

# Improving Access to Maternal Healthcare Among Female Employees: Quantitative Analysis of the impact of The National Health Insurance Scheme

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## Abstract

This study examines the correlation between the national health insurance scheme and access to national health care among female employees in Federal Institutions in Calabar cross river state, Nigeria. The study specifically examines the extent to which the national health insurance scheme reduces the cost of health and Enrollment in the NHIS relates to access to maternal healthcare. Two hypotheses were raised for the study. The survey research design was adopted in collecting data from 400 samples from a population of 9201 female employees of the federal institutions in Calabar cross river state. The instrument of data collection was the questionnaire. Data collected was analyzed using descriptive and correlation analysis. Results revealed that the national health insurance scheme reduced health cost relates to access to maternal healthcare. Results also indicated that Enrollment in NHIS significantly relates to access to maternal health. Based on this result, the study recommends, amongst others, that there is a need for government to improve on health funding as this will help improve access to various provisions of the scheme as it relates to maternal health.

*Keywords:* National Health Insurance Scheme, Access to maternal Healthcare, reduce cost of health, Enrollment in the NHIS.

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## 1. Introduction

Maternal mortality remains a global problem claiming the lives of women of childbearing age globally. According to the World Health Organization (2019), 810 women die from preventable causes related to pregnancy and childbirth daily in 2017. Ninety-four per cent of these deaths occur in low income or less developed nations (Olonode, Olawande, Alabi & Inhonopi, 2019; Gregory, 2020). Sub-Saharan Africa and southern Asia accounts for approximately 86 per cent of the world maternal deaths (WHO,2019). Over the past ten years, many countries have reduced their maternal mortality rate. But Africa has failed to achieve the goals accounting for more than 50 per cent of the global maternal death rate (Meh, Thinid, Ryan, & Terry, 2019). In Nigeria, maternal mortality accounts for 59,000 deaths annually (WHO,2005; Nigerian Demographic Health Survey,2008). According to Owunmi, Isiugo-Abanihe, Isanmah and Adeshina (2002), women in Nigeria are 500 times more likely to lose their lives in childbirth than other advanced nations. The country's maternal mortality is 545 per 100,000 births (Niger Demographic Survey, 2005; Elem & Nyeche, 2016)

The high rate of maternal mortality in Nigeria is alarming as every childbirth procedure is seen as a time bomb (Olonade, Olawande, Alabi and Inholopi, 2019). There is a case of maternal mortality in every 20 birth (WHO,2019), and is also the nation with 20 per cent of global maternal deaths (WHO,2019). Between 2005 and 2015, more than

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600,000 maternal fatalities occurred, with not less than 900,000 maternal near-deaths experience (Okereke, Ishiaku, Unimen, Mohammed, & Alonsi, 2019; Ironbar, Angioha & Iji, 2021; ). In 2017, Nigeria's maternal mortality rate was estimated to be over 917 deaths per 100,000 births (WHO,2019). The world health organization (2019) says the high rate of maternal deaths in developing nations such as Nigeria reflects the inequalities in access to health services and the gap between the rich and the poor (Sageer, Kongnyuy, Adebimpe, Omosehirin, Ogunsola, & Saniim, 2019; Aden, Alned, & Ostergon, 2019; Okonofua, Imosenmi, Igbani, Adeyemi, Chibuzo, Idowu Inongan, 2017; Angioha, Omang, Ishie, &Iji, 2020).

As a result of the flawed healthcare system, the rising cost of the health care system, the problem of high mortality rate and other issues that have bedevilled the nation's health system, the Nigeria government under the Olusegun Obasanjo administration introduced the National Health Insurance Scheme in 1999. The scheme was launched in 2005 by the Obasanjo government to ensure equitable access to healthcare services, provide financial risk protection, ensuring efficiency in healthcare programmes and reduce the rising cost of healthcare. The NHIS included the NDG'S free maternal and child health program conceptualized to address mothers and children's high mortality. This study assessed the impact of the NHIS and access to maternal Healthcare.

## **2. Materials and Method**

### *2.1. Research Settings*

Calabar, the study area, is located in the southern part of Cross River State, Nigeria. The site is flanked on its western and eastern border by the Calabar River and Great Kwa River. Calabar covers an area of 406 square kilometres. Set up as the centre of trade by the British in the 17th century, the city is set on a hilltop overlooking the Calabar River. Calabar acts as the capital of cross river state and, for administrative purposes, is divided into Calabar South and Calabar Municipal Council. As a coastal town, Calabar has a high relative humidity around 80per cent and 100per cent. According to the National Population Commission (2006), the population of Calabar is 371,022. As the administrative capital of Cross River State, Calabar draws many business owners and civil servants. Farming, hunting and fishing remain an occupation of some residents (Agba & Nwosa, 2011; Iji, Angioha & Okpa, 2019; Agba, Angioha, Akpabio, Akintola & Maruf, 2021; Ukwayi & Okpa, 2018). As the capital of Cross River State, Calabar is also home to several federal institutions and parastatals, from where the sample for this study will be drawn from.

### *2.2. Design*

This study's research design is the survey method, a form of a descriptive design entailing the structuring of investigation to identify variables and their relationship. In other words, it represents the blueprint for the collection, measurement and analysis of research sample and data. It involves selecting and studying samples chosen from the population to discover the relative incidence, distribution and interrelations of sociological and psychological variables. The reason for this choice is that, as a systematic testing method, it offers the researcher the opportunity of interpreting, synthesizing and integrating data and point to implications and interrelationship.

### *2.3. Participants*

The population used for the study were the total number of women of childbearing age employed in any federal institution in Calabar who are registered under the NHIS Scheme. Because of this study's nature, this study's population will be drawn from three national institutions in Calabar, the University of Calabar, the University of Calabar Teaching Hospital and the Federal Neuro-Psychiatric Hospital. According to the three institutions' data, the population stands at nine thousand, two hundred and one (9201). A further breakdown shows that; for the University of Calabar, the population stands at 5492, University of Calabar Teaching Hospital, 2749 and for Neuro-Psychiatric Hospital, 960. The sample size for this study was 400, derived from the Taro Yamane sample size determinant technique. The proportional and purposive sampling technique was used for the study. The proportional sampling was used to select the number of samples used from each of the selected institutions for the study from each institution. The researcher then used the purposive sampling technique to select the sample that is needed for each institution.

The purposive sampling technique was used because of the nature of the study. The criteria for selection was; all the samples must be women of childbearing age and also registered under

#### 2.4. Research Instrument

Questionnaire was the main instrument of data collection. The questionnaire used for the study was structured in a four-point Likert scale format of Strongly Agreed (SA), Agreed (A), Disagreed (D) and Strongly Disagreed (SD). The questionnaire was divided into two sections. Section A contains the demographic data of respondents. Section B has questions on the indices used to measure access to healthcare and is further divided into four sub-groups.

#### 2.5. Techniques for data analysis

Descriptive and inferential statistics were used to interpret the data in the study. The retrieved copies of questionnaires were subjected to numerical strength using simple percentages, frequency distribution and graph. The descriptive statistics result was then subjected to inferential statistics (lineal Regression) at 0.05 confidence level. Out of the 400-instrument given to the research samples, only 355 was return and used for the study.

#### 2.6. Description of Variables

The main objective is to assess the relationship between NHIS and access to maternal Healthcare Calabar, Cross River State, Nigeria. Specifically, the study;

- (i) Examine the extent to which the National Health Insurance Scheme reduce health care cost relates to access to maternal health in Calabar, Cross River State, Nigeria
- (ii) Examine the extent to which Enrollment in the National Health Insurance Scheme relates to access to national health care among female employees in Federal Institutions in Calabar cross river state, Nigeria

### 3. Result and Discussion

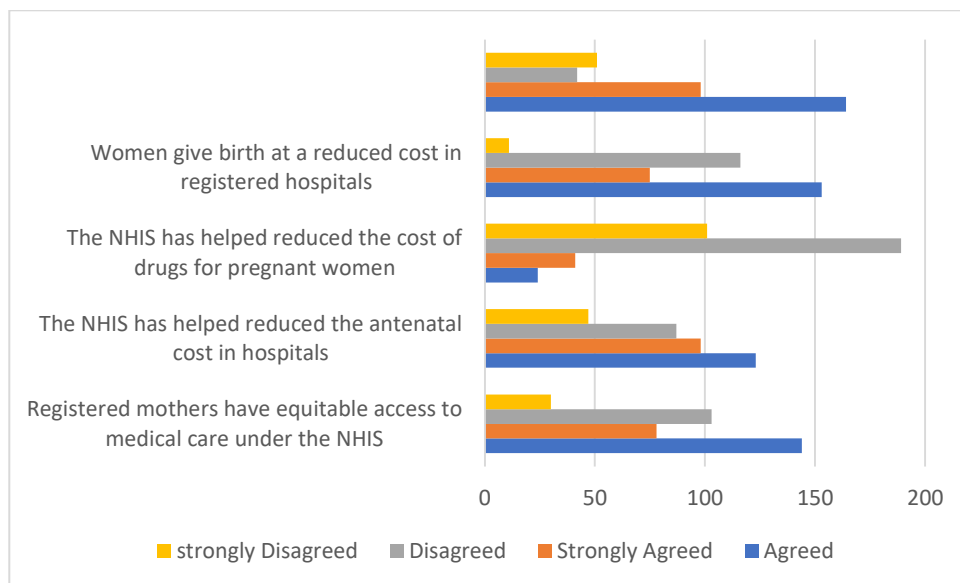
#### 3.1. Objective One

The first objective was to examine the extent to which the National Health Insurance Scheme reduce health care cost relates to access to maternal health in Calabar, Cross River State, Nigeria.

Frequency distribution, table and simple percentage was used to analyze the result and present in table 1 and figure 1.

**Table 1** Respondents’ response on National Health Insurance Scheme reduced health care cost influence access to maternal healthcare

S/N	Item	Agreed	Strongly Agreed	Disagreed	Strongly disagreed
1.	Registered mothers have equitable access to medical care under the NHIS	144 (40.6%)	78 (22.0%)	103 (29.0)	30 (8.5%)
2.	The NHIS has helped reduced the antenatal cost in hospitals	123 (34.6%)	98 (27.6%)	87 (24.5%)	47 (13.2%)
3	The NHIS has helped reduce the cost of drugs for pregnant women	24 (6.8%)	41 (11.5%)	189 (53.2%)	101 (28.5%)
4.	Women give birth at a reduced cost in registered hospitals	153 (43.1%)	75 (21.1%)	116 (32.7%)	11 (3.1%)
5.	The NHIS provides treatment at a reduced cost for breastfeeding mothers and their child	164 (46.2%)	98 (27.6%)	42 (11.8%)	51 (14.4%)



**Fig. 1.** Graphical illustration of response on National Health Insurance

The result from the descriptive analysis was subjected to correlation analysis using Pearson Product Moment Correlation Analysis. The analysis checked the correlation between the National Health Insurance Scheme reduced healthcare and access to maternal health in Calabar, Cross River State, Nigeria. The result was carried out at 0.05 level of significance, and the result is presented in Table 2.

**Table 2.** Pearson product-moment correlation of National Health Insurance Scheme reduced healthcare cost and access to maternal health

Variables	N	Mean	SD	r-value	Sig.
National Health Insurance Scheme reduced healthcare cost	355	14.86	2.38	0.760**	0.000
Access to maternal health	355	16.73	2.34		

\*Significant at  $P < .05$ ;  $df = 353$ ; critical  $r$ -value = 0.138

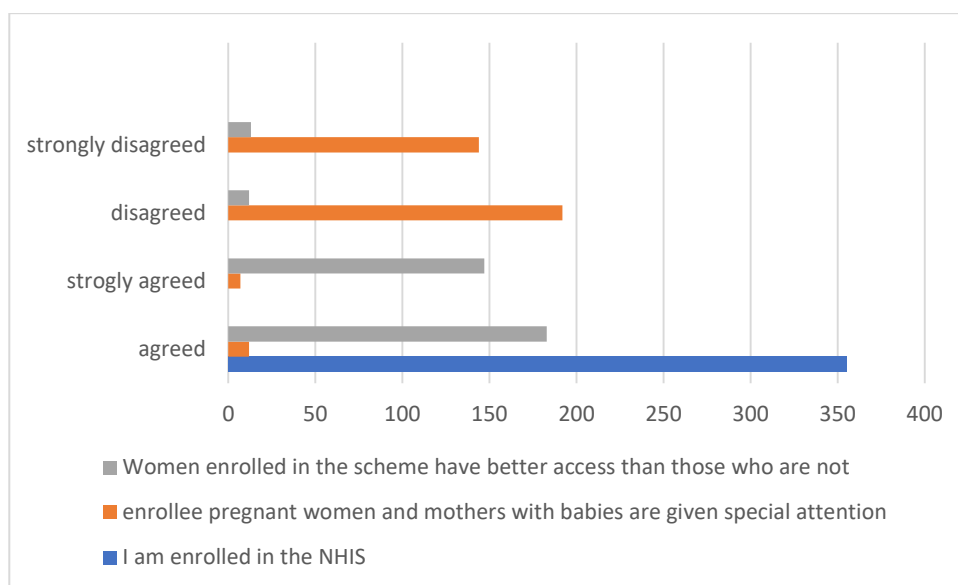
As presented in Table 2, the calculated  $r$ -value of 0.760 was more significant than the critical  $r$ -value of 0.138 with 353 degree of freedom, this implies that The National Health Insurance Scheme has helped to reduced healthcare, hereby providing access to maternal health in Calabar, Cross River State, Nigeria. The squared correlation ( $R^2$ ), known as the coefficient of determination, used as a measure of effect size, indicates the proportion of explained variance on the dependent variable. Therefore, 57.7% of the variance in access to maternal healthcare is accounted for by the National Health Insurance Scheme reduced healthcare cost. The magnitude of the effect is significant. We can conclude that The National Health Insurance Scheme reduced healthcare significantly related to maternal health access in Calabar, Cross River State, Nigeria.

### 3.2. Objective two

The second objective of the study was to examine the extent to which Enrollment in the National Health Insurance Scheme relates to access to national health care among female employees in Federal Institutions in Calabar cross river state, Nigeria. Frequency distribution, table and simple percentage was used to analyze the result and present in table 2 and figure 2.

**Table 3.** Respondents’ response on Enrollment in the National Health Insurance Scheme and access to maternal healthcare

S/N	Item	Agreed	Strongly Agreed	Disagreed	Strongly Disagreed
1.	I am enrolled in the NHIS	355 (100.0%)	0	0	0
2.	Enrollee pregnant women and mothers with babies are given special attention	12 (3.4%)	7 (2.0%)	192 (54.1%)	144 (40.6%)
3.	Women enrolled in the scheme have better access than those who are not	183 (51.5%)	147 (41.4%)	12 (3.4%)	13 (3.7%)



**Fig. 2.** Graphical illustration of response enrollment in the National Health Insurance Scheme and access to maternal healthcare

The result from the descriptive analysis was subjected to correlation analysis using Pearson Product Moment Correlation Analysis. The analysis was to check the correlation between Enrollment in the National Health Insurance Scheme, and access to national health care among female employees in Federal Institutions in Calabar cross river state, Nigeria. The result was carried out at 0.05 level of significance, and the result is presented in Table 4.

**Table 4.** Pearson product-moment correlation of Enrollment in the National Health Insurance Scheme and access to maternal healthcare in Calabar

Variable	N	Mean	SD	r-value	Sig.	R <sup>2</sup>
Enrollment in the National Health Insurance Scheme	355	23.25	1.21			
Access to maternal healthcare	355	22.73	1.63	0.447	0.000	0.447

\*Significant at 0.05 level; df = 353; Critical r-value = 0.098

As presented in Table 4, the result was statistically significant  $r(353) = 0.447$ ;  $p < 0.05$ . This was because the calculated r-value of 0.447 was greater than the critical r-value of 0.195, at 0.5 alpha ( $\alpha$ ) levels of significance,  $df = 353$ . This means that the null hypothesis, which states that, Enrollment in the National Health Insurance Scheme does

not significantly relate to access to national health care among female employees in Federal Institutions in Calabar cross river state, Nigeria, was rejected the alternate hypothesis was retained.

The squared correlation  $(0.447)^2$ , a measure of effect size, indicates the proportion of explained variance on the dependent variable. Therefore, 19.9% of the variance in access to maternal healthcare is accounted for by Enrollment in the National Health Insurance Scheme. The magnitude of effect is moderate; this means that Enrollment in the National Health Insurance Scheme has improved maternal healthcare access in Calabar. Therefore, we can conclude that Enrollment in the National Health Insurance Scheme significantly relate to access to national health care among female employees in Federal Institutions in Calabar cross river state, Nigeria.

#### 4. Discussion of Findings

The result from the descriptive analysis to check the extent to which National Health Insurance Scheme reduced healthcare costs related to access to maternal healthcare revealed that all the respondents are registered under the NHIS, and 62.6 per cent reported that mothers who are registered have access to equitable health care. Sixty-two per cent of the respondents said that the NHIS scheme has helped reduce the cost of antenatal visits for expecting mother. Findings also revealed that most of the respondents (81.7%) argued that drugs are still expensive even as they are registered under the NHIS. 73.8 per cent reported that The NHIS provides treatment at a reduced cost for breastfeeding mothers and their child.

The result from the descriptive analysis was subjected to correlation analysis. The work revealed that The National Health Insurance Scheme reduced healthcare cost significantly relates to access to maternal health in Calabar, Cross River State, Nigeria. This is so because the calculated r-value of 0.760 was more significant than the critical r-value of 0.138 with 353 degree of freedom. The squared correlation ( $R^2$ ), known as the coefficient of determination, used as a measure of effect size, indicates the proportion of explained variance on the dependent variable. Therefore, 57.7% of the variance in access to maternal healthcare is accounted for by the National Health Insurance Scheme reduced healthcare cost. Based on this result, we can conclude that The National Health Insurance Scheme reduced healthcare significantly relates to access to maternal health in Calabar, Cross River State, Nigeria.

The finding corresponds with that of Nguyen, Rajkotia and Wang (2011), who found evidence of the financial reduction effect of the NHIS in that payments for care and uncovered drugs and tests occurred in the NHIS. The study by Aryeetey, Jehu-Appia, Spaan, Agyepon, and Baltussen (2010) involved surveys of over 3,000 households and their perceptions of the NHIS according to insured or uninsured status and the demand for membership according to socio-economic status. The principal findings were that scheme factors such as price, convenience, provider attitudes, peer pressure and the benefits package are relevant in NHIS membership. Nguyen, Rajkotia and Wang (2011) carried out an empirical study to "evaluate the impact of the NHIS on household, out-of-pocket spending and catastrophic expenditure" was quite revealing. NHIS coverage was 35%; out-of-pocket payment for care from informal sources and uncovered drugs and tests occurred in NHIS but significantly less than the uninsured.

The descriptive analysis results to check the extent of enrollment in the National Health Insurance Scheme relates to access to national health care among female employees in Federal Institutions in Calabar cross river state, Nigeria. Result revealed that all the respondents (100.00) are enrolled in the NHIS. From the response, women enrolled in the scheme have better access to maternal healthcare than those that are not enrolled. The result from the descriptive analysis was subjected to correlation analysis. The work revealed that Enrollment in the National Health Insurance Scheme significantly relate to access to national health care among female employees in Federal Institutions in Calabar cross river state, Nigeria. This is because the calculated r-value of 0.447 was more significant than the critical r-value of 0.195, at 0.5 alpha ( $\alpha$ ) levels of significance,  $df = 353$ . The squared correlation  $(0.447)^2$ , a measure of effect size, indicates the proportion of explained variance on the dependent variable. Therefore, 19.9% of the variance in access to maternal healthcare is accounted for by Enrollment in the National Health Insurance Scheme. We can conclude that Enrollment in the National Health Insurance Scheme has improved maternal healthcare access in Calabar.

The finding of this study corroborates with that of Onyedibe, Goyit, and Nnadi (2012) found that 82 per cent of enrolled respondents were aware of NHIS and prefer it to the fee for service system. Oyati, Orogade, Azuh, Yakubu,

and Shidali (2016) found that NHIS uptake among these patients is high. Inyang and Bassey (2018) found that 97.9 per cent of women were not covered by health insurance.

## 5. Conclusion and Recommendation

This study aimed to examine the correlations between the NHIS and access to maternal healthcare in Calabar, Cross River State. Findings from the data analysis revealed that the national health insurance scheme reduced health cost and relates to access to maternal healthcare. Results also showed that Enrollment in NHIS significantly relates to access to maternal health. The study recommends that there is a need for the reproductive and maternal health unit of Nigeria's NHIS to carry out a campaign through various media that projects the need for female employees to be registered under the NHIS. There is a need for the government to improve health funding as this will help improve access to various provisions of the scheme related to maternal health.

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