feminine (RC)	-	-	-	-	-	-	-	-
Egalitarian	1.14	0.250	0.910	1.431	1.08	0.500	0.858	1.367
Masculine	1.01	0.890	0.834	1.233	0.85	0.111	0.702	1.037
Constant	0.33	0.000	0.279	0.410	0.26	0.000	0.219	0.321

## Conclusion

The findings from this study highlights the public health and developmental essence of gender relation and contraceptive use in attenuating high-risk birth. It demonstrates high levels of high-risk birth as well as, high distribution of gender relation skewed against women and this predict their birth risk status.

Gender relation is associated with and has implication for high-risk birth vis-a vis the health of mother and their offspring alike, this study concludes that gender relation is a predictor of high-risk birth in Nigeria. Other than this, this study established contraceptive use is strong predictor of high-risk birth and the presence of dominance of socio-demographic and economic factors encouraging high-risk birth.

Lastly, the study concludes that efforts to raise women's status and reduce the persistently high-risk birth in tandem with the Sustainable Development Goals 3 and 5 aspirations of good and healthy lives for all; and gender equality should, among other interventions and programmes that specially target to increase the acceptance and continued uptake of contraceptive among women be pursued.

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