

Geographical Variations in Healthcare Utilization among Pregnant Women in Nigeria: A Case of Anti-Tetanus Injection Utilization

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Abstract:- Background: Despite the affords by FGN and WHO to make available effective vaccine against this tetanus in Nigeria, maternal mortality especially among the pregnant women within the age bracket 15 – 49 years still remains major health problem in Nigeria across the six geo-political zones. Hence, the study aims to determine the level of geographical healthcare utilization variations among pregnant women receiving anti-tetanus injection in Nigeria according to zones.

Method and data: The study adopted cross-sectional data sourced from the Nigeria Demographic and Health Survey (NDHS, 2020) with representative sample of approximately 42,000 households. The target groups were women age 15-49 in randomly selected households across Nigeria. The study adopted descriptive statistics and Concentration Index in investigating the Geographical Variations in healthcare utilization among Pregnant Women in Nigeria with emphasis on anti-tetanus injection.

Results: The study revealed that that there is a wide margin health care utilization among pregnant women with respect to anti-tetanus injections across the geopolitical zones in Nigeria with Northern West and Southern East marking the least and the most healthcare utilizers respectively. The differences recorded in utilization of the various anti-tetanus injections across zones are given as 51.3%, 46.6%, 38.3%, 84.1, 67.8 and 66.4% for NC, NE, NW, SE, SS and SW respectively.

Conclusions: The study concludes that variation in utilization of anti-tetanus injections by pregnant women across the six geo-political zones of Nigeria could be as a result of different socioeconomic, cultural and religious practices in these six geo-political zones in Nigeria. This conclusion is reached as a result of observed differences in utilization of the various anti-tetanus injections/maternal healthcare services across the country by pregnant women.

Keywords:- Healthcare utilization, Geographical Variations, Anti-Tetanus Injection, Pregnant Women & Geo-political zones.

Contribution/Originality: This study contributes to the existing literature on the healthcare utilization among pregnant women in Nigeria. However, this study deepens further the understanding on geographical variations in healthcare utilization among pregnant women in Nigeria in relation to anti-tetanus injection utilization and to highlight areas for policy action. This study assesses degree of variations in health care utilization among the geo-political zones in using a concentration curve and descriptive statistics.

I. INTRODUCTION

Nigeria is a diverse country comprising many ethnic groups and different religious leanings. It is made of thirty-six states plus the Federal Capital Territory. There are 774 local government areas (LGA) and 9572 political wards in Nigeria. Each LGA (the equivalent of a district in global language) has an average population of 1-2 million people, but these are further broken down into wards and each LGA is made up of about 7-15 wards. Each ward consists of about 150,000 – 200,000 persons in population; operationally the wards are better compared to a typical district.

Interestingly, Nigeria is divided into six geopolitical zones – North Central (NC), North East (NE), North West (NW), South East (SE), South South (SS), and South West (SW), with each geopolitical zone comprising about six states except the South East with five states. The regions of the northern and southern parts of Nigeria have distinctly different socioeconomic, cultural and religious practices, (Nwosu & Ataguba 2019). Similarly, about 374 identifiable ethnic groups exist in Nigeria and the predominant religions are Islam and Christianity, with a few practicing traditionalist religions.

With this Nigerian Geopolitical classification notwithstanding, maternal mortality has remained a challenge across the zones in Nigeria especially among women between 15-49, who are repeatedly exposed to the risk of pregnancy and child bearing. This point to the importance of maternal health care services utilization for early detection of mothers who are exposed to illness and mortality during pregnancy. Unfortunately, despite the widespread availability of an effective vaccine against this tetanus in Nigeria, through the help World health Organization and Federal Government, to strategically reduce the risks associated with pregnancy and child bearing in this age group, maternal mortality and infant mortality still remains major health problem in the country. Interestingly, this is common to women within the aged 20-34 years which have the greatest number of births across all the zones. Hence the level of utilization of health care service among this age bracket tends to vary substantially across the six geopolitical zones in Nigeria. The direct effect is Pregnancy-related complications, which are the leading causes of death amongst women in the child bearing age in the Nigeria.

According to Awosan and Hassan (2018), 34,000 newborns deaths from neonatal tetanus in 2015 while WHO (2014) cited in David-Wayas, Ugbor, Arua and Nwanosike (2017) observed that Nigeria shared the world's second largest total number of maternal deaths, and has one of the highest maternal mortality ratios at 840 deaths per 100,000 live births, with uncertainty interval ranging from 596 to 1180 maternal deaths per 100,000 live births) that is higher than the average for sub-Saharan Africa (765 per 100,000 live births). According to Nigeria Demographic and Health Survey (2013) cited in Adedokun and Uthman (2019) Nigeria maternal mortality ratio is 576 deaths per 100,000 live births is far greater than the entire sub-Saharan Africa maternal mortality rate of 546 per 100,000 live births. In fact, world records indicate that one-third of the global maternal deaths occurred in Nigeria and India and Nigeria alone accounts for about one-seventh of global maternal mortality This calls for concern for Nigeria especially with regards to health care utilization among pregnant women, which happens to be the major source of the maternal mortality rate.

Awosan and Hassan (2018) noted that Nigeria mortality rate varies from 38% to 60%, depending on the infrastructure facilities and personnel at the reporting center. As a result of this, becoming pregnant for some women in Nigeria today is a curse, not for joy but for fear, not a celebration of new life but an acceptance that death in childbirth is a very real possibility. Pregnancy-related complications are on the higher side across the zones in the country, a condition that is widely blamed on poor utilization of available health care services across the geopolitical zones. The low utilization rate of anti-tetanus toxoid among pregnant women in Nigeria across the six geo-political zones can be attributed to certain factors such as erroneous subjective judgment by the community on the quality of this immunization, cultural perception, religion, availability of skilled health workers, educational level of the pregnant woman, income level of the household, etc.

This study aims to review available evidence on the geographical health care utilization variations especially anti-tetanus usage by pregnant women among the geopolitical zones in Nigeria and to determine the core determinants/causes of the healthcare variation in the geopolitical zones. Hence, the study aims to answer the following questions: (1) What is the level of geographical healthcare utilization variations among pregnant women receiving anti-tetanus injection in Nigeria? (2) What explains health care utilization variations among pregnant women receiving health care services across the zones in Nigeria? Hence, this study tends to determine the level of geographical variations among women receiving anti-tetanus injection in Nigeria. An assessment of the geographical variations in healthcare utilization among pregnant women in Nigeria is a very crucial issue now, considering the country's quest to attain the sustainable development goals especially, goal 4 and 5 that centred on reduction of child mortality and improving maternal health. The sustainability and viability of a country's economic and social growth depends largely on the health of the active population of that nation, especially the reproductive age group. This is because, good health does not only contribute to better quality of life, but is also absolutely necessary for a virile labour force for the creation and maintenance of a nation's wealth.

On this basis, this study is expected to help the government and policy makers to fine-tune an appropriate policy measure that will help to mitigate the impact of geopolitical variations in health care utilization among women receiving health care services especially anti-tetanus injection across the six geo-political zones in Nigeria. The study adopted cross-sectional data sourced from the Nigeria Demographic and Health Survey (NDHS, 2020).

II. LITERATURE REVIEW

The theories upon which equity in healthcare is based are originally theories of taxation, but they can be applied to healthcare financing. These theories are concerned with the wellbeing of those in society who are the most disadvantaged, see Anderson and Newman (2005) model on healthcare utilization, Young and Young-Garro (1982) Choice-Making Model, and Wagstaff & Van Doorslaer, (1992) ability to pay model and Schelling, (1996) willingness to pay model.

However, exploring Empirical evidences, Nghargbu and Olaniyan (2017) emphasized that wealth status and education were the major factors driving inequality in maternal healthcare utilization in Nigeria. The study investigated Inequity in maternal and child health care utilization in Nigeria and revealed that Socio-economic status (SES) rather than the need for healthcare mainly determine demand for maternal healthcare. The study also observed that the pronounced inequalities in maternal healthcare services in the northern geopolitical zone are exacerbated by several supply-side factors (lack of accessibility, availability, quality, and comprehensiveness of health services) and demand-side factors (social, economic, and cultural) as confirmed.

Furthermore, David-Wayas, Ugbor, Arua and Nwanosike, (2017) argued that inequalities in health care arise from social and economic determinants outside the health care services. As such, the socioeconomic gradients in access to health care are very high. This study adopted health concentration index as a measure of inequalities in health status among pregnant women in Nigeria. The study observed that socioeconomic inequalities in healthcare utilization in Nigeria can be attributed to the high level of poverty in the country, as a major barrier that discourages household from gaining access to health care services. For healthcare utilization among pregnant women in Nigeria to be effective, the study suggests for interventions in order to promote maternal health care service utilization among pregnant women in Nigeria.

Anyanwu and Erhijakpor (2018) used data from 47 African countries to conduct an empirical study on health expenditures and health outcomes in Africa. They provided econometric evidence linking African countries' per capita total as well as public health expenditures and per capita income to two health outcomes: infant mortality and under-five mortality. The study used Johansen co-integration to analyze data collected from fieldwork between 1970 and 2017. It was discovered that health spending had a considerable impact on baby and under-five mortality. The findings suggest that total health expenditures (including the public component) are a significant impact to health outcomes in African countries.

Ephraim-Emmanuel, Adigwe, Oyeghe, and Ogaji (2018) observed that there are clear indications of disproportionate allocation of health care resources. They noted that all rural communities should have local access to primary care, emergency health and public health services rather than having to transport themselves all the way to urban areas to access such. Certain times, these disparities surface as a result of absence of community participation during the planning and implementation of health care initiatives and interventions. The consequent effects of these disparities can be best imagined including the inability to meet up with the Sustainable Development Goals (SDGs) initiatives and programs. that is, the pace of developing quality systems in health care delivery in Nigeria is unsatisfactory. All these are however preventable issues as far as evidence-based planning and proper organization of community health services are taken seriously. The study concludes that there is a need to galvanise the efforts of relevant stakeholders including the patient in charting a new agenda for health care quality improvement in Nigeria, which is similar to the submission of David-Wayas, et al. (2017) and Anyanwu & Erhijakpor (2018)

Okoli, Hajizadeh, Rahman, & Khanam, (2020) examined the geographical and socioeconomic inequalities in maternal healthcare utilization in Nigeria over the period between 2003 and 2017. The study used four rounds of Nigeria Demographic Health Surveys (DHS, 2003, 2008, 2013, and 2018) for women aged 15–49 years old. The Theil index (T) between group variance (BGV) was used to measure relative and absolute inequalities in the utilization of maternal healthcare across the six geopolitical zones in

Nigeria. The relative and absolute concentration index (RC and AC) were used to measure education-and wealth-related inequalities in the utilization of maternal healthcare services. The Theil index suggests a decline in relative inequalities in ANC and FBD across the six geopolitical zones by 7, and 1.8% per year, respectively. The BGV results do not suggest any changes in absolute inequalities in ANC, FBD, and SBA utilization across the geopolitical zones over time. The results of the RC and the AC suggest a persistently higher concentration of maternal healthcare use among well-educated and wealthier mothers in Nigeria over the study period.

Similarly, Novignon, Ofori, Tabiri, and Pulok, (2019) investigated the Socioeconomic inequalities in maternal health care utilization in Ghana using concentration index. Results also indicate consistent socioeconomic inequalities in ANC, FBD, and SBA. Both relative and absolute measure of inequalities indicated higher concentration of maternal healthcare services among the better-off and well-educated women over the four survey years despite the concerted efforts of government interventions such as the introduction of free maternal and child health to contain the abysmal maternal mortality ratio in the country. Their later findings are similar to earlier studies that show pro-rich inequalities in maternal healthcare utilization in Ghana and Nigeria. On a similar note, Nwosu and Ataguba (2019) used 2013 Nigeria Demographic and Health Survey data and found that inequalities were more prevalent in the northern zones (which also have the highest incidence of poverty in the country) and the rural areas. The significant contributors to inequalities in ANC utilization according to the study were the zone of residence, wealth, women's education (especially secondary) and employment, urban-rural residence.

Ogbuabor and Onwujekwe, (2018) examined the implementation of free maternal and child healthcare policies in health facilities in south-East Nigeria. The study argue that with the government Free Maternal and Child Health Program, there will be decrease in the high maternal mortality by increasing access to maternal health services, evidence indicates that such intervention leads to an increased percentage of access to SBA thereby reducing maternal mortality. Further, findings show that the northern geopolitical zones especially the North-West zone compared with their southern counterparts lag in the utilization of maternal healthcare services. This is not surprising because of the wide gap in socio-economic development between the northern and southern parts of the country. This submission is similar to the findings of Onwujekwe, et al. (2019) on free maternal and child health program in Nigeria.

However, to further deepen our understanding on geographical variations in healthcare utilization among pregnant women in Nigeria in relation to anti-tetanus injection utilization and to highlight areas for policy action, this study assesses degree of variations in health care utilization among the geo-political zones in using a concentration curve and descriptive statistics.

III. METHODOLOGY

The theoretical framework adopted for this study is that of Anderson and Newman (2005), which described health services utilization to depend on individual behaviour. In line with this, several frameworks for analysing health services utilization were found in the literature.

The most common measures of variations are the descriptive statistics, Slope Index, Gini Coefficient and Concentration Index. However, this study will adopt descriptive statistics and Concentration Index in investigating the Geographical Variations in healthcare utilization among Pregnant Women in Nigeria. The health concentration index provides a measure of the extent of geographical variation in healthcare utilization among Pregnant Women in Nigeria. It takes values between - 1 (this occurs when all the population's ill-health is concentrated among the most disadvantaged person) and + 1 (this occurs when all the population's ill-health is concentrated in the least disadvantaged person).

The estimation method designed to capture objective of this study is analogously specified, by simply making anti-tetanus care indicator the dependent variable.

$$2\sigma_{R_i}^2 \left(\frac{Ant}{\mu} \right) = \lambda + \sum_j \delta_j X_j + v \quad - \quad (1)$$

where

- Ant = anti-tetanus injection care.
- σ^2 = the variance of the fractional rank.
- μ = mean of the health variable.
- R = fractional rank of the pregnant women.
- X_j = the j region.
- δ_j = the parameter associated with the j index.
- λ = the intercept.
- v = stochastic error term

Note that there is expected great deal of healthcare expenditure-related inequality in access to anti-tetanus care, but there is little sensitivity of healthcare to variation in this factor, and so they may make little contribution to anti-

tetanus care of the pregnant women. Otherwise, this last estimation is done simply by ranking of pregnant women by their regions as specified in the objective.

The data adopted for this study is cross-sectional data. It was sourced from the Nigeria Demographic and Health Survey (NDHS, 2020). This survey was first carried out in Nigeria in 1990, second in 1999, then 2008 and the latest in 2018, which is adopted and used in this study. However, the DHS report is not limited to the characteristics of this study. It provides data for a wide range of monitoring and impact assessment indicators in the areas of population, healthcare and nutritional status of Nigerians. The survey also contains information on household characteristics of individuals relevant for this study.

The sample was selected using a stratified, two-stage cluster design, with enumeration areas (EAs) as the sampling units for the first stage. The second stage was a complete listing of households carried out in each of the 1,400 selected EAs. The target groups were women age 15-49 and men age 15-59 in randomly selected households across Nigeria. A representative sample of approximately 42,000 households was selected for the survey. In addition to presenting national estimates, the report provides estimates of key indicators for both rural and urban areas, the country's six geopolitical zones and 36 states, and the Federal Capital Territory (FCT).

IV. RESULT DISCUSSION

• Geographical Variation in Pregnant women Utilization of Anti-tetanus Injection

Nigeria is divided into six geopolitical zones – North Central (NC), North East (NE), North West (NW), South East (SE), South South (SS), and South West (SW). Thus, in this study, the dependent variable which is the recipient of Anti-tetanus injection before birth by the pregnant women was ranked as specified in the methodology, by geopolitical zones (region) and analyzed descriptively in order to ascertain the geographical variation of women receiving anti-tetanus injection in Nigeria. The result presented in table 4.1 below shows the geographical variations in pregnant women recipient of anti-tetanus injection within the periods of pregnancy in Nigeria.

Tetanus Injections Received	NC	NE	NW	SE	SS	SW	TOTAL
1	131	428	273	457	244	185	1718
2	662	821	547	1066	859	1255	5210
3	385	295	201	392	368	428	2069
4	16	42	27	44	32	33	194
5	4	21	8	28	19	30	110
6	0	1	1	8	1	2	13
7	1	0	2	1	1	0	5
8	16	8	14	43	23	14	118
9	2	17	44	23	7	14	107
Total	1217	1633	1117	2062	1554	1961	9544
%	12.75147	17.11023	11.70369	21.6052	16.28248	20.54694	100

Table 1: Geographical Variation in Utilization of Anti-tetanus Injection
Source: Computed by the Researchers 2022 Using STATA 13

From the result above, the utilization of anti-tetanus injections by pregnant women varies substantially across the six geo-political zones of Nigeria. The regions of the northern and southern parts of Nigeria have distinctly different socioeconomic, cultural and religious practices. This could account for the differences recorded in utilization of the various anti-tetanus injections/maternal healthcare services across the country. From our studies, the major factors responsible for these variations include place of delivery, age of the pregnant women, religion, education attainment, household size and occupation of the pregnant women at the zonal and regional levels.

Specifically, the result indicates that South East (SE) has the highest number of pregnant women using anti-tetanus injection during the pregnant period, followed by South West (SW), North Central (NC), South South (SS), North East (NE) and North West (NW). The result shows that out of the total number of 9544 pregnant women that receives anti-tetanus injection, 2062 are from the South East (SE) at 21.6% level , 1961 are from South West (SW) at 20.5% level, 1633 are from North Central (NC) at 17% level, 1554 are from South South (SS) at 16.3% level, 1217 are from North East (NE) at 12.7% level) and 1117 are from North West (NW) at 17.2% level respectively. See figure 4.1 for details.

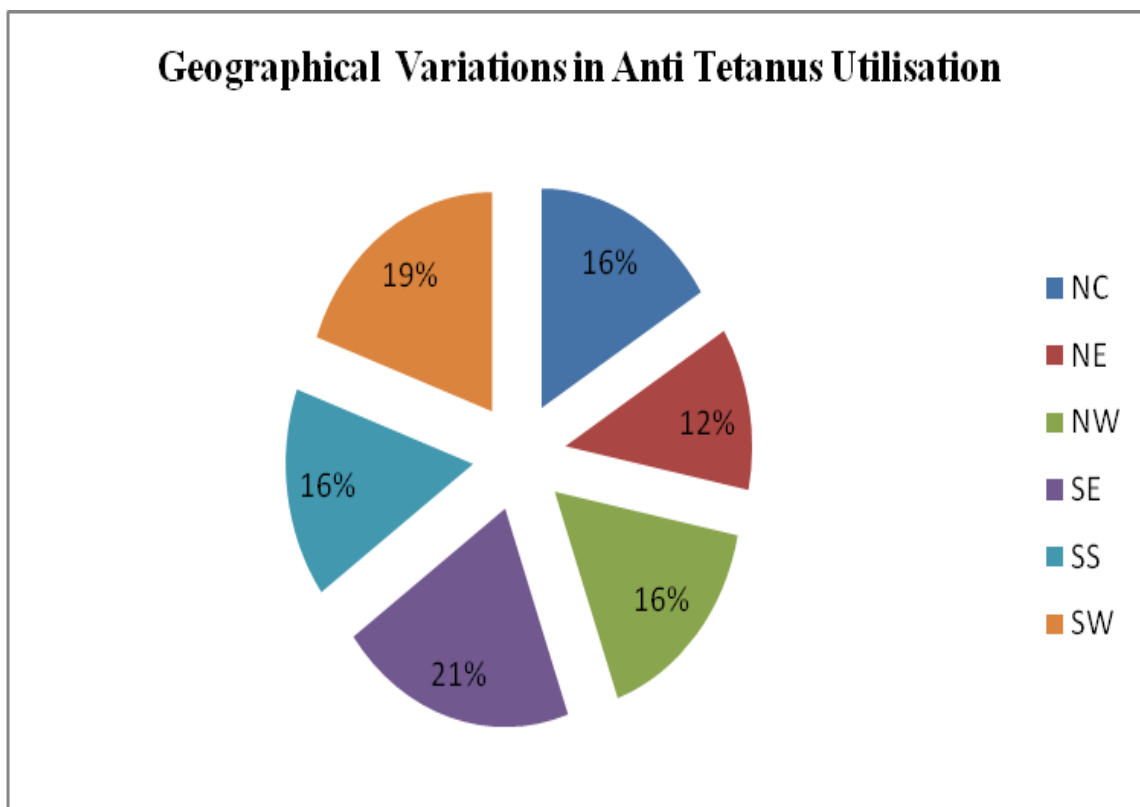


Fig. 1: Pie Chart Showing Geographical Variations in Anti-Tetanus Utilization by Pregnant Women in Nigeria.

Source: Computed by the Researchers 2022 from NDHS, 2020

By implication, this structure of healthcare utilization variation may arise as a result of several factors. This could be as a result of increased healthcare awareness in some zone against the others, and/or improved income/wealth of the zone, since income or wealth generally has positive and huge influences over healthcare utilization especially in Nigeria.

This study further revealed that significant geographical variations exist in the use and utilization of healthcare among pregnant women across the six geopolitical zones in Nigeria. Table 4.2 indicates that Percentage pregnant women receiving antenatal care from a skilled provider varied from 53.9% in the North West to 88.1% South West. The study further revealed that over 27.6%, 28.5% and 36.3% of the pregnant women in the North Central, North East and North West respectively had

no Antenatal visit during their last pregnancy in the past five years. This showed a significant variation compared with that of the southern geopolitical zones that recorded 3.8%, 18.0% and 5.5% of the pregnant women in the South East, South-South and South West respectively had no Antenatal visit during their last pregnancy in the past five years.

Index	North Central	North East	North West	South East	South-South	South West
Percentage receiving antenatal care from a skilled provider	66.2	58.5	53.9	89.2	77.1	88.2
No Antenatal	27.6	28.5	36.3	3.8	18.0	5.5
Number of women with a live birth in the past 5 years	3031	3,862	7,644	2138	2019	3218
Number of women with ANC for their most recent birth	2193	2761	4869	2057	1655	3040
Percentage receiving two or more injections during the pregnancy for the last live birth	51.3	46.6	38.3	84.1	67.8	66.4
Percentage whose most recent live birth was protected against neonatal tetanus1	57.9	54.0	45.7	92.0	75.7	83.2
Percentage delivered in a health facility	49.2	25.4	15.6	81.8	50.2	76.3
Public health Facility	34.1	23.6	14.0	37.3	31.5	45.5
Private health Facility	15.1	1.8	1.6	44.5	18.7	30.8
Percentage of married women of age 15-49	22.6	31.2	35.9	6.9	7.6	12.9
Percentage delivered by caesarean section	2.7	0.9	07	5.8	2.1	7.0

Table 2: Geographical Variations in healthcare utilization among Pregnant Women across the Geo-Political Zone in Nigeria

Source: the Nigeria Demographic and Health Survey (NDHS, 2020) compiled by the Researchers2022

Interestingly, the Percentage pregnant women receiving two or more anti-tetanus injections during the pregnancy for the last live birth improved and varied across the geopolitical zones with South West recording the highest 66.4% and North West with the lowest 38.3%. See Table 4.2 for details.

Furthermore, the study further revealed that beyond antenatal visits and anti-tetanus injection intakes by pregnant women during the pregnancy for the last live birth, there is still significant variation across geopolitical zone in the utilization of health facilities available in these zones. For instance, the percentage delivered in a health facility deferred across geopolitical zone as 49.2%, 25.4%, 15.6%, 81.8%, 50.2% and 76.3% in North Central, North East, North West, South East, South-South and South West respectively. This Suggest that the northern geopolitical

zones had the highest estimate of socioeconomic healthcare inequality.

With regards to the factors responsible for health care variation among the geographical zones in Nigeria, place of delivery and Age of the pregnant women stood out among other variables. For instance, with regards to the place of delivery, the concentration index coefficient variations with 38.3% , 46.6% 51.3%, 67.8%, 84.1% and 66.4% in North Central, North East, North West, South South, South East and South West geo-political zones respectively. The concentration curve below the diagonal line indicates that the anti-tetanus injections concentration is more among the South geo-political zones up in healthcare utilization among pregnant woman in Nigeria with regards to healthcare utilization. See the graph below for details.

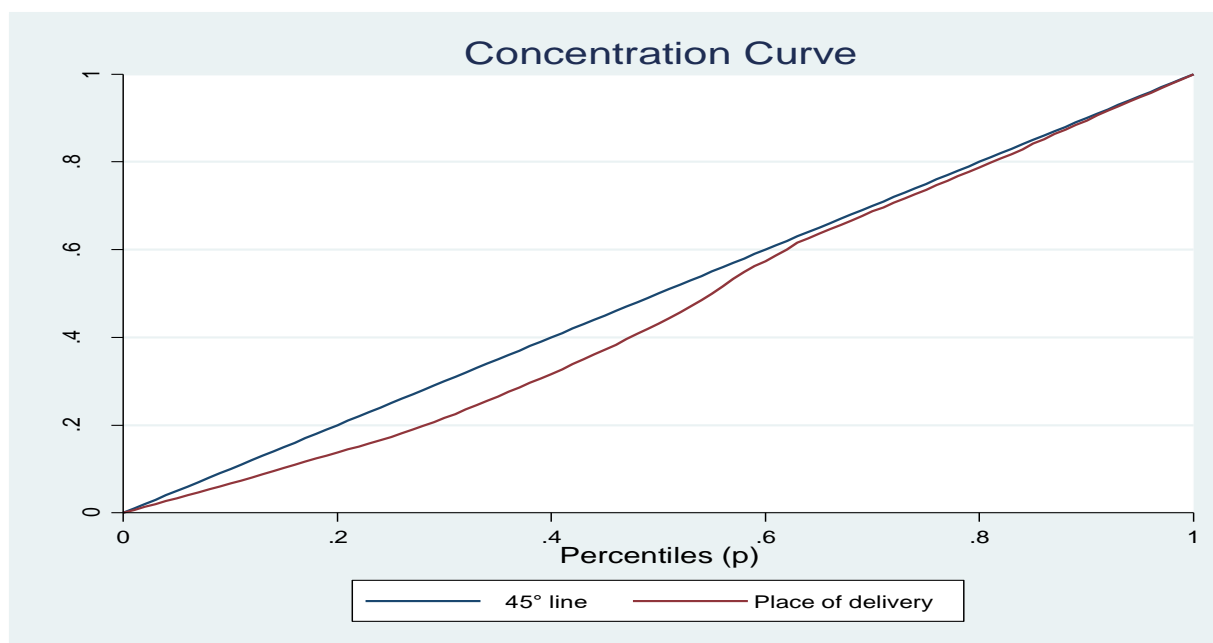


Fig 2: Concentration curve for place of delivery index

Source: The Researchers 2022 computation from STATA 13.

This Implies that place of delivery is an important factor affecting for health care variation among the geographical zones in Nigeria especially among the pregnant woman receiving anti-tetanus injections. This place of delivery is a composition of location, quality of services available, proximity to a health facility and anticipated service behaviour from health staff.

Furthermore, the study revealed age of the pregnant women as another major factor responsible for health care variations among the geopolitical zones in Nigeria especially among the pregnant woman receiving anti-tetanus injections. The age index indicates strong variations among

the geographical zones in Nigeria with 22.6%, 31.2%, 35.9%, 6.9%, 7.6% and 12.9% for North Central, North East, North West, South East, South-South and South West respectively. This depicts strong geopolitical variations among the pregnant woman receiving anti-tetanus injections according to age with greater percentage residing in the North Central zone. Note that the Lorenz curve lying slightly below the line of equality (45 degree line) depicts variations in age distribution of pregnant women as a larger proportion of it is concentrated among the Northern geopolitical zones. See the graph below;

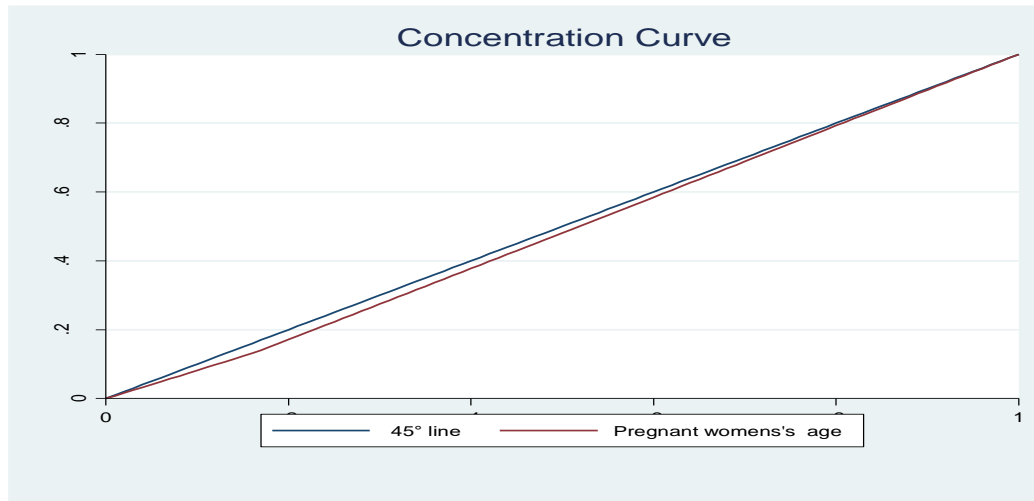


Fig. 3: Concentration curve for Age of the pregnant women index

Source: The Researchers 2022 computation using STATA 13

The fact remains that age of the pregnant women receiving anti-tetanus injections varies across the geopolitical zones in Nigeria, with older women found to be more likely to use the services. This could be attributed to experience and knowledgeable about healthcare services. Again, older women may also be more confident and have higher household decision-making power than younger

women. David-Wayas et al (2017) similarly observed that early marriages and high parity among women and girls in the northern zones, could contribute to health care variation in the Northern region. This is because practices which place women under the care of their husbands or male relatives are more common in the northern than southern zones.

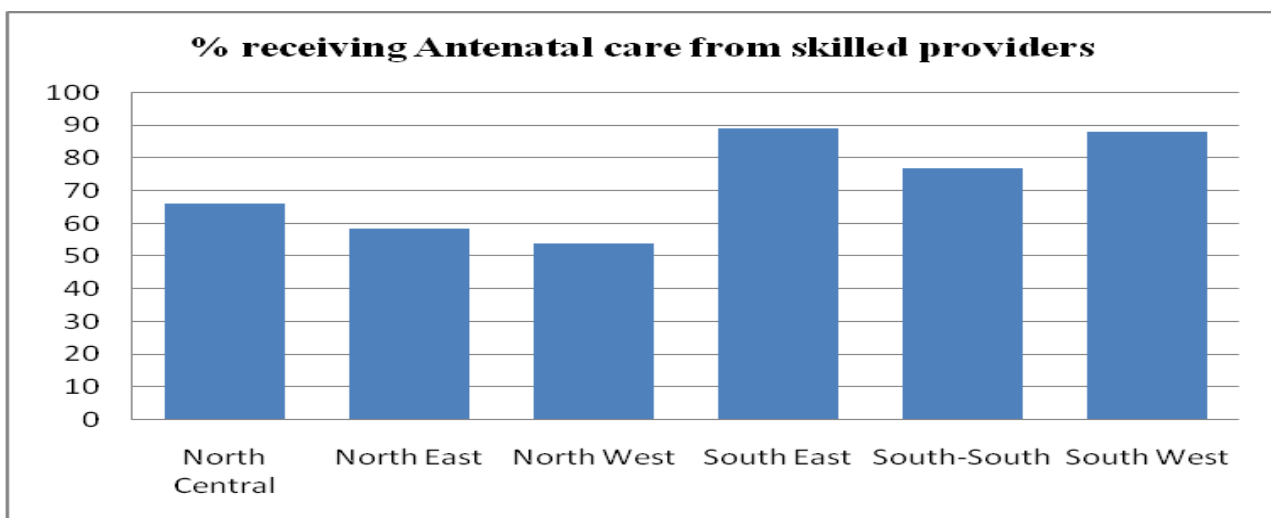


Fig. 4: Simple Bar Chart Showing the Percentage of Pregnant Women receiving Antenatal Care from Skilled providers According to Geopolitical Zones in Nigeria,

Source: Computed by the Researchers 2022 from NDHS, 2020

This study has shown that significant geographical variations exist in the use and utilization of healthcare among pregnant women across the six geopolitical zones in Nigeria. Table 4.2 indicates that Percentage pregnant women receiving antenatal care from a skilled provider varied from 53.9% in the North West to 88.1% South West.

The study further revealed that over 27.6%, 28.5% and 36.3% of the pregnant women in the North Central, North East and North West respectively had no Antenatal visit during their last pregnancy in the past five years. This showed a significant variation compared with that of the southern geopolitical zones that recorded 3.8%, 18.0% and 5.5% of the pregnant women in the South East, South-South and South West respectively had no Antenatal visit during their last pregnancy in the past five years. Interestingly, the Percentage pregnant women receiving two or more anti-tetanus injections during the pregnancy for the last live birth improved and varied across the geopolitical zones with South West recording the highest 66.4% and North West with the lowest 38.3%. See Table 4.2 for details.

Furthermore, the study further revealed that beyond antenatal visits and anti-tetanus injection intakes by pregnant women during the pregnancy for the last live birth, there is still significant variation across geopolitical zone in the utilization of health facilities available in these zones. For instance, the percentage delivered in a health facility deferred across geopolitical zone as 49.2%, 25.4%, 15.6%, 81.8%, 50.2% and 76.3% in North Central, North East, North West, South East, South-South and South West respectively. This Suggest that the northern geopolitical zones had the highest estimate of socioeconomic healthcare inequality.

V. SUMMARY OF RESEARCH FINDINGS AND POLICY RECOMMENDATIONS

The study discovered some degrees of variations in utilization of anti-tetanus injections by pregnant women across the six geopolitical zones of Nigeria. The study revealed that that there is a wide margin health care utilization among pregnant women with respect to anti-tetanus injections across the geopolitical zones in Nigeria with Northern West and Southern East marking the least healthcare utilizers and the most healthcare utilizers respectively. The differences recorded in utilization of the various anti-tetanus injections across zones are given as 51.3%, 46.6%, 38.3%, 84.1, 67.8 and 66.4% for NC, NE, NW, SE, SS and SW respectively. The study also unveiled that maternal healthcare utilization in parts of Nigeria has distinctly different socioeconomic, cultural and religious practices across the country. The study furthermore found that the major factors responsible for these variations in utilization of anti-tetanus injections by pregnant women across the six geo-political zones of Nigeria include religion, education attainment, household size and occupation of the pregnant women at the zonal and regional levels.

The study further found that Age of the pregnant women and place of delivery are the major determinants for healthcare utilization pregnant women across the geo-

political zones in Nigeria. The study also revealed that increase in the household's size affects their income negatively, and this does have negative effects on the capability to access healthcare.

Following the findings, the study recommends massive healthcare utilization campaign on the northern of Nigeria with special emphasis on North West. Government should ensure that healthcare utilization is targeted towards rural areas in Nigeria. This can be achieved by taking modern antenatal care to religious settings like churches; mosque and fellowship grounds and younger women should be encouraged to utilize antenatal care services.

Efforts should be made to reposition government hospitals and health centers to provide quality care and to introduce methods that would make it interesting for pregnant women to increase the number of visits. This is necessary now because, the research findings show that government owned health institutions are not being effective in encouraging women to attend antenatal care.

The study concludes that variation in utilisation of anti-tetanus injections by pregnant women across the six geo-political zones of Nigeria could be as a result of different socioeconomic like Age of the pregnant women, place of delivery, cultural and religious practices in these six geo-political zones in Nigeria. This conclusion is reached as a result of observed differences in utilization of the various anti-tetanus injections/ maternal healthcare services across the country by pregnant women. The conclusion is evidence from the recorded difference in regions of both northern and southern parts of Nigeria.

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